# STATE OF THE REGIONS REPORT 2004-05

A Report Prepared for the
AUSTRALIAN LOCAL GOVERNMENT ASSOCIATION
by NATIONAL ECONOMICS

# Preface: The accumulated insights of *State of the Regions* reports

## Core objectives

The 2004 report is the 8th *State of the Regions* (SOR) report. The core objectives of the SOR reports are to:

1. present the latest statistical indicators (that is, for this report to 2003-04) of how Australian regions are performing;

2. analyse the indicator trends in terms of growing equality and inequality between Australian regions;

3. make suggestions for the policy implications of current Australian regional performance. The 2004 report focuses on the role of infrastructure and, in particular, transport and related infrastructure;

4. steadily expand the indicators used to measure regional performance. In this report the new indicators focus on access indicators for the employment and retail infrastructure;

5. describe the reality of regional economics (in this report the issues around the Wimmera-Mallee pipeline are presented); and

6. to assist local government to understand their region and to provide useful planning tools. (In this report a proposed model for local government financing of infrastructure is presented.)

This and previous SOR reports come together to provide a coherent framework for analysis and understanding of regional development and provide the foundations for planning and policy direction. The SORs reveal regional economic development issues and assess the effectiveness of policies in removing road blocks to regional economic development. The benchmarks used are derived from the concept of convergence and divergence.

In order to understand the forces of divergence/convergence in economic performance successive SORs have developed a list of Stylized Facts. Stylized Facts are "facts" which in relation to a specific driver or influence for regional development describes the most probable influence. The "facts" will not apply to all regions.

Each successive SOR either adds to the list of Stylized Facts and/or adds additional validation to the operation of the "facts". The 2004 report largely produces added evidence to reinforce previous conclusions as to the nature of the facts.

Accordingly, the Stylized Facts of previous *State of the Regions* reports will be redefined and the supporting evidence generated in the 2004 *State of the Regions* stated.

## The Stylized Facts

There are 12 Stylized Facts in all. Stylized Fact 12 is the "fact" developed in the 2004 *State of the Regions* report.

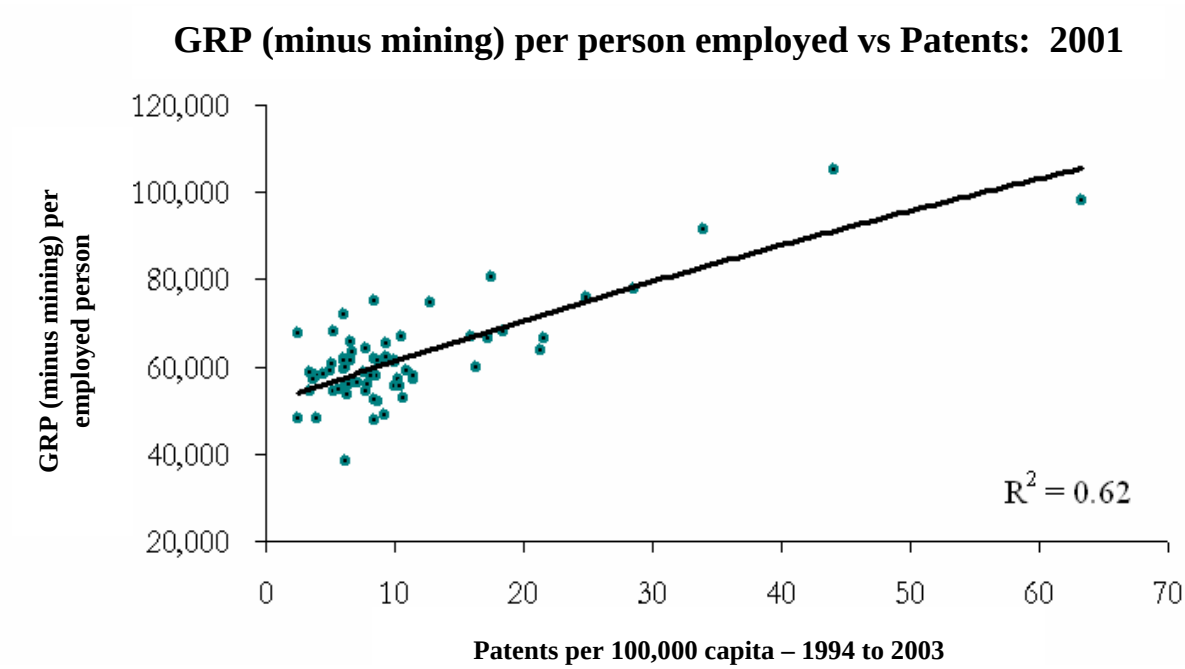
## Stylized Fact One

**The capacity for realised sustained innovation is for most high-income economies without a unique and extensive natural resource base is now the core longer term driver of economic growth.**

## Stylized Fact Two

**The innovation/knowledge capacity of an economy is now largely determined at the regional level. That is, given Stylized Fact One, those high income economies which maintain sustained growth will tend to be economies which establish a number of successful knowledge-based regions.**

For Australia the figure below demonstrates the empirical relevance of this Stylized Fact in the Australian context. One indicator of capacity to create knowledge and innovation is patent activity. The figure below shows that there is a good correlation between the economic success of a region measured in terms of non-mining gross regional product per person employed and patent activity. The data in the figure is for the 64 regions of this report.




## Stylized Fact Three

**For much of the 19th and 20th centuries nations and regions tended to converge in terms of economic performance. The rise of the importance of the knowledge-based regional economy has made divergence in economic performance between regions a possibility for long periods a reality.**

Those regions in the above figure which have high patent and GRP (non-mining) per person employed in the main are in the regional groping which is standard to the *State of the Regions* reports and which are designated the core metro region. These regions have the highest net per capita flow of funds into the household sector and the absolute economic superiority is increasing. In 2004, for this report, the core metro regional grouping had a level of net household income from business which was 46 per cent above the level of the poorest regional grouping, namely the production zone. In 1999 the superiority of the core metro region was 42 per cent above the poorest region.

This economic performance is after taxes and benefits. In terms of market incomes (wages, profits, etc.), the core metro region had a real increase in per capita of $3,680 between 1999 and 2004. This was 46 per cent above the increase for the regional grouping with the next largest increase in market income. It was 60 times the increase for the regional grouping (that is, the production zone), with the lowest increase in market incomes per capita.

In short the analysis of this report reinforces empirical relevance of Stylized Fact Three.

## Stylized Fact Four

**The rise of the knowledge-based regional economy has meant that the classical mechanism for regional convergence in economic performance, namely real wage adjustment, has become a weak force.**

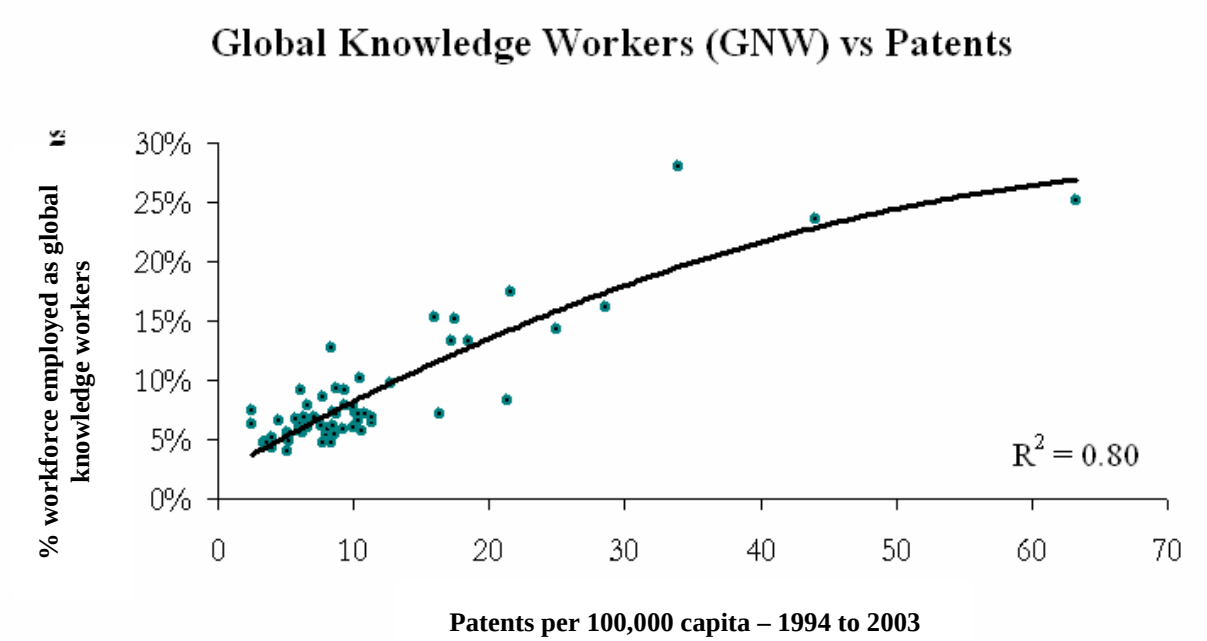
Under the neoclassical model, if a region's economic performance was poor unemployment would increase and real wages would fall. Investment and production would be transferred from a region with high real wages until convergence in living standards is achieved by real wage declines in previously high wage regions.

The Australian SOR Global Sydney region is the one with the strongest knowledge foundations also have the highest hourly wage rate. This report quantifies that between 1996 and 2001 the remainder of Australia generated only an additional $1 billion of household income growth as a result of the transfer of production out of Global Sydney, because of Global Sydney's high real wage rate. Global Sydney easily offset this loss on household income by the increase in the skills intensity and lifestyle choices of the region.

## Stylized Fact Five

**To be a successful knowledge-based region, regions need to have a high concentration of high skilled (scientists, engineers, etc.) designer global knowledge workers. These workers tend to migrate to regions with scale and diversity of social and community infrastructure and cultural and lifestyle choices.**

The figure below shows the strong relationship between global knowledge worker concentrations and knowledge creation (that is, patent activity). The 2002 *State of the Regions* also showed a high correlation coefficient between community infrastructure/lifestyle choice and concentrations of global knowledge workers across Australian regions.

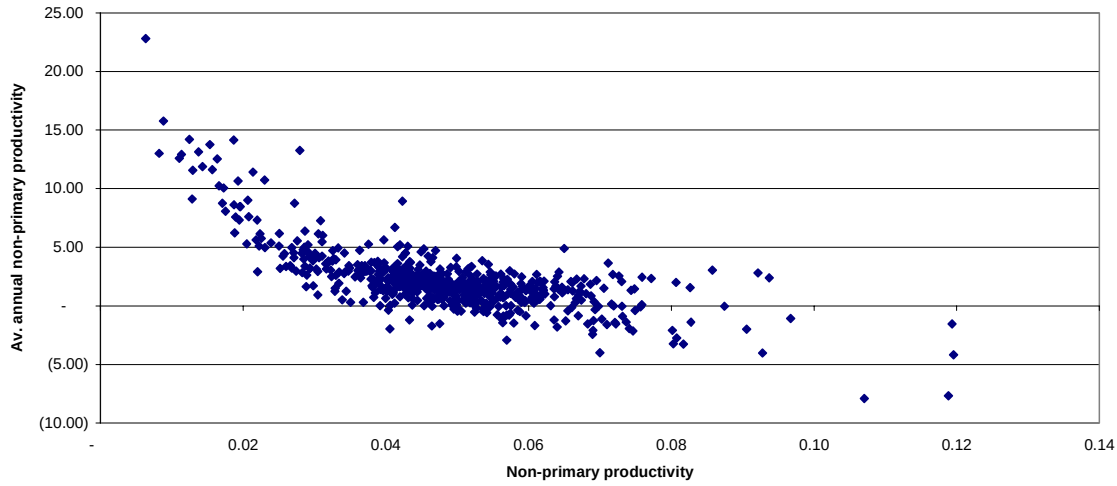



## Stylized Fact Six

**For similar industries productivity differentials between regions tend to be eliminated relatively quickly.**

The figure below shows the lower the productivity levels in 1991 (that is, GRP per employed person across Australian LGAs), the higher the productivity growth rate for 1991 to 2001. The following figure was presented in the 2003 *State of the Regions* report.

**Growth in non-primary GRP productivity 1991-2001 versus 1991 non-primary productivity – Australian Local Government Areas**



## Stylized Fact Seven

**The market forces for convergence in living standards between regions tend to take the form of the elimination of productivity differentials and the outflow of population. That is, the incomes in per capita terms is increased towards the levels of the high income regions.**

The 2004 *State of the Regions* report documents the improved economic performance of the rural regional group over the last few years. That is, per capita real incomes have improved significantly relative to some other regions. This has been driven by:

(i) productivity growth rates increasing the real incomes of those who remain in employment;

(ii) high gross out-migration of the unemployed and younger workers; and

(iii) concentration of population and industry clusters around major provincial centres.

The improved economic performance of the rural group is now producing increased net migration flows into the region as a whole.

## Stylized Fact Eight

**Those regional centres which have successfully helped improve the economic performance of the rural region have been ones with high employment growth relative to population growth** which, in turn, has occurred in provincial cities that:

- maintain a population growth rate in excess of 0.3 per cent per annum;
- develop diversified lifestyle and cultural choices for residents;
- develop scale in a small number of non-mining and non-agricultural industries; and
- develop inter-regional export capacity in business and/or education services.

## Stylized Fact Nine

**By itself a too high a concentration of population 55 and over will reduce regional productivity and increase unemployment while a high share of the working age range of 25 to 54 will increase regional productivity and will reduce unemployment. Migration inflows in the younger age ranges tend to reduce unemployment. Migration inflows in the older age ranges tend to increase unemployment.**

The evidence for this Stylized Fact was outlined in the 2003 *State of the Regions* report. The 2004 *State of the Regions* report finds that the general ageing of the population as reflected by the increase in the share of the population over 54, between 1996 and 2001, across Australian regions reduced industry productivity and reduced total household income by $847 million.

Most of this income loss occurred in the lifestyle regions, along the New South Wales and Queensland coastlines, with a total household income loss of $717 million.

The inference of this Stylized Fact is that a balance in the net migration impacts across all age groups is desirable to maximise regional productivity.

## Stylized Fact Ten

**Because of the weakening of the market forces in driving convergence in economic performance, a high level of government intervention in driving regional economic development is now justified, at least to the same extent as was the case in the past.**

## Stylized Fact Eleven

**Regions are successful because enterprises in these regions are successful. To assist enterprises to grow, policy must explicitly focus on developing and strengthening the emerging flexible entrepreneurial supply lines of industry clusters on which knowledge based economies are constructed.**

Policies to establish a successful regional economy require complex policy strategies involving a whole of government approach. Important components are policies designed to strengthen the networks which link the institutions, organisations, enterprises and key personnel within regions and to strengthen regional supply chains.

## Stylized Fact Twelve

**Infrastructure in general, and transport infrastructure in particular, together with the urban design factors is a key instrument to implement the policy implications of Stylized Facts Ten and Eleven. Infrastructure makes social networks more efficient, minimises production costs, increases the scale and efficiency of labour markets and promotes sustainable growth. For maximum efficiency in infrastructure implementation there should be a degree of local government involvement in the funding and implementations of infrastructure projects.**

Stylized Fact Twelve is the core finding of the 2004 *State of the Regions* report. This report finds that:

- as a result of other Australian regions not having the same social and human capital standards per capita as Global Sydney, the loss of household income was $43 billion nation-wide;
- as a result of the rest of Australia not having the same scale in labour market catchment, industry concentrations of activity and balance in terms of the demand and supply of skills, the cost to the nation was $16 billion in 2001;
- as a result of the rest of Australia not having the same quality transport, communication and other links to the rest of the world as Global Sydney, the cost to the nation in terms of household income was $37 billion.

The report finds that there is considerable cost to the nation from Global Sydney not being supported by the level of research, development and education institutions required for the region to be competitive with the rest of the world.

Of course, it is one thing to establish the costs in terms of foregoing income of differential standards of infrastructure provision between regions. It cannot be inferred that these costs should necessarily be removed. This depends on the costs in terms of infrastructure requirements that has to be installed and the benefits generated in terms of the convergence of economic performance. This investment requirements side of the issue will be explored in the 2005 *State of the Regions* report.

## The National Economics' *State of the Regions* database

**National Economics also produces the comprehensive economic database and software product *YourPlace* which has been developed in parallel with the work undertaken to develop the *State of the Regions* reports. YourPlace provides the detailed backdrop for each local government area in Australia and is an essential companion to the *State of the Regions* reports (see www.nieir.com.au).**

**The 2004 *State of the Regions*, the eighth report in this important series, is produced for the Australian Local Government Association (ALGA) and launched at ALGA's Annual General Assembly which is usually held in November each year. It is now a tradition that the *State of the Regions* Forum is a major feature of the first day of this key local government event with Dr Peter Brain and Dr Craig Shepherd, both from National Economics, presenting their findings to local government representatives and the media.**

**Previous *State of the Regions* reports have covered some of the key economic issues confronting regional Australia, including employment, innovation and knowledge based economics, the impacts of national policies on regional development, inequality, globalisation, governance and in the 2003 *State of the Regions* report, the impact of ageing on regional economies and local government.**

**This years report has been written by the staff and associates of National Economics.**

**National Economics would also like to thank The Australian Local Government Association for their continuing support in developing the *State of the Regions* reports and AusCID for use of the AusCID rating in the infrastructure score cards in Chapter 8.**

# Summary of the 2004-05 *State of the Regions* report

The objectives of the 2004 *State of the Regions* report (SOR) are to update and extend the regional performance indicators and to explore the case for the use of infrastructure development to assist regions to improve their performance.

The conclusion of the report is that infrastructure is a vital instrument for further improving economic performance and for narrowing the unemployment and income differentials between regions.

## The update of regional performance indicators

The ongoing function of the *State of the Regions* (SOR) reports is to update indicators of regional economic performance to the immediate past fiscal year. Accordingly, for this report, indicators are provided to the 2003-04 fiscal year. The full list of indicators is given in the statistical appendix for all 64 SOR regions.

In the body of the report the 64 regions are grouped into six regional groupings, namely:

- Rural;
- Core Metro;
- Resource Based;
- Dispersed Metro;
- Production Zone; and
- Lifestyle,

in order to facilitate presentation and identify major trends.

The chapters in Part A of the report focuses on the updated indicators. The focus is on:

- income flows in and out of the regional groupings between 1999 and 2004;
- recent trends in migration flows and population growth in regions and short term projections to 2006; and
- statistical indicators dealing with trends in unemployment rates to 2004.

The key indicator used to measure the income and wealth performance of regions is the net flow of funds (NFOF). This measures the income generated in a region or group of regions by the total of wages, business income, benefits, investment and other property income less taxes and interest payments. The summary of this indicator outcome plus other indicators is given in Table S.1.

The 2004 outcome for the indicator across the regional groupings reveals the diversity of economic performance across Australian regions.

The engine room of Australia's non-mining economic growth remains the core metro regions. This region contains the households with the skills, socio-demographic attributes and financial capital that are required to drive the competitiveness of Australian industry in the era of globalisation.

The strong growth performance of the rural regional group, with reduced drought and better commodity prices, significantly changed its ranking from a poor region in 1999 to a moderate performer in 2004.

| Table S.1 | Regional economic performance indicator update – selected indicators | | | | |
|---|---|---|---|---|---|
| Region grouping | 2004 net flow of funds (NFOF) per capita | Inflated corrected change in NFOF per capita 1999-2004 | Annual population change 2004-2006 | National Economics corrected unemployment rate 2004 (per cent) | Change in unemployment rate 2003-2004 (percentage point) |
| Rural | 14,553 | 1,437 | 28,408 | 10.8 | -1.0 |
| Core Metro | 19,327 | 1,395 | 34,233 | 5.7 | -0.8 |
| Resource Based | 15,370 | 484 | 11,440 | 9.9 | -0.3 |
| Dispersed Metro | 15,593 | -726 | 49,234 | 11.2 | -1.8 |
| Production Zone | 13,272 | -509 | 72,472 | 5.6 | -0.3 |
| Lifestyle | 13,731 | 1,036 | 44,000 | 10.9 | -0.5 |

The worst performing regional grouping was the production zones which went from a $1,000 per capita edge over lifestyle regions in 1999, to Australia's poorest regional group in 2004 with a per capita NFOF $500 below the lifestyle regions.

Lifestyle regions continue to improve their performance.

From the macroeconomic perspective, this is to be expected. Import penetration increased significantly in textiles, fabricated metal and machinery over the last five years, while non-resourced based manufactured exports have stagnated. This would have adversely impacted on the production zone and the indicators give some insight into the impact of these trends.

The moderate performance of the resource-based regions reflects the high labour productivity growth rates in these regions over recent years.

The relatively poor performance of the dispersed metro regions can be explained in terms of one aspect, namely debt. The dispersed metro regions have the highest proportion of households that have rapidly increased their net debt levels over recent years to fund both home purchases and lifestyle. In this regional grouping, increases in interest payments have brought a $418 decline in net property income flows per capita between 1999 and 2004 compared to the core metro average per capita decline of $184.

In terms of National Economics' corrected unemployment rate (based on Social Security data), unemployment rates continued to vary significantly between regional groupings, but there was a general decline in unemployment levels between 2003 and 2004.

Other than the improvement in performance of the rural and lifestyle groups, the one aspect that stands out from recent trends is the deterioration in economic performance by the production zone. The production zone also has the highest absolute population increase. This suggests a build-up in economic pressures which could produce, over the next few years, unacceptable relative and absolute economic outcomes for this grouping.

## Infrastructure: its macroeconomic and regional dimension

A constant theme of the *State of the Regions* reports has been the inadequate response by all levels of government in Australia to globalisation and the rise of the knowledge economy. These inadequacies have been particularly noticeable in the continued divergence between regions. The reports have argued that an adequate response to globalisation and the knowledge economy requires local

government involvement in the creation of local economic advantage, including creation of advantage through infrastructure investment.

A key reason why local government has to become more involved in infrastructure investment is described in Part B of the report. For the past two decades, and particularly over the past eight years, Australia has depended heavily on consumer expenditure to maintain its economic momentum. Household spending on housing, holidays, private school fees and a whole range of other assets and activities has generated jobs and economic growth. Unfortunately this is unsustainable due to the build-up of consumer debt to very high levels in relation to household incomes. The time has arrived, or will very shortly arrive, when households will not be able to service any more debt. If they cannot go further into debt, they will have to scale back their expenditures, which in turn will threaten employment and activity. There will be a need to replace consumer expenditure as the main driver of growth. This offset will have to take the form of increased spending on business assets including product development, and on public sector assets or infrastructure.

An increase in business expenditure on new products, extra capacity and the like will only happen if there is a prospect of profits. Unfortunately, if household consumption is declining, a great deal of business expenditure will tend to decline with it. It will not be possible to look to the business sector, in the first instance, to carry the full load of the replacement driver, though it can be hoped that the business sector will invest in export-oriented development.

This leaves the public sector to take the lead. Fortunately, unlike the household sector, the three levels of Australian government (Commonwealth, state and local) have been behaving with extreme financial prudence, and hence have capacity to service debt. It is obvious, therefore, that they should borrow and spend to replace the downturn in household spending.

It would be possible for governments to attempt to keep household expenditure going by borrowing in order to spend on measures designed to keep households spending, but a government which does this is like a business which borrows to pay dividends. Its credit rating is quickly marked down by the financial markets.

Government borrowing is responsible only when the borrowed funds are spent in ways which increase the future yield of tax revenue, so allowing the government to service its debts. In other words, Australia's current position calls out for increased government borrowing, spent on measures which enhance economic growth.

For Australia's tradables sector in general and its knowledge intensive manufacturing industries in particular the timing for significantly more infrastructure investment could not be better.

Trade liberalisation, whether on a WTO multilateral basis, or though the proliferation of bilateral free trade agreements, puts additional constraints on what Governments can and cannot do with various policy levers to enhance the competitiveness of their export and import competing industries. Infrastructure investment is one of the few remaining policy mechanisms that can significantly enhance productivity and international competitiveness.

In the outsourcing revolution of the last decade, the ability of a nation to retain value added from production has depended on the competitiveness of its networked economy. This in turn depends on how efficiently intra-industry trade can be carried out with the development of multiple production sites for a given finished product. This in turn depends on the efficiency of infrastructure in the transport and telecommunications sectors, and on geographic layout.

It will be a major challenge to address the demands of this situation and not squander the opportunity to manage progressive policy implementation. To meet this challenge at least six conditions need to be satisfied.

1. Projects for economic infrastructure (road, rail, ports, power, the communication/ telecommunication network etc.) need to be prioritised in terms of their capacity to strengthen Australia's international competitiveness. The appropriate institutional mechanisms and processes must be put in place for this to occur. Amongst other things this will require unprecedented levels of co-operation between the Commonwealth, states and local government. The requirements of building knowledge based regional economies must be part of the planning/prioritisation process rather than being excluded.

2. Building world class R&D infrastructure in the public research and education sector will be critical to the future of Australia's knowledge based industries. To remain competitive most of Australia's traditional industries will have to become knowledge-based industries. The appropriate institutional mechanisms and processes must be put in place to prioritise and timetable very substantial additional public sector investments in the R&D infrastructure. In addition there will need to be exacting reciprocal obligation criteria placed on the research/education sector in terms of the commercial outcomes to be achieved as well as linkages with the private sector which leverage up additional private investment and retain benefits in Australia.

3. Investment in education infrastructure is more than better/newer schools, improved staff/student ratios or better pay for teachers, as important as these may be. The time has come for the private sector to significantly increase its investment in training and skill formation.

   Options for leveraging up additional productive investment in skill formation will precipitate an ongoing debate in an increasingly competitive global economy. The opportunity, particularly in vocational education and training through government investment in TAFE linked to higher private sector investment in skills formation, is an opportunity requiring leadership and dispassionate analysis of the cost/benefit equation for various options. It is an opportunity Australia must seize to build knowledge based industries.

4. We do not elaborate on investment in environment infrastructure other than to say:

   (a) a start has been made on water but much more needs to be done; and

   (b) as pointed out in National Economics' recent *Energy Working Party Report*, policies for Australia's renewable energy industry are not adequate and will have to be revised.

5. Investment in social infrastructure (hospitals, community housing, age care and retirement facilities, childcare centres etc.) will also require prioritisation.

6. The very nature of the business cycle with its peaks and troughs means that any strategic plan for future investments in infrastructure will need to be flexible and have the capacity to pull forward or defer projects as circumstances require. Given the importance of infrastructure investment the time has come to use it again as a counter cyclical tool in macroeconomic management. Having a building shelf of projects with the capacity to be shifted forward or back must become a priority of nation building in 21st century Australia.

If Australia can do justice to the challenge of infrastructure investment over the next several decades the returns will be substantial in terms of capacity to build and enhance knowledge based industries while strengthening social cohesion and community well being. It would certainly make the nation far more free-trade ready than it is today.

## Infrastructure development and financing: the role of local government

Part B first demonstrates the effects of attempting to maintain household expenditure as the chief driver of growth. It then considers a switch to public infrastructure expenditure, and finds that this will result in Australians being much better off in the long term.

The knowledge economy and globalisation yield both a need for infrastructure investment and opportunities for local initiative. Should not local initiative, therefore, play a major role in the program of public infrastructure enhancement which is necessary for macroeconomic reasons?

Several barriers to the exercise of local initiative have been identified. These include the following.

- Local administrative capacity and governance. These questions are discussed in previous reports, and this report summarises proposals for voluntary local associations of councils to build up to the scale required to participate in significant infrastructure projects.
- Project selection can become difficult once a council moves beyond the range of services typical for its type of locality – a range referred to in this report as the standard array. However, movement beyond the standard array is essential if regions are to take advantage of the opportunities afforded by globalisation and the knowledge economy. We begin to address the thorny problems of project selection in Part C, leaving much unfinished business for future *State of the Regions* reports.
- Local financial constraints limit local participation.

These issues of financial constraint include the following.

- Local governments and regional bodies lack the independent financial resources to directly fund large scale investment out of current expenditure or reserves.
- Many infrastructure projects, which cannot be justified on a strict user pays basis, have substantial benefits to general social and economic development.
- Borrowing from private sources can be very expensive if a significant amount of location-specific risk is generated in the projects which are funded.
- Infrastructure projects require commitment to a long-term perspective which is difficult to engineer.
- There are projects which are highly valued in local and regional communities which cannot be easily compartmentalised within a broad federal or state funding initiative.
- There are capacities at the local level for user-pays funded infrastructure which would not be appropriate in all areas.
- The allocation of risk between the public and private sector is critical to determining the appropriate mix of investment.
- There is enormous capacity at the local level to generate consensus, vision and leadership to drive the development of projects which deliver regional competitive advantage.

Another source of local financial constraint is the reverse side of the advantage which local government has in identifying local opportunities. Because councils serve local areas, and their revenues depend on many factors affecting local economic development which are outside their control, they are regarded by lenders as riskier propositions than the state and Commonwealth governments. As a result, they can only borrow at interest rates which are higher than those charged to the larger governments.

Despite this, it remains that wise infrastructure investments by local government will yield revenue, generally both user charge revenue and rate revenue. Again, councils, like the Commonwealth and state governments, have in general been financially conservative in the recent past, and have balance sheets which would support prudent borrowing. They are in a position to help the Commonwealth with its macroeconomic imperative to increase government expenditure on infrastructure.

Catch-up infrastructure investment is important, but is not strategic. It is highly suited to finance from user charges, backed up by national grants programs which aim to ensure that all regions reach national standards of service provision.

By contrast, strategic infrastructure investment occurs when a region aims to strengthen its advantages vis-à-vis other regions, not only in Australia but globally. Strategic decisions will differ from region to region according to the interaction of opportunities with the region's established strengths, including its industry profile, natural resources, political strength and community consensus. Strategic decisions may include deliberate running-down of assets already present, in order to release funds for new initiatives.

Local governments, operating at the regional level, are strongly placed to contribute to strategic decisions, and to ensure local coherence of strategic decision-making at the regional level. This type of investment is not suited to grants based on catch-up to national standards, but rather to grants programs which favour lagging regions.

In Australia's present predicament, the three rules for government investment should therefore be as follows.

- The investment should generate revenue. This may come from user charges or from taxes – income tax, GST, land tax, rates, for example. (Under the Constitution, there is an obvious problem that the investing government does not necessarily receive the resulting tax revenue. A national strategy will be required.)
- The investment should generate exports, directly or indirectly, to help service overseas borrowings. (Import-replacement is equally effective, but in today's world is not nearly as easily arranged as it was when world-scale factories were smaller.)
- The investment should generate business opportunities to multiply its impact.

Part B accordingly concludes with a model blending Commonwealth-state-local finance for investment projects. This mechanism would operate additionally to all existing grant finance of infrastructure. From a local point of view, it would increase local independence in project selection and design, the quid pro quo being that a negotiable proportion of each project would be locally-financed. However, the risk premium in the interest rates which would have to be paid would be reduced through the participation of the Commonwealth and state governments. From the Commonwealth point of view, the proposal would improve project selection while maintaining macroeconomic flexibility in project timing. And the states would be able to pursue their traditional interest in state development.

## Infrastructure and regional development: implementation issues

Part C of this year's *State of the Regions* report assesses the detail of infrastructure investment. Several question are raised by the importance of infrastructure in generating competitive advantage in a globalised, knowledge-based economy and the problem of identifying worthwhile projects given the current macroeconomic imperative for government borrowing to finance infrastructure investment.

1. What is the track record of infrastructure investment? Does it in reality yield the claimed benefits?

2. How can a region identify strategic investments?

3. How can a region go about creating consensus around a strategic investment?

Assessments of the economic feasibility and rate of return of proposed development projects often define the problem and the solution in narrow terms that fail to take full account of the social and community implications of the development proposal. Two key questions can be asked:

1. do the prospective benefits outweigh the costs?
2. are the benefits of sufficient magnitude to justify the costs?

In other words, does this proposal offer greater benefits than alternative uses of scarce resources?

Answering these questions demands aggregate measurement of the project's value and costs in such a way that comparisons can be made between competing claims. Community, local government and developer perspectives on the balance of costs and benefits for any infrastructure development are likely to differ because:

- There are often different understandings of the constituency included in the assessment of benefits – whether it is the local business community, labour force, local community or extra-local community, or national benefit. This is important because the benefits of infrastructure development do not necessarily accrue in the place where the development is located. Consider, for example, a new road to a mine site. The road may assist the mine, but if the surplus created by the mine is captured in a capital city or overseas, the local community may see little benefit from financing the road. This is an issue of the scope of cost-benefit analysis.
- There are often different understandings of the time horizons over which a development should be assessed, and different opinions about the extent to which a current generation should support future generations. If there is no guarantee that an infrastructure development will be needed in 50 or 100 years time, then it is more difficult to justify a large project. On the other hand, once a project is certain to advance, the costs of increasing its size to accommodate possible future demand is relatively small. Projects should also be designed for resilience against possible changes in the economic, social and physical environment. This issue is particularly salient in the case of energy-related projects, where critics argue that contemporary infrastructure development should be designed mindful of the future energy crisis as oil and gas reserves dwindle.
- It is always uncertain whether the anticipated outcomes of an infrastructure development will materialise. There is evidence that without appropriate planning and implementation strategies, for example, that many freeway developments that were undertaken to reduce traffic congestion actually increased congestion or moved it to a different location. At a smaller scale, turning a main street into a mall will not necessarily increase the amenity or the amount of business activities where local spending power is finite.
- There is always potential for disputes about what costs and what benefits are taken into account in a cost benefit analysis. Cost-benefit analysis is an exercise in quantification: all that parameters that are included in the analysis must be quantified. This is a problem because many important community and environmental values resist quantification. How can the loss of a visual landscape be quantified, or the impact of new road that might split a community in two? How do you include the effects of a project on air quality or noise pollution? What will be the long-term cost of allowing wastes generated by the development to accrue in the environment? How do you account for environmental impacts like acid rain or global warming, which impact at sites distant from the discrete development project? Similarly with benefits, how do you put a dollar value on the improvement to community wellbeing arising from a new community facility?

Because these issues are laden with ethical and political implications, there can never be a purely objective assessment of the cost-benefits of a proposal. The process is inherently political. And it is the political issues associated with infrastructure development that create one of the most significant impediments to proposals progressing to implementation. An important issue, then, for local and

regional administrators, is managing the politics of infrastructure development While cost-benefit analysis cannot replace the assessment and decision-making process, its efficacy can be improved by incorporating, as far as is practicable, a dollar value for the 'intangible' cost and benefits.

All investment has the potential to create conflict between those who want change and those who do not. However, with catch-up investment conflict can often be managed because the investment is frequently incremental, and because there numerous like examples. Investment proponents can appeal to the standard array and call on the 'me-too' principle. This is much more difficult with strategic investment, where different residents in a region may have highly divergent views on where the region should go economically and socially.

## Infrastructure and regional development: its quantitative importance

The discussion in this year's *State of the Regions* report mainly concerns physical infrastructure. This is not to play down the importance of education, health and other government services, but rather to concentrate on the peculiar difficulties which arise in the physical infrastructure sector when we move beyond the standard array of services and begin to consider physical infrastructure as a source of strategic advantage. Many of these difficulties arise because strategic advantage involves combinations of investments in different areas, traditionally kept apart because of different engineering characteristics.

An area of infrastructure investment which has proved highly contentious has been investment in urban transport. This is because the contribution of transport investment occurs jointly with the contribution of urban layout – of town planning, if you like, plus all the other investments which constitute a city. The combined benefit of all these factors has been termed the economies of agglomeration – the benefits of proximity which are an important ingredient in the knowledge economy.

Part C of this report summarises the evidence for the importance of physical infrastructure in general, and transport infrastructure in particular, in driving regional development. The evidence from studies in European and North American regions is almost unanimous. Increases in infrastructure availability is at least a necessary and, in some cases, a sufficient condition for increasing regional productivity. From the increases in productivity come increases in the rate of regional employment, real incomes and gross regional product growth.

In order to extend knowledge, in this report a more sophisticated approach has been taken to examine the impact of infrastructure on regional development than what has been the case in the past, either in Australia or overseas. Accordingly, National Economics has prepared indices of the combined benefits of transport and the layout of activity in the form of accessibility indices, in particular the number of jobs that can be reached from a typical residence in each region within a specified travelling time. The results from this calculation have one expected result – the number of jobs so accessible in the country is much less than in the city. However, there is also an unexpected result – the outer western suburbs of Sydney, and the outer northern suburbs of Brisbane, have markedly more accessibility to jobs than the outer suburbs of Melbourne, Adelaide and Perth.

A second series in the accessibility genre was formed by correcting the crude numbers of accessible jobs by their appropriateness to the skills and industry of the workers resident in each LGA, and a third index was developed to express the overall industry corrected labour market balance (shortage or surplus of jobs) within the labour catchment of each LGA.

The significance of the accessibility indices was tested by using them in conjunction with indices of relative wages, population ageing, R&D and skills, as explanatory variables for regional income levels in 1991, 1996 and 2001. The accessibility measures were found to be statistically significant for most years.

This analysis allowed assessment of the deficiency of regional income from the region with the highest income, Global Sydney, as a result of regions not having the same infrastructure standard as Global Sydney. The results are shown in Table S.1. Thus for the NSW Central West, an average income deficiency of $601 a head per year was distributed to lack of skills and social capital relative to the Global Sydney benchmark, $368, relatively poor accessibility (two measures, total $159), and ageing of the population ($30). R&D and relative wages provided offset factors of $238 ($26 + $212), leaving a residual unexplained deficiency of $281. At the national level (last row of the table) the following contribute to the deficiencies of regional income compared to Global Sydney.

Negatives:

- skills and social capital, 52 per cent;
- accessibility, 20 per cent;
- population ageing, 1 per cent; and
- other factors, 45 per cent.

Offset by positives:

- relative wages, 3 per cent; and
- research and post-secondary education, 15 per cent.

By this analysis accessibility is important, but is not a solution (other than for freight accessibility) for more remote regions. However, in this case as Table S.2 makes clear, it is quite possible for a region with poor accessibility to overcome this disadvantage by concentrating on other advantages, such as superior skills.

Table S.3 summarises Table S.2. As expected, accessibility disadvantages are most marked in the rural regions, but industry-corrected accessibility is of more concern in the metropolitan areas where local labour markets are significantly out of balance.

It would be a mistake to regard the results in Tables S.2 and S.3 as defining the totality of the benefits to Australia of removing the infrastructure differentials between Global Sydney and other Australian regions. The totality of benefit would only be provided by the estimates in Table S.2 if Global Sydney's infrastructure were a world best practice standard. It is not, and this particularly applies to the research and development infrastructure. Thus, there are additional benefits to the economy not captured in Table S.2. These benefits would come from moving Global Sydney itself toward a world best standard infrastructure standard. This would increase the benefits of moving the rest of Australia towards a Global Sydney standard.

Finally, Table S.4 turns to the pattern of change between 1996 and 2001. Improvements in skills and human capital were the chief driver of income growth, and the ageing of the population was the chief negative factor. Improvements in accessibility and local labour market balance were second in importance and hence, of considerable policy significance.

**Table S.2 Infrastructure and ageing contribution to SOR regions income relative to global Sydney standard 2001 (2001 $ million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network) | Total |
|---|---|---|---|---|---|---|---|---|
| NSW Central West | 26 | -30 | 212 | -368 | -86 | -73 | -281 | -601 |
| NSW Far and North West | 20 | -39 | 79 | -316 | -78 | -64 | -222 | -620 |
| NSW Hunter | 48 | -310 | 518 | -1,376 | -225 | -282 | -1,803 | -3,431 |
| NSW Illawarra | 29 | -103 | 244 | -625 | -59 | -63 | -1,012 | -1,590 |
| NSW Murrumbidgee | 29 | -14 | 226 | -391 | -86 | -77 | -227 | -540 |
| NSW Murray | 13 | -24 | 73 | -156 | -38 | -38 | -69 | -239 |
| NSW Mid North Coast | 55 | -339 | 138 | -682 | -173 | -171 | -965 | -2,138 |
| NSW North | 43 | -56 | 267 | -500 | -124 | -83 | -413 | -866 |
| NSW Richmond-Tweed | 42 | -165 | 212 | -523 | -94 | -147 | -1,895 | -2,570 |
| NSW South-East | 22 | -82 | 133 | -275 | -93 | -108 | -707 | -1,109 |
| NSW Central Coast | 15 | -93 | 17 | -417 | -32 | -58 | -307 | -876 |
| Global Sydney | 4 | 17 | 39 | -42 | -0 | 10 | -32 | -5 |
| Sydney Inner West | 8 | 15 | -152 | -119 | 4 | -20 | -92 | -355 |
| Sydney Outer North | 10 | -9 | -341 | -342 | -42 | -147 | -265 | -1,136 |
| Sydney Outer South West | 17 | 144 | -20 | -461 | -27 | -53 | -459 | -859 |
| Sydney Outer West | 23 | 171 | 1 | -558 | -39 | -83 | -520 | -1,004 |
| Sydney Mid West | 75 | 321 | -837 | -1,694 | -39 | -256 | -1,464 | -3,893 |
| Sydney South | 24 | -11 | -217 | -534 | -18 | -84 | -399 | -1,239 |
| Melbourne East | 127 | -70 | 363 | -1,418 | 20 | -555 | -727 | -2,260 |
| VIC Gippsland | 52 | -148 | 315 | -713 | -97 | -168 | -1,333 | -2,093 |
| VIC Barwon | 41 | -68 | 308 | -569 | -30 | -118 | -288 | -723 |
| VC Goulburn | 56 | -141 | 147 | -679 | -119 | -145 | -736 | -1,616 |
| Melbourne Inner | 47 | 60 | 369 | -375 | 24 | -178 | -200 | -253 |
| VIC Loddon | 33 | -61 | 156 | -435 | -39 | -56 | -766 | -1,169 |
| VIC Mallee-Wimmera | 39 | -71 | 156 | -455 | -100 | -86 | -251 | -768 |
| Melbourne North | 103 | 111 | 225 | -1,335 | 3 | -311 | -874 | -2,078 |
| VIC Ovens-Hume | 27 | -84 | 126 | -244 | -83 | -83 | -402 | -744 |
| Melbourne South | 49 | -73 | 139 | -528 | 10 | -178 | -215 | -795 |
| Melbourne West | 84 | 163 | 282 | -1,252 | -4 | -215 | -868 | -1,810 |
| VIC West | 38 | -90 | 157 | -399 | -93 | -86 | -167 | -640 |
| Melbourne Westport | 111 | 68 | 309 | -1,703 | -28 | -442 | -1,072 | -2,757 |
| VIC Central Highlands | 23 | -29 | 144 | -292 | -17 | -53 | -307 | -531 |
| QLD Pastoral | – | – | – | – | – | – | – | – |
| QLD Agricultural SW | 43 | -12 | 205 | -535 | -72 | -95 | -398 | -864 |
| QLD Far North | 55 | 444 | 67 | -789 | -117 | -154 | -786 | -1,281 |
| QLD Fitzroy | 38 | 162 | 342 | -749 | -160 | -139 | -678 | -1,184 |
| QLD Mackay | 20 | 117 | 61 | -390 | -87 | -103 | -356 | -738 |
| QLD North West | 2 | 145 | 36 | -118 | -35 | -27 | -171 | -168 |
| QLD North | 46 | 314 | 506 | -832 | -148 | -176 | -809 | -1,100 |
| QLD Wide Bay-Burnett | 45 | -188 | 48 | -600 | -108 | -131 | -620 | -1,555 |
| QLD West Moreton | 48 | 69 | 160 | -759 | -63 | -141 | -737 | -1,423 |
| QLD Gold Coast | 178 | 66 | 644 | -3,169 | -240 | -835 | -2,441 | -5,797 |
| QLD Sunshine Coast | 51 | -197 | 277 | -734 | -100 | -229 | -398 | -1,329 |

**Table S.2 Infrastructure and ageing contribution to SOR regions income relative to global Sydney standard 2001 (2001 $ million) – continued**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network) | Total |
|---|---|---|---|---|---|---|---|---|
| Brisbane North | 66 | 72 | 250 | -1,199 | -96 | -321 | -940 | -2,168 |
| Brisbane City | 302 | 235 | 2,448 | -4,580 | -361 | -1,082 | -3,701 | -6,739 |
| Adelaide Central | 61 | -558 | 321 | -506 | -83 | -289 | 212 | -843 |
| SA Eyre and Yorke | 17 | -43 | 92 | -306 | -66 | -53 | -204 | -563 |
| SA Murraylands | 4 | -14 | 13 | -49 | -5 | -10 | -22 | -84 |
| Adelaide Plains | 77 | -423 | 94 | -1,004 | -85 | -271 | -308 | -1,921 |
| SA South East | 8 | -6 | 30 | -124 | -23 | -22 | -314 | -451 |
| Adelaide Outer | 68 | -320 | 83 | -867 | -91 | -275 | -460 | -1,863 |
| WA Pilbara-Kimberly | -5 | -13 | 129 | -153 | -78 | -54 | -267 | -442 |
| WA Gascoyne-Goldfields | 12 | 309 | 100 | -395 | -89 | -82 | -427 | -571 |
| WA Wheatbelt-Great Southern | 8 | -15 | 42 | -103 | -28 | -22 | -63 | -182 |
| WA Peel-South West | 14 | -2 | 12 | -435 | -65 | -115 | -559 | -1,149 |
| Perth Central | 26 | -101 | 32 | -482 | -68 | -305 | -388 | -1,286 |
| Perth Outer North | 39 | 79 | -124 | -928 | -82 | -346 | -796 | -2,157 |
| Perth Outer South | 44 | -5 | -115 | -1,071 | -101 | -384 | -915 | -2,547 |
| TAS Hobart-South | 40 | -78 | 350 | -630 | -137 | -84 | -431 | -969 |
| TAS North West | 19 | -47 | 5 | -308 | -55 | -53 | -199 | -637 |
| TAS North | 27 | -55 | 123 | -400 | -78 | -63 | -448 | -895 |
| Darwin | 10 | -19 | 493 | -411 | -102 | -304 | 242 | -90 |
| NT Lingiari | 10 | -27 | 11 | -148 | -35 | -36 | -95 | -320 |
| ACT | 37 | 305 | 1,857 | -394 | -273 | -482 | -402 | 649 |
| **Total** | **2,742** | **-847** | **12,381** | **-42,945** | **-4,933** | **-11,155** | **-37,220** | **-81,976** |

**Table S.3 Infrastructure and ageing contribution to SOR regions income relative to global Sydney standard 2001 (2001 $ million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network) | Total |
|---|---|---|---|---|---|---|---|---|
| Rural | 689 | -293 | 3,251 | -9,385 | -1,747 | -1,897 | -9,394 | -18,776 |
| Core Metro | 535 | -124 | 5,759 | -7,538 | -997 | -2,733 | -4,793 | -9,892 |
| Resourced based | 71 | 574 | 630 | -1,997 | -462 | -453 | -2,198 | -3,834 |
| Dispersed Metro | 483 | -114 | 36 | -8,325 | -497 | -2,483 | -6,003 | -16,903 |
| Production Zone | 616 | -173 | 1,302 | -10,317 | -531 | -2,099 | -8,427 | -19,627 |
| Lifestyle | 348 | -717 | 1,404 | -5,384 | -699 | -1,491 | -6,406 | -12,944 |
| **Total** | **2,742** | **-847** | **12,381** | **-42,945** | **-4,933** | **-11,155** | **-37,220** | **-81,976** |

**Table S.4 Infrastructure and ageing contribution to SOR regions income change 2001 versus 1996 ($2001 million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (communications, port quality, freight network, world environment) | Total |
|---|---|---|---|---|---|---|---|---|
| Rural | 118 | -1387 | 388 | 4635 | 30 | 386 | -203 | 3967 |
| Core Metro | 221 | -2182 | 669 | 9412 | 79 | 1034 | 1661 | 10895 |
| Resourced based | 18 | -339 | -62 | 911 | 6 | 90 | 208 | 832 |
| Dispersed Metro | 306 | -2268 | 870 | 11039 | 157 | 2052 | -227 | 11927 |
| Production Zone | 281 | -1986 | 853 | 10461 | 145 | 1901 | -271 | 11383 |
| Lifestyle | 95 | -943 | 188 | 2821 | 30 | 395 | 1083 | 3669 |
| **Total** | **1,039** | **-9,106** | **2,905** | **39,278** | **448** | **5,858** | **2,250** | **42,673** |

## Conclusion

The evidence from the 2004-05 *State of the Regions* report is overwhelming. Increased infrastructure investment will improve regional economic performance and reduce real per capita income and unemployment rate differentials. The next question is what level of additional infrastructure spending is justified by the benefits generated, and at what regions should additional expenditure be concentrated? This will be the subject of the 2005-06 *State of the Regions* report.

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# PART A

# RECENT REGIONAL ECONOMIC PERFORMANCE

# Recent regional economic performance – overview

The ongoing core function of the *State of the Regions* (SOR) reports is to update indicators of regional economic performance to the fiscal year ending of the report. Accordingly, for this report, indicators are provided to the 2003-04 fiscal year. The full list of indicators is given in the statistical appendix of the report for all 64 SOR regions. As the indicators are developed at the local government level, more detailed information can be obtained by contacting National Economics. The three chapters of this section of the report present an overview of trends by aggregating the information into the SOR regional groupings. The SOR regional groups are:

- Rural;
- Core metro;
- Resource based;
- Dispersed metro;
- Production zone; and
- Lifestyle.

The allocation of SOR regions to the regional groupings (as well as Local Government Areas or LGAs to regions) is given in Appendix 1 of the report. Briefly, the core metropolitan region comprises the inner and middle inner suburbs of States, Territories and capital cities. The production zones contain regions which were developed by the build-up in manufacturing behind tariffs over the 1914 to 1975 period. The Hunter and Illawarra regions of New South Wales, the regions of Western Melbourne and Northern Adelaide are where some of the regions included in the production zones are to be found. The dispersed metropolitan region contains regions which are the balance of the metropolitan areas. That is, the balance excluding regions allocated to the core metro and production zone regional groupings.

The resource based regions contain regions heavily dependent on mining, such as the Pilbara-Kimberly region. Lifestyle regions are regions highly attractive because of their physical environment. The regions are mainly located along the Queensland and New South Wales coasts.

The rural based regions comprise the balance of SOR regions. This grouping contains both regions with major provincial centres, such as Bendigo and Ballarat, as well as regions which are agricultural based without significant centres.

Chapter 1 focuses on income flows in and out of the regional groupings between 1999 and 2004. Chapter 2 focuses on recent trends in migration flows and population growth in regions as well as presenting short term projections to 2006. Chapter 3 summarises the statistical indicators dealing with trends in unemployment rates to 2004.

## Regional income and wealth generation

The key indicator used to measure the income and wealth performance of regions is the net flow of funds (NFOF). This measures the income generated in a region or regional grouping by the total of wages, business income, benefits, investment and other property income less taxes and interest payments.

The 2004 outcome for the indicator across the regional groupings reveals the diversity of economic performance across Australian regions. The main points are:

- the wealthiest regional grouping is the core metro region with a per capita NFOF of $19,327 per capita;
- the poorest group was the production zone group of regions with an average per capita NFOF of $13,272 per capita, or 68 per cent of the core metropolitan average;
- the lifestyle grouping per capita average NFOF was only marginally above the production zone average;
- the resource and dispersed metro regions had similar NFOF per capita outcomes at around 80 per cent of the core metro outcome; and
- the rural grouping was placed midway between the resource/dispersed metro and production/lifestyle per capita NFOF outcomes at 75 per cent of the core metro level.

In terms of trends since 1999 the following stand out.

- The rural regions had the strongest per capita growth in real (that is, inflation corrected) per capita NFOF. The growth rate was 12.5 per cent.
- The next two fastest growing in real per capita NFOF were core metro and lifestyle regions with a real growth of around 9 per cent.
- The dispersed metro and production zone regions both experienced a fall in real NFOF per capita between 1999 and 2004. The fall was between 4 and 5 per cent.

The engine room of Australia's non-mining economic growth remains the core metro regions. This region contains the households with the skills, socio-demographic attributes and financial capital that are required to drive the competitiveness of Australian industry in the era of globalisation.

The strong growth performance of the rural regional group significantly changed its ranking from a poor region in 1999 to a moderate performer in 2004.

The reasons for the strong performance of the rural grouping are:

- partial recovery from the 2002-03 drought;
- strong agricultural long term productivity gains;
- the consolidation of farms and loss of population from relatively poor rural regions in 1999; and
- the growth in major provincial centres.

The worst performing regional grouping was the production zones which went from a regional grouping with a $1,000 per capita edge over lifestyle regions in 1999, to Australia's poorest regional group in 2004 with a per capita NFOF of $500 below lifestyle regions.

From the macro perspective, this is to be expected. Import penetration increased significantly in textiles, fabricated metal and machinery over the last five years, while non-resourced based manufactured exports have stagnated. This would have adversely impacted on the production zone and the indicators give some insight into the impact of these trends.

The improved performance of the lifestyle region indicates:

- the continued strong growth in population driving import replacement (that is, the build-up in retail community and commercial services available in regions included in the lifestyle group); and
- the property price boom in major metropolitan regions generating high net wealth for immigrants into these regions.

The moderate performance of the resource based regions reflects the high labour productivity growth rates in these regions over recent years.

The relatively poor performance of the dispersed metro regions can be explained in terms of one aspect, namely debt. The dispersed metro regions have the highest proportion of households that have rapidly increased their net debt levels over recent years to fund both home purchases and lifestyle. This regional grouping has had a $418 decline in net property income flows per capita between 1999 and 2004 compared to the core metro average per capita decline of $184.

In terms of policy changes (for example, taxes, benefits) between 1999 and 2004 the core metro regional grouping has had a $2,285 real per capita income redistribution away from the group. The next most affected group was dispersed metro with a $1,139 real income redistribution average. The least affected was the resource based group which was largely unaffected by policy changes.

## Demographic trends

In general the migration trends identified in the 2003 *State of the Regions* report between 1996 and 2001 have been maintained to 2003 and, given the current locations of the expansion of the housing stock, will be maintained to 2006. The highlights are:

- the core metro regions continue to gain between 30,000 and 35,000 net immigration per year of population aged 0 to 24;
- a net outflow of the over 55 and over from core metro regional grouping;
- the maintenance of a strong net immigration of population aged 25 to 54 into lifestyle regions of between 15,00 and 20,000 annually;
- a level of net migration into lifestyle regions of those aged 55 and above of between 5,000 and 8,000 annually, with the source of the migration mainly coming from dispersed metro and core metro groups;
- a strong net migration inflow (with a strong international migration component) into the production zone. For those aged 0 to 24 the net immigration is, and will continue to be, around 17,000 annually, with the 25 to 54 aged group the inflow is currently around 16,000 annually and is projected to rise to 18,000 over the 2004 to 2006 period; and
- for the rural zone the net outflow of the young from the group has declined from past trends, while the inflow of net immigration in the working age range is increasing and is projected to increase further to 12,000 annually over the 2004 to 2006 period.

That is, the recovery in the rural zones' real incomes is resulting in an improvement in demographic outcomes. As a result, the average annual population increase for rural regions is projected to increase to 28,500 over the 2004 to 2006 period, compared to 21,000 over the 1996 to 2001 period. In terms of the other groupings, over the 2004 to 2006 period:

The production zone is projected to gain 72,500 annually;

- followed by dispersed metro with 49,000 annually; and
- with the lifestyle regions attracting 44,000 annually.

The resource based regions are projected to have the lowest rate of absolute population increase of 11,000 annually.

In terms of ageing, the change in the percentage of population aged 55 and over between 2003 and 2006 is projected to be:

| | | |
|---|---|---|
| Rural | 1.8 | (24.8) |
| Core metro | 0.6 | (22.0) |
| Resource based | 1.6 | (18.6) |
| Dispersed metro | 1.3 | (22.7) |
| Production zone | 1.2 | (22.1) |
| Lifestyle | 1.7 | (25.7) |

The percentages of the population aged 55 and over in 2003 by group are given in brackets. In general the greater the percentage of the population 55 and over in 2003, the greater will be the change in the percentage aged 55 over the next few years.

## Unemployment

In terms of National Economics' converted unemployment rate (based on Social Security data), although unemployment rates vary significantly between regional groupings, there was a general decline in unemployment levels between 2003 and 2004. As indicated by the following table, the greatest percentage point decline was for lifestyle regions with a 1.8 percentage point decline to 11.2 per cent. The dispersed metro and production zone regions had the least decline with a 0.25 percentage point decline. It should be noted, however, that the production zone's unemployment rate is 76 per cent above the dispersed metro unemployment rate. The relative strong economic outcomes for the rural group resulted in a full percentage point decline in the unemployment rate between 2003 and 2004.

**National Economics' unemployment rates by region**

| Region | 2004 | 2003 | 2002 | Change 2003 to 2004 | 2001 | 1996 | Change 1996 to 2004 |
|---|---|---|---|---|---|---|---|
| Rural | 10.81 | 11.80 | 11.33 | -0.99 | 12.50 | 11.98 | -1.17 |
| Core Metro | 5.68 | 6.46 | 6.69 | -0.78 | 7.46 | 9.50 | -3.82 |
| Production Zone | 9.86 | 10.13 | 10.89 | -0.27 | 11.55 | 12.04 | -2.18 |
| Lifestyle | 11.16 | 12.98 | 13.55 | -1.82 | 15.34 | 15.37 | -4.21 |
| Dispersed Metro | 5.58 | 5.83 | 6.22 | -0.25 | 6.73 | 7.50 | -1.92 |
| Resource Based | 10.85 | 11.31 | 11.82 | -0.46 | 11.45 | 9.91 | +0.94 |
| **Australia - wide** | **8.30** | **8.89** | **9.21** | **-0.59** | **10.02** | **10.61** | **-1.62** |

## The production zone: a looming crisis

Other than the improvement in performance of the rural and lifestyle groups, the one aspect that stands out from recent trends is the deterioration in economic performance by the production zone. As noted above, the production zone also has the highest absolute population increase. This suggests that there is a build-up in economic pressures which could produce, over the next few years, unacceptable relative and absolute economic outcomes for this grouping.

The 2004-05 *State of the Regions* report focuses on the role of infrastructure in driving regional economic development. The justification for this is that infrastructure is a vital instrument for further improving economic performance and for narrowing the unemployment and income differentials between regions. As can be seen from the table above, like per capita income (NFOF), there is significant differentials between regions in terms of labour market outcomes. To this should be added to the urgency of the use of infrastructure to help improve economic performance of the production zone.

Accordingly, the issue of the role of infrastructure in driving regional economic development will be the focus of the rest of the 2004-05 *State of the Regions* report.

## Employment growth estimates: a degree of instability

While National Economics estimates its own unemployment rates by region, it relies on official estimates of the workforce size by region to generate its employment levels. For some regions these estimates have proved unstable over recent years. In the 2005-06 report National Economics will adopt a new methodology to estimate workforce size by region.

***Most of the update estimates in this report are preliminary and subject to revision. They rely on preliminary data released by various statistical agencies and, as in the case for many statistical series, the estimates will be revised as further information becomes available and tests of consistency are applied.***

# 1. Regional income and wealth generation – 1999 to 2004

- *Australians are becoming wealthier in general with increases in effective level of consumption capacity. In real terms however these benefits have not been equally spread.*
- *The negative consequences of almost a decade of letting the household sector run free with debt, borrowing for consumption and splurging on housing has begun to have negative consequences in those regions which have a high proportion of debt leveraged households.*
- *The dispersed metro regions who have borrowed the most in terms of affordability and invested the least in non-housing activities are begin to see real income increases eroded by their precarious household budget position.*
- *The increasing role of benefit incomes and miscellaneous family and social assistance has to be more focussed on redressing the imbalance caused by over borrowing.*
- *The regional income and wealth analysis highlights that in the next 10 years more thought will have to be given to the characteristics of our national investment profile and how it may be structured to increase the equality of access to quality employment.*
- *The rapid increase in import penetration from countries such as China is now showing up in the increased flows. The production zone in 2004 was the poorest in Australia. In 1999 this zone was above both the rural and lifestyle zones.*

## 1.1 The flow of funds

Since 2001, the *State of the Regions* report has included an analysis of the regional income and wealth creation position for the current year. The "Flow of Funds" analysis presented as part of the extensive appendix information on each of the 64 regions is designed to highlight regional outcomes for residents. The analysis is presented on an up to date financial year basis so the 2004 figures relate to the 12 months to June 2004.

The estimation of these flows is complicated by the fact that most official sources of information trail sometimes years behind the requirements for analysis. To bring these series up to date, with the aim of providing regions with current information National Economics utilises a range of information at the regional level including a micro-simulation model of regional household structure called the National Economics' Household Debt Model.

The flow of funds analysis undertaken by National Economics is a detailed attempt to capture the wealth building forces at work in the regional economy. The measures presented concentrate on the ways in which money is sourced and applied by the households in a region. In general, a region will benefit from a number of flows into the household from wages and salaries, net farm and business income, social security benefits, interest and dividends and from property income. Balancing this inflow will be income tax, Medicare and levies paid to the Federal government, GST paid on consumption and interest paid on monies owed by the household sector. The amount that remains is available for consumption by the household sector.

*Net Flow of Funds = Wages + Benefits + Business Income + Interest & Dividends + Property Income – Income Tax – Interest Paid – GST*

The flow of funds methodology has a number of important advantages in regional benchmarking. Because the net flow is the effective position of the household sector in terms of consumption, changes in any of the components will necessarily be able to be measured in terms of the total impact on the consumption position of the household sector as a whole. One of the major problems of actively updating benchmarks related to the household is the change that occurs between the Census collection periods. By breaking down the components of the flows of funds into measures that can be readily

updated through time enables changes to be estimated on a more regular basis. A good example of this change was the impact of the GST. In the tables presented the effects of the introduction of the GST can be seen in terms of the net position of the household sector.

Because the net flow of funds is unambiguous in its interpretations the relative ranking of a region to another has particular clarity. In the table presented for each region the rank of the region in terms of flow of funds is given for each of the years 1999, 2001 and 2004. In addition, a ranking of the growth in the net flow of funds between 2004 and 1999 is provided. The individual components and their derivation are presented in the following sections. All per capita amounts are derived using ABS population estimates for 1999, 2001 and National Economics provisional estimates for 2004.

As with many published data series previously supplied estimates for 2001 and 1999 have been reviewed and recast in the 2004-05 *State of the Regions* to account for the release of more accurate information, along with the following changes to methodology.

- In the past the impacts of the Family Tax Benefits have been split into the traditional "family allowance type" payments which was accounted for as *Benefit* income, and the tax benefit was account for in *Wages and salaries* income and tax paid. Over the past two years however with significant changes relating to incomes policy as it relate to family we have decide to recast benefits to include all of the family payments as benefits. This is especially important in the light of recent changes and once-off family assistance bonuses, which are literally billions of dollars.
- In the past deductible interest paid on property investment was included as a cost to the household sector in the net flow of funds. Rental incomes and the tax related "net property income" then balanced. Following the large increase in deductible interest due to the property boom and small increases in interest rates this component of region income has become very important. Due to large difference in the take-up of debt for property investment between regions, and its subsequent impact on net property rent we have isolated these effect more clearly. Interest paid to property investment has been removed from interest paid, and net property income has been recast in later years to include changes. Discussion of the region impact is provided later in this section.
- In the past we have included superannuation in the wages and salaries a region receives, as per the definition of total remuneration. On reflection the following issues highlight that its inclusion in the definition of flow of funds should be reconsidered.
    - The performance of the superannuation sector in investing in Australia's regions beyond our capital cities and mining businesses is not equal to the contribution made at the regional level.
    - The large scale age based migration patterns highlighted in the 2003-04 *State of the Regions* report show that superannuation earned in employment in one area, is now less likely to be applied at retirement in the same area. Hence the local wealth creation component of the Flow of Funds analysis is not satisfied.
    - The behaviour of consumers in the face of superannuation earnings in the past 10 years has been to simply borrow against the capacity such an amount will provide in later life. Mortgages and refinancing by older age groups are an example of this behaviour.

We have, accordingly, excluded superannuation from regional household receipts. As such, the wages and salaries component of funds flow will be approximately 10 per cent lower than reported previously.

***Trends in flows of funds by region type***

In nominal dollars terms all six types of regions in Australia had higher level of net flow of funds in 2004 than in 1999. In terms of net flow of funds the regions which grew the quickest were the lifestyle and rural regions.

- The strong growth in the lifestyle regions is in part due to the net injection of funds into those regions from the capital gains which immigrants secured from house sales in the major metropolitan areas.
- The rural sector has a high degree of variation due to climatic conditions in particular years. The return to stronger rainfall has seen the position of the rural regions improve.

In real terms, the dispersed metro regions and the production zones have had a reduction in real levels of per capita consumption income.

**Table 1.1 Changes in Net Flow of Funds (NFOF) between 1999 and 2004 by region type**

| Region Type | 1999 NFOF per capita | 2004 NFOF per capita | Growth in NFOF 1999 to 2004 | Inflation corrected change |
|---|---|---|---|---|
| Rural | 11,420 | 14,553 | 3,133 | 1,437 |
| Core Metro | 15,613 | 19,327 | 3,713 | 1,395 |
| Resource Based | 12,962 | 15,370 | 2,408 | 484 |
| Dispersed Metro | 14,211 | 15,595 | 1,384 | -726 |
| Production Zone | 12,000 | 13,272 | 1,272 | -509 |
| Lifestyle | 11,055 | 13,731 | 2,677 | 1,036 |

In terms of regional convergence or divergence the following table shows that gaps between the wealthiest regions and the poorest have grown over the period 1999 to 2004. With improvements in the lifestyle region between 2001 and 2004 the production zones have now emerged as the region with the lowest net flow of funds per capita. The production zone in 2004 has a net flow of funds per capita of $13,272, compared to the lifestyle zone of $13,731. In 1999 the production zone had a per capita flow of funds of $1,000 above the lifestyle zone and $600 above the rural zone.

**Table 1.2 Relative levels of Net Flow of Funds**

| | | % above minimum | |
|---|---|---|---|
| Region Type | 1999 NFOF per capita | 2001 NFOF per capita | 2004 NFOF per capita |
| Rural | 3% | 2% | 7% |
| Core Metro | 41% | 50% | 46% |
| Resource Based | 17% | 11% | 11% |
| Dispersed Metro | 29% | 28% | 18% |
| Production Zone | 9% | 7% | 0% |
| Lifestyle | 0% | 0% | 4% |

Other trends of note highlighted in Table 1.3 include:

- the strongest growth in benefit income was experienced in the resource based regions. This trend due to:
  - targeting of family support to low income households with children;
  - weaker general employment growth; and
  - growth in disability support pensions;
- the strongest wages and salaries income growth has been in the Core Metro areas, a trend expected in a modern economy dominated by returns to high skilled workers; and
- the impact of the extended growth in debt held by the household sector has already begun to hurt real incomes. Interest paid has increased by more than 10 per cent a year since 1999, despite interest rates falling over the period.

**Table 1.3 Percentage per annum growth rates in Flow of Funds per capita, 1999 to 2004**

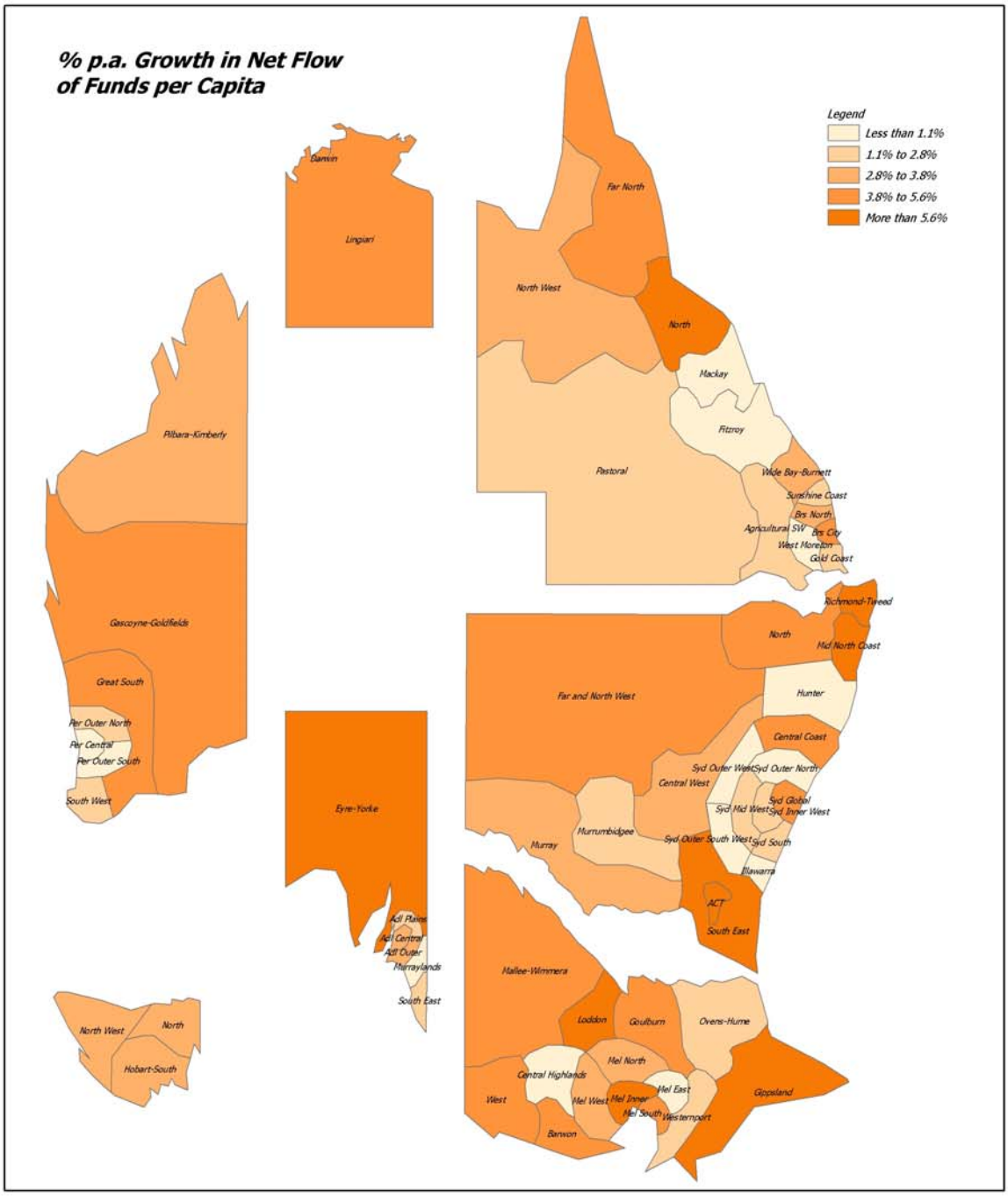
| Region Type | Wages/ salaries | Taxes Paid | Benefits | Business | Int / Divs | Int Paid | Net prop inc, $ change | Net flow of funds |
|---|---|---|---|---|---|---|---|---|
| Rural | 6.9 | 6.6 | 5.8 | 5.9 | 3.8 | 11.5 | -$170 | 4.4 |
| Core Metro | 7.0 | 7.2 | 3.0 | 2.8 | 2.9 | 10.9 | -$184 | 4.3 |
| Resource Based | 4.5 | 5.5 | 10.8 | 3.1 | 2.0 | 12.0 | -$194 | 2.4 |
| Dispersed Metro | 4.3 | 4.1 | 4.7 | 1.3 | 2.1 | 11.0 | -$418 | 1.8 |
| Production Zone | 3.7 | 3.0 | 4.4 | 1.4 | 2.8 | 9.5 | -$251 | 1.9 |
| Lifestyle | 6.6 | 5.3 | 4.2 | 2.1 | 2.5 | 8.4 | -$86 | 4.4 |

The map on the following page represents the changes in net flows of funds.

The theme of this year's report is infrastructure and therefore is inherently a theme of investment. The table below highlights why there is a role for the government in assigning priorities to elements of the investment profile in an economy. The dispersed metro region simply acted in a manner consistent with the signals provided to them. These signals were:

- unconstrained credit availability;
- negative gearing;
- previous price rises in housing. People respond to changes in the immediate past as almost their only guide to future prices, despite historical precedence. Schiller (1998)[1];
- job insecurity related to casualisation and skills intensification, both trends crucial to the development of a competitive economy;
- compulsory superannuation, promising lump sums from which debts can be repaid;
- high marginal tax rates, and extremely high effective marginal tax rates with respect to social security income;
- low nominal interest rates and a small domestic market for SME investments, leading to a paucity of alternative investment options; and
- halving of the notional rate of capital gains tax on investment.

[1] Case, K. and Shiller, R. (1988), 'The Behaviour of Home Buyers in Boom and Post-Boom Markets'. Cowles Foundation Discussion Paper 890, Nov 2.


% p.a. Growth in Net Flow of Funds per Capita
Legend
Less than 1.1%
1.1% to 2.8%
2.8% to 3.8%
3.8% to 5.6%
More than 5.6%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pilbara-Kimberly
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Gascoyne-Goldfields
Great South
Far and North West
Hunter
Per Outer North
Per Central
Per Outer South
Central Coast
Syd Outer West
Syd Outer North
Central West
South West
Syd Global
Syd Mid West
Syd Inner West
Eyre-Yorke
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
North West
North
Loddon
Goulburn
Ovens-Hume
Hobart-South
Mel North
Central Highlands
Mel East
West
Mel West
Mel Inner
Gippsland
Mel South
Westernport
Barwon

The movement to property was seen as protecting the future. However in a modern labour market, real income protection comes from being employed in an innovative export driven economy, with supportive supply chains, generating long term employment. Real protection comes from investment in public infrastructure of hospitals, transport and education, even when user-pays drives their operations. So instead of promoting investment in long-term growth the borrowing patterns of the household sector have driven short term consumption, and housing-related growth and employment. The result for the dispersed metro regions is lower wage and income growth, higher interest paid and a substantial investment in property which is eating into consumption expenditure, now and into the future.

The government having promised negative gearing and capital gains tax concessions will find that the budget bottom line will be paying for this splurge in debt for the next 10 to 15 years. The secondary impact will hit as soon as the debt stops being accumulated. Current additional activity which is reliant on the continued growth in credit will dry up.

**Table 1.4 Impact of housing investment on net property rent, $billions**

| Year | Gross Rental income | Deductible interest payments | Net rental income[2] |
|---|---|---|---|
| 1993-94 | 7.43 | 3.50 | 0.40 |
| 1996-97 | 10.10 | 5.20 | 0.02 |
| 1999-00 | 12.21 | 5.74 | 0.17 |
| 2001-02 | 13.11 | 6.58 | -0.62 |
| *2003, estimates[3]* | *13.36* | *8.03* | *-2.10* |
| *2004, estimates* | *13.63* | *10.91* | *-5.30* |

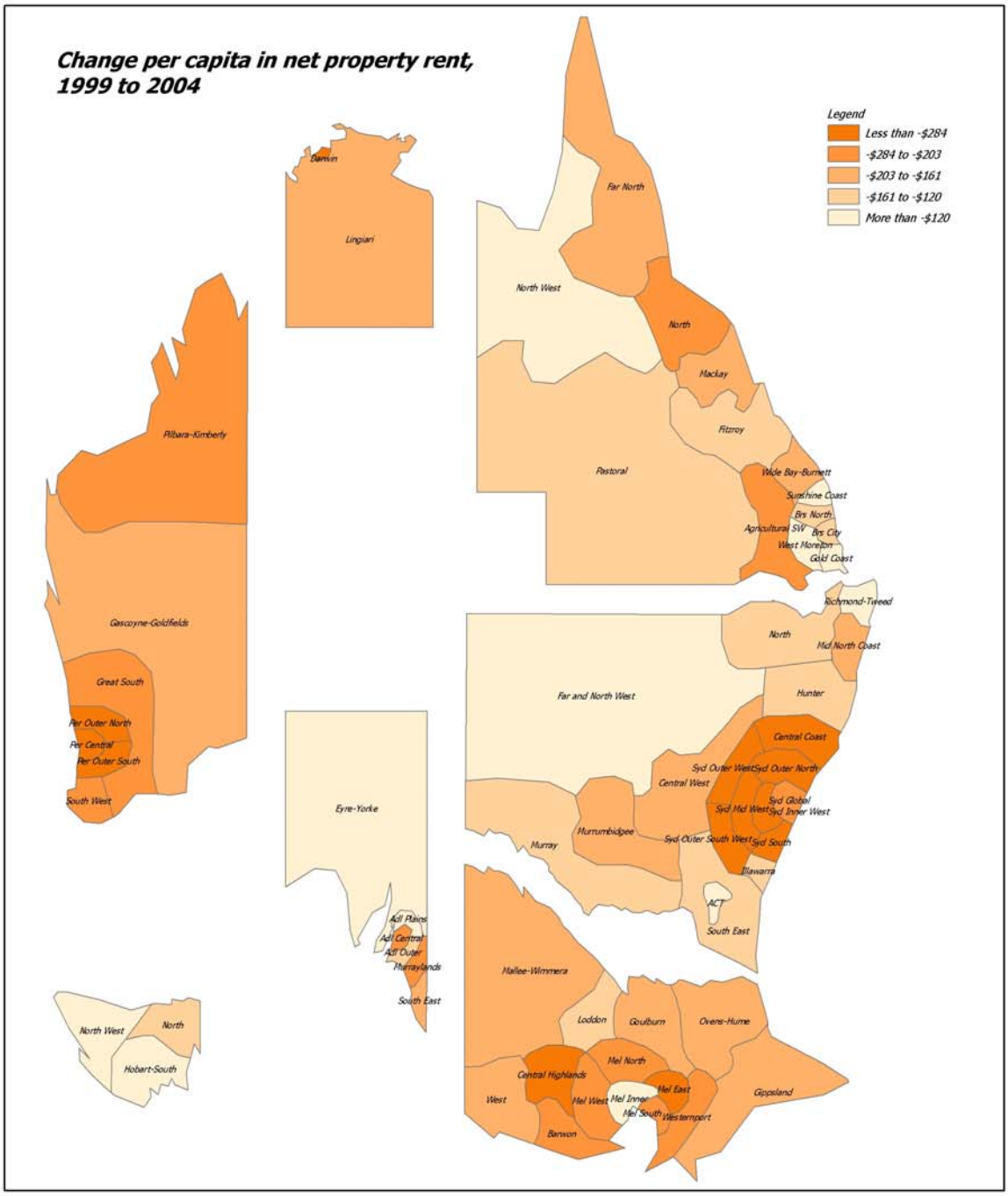
The large negative impacts of the continued increase in debt for consumption and property investment can be seen on a region level. The following table adds back to the net results achieved by the regions on a per capita basis, the differences in interest paid and net property income. The region type which has risked the most in this debt-led growth has been the dispersed metro region. There is now doubt that these regions have also gained an enormous amount from the economic growth which has been achieved on the back of this borrowing, however, the point remains whether a similar level of debt invested in something other than housing and shopping have delivered them more in the long run?

On the following map the changes in net rental income are shown for all SOR regions.

Taking the analysis further we can split out the impacts of notionally market related effects and those impacted more clearly by policy. Using the definition provided in the following table the impacts by regional type of market and policy can be shown.

[2] Includes rental income less deductible interest less other deductions (not listed in table).

[3] Based on reported rates of ownership and ABS national accounts information concerning total interest payments by households.


Change per capita in net property rent, 1999 to 2004
Legend
Less than -$284
-$284 to -$203
-$203 to -$161
-$161 to -$120
More than -$120
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Hunter
Central Coast
Far and North West
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Syd Outer South West
Syd South
Murray
Illawarra
ACT
South East
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Per Outer North
Per Central
Per Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon
North West
North
Hobart-South

| Table 1.5 | Impact of debt formation and property investment | | | |
|---|---|---|---|---|
| Region Type | 1999 to 2004 real difference | Real Interest Paid difference | Real change in net property income | Excluding interest and property income |
| Rural | 1,437 | 529 | 200 | 2,166 |
| Core Metro | 1,395 | 483 | 261 | 2,139 |
| Resource Based | 484 | 588 | 216 | 1,288 |
| Dispersed Metro | -726 | 623 | 478 | 375 |
| Production Zone | -509 | 442 | 277 | 210 |
| Lifestyle | 1,036 | 312 | 120 | 1,468 |

| Table 1.6 | Net Flow of Funds components |
|---|---|
| Driver | Net Flow of Funds components included |
| Market | Wages and salaries, interest and dividends, interest paid, business income |
| Policy related | Income tax, WST / GST, Net property income, Benefits and transfers |

The market side of the equation with its concentration on business and employee income has, as is natural, given the strongest increase to the Core Metro regions. Whether household consumption is poker machines at the local pub, spending money at our two large supermarket chains or on the myriad of services provide by telecommunications, insurance, finance or health, the role of the core metro regions in siphoning activity is substantial.

On the policy side the role of income taxation, the GST and benefits has clearly been to extract a good deal of this advantage from the core metro region with the largest net per capita changes related to policy impacting on this region type. Part of this policy impact, though, has been exposure to higher amounts of interest paid and a reduction in net property rent.

Strong market-related changes have also been seen in the lifestyle and core metro regions. For the lifestyle region an increase in wages, salaries, benefits and dividends, coupled with time to spend, has resulted in a solid per capita increase in market related effects.

| Table 1.7 | Impacts of market forces and policy | | | |
|---|---|---|---|---|
| | Change 1999 to 2004, $b | | Change 1999 to 2004, $ per capita | |
| Region Type | Market | Policy | Market | Policy |
| Rural | 16.93 | -4.34 | 4,319 | -1,186 |
| Core Metro | 27.06 | -10.91 | 6,520 | -2,807 |
| Resource Based | 2.78 | -0.41 | 2,848 | -440 |
| Dispersed Metro | 19.08 | -8.44 | 2,955 | -1,571 |
| Production Zone | 15.67 | -4.63 | 2,043 | -771 |
| Lifestyle | 8.97 | -1.84 | 3,642 | -965 |

Table 1.8 looks at the changes in real terms and assesses the nominal incidence of policy on the net flow of funds (the percentage of nominal increases provided by the market forces clawed back by policy related change).

**Table 1.8 Real impacts of market forces (real change per capita)**

| Region Type | Market | Policy | Nominal incidence |
|---|---|---|---|
| Rural | 2,514 | -1,077 | 27.5% |
| Core Metro | 3,680 | -2,285 | 43.1% |
| Resource Based | 658 | -175 | 15.4% |
| Dispersed Metro | 414 | -1,139 | 53.2% |
| Production Zone | 62 | -572 | 37.7% |
| Lifestyle | 1,944 | -908 | 26.5% |

Once again the table highlights the underlying problem the regions face following decades of under investment in creative capital. Because taxation and incomes policy are currently applied on a universal basis:

- lifestyle regions pay less tax in line with politically sensitive retirement policies. In addition recent arrivals keep all of the asset appreciation in the cities they are leaving, and demand service provision of equal standard;
- families burdened by debt for housing and consumption can only be assisted by family assistance policies provided to all; and
- at the same time it is clear to the core metro region that they are paying there fair share.

When governments are attempting to redress the needs of the metro regions which are struggling under debt, despite interest rates which are lower than sustainable levels, it is clear that future policy must create economic activity in another way. This report concentrates on infrastructure and capacity building as part of the solution to finding alternative economic drivers for the coming decade.

## 1.2 Notes on calculation of components

***Wages, salaries and farm income***

The calculation of the 2004 flow of funds data has been aided this year by the release of the late Taxation Statistics for 2000-01 along with the 2001-02 estimates. As such the 2004 figures must be calculated in a similar manner to the 2002 values without the addition of new relative income growth information to help estimate wage and salaries income. The following dot points outline the calculation of the non-farm components of wages and salaries income.

- Estimates of income from 1999-00, 2000-01 and 2001-02 taxation statistics at postcode level are used.
- Recent growth in income from taxation records provides a trend in the income per person that can be expected in the region. This measure is required due to the very large difference in wage growth at the regional level. Impacts of the drought on the estimation of trends, are corrected using change in farm gross value of production.
- The growth in employment at the local area level is subsequently combined with the growth in income per employee and the base levels of income from Taxation Statistics to produce updates of income at the regional level.

- State and national account control totals are then used to balance wages and income growth.
- As with all information collected from Taxation Statistics the data is converted from postcode definitions to ABS regions using the 2001 Postal Area to Statistical Local Area concordance provide by the ABS.

In this and the last report we have estimated farm income using rainfall data as a proxy for the impact of the drought on regional incomes. The change in rainfall from long-term average is used as a basis for allocating farm income on a regional basis. Farm income cannot be derived using the declared taxable income from primary production as a guide, due to problems of declaration and substantial carry forward of farm losses. As such the estimate is based on the most recent measure of gross agricultural output, which is subsequently converted to a realised income measure consistent with national accounts. Most importantly, differences between the relative income-generating capacity of various agricultural activities are accounted for we subsequently adjust the trends by our estimate of the impact of the drought provide a more relevant distribution of incomes for 2004.

**Income Tax:** Income tax paid is the net tax paid after deductions and rebates. It includes the Medicare levy as well as the additional Medicare levy for high-income taxpayers. The 1999 and 2001 figure is based on reported taxation statistics. The 2004 figure has been adjusted by state control totals, and using estimates of income created earlier.

**Benefits:** This figure is an estimate of the total amount of benefits received at the local level. The amount includes all benefits and allowances received from Centrelink and an indicative assessment of the contribution of Community Development Employment Program income in remote areas. Figures for all years are based on recipient data. This measure does not include the income derived from Department of Veterans Affairs (DVA) benefits.

As noted previously the full contribution of family assistance is now included in the payments.

**Business income:** The business income for a region is effectively based on the value of the businesses that operate in the region and the relative performance of the economy as a whole. Unfortunately the net business income as reported in Taxation Statistics does not adequately capture the total impact of business income. National Economics utilises small area microsimulation of the value of unincorporated businesses based on realised cash flows. Using state control totals and the estimated value of business assets, the destination of business income can be adequately measured. The changes in business income reflect both the evolution of business values through time as well as the macro-economic trends captured in economy wide reported values of business income.

**Interest and dividends:** The value of interest and dividends received is derived from Taxation Statistics. The changes in this value since 2002 can only be derived from State Accounts control totals and previous trends in the distribution of dividends within each state.

**Interest paid:** The amount of interest paid by the household sector is a function of the stock of debt, the nature of the debt and interest rates applied. In order to keep abreast of the impacts that the rising level of household debt, in the late 1990's National Economics developed a Household Debt Model which estimates the impact of debt at the local level. One of the measures derived from this modelling is the amount of interest that is paid by the household sector on debt. The debts incurred in running unincorporated businesses are not included, but rather used in the net business income estimates presented in the table. The debt included covers housing, personal finance and credit card debt. These model estimates are balanced to state and national control totals automatically. The relatively large increase in the amount of interest paid across the period 1998 to 2003 reflects the continued strong growth in household debt throughout the same period.

**Net property income:** Net property income is derived from Taxation Statistics, and balance to state control totals. The values derived for 2004 are based on 2002 report taxation statistics and trends in property investment.

**GST:** In order to determine the amount of GST paid by a particular community an estimate of the amount of expenditure undertaken is required. National Economics uses our recently released 2001 estimate of household spending called SpendInfo. SpendInfo provides detailed expenditure estimates for over 400 items at the local area level. Using growth in households and recent trends in retail sales and national accounts consumption at the state level, 2004 estimates are derived. Using these expenditure estimates and details of GST excluded goods estimates of the total GST paid are derived. These amounts are balanced to state control totals.

**Net flow of funds:** Adding up all of the inflows and subtracting the outflows determines the net flow of funds to a region. Specifically,

*Net Flow = Wages + Benefits + Business Income + Interest & Dividends + Property Income – Income Tax – Interest Paid – GST*

**Social Benefits as a % of net flow of funds:** Benefits are payments by Centrelink including Community Development Employment Programs (accessed mainly by indigenous communities) and exclude payments from the Department of Veterans Affairs. As noted this amount now includes all family payments, including the once off payment recently processed. These are expressed as a per cent of the net flow of funds. The net flow of funds was developed elsewhere. Regions with a high score have a high dependency on social security income.

On the following page a map presents Australian regions' level of social security dependency.

## 1.3 Flow of funds analysis by region type, 1999 to 2004

The analysis described in the previous section yields the following results for 1999, 2001 and 2004.

**Table 1.9 1999 Flow of Funds by region type, $ billion**

| Region Type | Wages/ salaries | Taxes Paid | WST Paid | Benefits | Business Inc | Int / Divs | Int Paid | Net prop rent | Net flow of funds |
|---|---|---|---|---|---|---|---|---|---|
| | + | - | - | + | + | + | - | + | = |
| Rural | 37.3 | 9.5 | 3.0 | 9.3 | 6.4 | 1.5 | 3.2 | 0.7 | 39.5 |
| Core Metro | 57.5 | 17.9 | 3.6 | 7.1 | 9.2 | 4.1 | 3.2 | 1.8 | 55.2 |
| Resource Based | 9.1 | 2.5 | 0.6 | 1.7 | 2.0 | 0.2 | 0.7 | 0.1 | 9.4 |
| Dispersed Metro | 69.1 | 20.2 | 4.2 | 9.2 | 11.0 | 3.7 | 5.3 | 1.8 | 65.1 |
| Production Zone | 62.5 | 16.9 | 4.3 | 13.4 | 8.4 | 1.9 | 5.3 | 0.9 | 60.7 |
| Lifestyle | 16.5 | 4.3 | 1.4 | 4.7 | 2.7 | 0.9 | 1.5 | 0.4 | 18.0 |

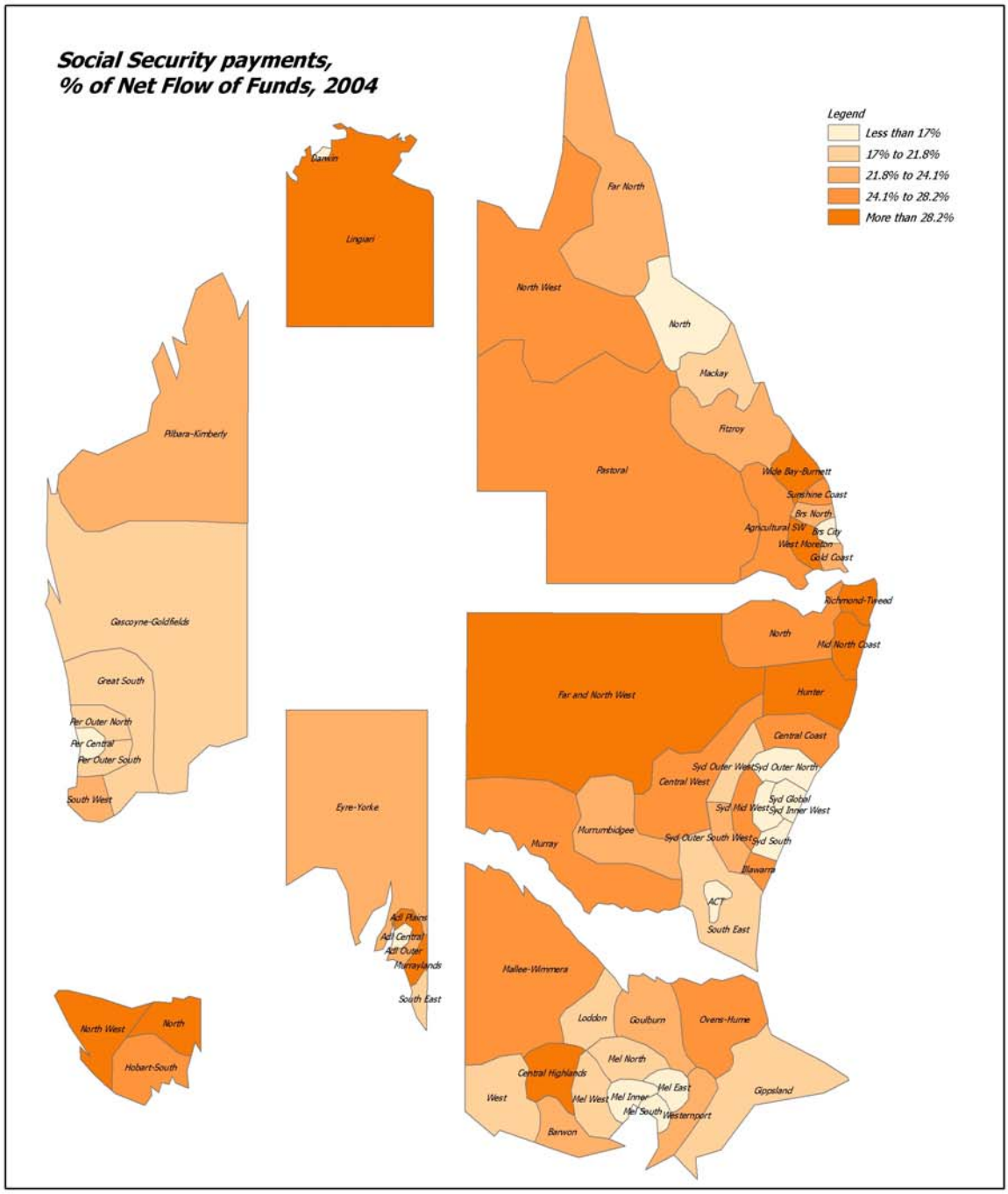

Social Security payments,
% of Net Flow of Funds, 2004
Legend
Less than 17%
17% to 21.8%
21.8% to 24.1%
24.1% to 28.2%
More than 28.2%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Far and North West
Hunter
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Per Outer North
Per Central
Per Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon
North West
North
Hobart-South

**Table 1.10 1999 Flow of Funds by region type, $'000s per capita**

| Region Type | Wages/ salaries | Taxes Paid | GST Paid | Benefits | Business Inc | Int / Divs | Int Paid | Net prop rent | Net flow of funds |
|---|---|---|---|---|---|---|---|---|---|
| | + | - | - | + | + | + | - | + | = |
| Rural | 10.78 | 2.74 | 0.87 | 2.67 | 1.85 | 0.44 | 0.92 | 0.20 | 11.42 |
| Core Metro | 16.26 | 5.05 | 1.01 | 2.02 | 2.61 | 1.17 | 0.91 | 0.52 | 15.61 |
| Resource Based | 12.64 | 3.47 | 0.84 | 2.38 | 2.73 | 0.34 | 0.96 | 0.14 | 12.96 |
| Dispersed Metro | 15.08 | 4.41 | 0.91 | 2.00 | 2.40 | 0.81 | 1.17 | 0.40 | 14.21 |
| Production Zone | 12.35 | 3.33 | 0.84 | 2.65 | 1.65 | 0.38 | 1.04 | 0.18 | 12.00 |
| Lifestyle | 10.18 | 2.62 | 0.88 | 2.88 | 1.63 | 0.53 | 0.90 | 0.22 | 11.05 |

**Table 1.11 2001 Flow of Funds by region type, $ billion**

| Region Type | Wages/ salaries | Taxes Paid | GST Paid | Benefits | Business Inc | Int / Divs | Int Paid | Net prop rent | Net flow of funds |
|---|---|---|---|---|---|---|---|---|---|
| | + | - | - | + | + | + | - | + | = |
| Rural | 42.9 | 10.2 | 4.1 | 10.2 | 6.4 | 1.9 | 4.4 | 0.5 | 43.1 |
| Core Metro | 71.9 | 22.4 | 5.5 | 7.4 | 9.5 | 5.7 | 4.1 | 1.9 | 64.4 |
| Resource Based | 9.9 | 2.5 | 0.9 | 2.2 | 1.8 | 0.3 | 1.0 | 0.0 | 9.9 |
| Dispersed Metro | 82.0 | 23.3 | 6.5 | 10.1 | 10.9 | 5.0 | 7.0 | 1.5 | 72.7 |
| Production Zone | 72.5 | 18.1 | 6.4 | 14.8 | 8.5 | 2.5 | 7.0 | 0.5 | 67.3 |
| Lifestyle | 20.1 | 4.9 | 2.1 | 5.2 | 2.7 | 1.1 | 2.0 | 0.3 | 20.5 |

**Table 1.12 2001 Flow of Funds by region type, $'000s per capita**

| Region Type | Wages/ salaries | Taxes Paid | GST Paid | Benefits | Business Inc | Int / Divs | Int Paid | Net prop rent | Net flow of funds |
|---|---|---|---|---|---|---|---|---|---|
| | + | - | - | + | + | + | - | + | = |
| Rural | 12.25 | 2.92 | 1.18 | 2.91 | 1.83 | 0.55 | 1.27 | 0.13 | 12.30 |
| Core Metro | 20.18 | 6.29 | 1.55 | 2.09 | 2.67 | 1.61 | 1.15 | 0.52 | 18.08 |
| Resource Based | 13.42 | 3.35 | 1.19 | 2.93 | 2.48 | 0.39 | 1.33 | 0.04 | 13.42 |
| Dispersed Metro | 17.43 | 4.96 | 1.38 | 2.14 | 2.33 | 1.07 | 1.50 | 0.31 | 15.45 |
| Production Zone | 13.93 | 3.47 | 1.24 | 2.85 | 1.63 | 0.48 | 1.34 | 0.10 | 12.94 |
| Lifestyle | 11.82 | 2.88 | 1.23 | 3.09 | 1.57 | 0.65 | 1.16 | 0.19 | 12.05 |

**Table 1.13 2004 Flow of Funds by region type, $ billion**

| Region Type | Wages/ salaries | Taxes Paid | GST Paid | Benefits | Business Inc | Int / Divs | Int Paid | Net prop rent | Net flow of funds |
|---|---|---|---|---|---|---|---|---|---|
| | + | - | - | + | + | + | - | + | = |
| Rural | 53.9 | 13.5 | 6.2 | 12.7 | 8.8 | 1.9 | 5.7 | 0.1 | 50.6 |
| Core Metro | 84.3 | 26.4 | 6.9 | 8.6 | 11.0 | 5.0 | 5.6 | 1.2 | 71.2 |
| Resource Based | 12.0 | 3.5 | 1.2 | 3.0 | 2.4 | 0.3 | 1.3 | 0.0 | 11.2 |
| Dispersed Metro | 90.3 | 26.2 | 7.7 | 12.3 | 12.4 | 4.4 | 9.5 | -0.1 | 75.5 |
| Production Zone | 80.1 | 20.9 | 7.9 | 17.8 | 9.6 | 2.4 | 8.9 | -0.4 | 71.3 |
| Lifestyle | 25.6 | 6.2 | 3.0 | 6.5 | 3.3 | 1.1 | 2.5 | 0.3 | 25.0 |

**Table 1.14 2004 Flow of Funds by region type, $'000s per capita**

| Region Type | Wages/ salaries | Taxes Paid | GST Paid | Benefits | Business Inc | Int / Divs | Int Paid | Net prop rent | Net flow of funds |
|---|---|---|---|---|---|---|---|---|---|
| | + | - | - | + | + | + | - | + | = |
| Rural | 15.07 | 3.77 | 1.72 | 3.54 | 2.47 | 0.53 | 1.59 | 0.03 | 14.13 |
| Core Metro | 22.83 | 7.14 | 1.86 | 2.34 | 2.99 | 1.36 | 1.53 | 0.34 | 19.29 |
| Resource Based | 15.73 | 4.53 | 1.62 | 3.97 | 3.19 | 0.38 | 1.70 | -0.05 | 14.62 |
| Dispersed Metro | 18.58 | 5.39 | 1.59 | 2.52 | 2.55 | 0.90 | 1.96 | -0.02 | 15.55 |
| Production Zone | 14.82 | 3.86 | 1.47 | 3.29 | 1.77 | 0.44 | 1.64 | -0.07 | 13.19 |
| Lifestyle | 14.02 | 3.38 | 1.64 | 3.53 | 1.81 | 0.60 | 1.34 | 0.14 | 13.70 |

# 2. Net migration, population and ageing trends: 1996-2006

The 2003 *State of the Regions* report explored the migration drivers of regional population growth. This section will be a regular function of *State of the Regions* reports in that it will update regional net migration trends and present short-term projections. The projection period is to 2006.

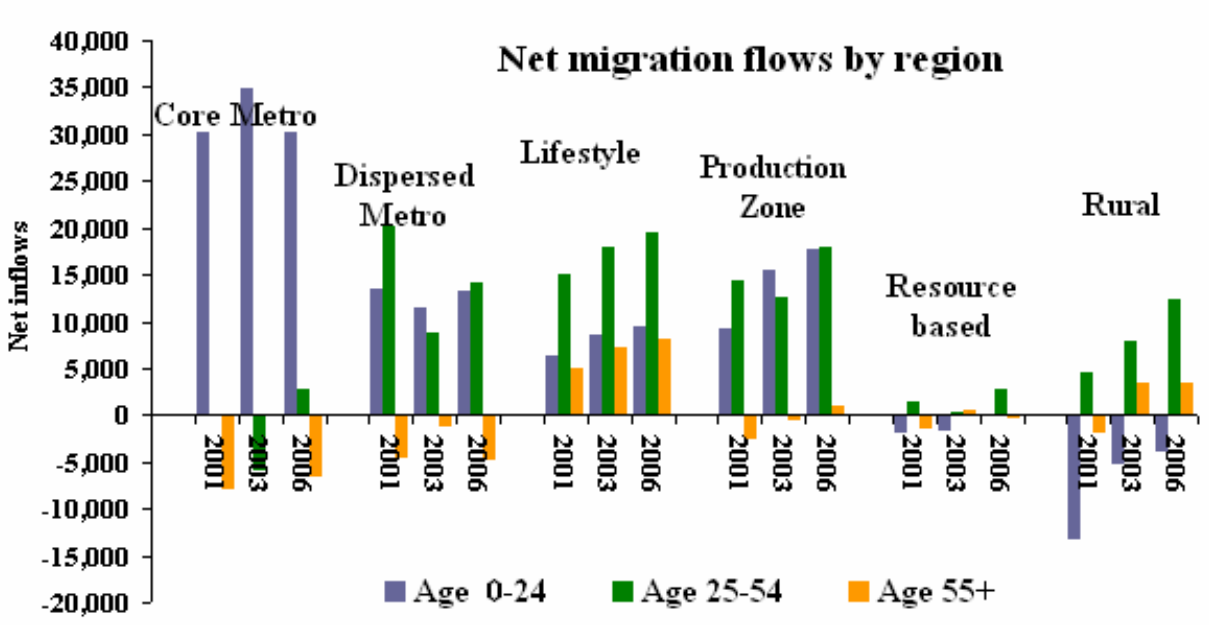
The analysis of this chapter will be at the regional grouping levels. Outcomes for individual SOR regions are given in the statistical appendix of the report. Outcomes for individual LGAs can be obtained by accessing the YourPlace database.

## 2.1 Net migration flows

Table 2.1 and the following figure show the historical and projected net immigration flows by SOR regional groupings. Each regional grouping will be discussed in turn.

**Table 2.1 SOR regional grouping: average annual net migration flows – 1997-2006**

| Age group | Region | Average 1997 – 2001 | Estimated 2001 – 2003 | Forecast 2004 – 2006 |
|---|---|---|---|---|
| Age 0-24 | Rural | -13,187 | -5,154 | -3,650 |
| Age 25-54 | Rural | 4,508 | 7,974 | 12,306 |
| Age 55+ | Rural | -1,740 | 3,448 | 3,321 |
| Age 0-24 | Core Metro | 30,215 | 34,942 | 30,115 |
| Age 25-54 | Core Metro | 110 | -5,683 | 2,810 |
| Age 55+ | Core Metro | -7,707 | -14 | -6,344 |
| Age 0-24 | Resource Based | -1,645 | -1,440 | 12 |
| Age 25-54 | Resource Based | 1,305 | 343 | 2,755 |
| Age 55+ | Resource Based | -1,327 | 461 | -71 |
| Age 0-24 | Dispersed Metro | 13,523 | 11,487 | 13,270 |
| Age 25-54 | Dispersed Metro | 20,113 | 8,854 | 14,041 |
| Age 55+ | Dispersed Metro | -4,345 | -1,069 | -4,685 |
| Age 0-24 | Production Zone | 9,139 | 15,559 | 17,802 |
| Age 25-54 | Production Zone | 14,264 | 12,653 | 17,987 |
| Age 55+ | Production Zone | -2,474 | -331 | 1,078 |
| Age 0-24 | Lifestyle | 6,318 | 8,567 | 9,474 |
| Age 25-54 | Lifestyle | 15,080 | 17,922 | 19,551 |
| Age 55+ | Lifestyle | 4,911 | 7,268 | 8,128 |




### 2.1.1 Rural

The trends in rural regions between 1997 and 2006 are not expected to change greatly. People in the 0-24 age category will continue to leave the region, but less will leave in the next three years than the past three years. This is due to the fact that since the 1950s youth have been leaving rural regions to the point where the proportion of youth has declined to well below national average. Due to this ever dwindling pool of young people, the actual number leaving will decrease although in proportion to the number of young people, it will remain about the same. The end of the drought and brighter short-term prospects for employment should also add to less young adults leaving (16-24 year olds).

The largest migration to rural regions over the next three years will be people aged 25-54. As with those aged 0-24, brighter employment conditions will attract people within this age category to these regions. Those aged over 55 will continue to be attracted to rural regions (as has been the case in the last 3 years). The main reason for this is the 'sea-change' phenomenon and the ability to liquidate assets in the city and purchase properties in these regions at far lower prices.

### 2.1.2 Core Metro

The cities will continue to attract young people with 30,000 more 0-24 year olds expected to be living in core metro regions per annum. Those aged 25-54 will increase by less than 3,000 people per annum. Most importantly, the core metro regions will continue to remain young, not only due to youth migrating to the region but older people (over 55's) leaving. Over 6,000 people per annum aged 55 and over are expected to leave core metro regions in the next 3 years. The majority will head to the lifestyle regions while others will be attracted to some of the rural regions.

### 2.1.3 Resource Based

Resource based regions are not expected to grow greatly. The regions will neither gain nor lose youth or older sections of the community. Some growth will be experienced in those aged 25-54 due to possible employment potential.

### 2.1.4 Dispersed Metro

Much like the core metro regions, the dispersed metro regions will continue to see growth in those aged 0-24 and 25-54. Combining these two age categories, they will gain more than 27,000 people per annum aged 0-54 over the next three years. This continuing attraction of youth and working age people to these regions also sees those aged 55 and over leaving. Over the next three years there will be nearly 5,000 less people per annum aged over 55 in dispersed metro regions. Again, the majority of these people will be attracted to the lifestyle regions and some rural regions.

### 2.1.5 Production Zones

The growth in 0-24 year olds in production zone regions is expected to continue. Over the past three years an additional 15,000 youth per annum were attracted to these regions. Over the next three years they are expected to attract an addition 17,800 per annum. The same is true for 25-54 year olds with nearly the same number expected to migrate to these regions. Production zone regions such as Melbourne North, with strong levels of employment, investment growth and land availability make these regions attractive to a large proportion of the population. Coupling this with good access to cities, growth prospects in these regions are very promising.

### 2.1.6 Lifestyle

Over the past 7 years, lifestyle regions have experienced growth in all age categories. This growth is expected to continue over the next 3 years. As has been documented in previous *State of the Regions* reports, those aged over 55 will continue to be attracted to these regions. The ability for these regions to attract the older population has meant that there has been demand for those of working age (25-54). The attractiveness of these regions from a lifestyle perspective and the employment prospects have meant that youth (0-24) have also been attracted.

## 2.2 Average age

Table 2.2 shows that regardless of the region type, Australia has an ageing population that will continue to age. The regions that will age fastest between 1996 and 2006 are the resource based regions, although in 1996 these were the youngest regions. Lifestyle regions have been the oldest regions since 2001 and this trend will continue to 2006. The change in the average age in lifestyle regions is three years (35.9 to 38.9) between 1996 and 2006. Rural regions, the second oldest behind lifestyle regions, are also expected to age significantly over this time period. The regions with the least ageing between 1996 and 2006 are the core metro regions and the dispersed metro regions. The core metro regions in particular have clearly experienced the least ageing with an average age increase of only 1.36 years since 1996. This is significantly lower than the next best performed regions, dispersed metro, with average age changing by over two years.

| Table 2.2 | Change in average age by region type | | | | |
|---|---|---|---|---|---|
| Region | 1996 | 2001 | 2003 | 2006 | Change 1996 to 2006 |
| Rural | 35.1 | 36.5 | 37.1 | 38.0 | 2.96 |
| Core Metro | 36.4 | 37.1 | 37.4 | 37.7 | 1.36 |
| Resource Based | 31.7 | 33.4 | 34.2 | 35.2 | 3.45 |
| Dispersed Metro | 35.1 | 36.1 | 36.5 | 37.1 | 2.01 |
| Production Zone | 34.6 | 35.5 | 35.9 | 36.6 | 2.05 |
| Lifestyle | 35.9 | 37.5 | 38.0 | 38.9 | 3.03 |

## 2.3 Average annual population growth

Production zone regions are expected to continue to grow faster than other regions in Australia. Dispersed metro regions, lifestyle regions and core-metro regions are also expected to grow significantly over the next three years. The reason core-metro regions are not projected to grow faster is because this data includes births and deaths. Core metro regions experience nearly no growth from births while production zone and dispersed metro regions in particular have comparatively high fertility rates.

Resource based regions are expected to experience the least growth of all the regions. This is not surprising due to their remoteness. Rural regions are expected to grow but not as quickly as most of the other regions.

| Table 2.3 | Average annual population growth | | |
|---|---|---|---|
| Region | 1996 to 2001 | 2001 to 2003 | 2004 to 2006 |
| Rural | 20,770 | 26,052 | 28,408 |
| Core Metro | 36,418 | 54,826 | 34,233 |
| Resource Based | 8,847 | 4,791 | 11,440 |
| Dispersed Metro | 58,233 | 47,706 | 49,234 |
| Production Zone | 60,894 | 67,178 | 72,472 |
| Lifestyle | 35,445 | 41,632 | 44,000 |

## 2.4 Population share by age category

The following tables show the per cent of each age category for each of the six region types.

| Table 2.4 | Percentage of population aged 0 to 24 years by year, 1996 to 2006 | | | | |
|---|---|---|---|---|---|
| Region | 1996 | 2001 | 2003 | 2006, forecast | Change 1996 to 2006 |
| Rural | 36.85 | 34.97 | 34.38 | 33.49 | -3.36 |
| Core Metro | 33.24 | 31.87 | 31.80 | 30.91 | -2.33 |
| Resource Based | 40.57 | 38.40 | 37.57 | 36.51 | -4.07 |
| Dispersed Metro | 36.13 | 34.52 | 34.26 | 33.63 | -2.50 |
| Production Zone | 36.53 | 34.91 | 34.59 | 33.79 | -2.74 |
| Lifestyle | 35.24 | 33.61 | 33.15 | 32.26 | -2.98 |

With the current population dynamics, in no region type will the proportion of 0-24 year olds be higher in 2006 than 1996. Even in the region type that is ageing slowest, core metro regions, the share of 0-24 year olds will drop by 2.33 percentage points from 1996 to 2006. The core metro regions have the lowest share of 0-24 year olds due to their extremely low fertility rates. These regions have very few 0-16 year olds but have a relatively high proportion of 17-24 year olds. Resource based regions' proportion of 0-24 year olds has decreased more than any other region although still has the highest proportion of this age category. This is due predominantly to the indigenous Australian age distribution in NT Lingiari.

**Table 2.5 Percentage of population aged 25 to 54 years by year, 1996 to 2006**

| Region | 1996 | 2001 | 2003 | 2006 | Change 1996 to 2006 |
|---|---|---|---|---|---|
| Rural | 41.86 | 41.50 | 40.84 | 39.93 | -1.93% |
| Core Metro | 46.22 | 46.92 | 46.19 | 46.42 | 0.20% |
| Resource Based | 44.10 | 44.46 | 43.92 | 43.36 | -0.74% |
| Dispersed Metro | 43.99 | 43.85 | 43.10 | 42.41 | -1.58% |
| Production Zone | 43.59 | 43.82 | 43.33 | 42.91 | -0.68% |
| Lifestyle | 42.23 | 41.80 | 41.15 | 40.30 | -1.93% |

Table 2.5 shows the proportion of 25-54 year olds in each of the region types. The most important trend in this table is that the proportion of working age population is falling in all regions except the Core Metro regions, where the share of 25-54 year olds is maintained. The largest falls are in the rural and lifestyle regions with an expected fall of nearly 2 percentage points between 1996 and 2006. This age category contributes the largest share of population with all regions (except rural) having over 40 per cent of their population aged between 25 and 54.

The Core Metro regions clearly have the highest share of 25-54 year olds with over 46 per cent of the population in this age category. Coupled with the highest proportional fall in this age category, the rural and lifestyle regions also have lower shares of their populations in this age category than the other regions with just under and just over 40 per cent respectively.

**Table 2.6 Percentage of population aged 55 years and over by year, 1996 to 2006**

| Region | 1996 | 2001 | 2003 | 2006 | Change 1996 to 2006 |
|---|---|---|---|---|---|
| Rural | 21.48 | 23.54 | 24.80 | 26.60 | 5.12 |
| Core Metro | 20.63 | 21.20 | 22.01 | 22.67 | 2.04 |
| Resource Based | 15.64 | 17.22 | 18.63 | 20.25 | 4.61 |
| Dispersed Metro | 19.91 | 21.63 | 22.65 | 23.96 | 4.05 |
| Production Zone | 19.91 | 21.27 | 22.08 | 23.30 | 3.38 |
| Lifestyle | 22.62 | 24.60 | 25.70 | 27.44 | 4.82 |

The trend since 1996 in the final age category, 55 year olds and over, has been stark. By 2006, every region will have a 2 percentage point share higher than in 1996. The Core Metro regions clearly have the least growth in this age category with only a 2 percentage point increase in the share of 55 and over between 1996 and 2006 expected. All the other regions except the production zone will have an expected increase in the proportion of this category of over 4 percentage points between 1996 and 2006. The rural and lifestyle regions will be the most affected with the highest proportions of over 55's of any of the region types. These two region types will also experience the highest proportion

shift between 1996 and 2006. The fact that the resource based regions have the lowest proportion of over 55's is again a function of the indigenous Australians age distribution profile in NT Lingiari.

## 2.5 State-by-State population trends 1996 – 2006

This following section outlines the trends for each of the states and territories between 1996 and 2003 and expected changes until 2006 for migration flows and the national population increase. The trends are important drivers of the regional population increases in regional population change analysed above.

### 2.5.1 Net interstate migration

Table 2.7 shows net interstate migration trends between 1996 and 2003 and National Economics' forecasts for 2006. It is expected that the trends experienced between 1996 and 2003 will not alter greatly in the future. The key trends have been people leaving New South Wales and entering Queensland. The other States have only had marginal changes in net migration. The main reasons for these patterns are:

- the continuation of the housing boom has made real-estate in New South Wales less affordable; and
- the ageing of the population has meant that Queensland, due to its attractive lifestyles, has had continued positive net migration.

**Table 2.7 Net interstate migration**

| Region | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| New South Wales | -14,770 | -16,315 | -31,790 | -29,673 |
| Victoria | -12,800 | 5,163 | 28 | -1,800 |
| Queensland | 32,614 | 20,024 | 39,207 | 33,654 |
| South Australia | -6,192 | -2,418 | -1,497 | -1,705 |
| Western Australia | 4,066 | -3,110 | -2,810 | 1,800 |
| Tasmania | -2,590 | -2,136 | 1,895 | 800 |
| Northern Territory | 328 | -1,592 | -3,389 | -1,800 |
| Australian Capital Territory | -656 | 407 | -1,644 | -1,276 |

### 2.5.2 Net overseas migration

In 2006, net overseas migration will increase the population by 127,000 (Table 2.8). The States that will attract the most migrants are New South Wales (35 per cent), Victoria (26 per cent), Queensland (18 per cent) and Western Australia (16 per cent). There has been a slight shift since 1996 with Victoria and Queensland attracting a higher share of overseas net migration since 1996 and New South Wales' share falling.

| Table 2.8 Net overseas migration | | | | |
|---|---|---|---|---|
| Region | 1996 | 2001 | 2003 | 2006 |
| New South Wales | 48,045 | 58,619 | 44,873 | 45,060 |
| Victoria | 25,692 | 35,336 | 33,809 | 33,020 |
| Queensland | 13,051 | 21,003 | 22,813 | 22,225 |
| South Australia | 3,653 | 2,765 | 4,679 | 5,207 |
| Western Australia | 12,339 | 16,263 | 17,964 | 19,685 |
| Tasmania | 398 | 101 | 655 | 660 |
| Northern Territory | 569 | 878 | 242 | 889 |
| Australian Capital Territory | 390 | 719 | 285 | 254 |
| **Total Australia** | **104,137** | **135,673** | **125,295** | **127,000** |

### 2.5.3 Population growth rates

Australia's population growth has remained at 1.2 per cent per annum since 1996 (Table 2.9). Queensland and Western Australia are expected to have the fastest population growth in the next 3 years. These are the only two States that are expected to have population growth higher than the national average, with Victoria's population growth expected to be the same as the national average. The other States all have expected per annum growth rates of less than 1 per cent over the next 3 years.

| Table 2.9 Population growth rates (per annum, per cent) | | | |
|---|---|---|---|
| Region | 1996-2001 | 2001-2003 | 2003-2006 |
| New South Wales | 1.2 | 0.8 | 0.8 |
| Victoria | 1.1 | 1.2 | 1.2 |
| Queensland | 1.7 | 2.3 | 2.1 |
| South Australia | 0.5 | 0.5 | 0.6 |
| Western Australia | 1.5 | 1.3 | 1.7 |
| Tasmania | -0.1 | 0.6 | 0.8 |
| Northern Territory | 1.7 | 0.1 | 0.7 |
| Australian Capital Territory | 0.7 | 0.5 | 0.5 |
| **Total Australia** | **1.2** | **1.2** | **1.2** |

# 3. Labour market, employment and unemployment: 1996-2004

## 3.1 Introduction

As in previous years this section of the report estimates the level of unemployment by region using the National Economics' corrected unemployment rate. The requirement for an alternative estimate of regional employment and unemployment has been documented in previous reports. In essence the labour force area estimates produced from the official labour force survey are not appropriate for the estimates of the real level of unemployment within a region. The National Economics' unemployment rate takes as a base the number of people that the government provides social security to, who could reasonably be considered unemployed. In addition, other measures of social disadvantage such as the structural and long-term unemployment rates by regions are presented.

## 3.2 Synopsis of results

- Consistent with the resilience of the Australian economy, the unemployment rate has fallen from 8.89 per cent in 2003, to 8.30 per cent in 2004.
- Unemployment has fallen by nearly 1 percentage points in the past two years.
- The number of Disability Support Pension (DSP) recipients grew by 1.3 per cent in the previous year, levelling off after much higher growth in the previous year.
- Approximately 6.79 per cent of all people aged between 18 and 65 years now receive the DSP, up from 5.55 in 2003.
- Higher levels of DSP and Single Parent Payments were offset by falls in the levels of unemployed, and the number of structurally unemployed fell marginally from 1.316 million in 2003 to 1.292 million in 2004.
- The lowest levels of unemployment are once again in Sydney with 4 of Sydney's 7 regions occupying the top four positions in Australia.
- Overall, unemployment amongst most Australian regions has fallen in the last year.
- The end of the drought has seen rural regions unemployment fall after increases in 2002 and 2003.

## 3.3 National Economics' corrected unemployment

### 3.3.1 Derivation

The National Economics' estimates of unemployment are based on recipient information in the September quarter of each year, and on the June quarter in this report due to changes in report timing. The following formula shows the components of the calculation used to estimate the unemployment rate.

$$NIEIR\ \ Unemployment\ = \frac{\begin{pmatrix} Newstart + Mature\ Age\ Allowance + Excess\ growth \\ in\ Disability\ Support\ Pension + Estimate\ of\ unemployed\ youth \end{pmatrix}}{\begin{pmatrix} Adjusted\ \ Labour\ Force = Official\ Labour\ Force \\ + Excess\ growth\ \ \ in\ \ \ Disability\ Support\ Pension \end{pmatrix}}$$

As a brief background to this analysis, it should be noted that due to considerable rises in the number of disability support pension recipients, the reclassification of youth unemployment recipients and general changes in the work test for unemployment benefits, it is likely that the ABS Labour Force survey systematically under-reports the number of people the government and Centrelink considers unemployed, let alone a broader definition of the unemployment problem.

For additional background and notes on the way the changes in recipient status impact on official unemployment please refer to previous reports.

### 3.3.2 Growth in disability support

In June 1991 there were over 380,000 people on disability support pensions and unemployment was notionally at 9.4 per cent. From labour force surveys 802,635 people were identified as unemployed and 643,614 receiving unemployment benefits at this time.

Since 1991 major changes in the allocation of government benefits have occurred including an enormous increase in the number of people receiving disability support pensions. Table 3.1 outlines the total number of recipients of the disability and sickness type benefits. The vast majority receives the Disability Support Allowance. Other benefit types include Mobility, Sickness and Rehabilitation allowances (year dependent).

**"An enormous increase in the number of people receiving disability support pensions."**

**Table 3.1 Disability Support Pensions (DSP)**

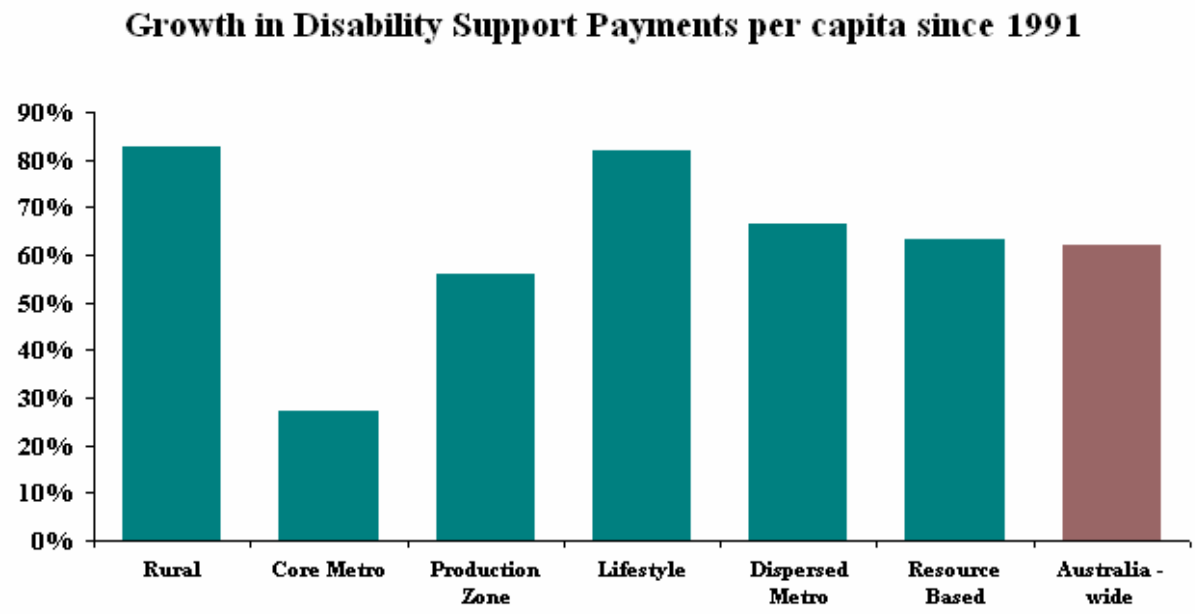
| Year | DSP* recipients | % adults 18-65 | Excess growth |
|---|---|---|---|
| 1991 | 384,304 | 0.036 | 0 |
| 1996 | 515,092 | 0.045 | 141,243 |
| 1998 | 570,613 | 0.048 | 154,800 |
| 2000 | 638,406 | 0.054 | 178,320 |
| 2001 | 625,903 | 0.052 | 189,565 |
| 2002 | 648,657 | 0.054 | 209,924 |
| 2003 | 678,302 | 0.055 | 233,796 |
| 2004 | 686,837 | 0.053 | 236,088 |

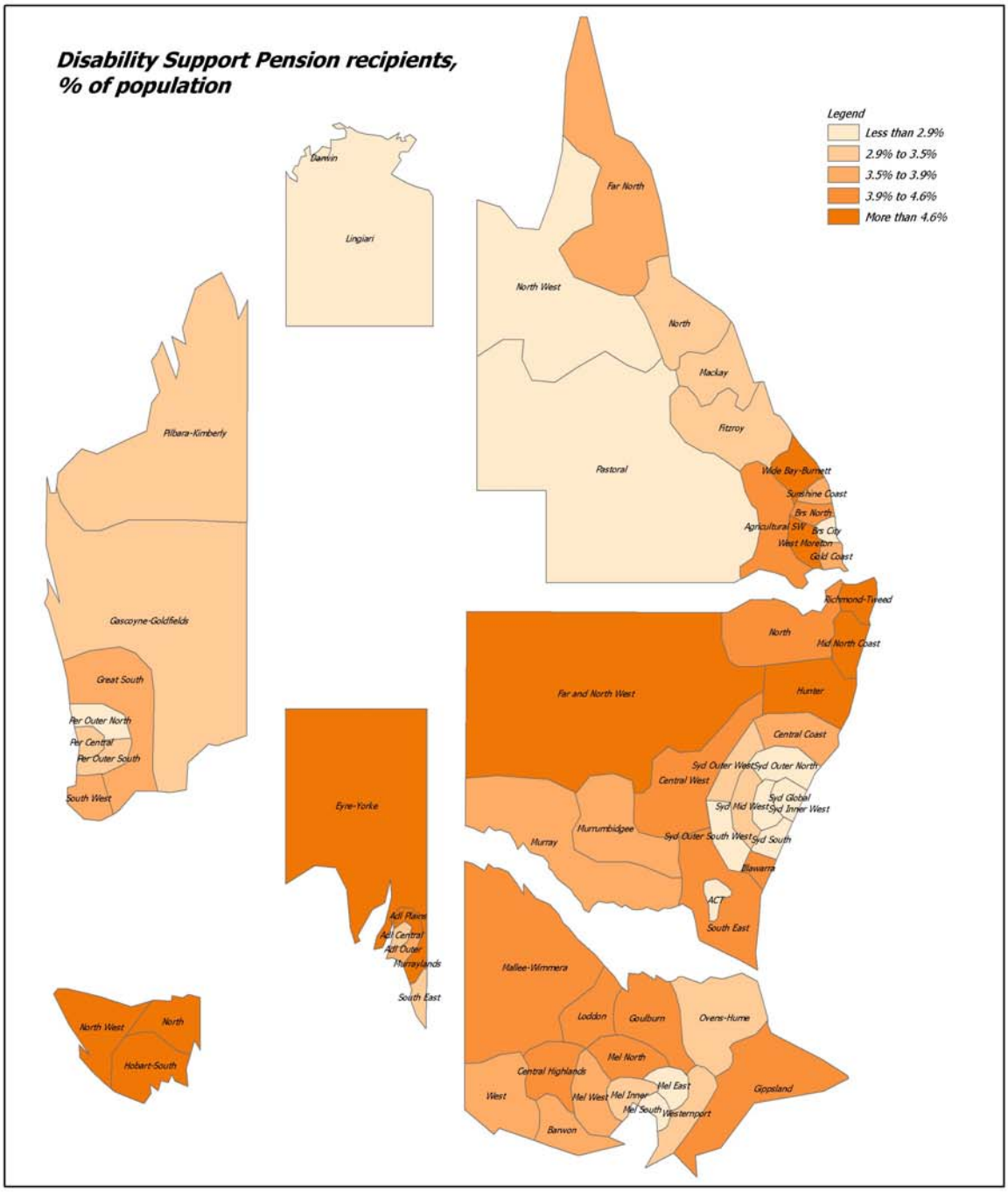
*Note:* * includes sickness and mobility allowance recipients.
*Source:* National Economics' LGA YourPlace database.

Examination of the tables that follow reveals the enormous regional differences in these effects. Certain areas have received far higher rates of growth in the number of DSP recipients and, hence, their local unemployment estimates have been distorted even more than the national average.

| Table 3.2 Percentage of population receiving DSP | | | | | | | |
|---|---|---|---|---|---|---|---|
| Region | 2004 | 2003 | 2002 | 2000 | 1998 | 1996 | 1991 |
| Rural | 4.2 | 4.2 | 4.0 | 3.7 | 3.5 | 3.2 | 2.3 |
| Core Metro | 2.8 | 2.9 | 2.8 | 2.8 | 2.9 | 2.8 | 2.2 |
| Production Zone | 3.9 | 3.9 | 3.9 | 3.4 | 3.5 | 3.2 | 2.5 |
| Lifestyle | 4.0 | 4.1 | 4.0 | 4.5 | 3.2 | 3.0 | 2.2 |
| Dispersed Metro | 2.5 | 2.5 | 2.4 | 2.0 | 2.3 | 2.1 | 1.5 |
| Resource Based | 3.1 | 3.0 | 2.8 | 2.4 | 2.5 | 2.4 | 1.9 |
| **Australia - wide** | **3.4** | **3.4** | **3.3** | **3.2** | **3.0** | **2.8** | **2.1** |

The rural and lifestyle regions have had the highest level of growth between 1991 as can be seen in the following graph. The population measure above is defined as the percentage of all people regardless of age.




Disability Support Pension recipients,
% of population
Legend
Less than 2.9%
2.9% to 3.5%
3.5% to 3.9%
3.9% to 4.6%
More than 4.6%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Far and North West
Hunter
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Syd Outer South West
Syd South
Murray
Illawarra
ACT
South East
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Per Outer North
Per Central
Per Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon
North West
North
Hobart-South

### *Estimation of the levels of excess DSP growth*

Armed with the actual growth in the level of DSP recipients by region and the population growth that has occurred we can determine the excess growth in DSP since 1991[4].

To estimate how large the 'true' or underlying unemployment rate for a region would have been, if the increase in the number of people receiving the disability support pension had not occurred, a series called the *corrected unemployment rate* has been reconstructed. To derive the *corrected unemployment rate* the first step is to take out the effect of the increase in disability support pensioners on the labour force. The DSP changes have made the labour force smaller.

The adjusted or effective labour force is equal to the reported size plus the number of people who have been moved to the disability support pensions who otherwise wouldn't have been. To determine who would or wouldn't have previously classified as qualifying for DSP we must make an assumption about each region. We assume that the proportion of the population in 1991, that received the DSP, is the best representation of the proportion of that population who would receive it in the long run, that is, the proportion of people within the population who are receiving disability support pensions is assumed to remain fixed.

Hence, we have assumed that the number of disability support pension recipients in 1991 will only grow as fast as population growth in that region. Any growth in DSP over and above that amount is assumed to be excess growth. Of course a region may have slower growth in DSP than population growth, therefore excess growth will be negative, and this will be allowed to have positive impact on corrected unemployment.

The regional differences in the incidence of excess growth in DSP are stark. The following two tables show the ten regions with the lowest and highest levels of excess DSP numbers in the adjusted labour force. As alluded to, three of the top ten regions have had less growth in DSP than would be suggested by population growth. These regions in order are Melbourne Inner, Sydney Inner West and Global Sydney.

**Table 3.3 Excess DSP in effective labour force, top ten regions**

| Rank | SOR name | % of workforce, 2003 | % of workforce, 2004 |
|---|---|---|---|
| 1 | Melbourne Inner | -0.8 | -1.0 |
| 2 | Sydney Inner West | -0.2 | -0.4 |
| 3 | Global Sydney | -0.3 | -0.3 |
| 4 | Sydney Outer North | 0.4 | 0.4 |
| 5 | Sydney South | 0.8 | 0.7 |
| 6 | Perth Central | 0.9 | 0.8 |
| 7 | Brisbane City | 1.2 | 1.0 |
| 8 | QLD Pastoral | 1.5 | 1.2 |
| 9 | Darwin | 1.1 | 1.2 |
| 10 | Perth Outer South | 1.3 | 1.3 |

[4] There is an argument that due to the ageing of the population a greater allowance for population growth should be used. National Economics believes that the bubble in population due to the baby-boomers was a well-understood social phenomenon that should have been planned for. If this was the case the measures put in place to help the mature workers in the workforce could have resulted in less DSP recipients. Regardless, Australia is now without the utilisation of the productive capacity of many of these individuals simply due to the lack of appropriate opportunities.

The tenth best region in 2004, Perth Outer South, still had more than 1.3 per cent of its effective work force transferred to DSP after accounting for population growth.

The large impact on some regions is clear in the table of the bottom ten regions. Tasmania's North West has a number of people equal to 6.8 per cent of its effective workforce on DSP in excess of population growth. This does not include the 4.1 per cent that were already on DSP in 1991.

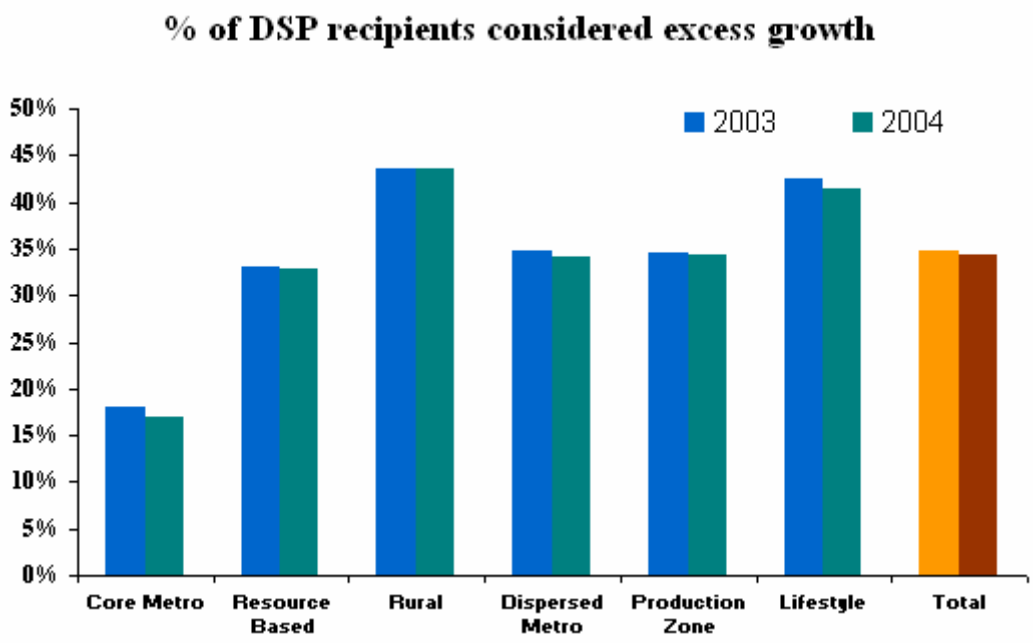
This amount has risen slightly between 2003 and 2004 although QLD Wide Bay Burnett has been elevated to the region with the highest levels of 'excess growth' with higher growth in the last 2 years.

**Table 3.4 Excess DSP in effective labour force, bottom ten regions**

| Rank | SOR name | % of workforce, 2003 | % of workforce, 2004 |
|---|---|---|---|
| 1 | QLD Wide Bay-Burnett | 6.7 | 7.3 |
| 2 | TAS North West | 6.5 | 6.8 |
| 3 | QLD West Moreton | 4.7 | 5.5 |
| 4 | NSW Richmond-Tweed | 5.8 | 5.4 |
| 5 | TAS Hobart-South | 5.6 | 5.4 |
| 6 | NSW Mid North Coast | 5.3 | 4.9 |
| 7 | SA Eyre and Yorke | 4.8 | 4.7 |
| 8 | TAS North | 4.5 | 4.6 |
| 9 | VIC Gippsland | 5.1 | 4.5 |
| 10 | Adelaide Plains | 4.3 | 4.4 |

It is noted that in the past those regions with the least opportunities for employment tend to have had the largest increase in DSP. This is clearly demonstrated in the graph below, which shows the percentage of DSP that represent excess growth for each of the region types. The rural and lifestyle regions have almost 40 per cent of all DSP recipients being in excess of natural increase. However. little change has occurred over the last two years for each region, indicating that it is not clear that recent growth is as unevenly distributed. The relative stability differs from the 2002-2003 comparison which experienced an increase in DSP recipients across the board.

**"Regions with the least opportunities for employment tend to have had the largest increase in DSP."**




### 3.3.3 Corrected unemployment rates

Table 3.5 shows that in 1991, the number of recipients was below measured unemployment in the labour force. This was due to two factors. Firstly, the unemployment rate was rising rapidly through 1991 to peak at 11 per cent in 1992. Consequently given the lag between becoming unemployed and receiving benefits, it would be expected that the number of recipients would be less than the number of unemployed through 1991. Secondly, when unemployment conditions change suddenly, as was the case in 1991, many people who become unemployed, perhaps for the first time, were not eligible for benefits because of the *means tests*. However if they remain unemployed and their personal finances deteriorate they then become eligible, in the end result, recipients should approximate the levels of unemployment.

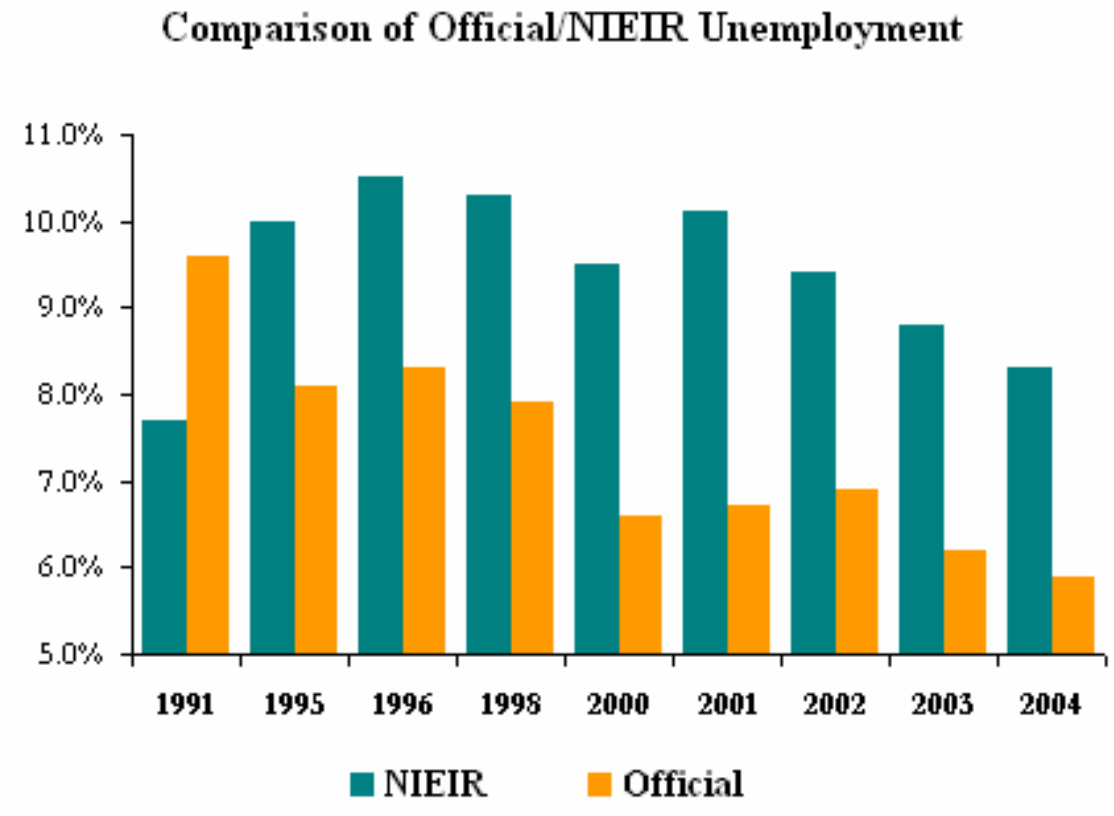
Table 3.5 shows there are still more people directly receiving unemployment benefits than the official figures estimate are unemployed. The difference between the labour force unemployed and the recipients measure has continued fall since 2001.

| Table 3.5 Comparison of official unemployment and "unemployed" recipients | | | |
|---|---|---|---|
| Year | Labour force unemployed | Recipients* | Difference |
| 1991 | 802,635 | 643,614 | 159,021 |
| 1996 | 760,131 | 819,995 | -59,864 |
| 1998 | 735,045 | 803,388 | -68,343 |
| 2000 | 627,169 | 720,431 | -93,262 |
| 2001 | 648,218 | 799,706 | -151,488 |
| 2002 | 659,860 | 711,022 | -51,162 |
| 2003 | 628,095 | 677,877 | -49,782 |
| 2004 | 599,870 | 622,710 | -22,840 |

*Note:* * Includes: Newstart, estimates of Youth Allowance unemployed and Mature Age Allowance circa. September each year
*Source:* National Economics' LGA YourPlace database.

Looking at the trends at a regional level, the top ten and bottom ten regions are detailed. The top ten includes four of the seven Sydney regions occupying the first four places. The pre-eminence of Sydney as a centre of income, employment and wealth creation is once again shown. It is worth noting that, despite the very low levels of unemployment that the top ten regions had in 2003 compared to a national average of 8.9 per cent, all regions except Melbourne East improved this year and the previous year.

To demonstrate the scale of the difference between the official figure and the corrected unemployment rates the 6th ranked region of Melbourne East has a corrected unemployment equal to the official national average. In last years report the 8th ranked region had a corrected unemployment measure equal to the official national average. In 2004, 58 of the 64 regions in Australia have a corrected unemployment rate that is worse than the official national average.

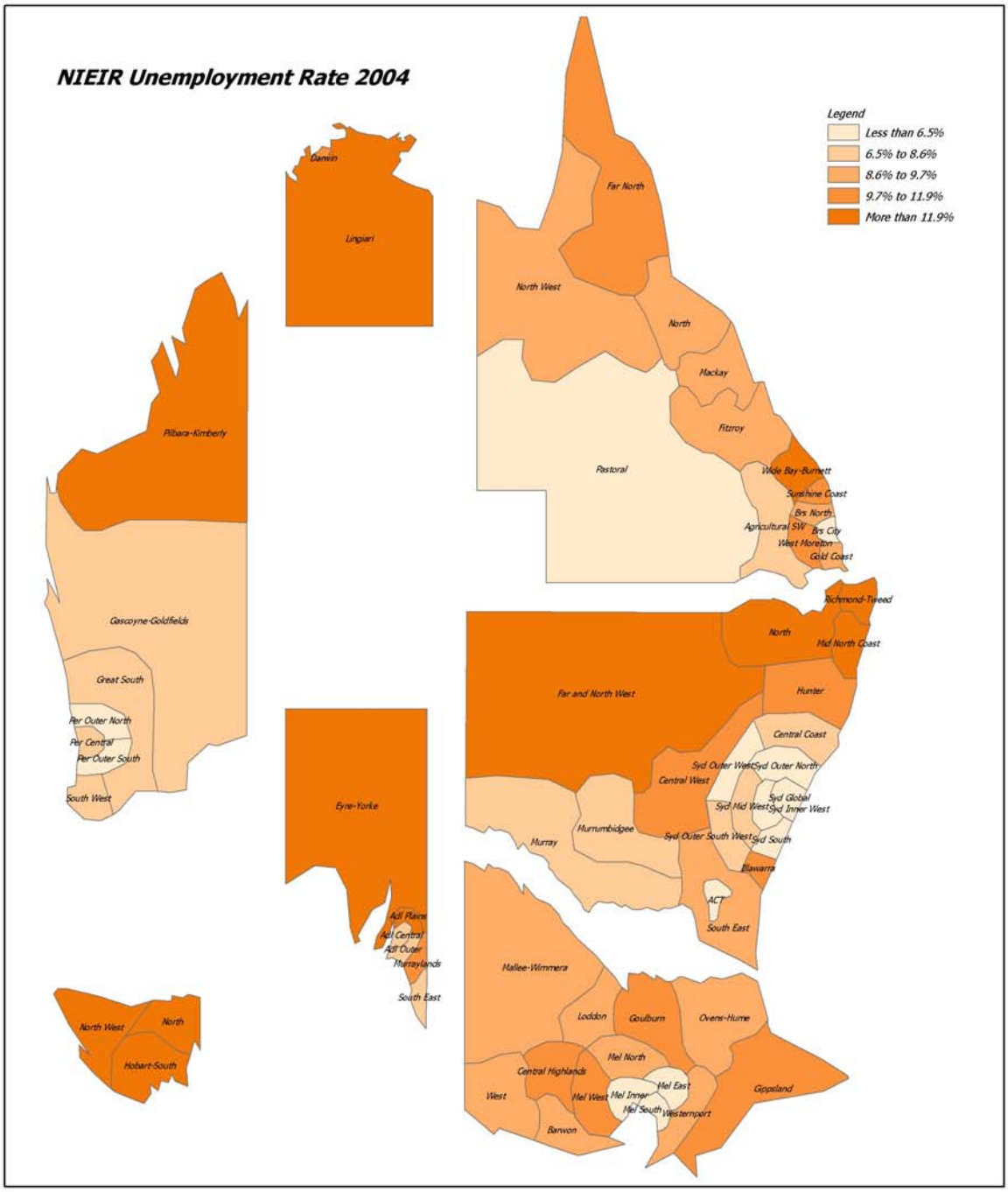


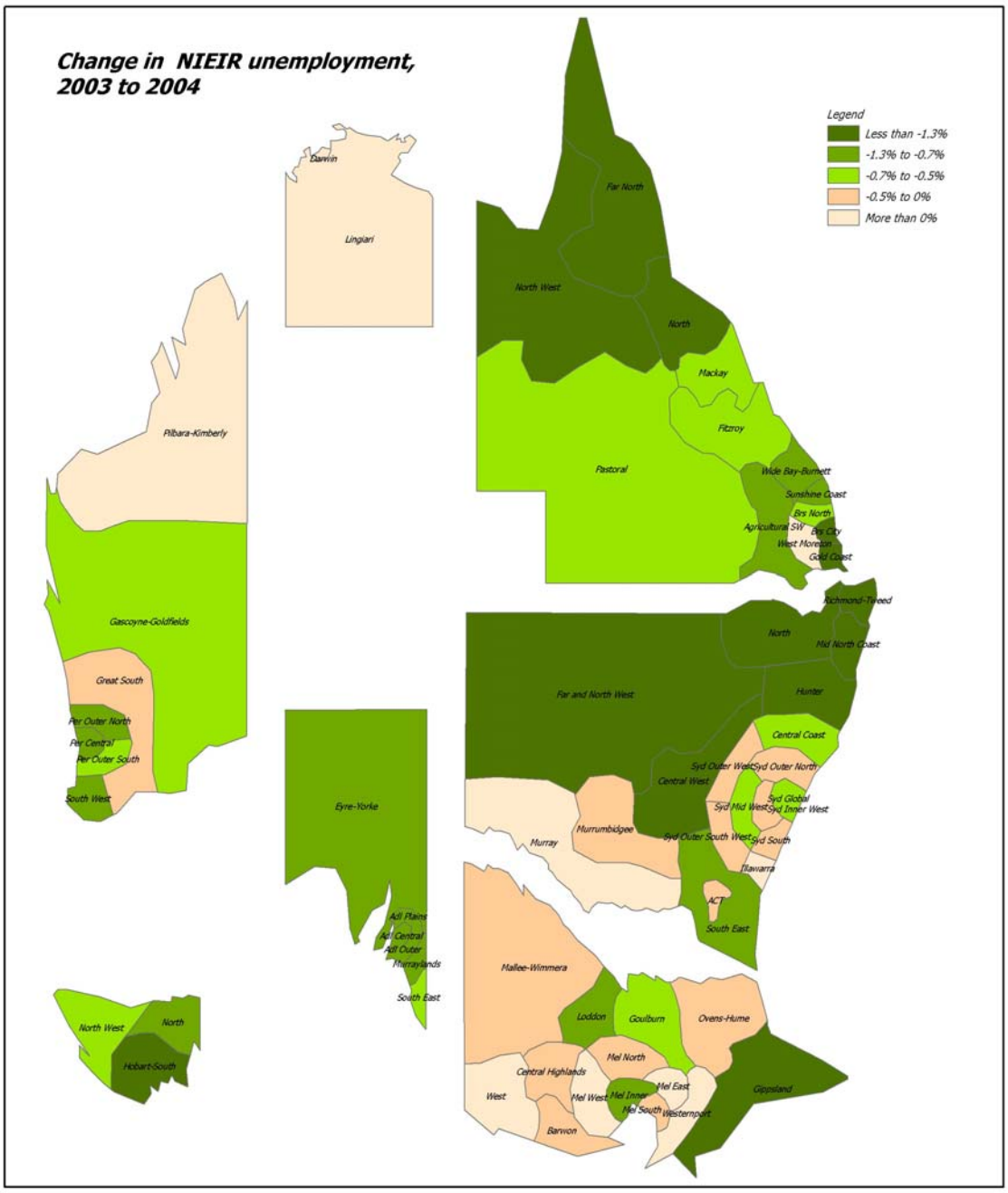
| Table 3.6 | National Economics' unemployment rate, top ten regions | | |
|---|---|---|---|
| Rank | SOR Name | % of workforce, 2003 | % of workforce, 2004 |
| 1 | Sydney Outer North | 2.0 | 1.9 |
| 2 | Sydney Inner West | 3.3 | 2.9 |
| 3 | Global Sydney | 3.6 | 2.9 |
| 4 | Sydney South | 4.0 | 3.6 |
| 5 | Melbourne East | 4.6 | 4.7 |
| 6 | ACT | 5.1 | 4.8 |
| 7 | QLD Pastoral | 4.7 | 4.9 |
| 8 | Melbourne South | 5.8 | 5.2 |
| 9 | Melbourne Inner | 6.4 | 5.2 |
| 10 | Brisbane City | 6.8 | 5.4 |

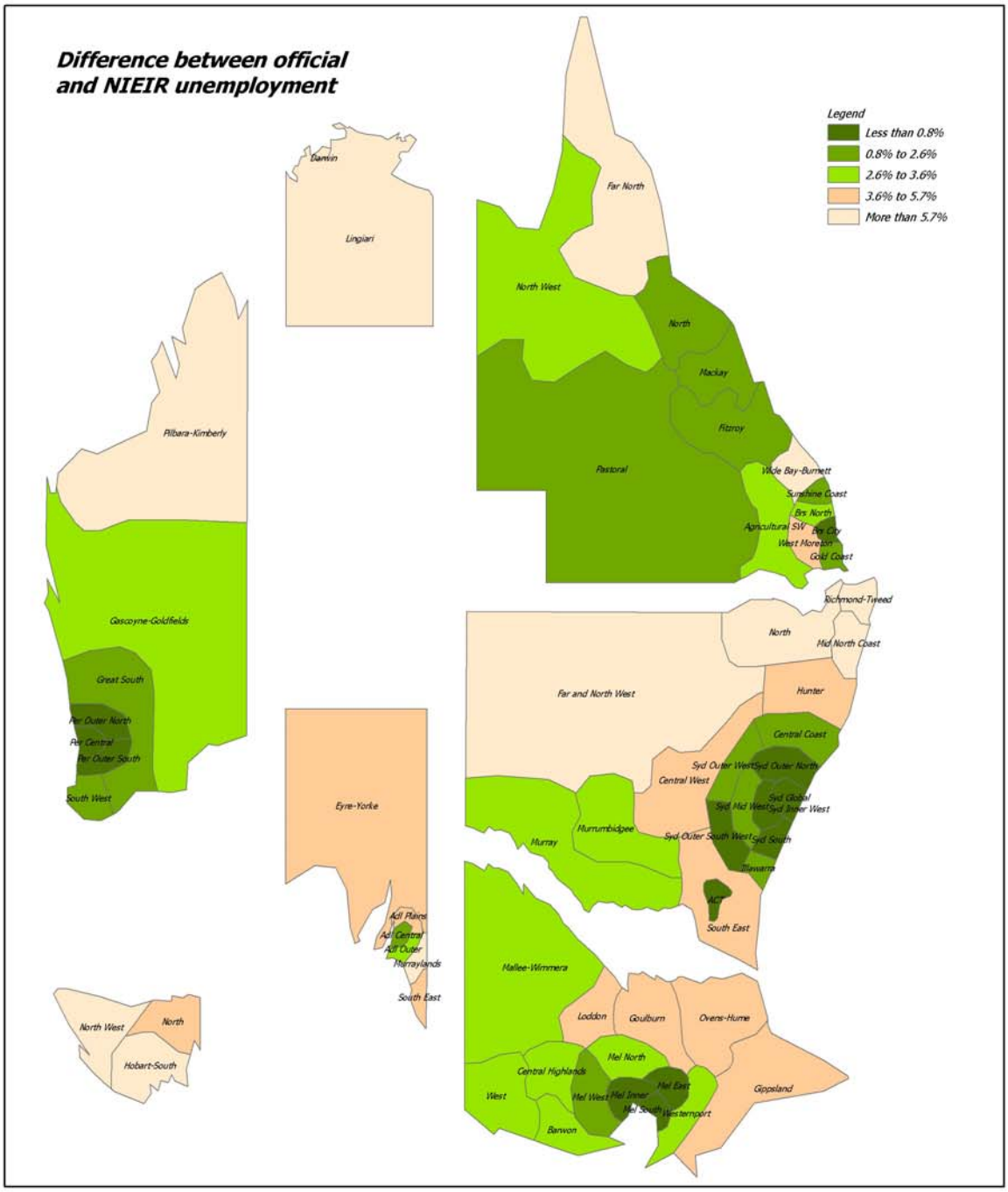
The levels of regional inequality are starkly portrayed in the table of the bottom 10 regions. There is ample evidence in the tables that there are many regions of Australia that have unemployment significantly in excess of 10 per cent. The bottom ten regions lay in four separate States and a Territory and the diverse membership of the list highlights the regional spread of unemployment.

| Table 3.7 | National Economics' unemployment rate, bottom ten regions | | |
|---|---|---|---|
| Rank | SOR Name | % of workforce, 2003 | % of workforce, 2004 |
| 64 | NT Lingiari | 25.5 | 30.2 |
| 63 | QLD Wide Bay-Burnett | 20.1 | 18.5 |
| 62 | TAS North West | 18.6 | 17.0 |
| 61 | NSW Mid North Coast | 19.4 | 16.6 |
| 60 | NSW Richmond-Tweed | 19.8 | 16.3 |
| 59 | TAS Hobart-South | 16.0 | 14.1 |
| 58 | TAS North | 13.8 | 13.6 |
| 57 | SA Eyre and Yorke | 15.6 | 13.5 |
| 56 | Adelaide Plains | 14.5 | 12.9 |
| 55 | NSW Far and North West | 13.7 | 12.9 |

The following maps of the National Economics' corrected unemployment rate and the change in unemployment rates between 2003 and 2004 are presented. The maps are used to display regions of different scale on a single map, by varying the size of the regions within State boundaries and varying the size of States themselves. The regions of high population density are enlarged and the sparsely populated areas reduced, allowing the richness of the entire nation's results to be placed side-by-side.


NIEIR Unemployment Rate 2004
Legend
Less than 6.5%
6.5% to 8.6%
8.6% to 9.7%
9.7% to 11.9%
More than 11.9%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Brs City
Agricultural SW
West Moreton
Gold Coast
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Per Outer North
Per Central
Per Outer South
South West
Richmond-Tweed
North
Mid North Coast
Far and North West
Hunter
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon
North West
North
Hobart-South

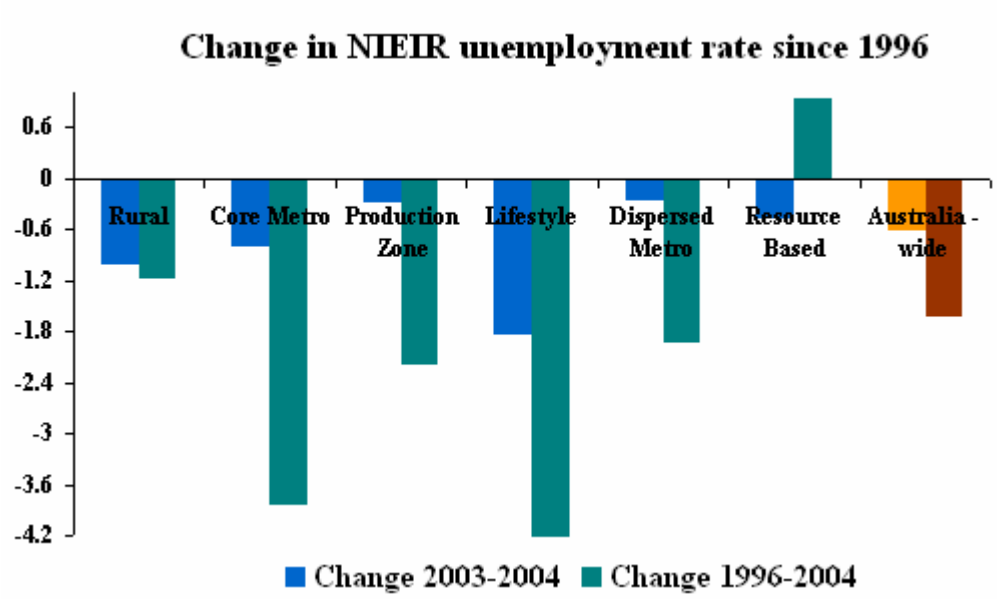

Change in NIEIR unemployment, 2003 to 2004
Legend
Less than -1.3%
-1.3% to -0.7%
-0.7% to -0.5%
-0.5% to 0%
More than 0%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Hunter
Far and North West
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Per Outer North
Per Central
Per Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
North West
North
Hobart-South
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon


Difference between official and NIEIR unemployment
Legend
Less than 0.8%
0.8% to 2.6%
2.6% to 3.6%
3.6% to 5.7%
More than 5.7%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Bris City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Hunter
Central Coast
Far and North West
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Hurrumbidgee
Syd Outer South West
Syd South
Murray
Illawarra
ACT
South East
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Far Outer North
Far Central
Far Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon
North West
North
Hobart-South

### 3.3.4 National Economics' unemployment rates by region type

Combining the 64 regions into the six region types provides the trend in unemployment for Australia's various types of region. The regional inequality changes identified in the *2002 State of the Regions* report are once again reinforced when considering the distribution of unemployment and the changes in unemployment over the previous seven years. The largest falls in the unemployment rate have occurred in the Lifestyle and Core Metro regions.

The production and dispersed metro regions have had continued decreases in the unemployment rate. The other trend of note is the decrease in the unemployment level in rural areas because of the end of the drought. The rural regions had, for the previous few years, experienced unemployment rate rises due to the drought, the decrease in unemployment levels hopefully indicates a return of these lost jobs.




Turning to the level of unemployment by region the most pleasing trend has been the across the board reduction in unemployment for the past year. The end of the drought is clear in the rural areas where unemployment has fallen in the past year by 0.99 percentage points. The dispersed metro areas currently have exceptionally low levels of unemployment (by any measure) and have recently been well served by the housing and credit boom.

**Table 3.8 National Economics' unemployment rates by region**

| Region | 2004 | 2003 | 2002 | Change 2003 to 2004 | 2001 | 1996 | Change 1996 to 2004 |
|---|---|---|---|---|---|---|---|
| Rural | 10.81 | 11.80 | 11.33 | -0.99 | 12.50 | 11.98 | -1.17 |
| Core Metro | 5.68 | 6.46 | 6.69 | -0.78 | 7.46 | 9.50 | -3.82 |
| Production Zone | 9.86 | 10.13 | 10.89 | -0.27 | 11.55 | 12.04 | -2.18 |
| Lifestyle | 11.16 | 12.98 | 13.55 | -1.82 | 15.34 | 15.37 | -4.21 |
| Dispersed Metro | 5.58 | 5.83 | 6.22 | -0.25 | 6.73 | 7.50 | -1.92 |
| Resource Based | 10.85 | 11.31 | 11.82 | -0.46 | 11.45 | 9.91 | +0.94 |
| **Australia - wide** | **8.30** | **8.89** | **9.21** | **-0.59** | **10.02** | **10.61** | **-1.62** |

### 3.3.5 Structural unemployment

In the *1999 State of the Regions* report, National Economics introduced a new measure of unemployment that accounted for those in the population who were considered to be structurally unemployed. Based upon detailed DSS and Centrelink data the constructed series allowed us to identify regions that had very high effective rates of under-employment due to structural issues in their workforce. Structural barriers that were identified included disability, single parenthood, migrant unemployment, mature aged unemployment and long-term unemployment. Each was included for its effect in reducing the opportunities for the person in question obtaining full-time employment.

**Structural unemployment:** This is a measure of the level of long-term unemployed as a percentage of the population aged 18 to 65 years old. It includes everyone on disability support pensions, 50 per cent of people from a non-English speaking background on Newstart allowance, 50 per cent of people on single parents benefits and all people on the mature age allowance.

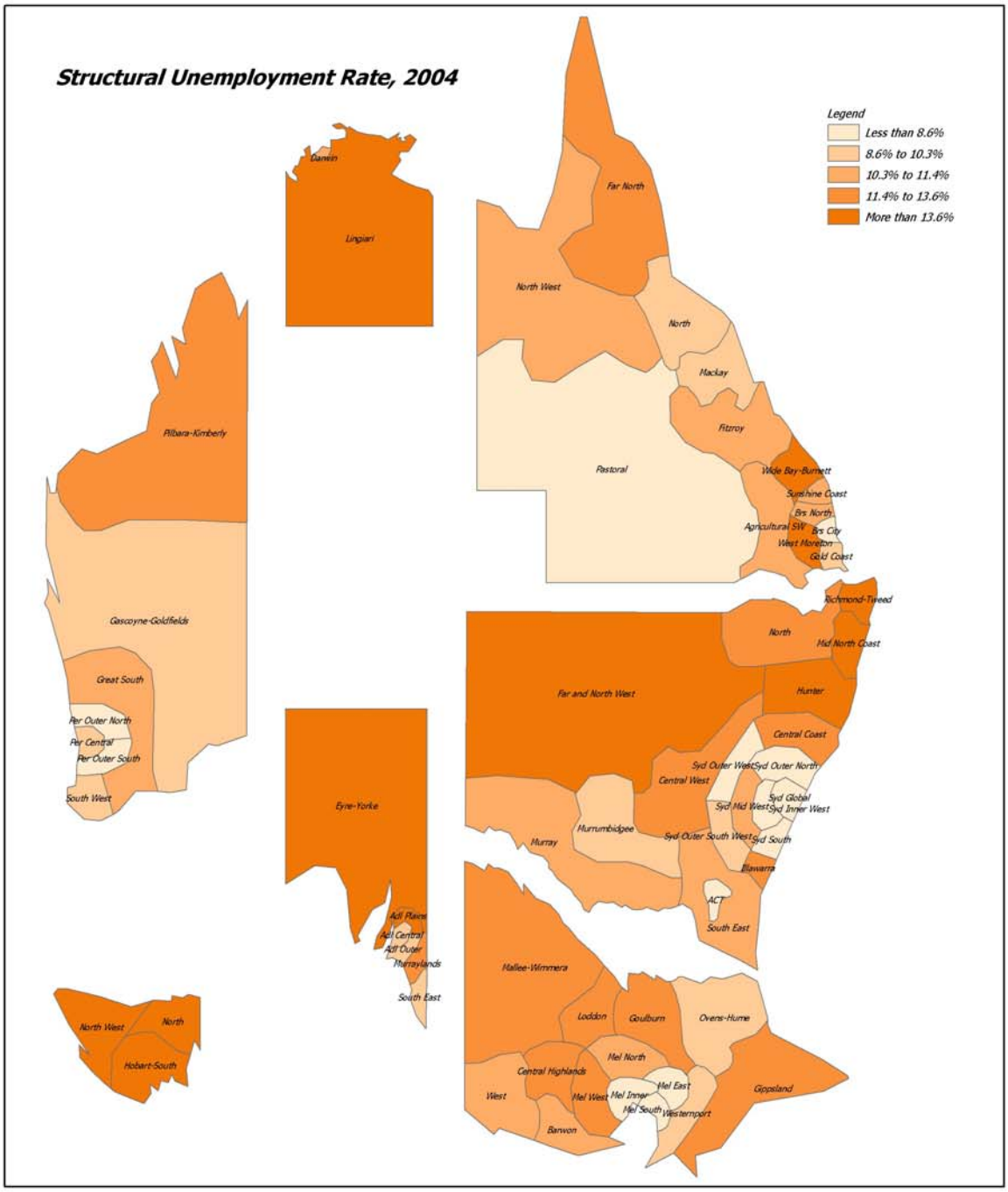
This measure excludes people on Newstart allowance short-term and anyone receiving youth allowance. It therefore assumes that none of the youth are structurally unemployed.

Previous sections of this chapter have highlighted the changes in the unemployed and disability support pensions. The ethnicity of the recipient is routinely collected and processed, along with the number receiving the Mature Age Allowance. The final vital component of the equation is the level of single parent pension payment.

**"Those regions with endemic social or economic structural concerns have the highest levels of structural unemployment."**

When the various features of structural unemployment are totalled and weighted the following regional results are derived. Those regions with endemic social or economic structural concerns have the highest levels of structural unemployment. The range of outcomes is very large with the 64$^{th}$ ranked region, the NT Lingiari, having 20.4 per cent of its population classified as structurally unemployed versus only 3.0 per cent for Sydney's Outer North.

Levels of structural unemployment are detailed in Appendix 1 at the regional level and are included as a time series. Highlighting recent changes in the levels of structural unemployment, the top ten and bottom ten regions, based on updated estimates for 2004, are compared with last year's results.


Structural Unemployment Rate, 2004
Legend
Less than 8.6%
8.6% to 10.3%
10.3% to 11.4%
11.4% to 13.6%
More than 13.6%
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Far and North West
Hunter
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Syd Outer South West
Syd South
Murray
Illawarra
ACT
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Per Outer North
Per Central
Per Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
North West
North
Hobart-South

| Table 3.9 | National Economics' structural unemployment rate, bottom ten regions 2003 | | |
|---|---|---|---|
| Rank | SOR Name | % of population aged 18 – 65, 2003 | % of population aged 18 – 65, 2004 |
| 64 | NT Lingiari | 20.8 | 20.4 |
| 63 | NSW Mid North Coast | 19.7 | 18.2 |
| 62 | NSW Richmond-Tweed | 19.3 | 17.7 |
| 61 | QLD Wide Bay-Burnett | 19.4 | 17.6 |
| 60 | TAS North West | 18.0 | 16.7 |
| 59 | NSW Far and North West | 16.3 | 15.9 |
| 58 | SA Eyre and Yorke | 16.2 | 15.3 |
| 57 | Adelaide Plains | 16.4 | 15.3 |
| 56 | TAS Hobart-South | 15.8 | 14.6 |
| 55 | TAS North | 15.3 | 14.4 |

| Table 3.10 | National Economics' structural unemployment rate, top ten regions 2003 | | |
|---|---|---|---|
| Rank | SOR Name | % of population aged 18 – 65, 2003 | % of population aged 18 – 65, 2004 |
| 1 | Sydney Outer North | 3.1 | 3.0 |
| 2 | Global Sydney | 5.8 | 5.3 |
| 3 | Sydney South | 5.9 | 5.6 |
| 4 | Melbourne East | 6.0 | 5.8 |
| 5 | ACT | 6.3 | 5.9 |
| 6 | Sydney Inner West | 6.5 | 6.0 |
| 7 | Melbourne South | 7.4 | 6.9 |
| 8 | Brisbane City | 8.2 | 7.3 |
| 9 | Melbourne Inner | 8.9 | 8.0 |
| 10 | Perth Outer North | 8.7 | 8.0 |

The results for each of the 64 regions are presented in the regional summaries as part of the appendices and include the same results presented using the cartogram/map format presented in this chapter. The map design allows us to clearly see the trend of unemployment fanning out from the centres of the major cities.

### 3.3.6 Long-term unemployment

A subset of the corrected and structural unemployment is the long-term unemployed[5]. The reduction of the long-term unemployment rate should remain a key objective of good governance. The results of the top and bottom ten regions in Australia are presented below. The worst performing regions are a mix of those with historically based structural economic disadvantage and lifestyle regions.

[5] Definition as per Centrelink records, indicates recipient receiving benefits for a period greater than 12 months.

The strength of the Sydney economy underpins the results presented in the top ten regions with five of Sydney's seven regions occupying places in the top ten.

**Table 3.11 Long-term unemployment, top ten regions from 2003**

| Rank | SOR Name | % of workforce, 2003 | % of workforce, 2004 |
|---|---|---|---|
| 1 | Sydney Outer North | 0.6 | 0.6 |
| 2 | Sydney South | 1.3 | 1.2 |
| 3 | Melbourne East | 1.3 | 1.4 |
| 4 | Sydney Outer West | 1.6 | 1.5 |
| 5 | Global Sydney | 1.7 | 1.5 |
| 6 | ACT | 1.6 | 1.5 |
| 7 | Sydney Inner West | 1.5 | 1.6 |
| 8 | Melbourne South | 1.9 | 1.8 |
| 9 | QLD Pastoral | 2.0 | 1.9 |
| 10 | Brisbane City | 2.4 | 1.9 |

There is some positive news on the percentage of the workforce who are long-term unemployment benefit recipients. Most of the worst performing regions have experienced a fall in the past year although NT Lingiari has worsened over the past year.

**Table 3.12 Long-term unemployment, bottom ten regions**

| Rank | SOR Name | % of workforce, 2003 | % of workforce, 2004 |
|---|---|---|---|
| 64 | NT Lingiari | 16.2 | 18.6 |
| 63 | NSW Mid North Coast | 7.5 | 6.4 |
| 62 | NSW Richmond-Tweed | 7.4 | 6.0 |
| 61 | TAS North West | 5.8 | 5.5 |
| 60 | QLD Wide Bay-Burnett | 6.1 | 5.4 |
| 59 | SA Eyre and Yorke | 5.6 | 5.0 |
| 58 | TAS North | 5.3 | 4.9 |
| 57 | NSW Far and North West | 5.5 | 4.9 |
| 56 | WA Pilbara-Kimberly | 4.9 | 4.9 |
| 55 | QLD North West | 5.3 | 4.8 |

One of the most informative ways to assess the capacity of the region to combat long-term unemployment, rather than the general problem of unemployment, is to consider the ratio of long-term unemployed to the total unemployment recipients. Although we are aware that unemployment recipients are not the only ones who should be considered unemployed, the ratio provides policy makers with genuine opportunity for soul-searching.

The inner areas of Melbourne and Sydney stand out as areas that are able to provide employment for the long-term unemployed. Not only have many other areas got significantly higher levels of unemployment but the share of those unemployed who are long-term unemployed is significantly greater.

# PART B

# THE IMPERATIVE BEHIND THE NEED FOR REGIONAL INFRASTRUCTURE DEVELOPMENT IN THE CONTEXT OF LOCAL FINANCING EMPOWERMENT

# The imperative behind the need for regional infrastructure development in the context of local financing empowerment – overview

A constant theme of the *State of the Regions* reports, re-iterated in Part A of this report, has been the inadequate response by all levels of government in Australia to globalisation and the rise of the knowledge economy. These inadequacies have been particularly marked in the continued divergence between regions. National Economics has argued that an adequate response to globalisation and the knowledge economy requires local government involvement in the creation of local economic advantage, including creation of advantage through infrastructure investment.

A second reason why local government has to become more involved in infrastructure investment is described in this Part of the report. For the past two decades, and particularly over the past eight years, Australia has depended heavily on consumer expenditure to maintain its economic momentum. Household spending on housing, holidays, private school fees and a whole range of other assets and activities has generated jobs and economic growth. Unfortunately this is unsustainable due to the build-up of consumer debt to very high levels in relation to household incomes. The time has arrived, or will very shortly arrive, when households will not be able to service any more debt. If they cannot go further into debt, they will have to scale back their expenditures, which in turn will threaten employment and activity. There will be a need to replace consumer expenditure as the main driver of growth.

If the household sector can no longer drive growth by spending, a replacement driver must be found. This requires an increase in non-consumption expenditure, covering business assets including product development, and public sector assets or infrastructure.

An increase in business expenditure on new products, extra capacity and the like will only happen if there is a prospect of profits. Unfortunately, if household consumption is declining, a great deal of business expenditure will tend to decline with it. It will not be possible to look to the business sector for the replacement driver.

This leaves the public sector. Unlike the household sector, the three spheres of Australian government (Commonwealth, state and local) have been behaving with extreme financial prudence, and hence have capacity to service debt. It is obvious, therefore, that they should borrow and spend to replace the downturn in household spending.

It would be possible for governments to attempt to keep household expenditure going by borrowing in order to spend on measures designed to keep households spending, but a government which does this is like a business which borrows to pay dividends. Its credit rating is quickly marked down by the financial markets.

Government borrowing is responsible only when the borrowed funds are spent in ways which increase yields of tax revenue, so allowing the government to service its debts. In other words, Australia's current position calls out for increased government borrowing, spent on measures which enhance economic growth.

This section first demonstrates the effects of attempting to maintain household expenditure as the chief driver of growth. It then considers a switch to public infrastructure expenditure, and finds that this will result in Australians being much better off in the long term.

The second task is to put two and two together. The knowledge economy and globalisation yield opportunities for local initiative. Should not local initiative, therefore, play a major role in the program of public infrastructure enhancement which is necessary for macroeconomic reasons?

Several barriers to the exercise of local initiative have been identified. These include the following.

- Local administrative capacity and governance. These questions have been discussed in previous reports, and this report summarises proposals for voluntary local associations of councils to build up to the scale required to participate in significant infrastructure projects.
- Project selection can become difficult once a council moves beyond the range of services typical for its type of locality – a range referred to in this report as the standard array. However, movement beyond the standard array is essential if regions are to take advantage of the opportunities afforded by globalisation and the knowledge economy. We begin to address the thorny problems of project selection in Part C below, leaving much unfinished business for future *State of the Regions* reports.
- Local financial constraints limit local participation.

The remainder of this Part addresses the financial constraints, which have a twofold origin. They derive fundamentally from the Australian constitution, which allocates most significant tax bases to the Commonwealth. Local (and state) government is hence dependent on Commonwealth grants, both general financial assistance grants and various forms of specific purpose grant. Given the distribution of taxation powers, National Economics supports the grant system.

A second source of local financial constraint is the reverse side of the advantage which local government has in identifying local opportunities. Because councils serve local areas, and their revenues depend on many factors affecting local economic development which are outside their control, they are regarded by lenders as riskier propositions than the state and Commonwealth governments. As a result, they can only borrow at interest rates which are higher than those charged to the larger governments.

Despite this, it remains that wise infrastructure investments by local government will yield revenue, generally both user charge revenue and rate revenue. (Infrastructure investments tend to be in property-related services which enhance values.) Again, councils, like the Commonwealth and state governments, have in general been financially conservative in the recent past, and have balance sheets which would support prudent borrowing. Indeed, they are in a position to help the Commonwealth with its macroeconomic imperative to increase government expenditure on infrastructure.

This Part accordingly concludes with a suggestion for blended Commonwealth-state-local finance for investment projects. This would operate additionally to all existing grant finance of infrastructure. From a local point of view, it would increase local independence in project selection and design, the quid pro quo being that a negotiable proportion of each project would be locally-financed. However, the risk premium in the interest rates which would have to be paid would be reduced through the participation of the Commonwealth and state governments. From the Commonwealth point of view, the proposal would improve project selection while maintaining macroeconomic flexibility in project timing. And the states would be able to pursue their traditional interest in state development.

# 4. The role of infrastructure investment in Australian economic growth over the next two decades

## 4.1 Introduction

There are two compelling reasons for local government to become more involved in financing public infrastructure. The first is that an efficient response to the rise of the regional knowledge economy and the structural change pressures from enhanced world economic integration (that is, globalisation) requires much greater local area involvement in public sector investment decisions. The second compelling reason is from the macroeconomic perspective, where the drivers of Australian growth over the next few years will have to shift from consumption expenditure to investment expenditure. If this shift is to be achieved with maximum efficiency (that is, to avoid a severe recession) then the public sector in general, and local government in particular, will have to play a key role.

## 4.2 The alternative future growth paths for the Australian economy

Over the last decade many commentators have passed favourable judgment on the performance of the Australian economy in general and the national economic development strategy in particular. Strong economic growth, rising living standards, reductions in unemployment and low levels of inflation are seen as proof that the reform agenda of the past two decades (financial market deregulation, trade liberalisation, micro economic reform, privatisation and changes to industrial relations) was successful. That Australia's economy continued to grow and prosper despite the Asian financial crisis (1997-99), the collapse of global stock markets (2000-2002) and the consequences of drought, bushfires, global terrorism and SARS was taken as further evidence that, unlike most other nations, our reform agenda had got the fundamentals right and done much to secure our future prospects.

With this being the conventional wisdom, it is hardly surprising that when confronted by a deadlock in the current global WTO trade negotiations, Australian policy makers and politicians turned to bilateral free trade agreements as an alternative. After a decade of solid economic performance they simply took as given that the Australian economy was "free trade ready" and that the success story of the past could be built upon through bilateral FTAs, another round of micro reform, further deregulation of the labour market, more competition policy and perhaps even the privatisation of Telstra to achieve the "holy grail" of zero public sector debt.

**"They simply took as given that the Australian economy was "free trade ready"."**

While there is some truth in all of this, the "Australian economic miracle" as some have called it has relied too heavily on the build-up in household debt in general and consumer debt in particular. This has produced relatively high growth rates but at a cost. This cost is that the economy is now unbalanced, with large current account deficits, an under-developed export sector and a declining share of manufacturing in GDP. Its unsustainable reliance on consumer debt means that growth will come to an end as soon as household debt saturation levels are reached. Economic growth in the future will, therefore, be lower compared to what would have occurred if more efficient and sustainable drivers of growth (such as net exports and investment in innovation) had been developed.

**"Much of Australia's strong economic growth has come from households running down their net savings."**

This unfortunate situation has three main aspects.

- Much of Australia's strong economic growth has come from households running down their net savings (as a percentage of household disposal income) from 10 per cent in 1990 to -0.5 per cent by the March Quarter 2003.

- The rapid increase in housing prices over the last decade in general and the last two years in particular allowed too many households to borrow and spend rather than save and invest. This is reflected in the fact that in 1990 total household debt was 76 per cent of disposal income. By 2002-03 this had risen to an estimated 146 per cent. During the same period that part of household debt spent on consuming goods and services rose from 16 to 35 per cent (March Quarter 2003).
- The lassiez faire approach to credit growth by the monetary authorities in Australia allowed the banks to borrow vast sums offshore, which they lent to consumers who in turn increased the share they borrowed for current consumption. This "borrow to lend" and "borrow to spend" scenario is reflected in the fact that from the end of the 1980s to March 2003 the stock of non resident liabilities held by Australian banks increased by $164 billion while the stock of household consumer debt increased by $200 billion.

Thus the main driver of Australian economic growth has been the ability of the banking system in a deregulated environment to borrow on foreign capital markets and lend to households for consumption expenditure. No credible economist or policy maker would support the notion that sustained borrowings should be used to support consumption expenditure. Yet in Australia that is what has been happening for a decade and explains much of the so called "economic miracle".

An important example of the changes Australia requires to find more sustainable drivers for growth is to recognise the benefits of substituting foreign direct investment (FDI) in new productive capacity to export, undertake research and development and provide more secure, full time higher paid jobs for the present use of foreign debt to finance consumption.

National Economics has calculated the long-term costs and benefits of borrowing $11 billion offshore to finance current consumption compared to getting $11 billion in Foreign Direct Investment (FDI) in new manufacturing capacity and research and development. The bottom line is that in the long-term the FDI in manufacturing case (compared to offshore borrowing to finance consumption) results in:

- GDP being $14.7 billion higher;
- almost 170,000 additional jobs (full time equivalent) being created;
- a very significant proportion of which are high paid/high skill jobs in knowledge intensive manufacturing.

Unfortunately very little has been done to attract FDI into Australian industries as part of a more sophisticated trade and industry development strategy. The injury has been doubled by allowing capital inflow to fund consumer debt (as the key driver of economic growth). This has hurt trade-exposed Australian industry in several ways.

- It crowded out FDI in trade-exposed industries and forced interest rates and the exchange rate to be higher than they should have been.
- By allowing unsustainable growth in domestic demand scarce resources went into service industries rather than being allocated to trade-exposed production, resulting in a permanent loss of capacity and exports.
- Importantly it diverted governments attention from the real issues. Treasuries have begun to think that it is all too easy. They continue to believe that high and sustained economic growth can be achieved by letting the finance sector drive the economy. Governments have cut export assistance and industry assistance programs and have become lazy in their efforts to attract direct capital inflow. They no longer believe in the importance of trade-exposed production. They will learn the folly of this position at substantial cost to the Australian economy, Australian workers and their local communities.

As a result, there are few other major advanced industrial economies that are so unprepared and ill equipped to maximise the benefits and minimise the costs of free trade globalisation as Australia.

The credit boom to support current consumption and the asset price inflation in the property market (and until 2000 in the stock market) are unsustainable. The Australian economic miracle, if there is one, is that at least up until now the whole thing has not come crashing down in a deep recession, as in the early 1980s and 1990s, thus condemning another generation of older workers to permanent unemployment.

The only issues now are how severe the adjustment process will be as households rebuild their savings; and where more sustainable drivers for future growth and wealth creation will be found as consumer spending adjusts to more sustainable levels.

## 4.3 Two alternative scenarios for the Australian economy to 2020

This section examines two alternative scenarios for the Australian economy to 2020. One scenario represents a current trends case, while an alternative scenario is presented which represents the case of aggressive restructuring of the economy.

Before considering these scenarios the current position of the economy will be reviewed in relation to the key issue of consumer debt-driven growth.

### 4.3.1 Recent drivers of national economic growth

The core drivers of the Australian economy over the last few years have been household debt and household wealth. A combination of rapid increases in equity (including superannuation wealth) and dwelling stock wealth, relative to income, induced households to take on more debt and use the debt to increase dwelling investment and consumption expenditure above the levels that would have been justified purely by household income levels. Until the mid 1990s the long-term trend rate of growth of the economy had been near 3 per cent per annum. Over the late 1990s the Australian trend rate of growth accelerated to the 4 per cent mark. Since 2000, household wealth has continued to grow strongly, driven mainly by the continued growth in the value of dwelling stock.

Between 1997 and the end of 2003 the ratio of household wealth to consumption expenditure increased by one third. This induced households to increase their debt to net income ratio from 70 per cent to 148 per cent over the same period with the resulting increase in consumption expenditure driving down the household savings ratio. Between the end of 1996 and the end of 2003 the household saving ratio fell from 7 per cent to -0.5 per cent.

As Table 4.1 indicates, the fall in the household savings ratio over the period has meant that households have had to borrow increasingly larger amounts for consumption expenditure. In 2002-03 borrowing for consumption expenditure was $50 billion and for 2003-04 it is likely to be in the vicinity of $70 billion.

Australian GDP growth in 2002-03 was 2.8 per cent. However, this was down due to the drought. Apart from the drought, household wealth/debt driven growth for 2002-03 would have remained at around 4 per cent. Household borrowings for consumption explained most of national GDP growth over 2001-02 and 2002-03.

**Table 4.1 The Australian household sector – borrowers and consumption**

| Fiscal year | Household borrowing gap ($ billion) | Borrowing gap as % of household disposable income (per cent) |
|---|---|---|
| 1990 | 5.6 | 2.3 |
| 1991 | -3.0 | -1.2 |
| 1992 | -2.6 | -1.0 |
| 1993 | -2.9 | -1.1 |
| 1994 | 4.4 | 1.6 |
| 1995 | 9.3 | 3.1 |
| 1996 | 12.7 | 4.0 |
| 1997 | 11.6 | 3.5 |
| 1998 | 17.2 | 5.0 |
| 1999 | 14.8 | 4.1 |
| 2000 | 24.0 | 6.2 |
| 2001 | 25.4 | 6.0 |
| 2002 | 45.0 | 10.3 |
| 2003 | 54.0 | 11.7 |
| 2004 (estimate) | 70.0 | 13.3 |

*Notes:* The borrowing gap is estimated using two methods. One is to deduct from the total change in debt estimates for new borrowing per housing construction and alterations and unincorporated enterprise investment. The other method is to estimate the level of household discretionary income and after making estimates of the average savings rate of households who do save, calculate the borrowing gap. The two methods produce similar conclusions and the estimates for the latter method are used in the tables.

*Source:* The data for the table is the ABS National Accounts and Financial Accounts.

In 2004 Australian economic growth is at a turning point. Its precarious dynamics have involved wealth increases which have been driving debt-financed consumption with the debt, via its impact on house prices, driving subsequent increases in wealth. This situation is unsustainable. The Reserve Bank of Australia recognised this in late 2003 and raised interest rates. Australian household debt-to-income and debt service ratios were high by both historical and international standards. If the boom had been allowed to continue, the economy would have been plunged into a deep recession as soon as households were forced to stop borrowing. The household debt to net disposable income ratio for June 2004 is 1.66 compared to 1.23 in June 2001.

**"In 2004 the Australian economic growth outlook is at a turning point."**

One thing is clear, households cannot continue to increase their borrowings for consumption. Households borrowing for consumption is currently adding 13 percentage points to the household debt-to-income ratio each year. At this rate total household debt-to-income ratios will, in the foreseeable future, be approaching 190 to 200 per cent of income.

All that can be said is that the probability of a hard landing is steadily increasing. The economy is very vulnerable to a negative international shock, such as a terrorist act which induces an increase in oil prices or a collapse of the United States' dollar. Either of these events is quite possible.

### 4.3.2 A current trends scenario – the continuation of consumption driven growth

The scenario in Table 4.2 represents a current trends scenario. The economy is not plunged into recession, but growth becomes harder and harder to achieve under the weight of increasing household debt, despite the maintenance of a relatively strong world economy. Gross household debt rises from 94 per cent of GDP in 2004 to 128 per cent in 2010. This equates to a debt to net income ratio in excess of 210 per cent.

**Table 4.2 A current trends scenario: contraction of consumption driven growth**

| | 1995 | 2000 | 2004 | 2010 | 2015 | 2020 |
|---|---|---|---|---|---|---|
| **Sector saving (% of GDP)** | | | | | | |
| Households | 9.1 | 6.7 | 5.0 | 7.1 | 7.4 | 7.2 |
| Government | -2.0 | 4.6 | 2.3 | -4.1 | -3.8 | -4.2 |
| Corporate and finance | 10.5 | 8.0 | 11.7 | 10.7 | 10.5 | 10.0 |
| Rest of world | 5.9 | 5.1 | 5.8 | 7.7 | 6.3 | 6.6 |
| **Total** | **23.5** | **24.4** | **24.8** | **21.4** | **20.4** | **19.6** |
| **Sector investment (% of GDP)** | | | | | | |
| Households | 9.6 | 9.5 | 10.2 | 7.2 | 6.9 | 6.7 |
| Government | 2.6 | 2.4 | 2.0 | 2.2 | 2.2 | 2.2 |
| Corporate and finance | 11.4 | 12.4 | 12.5 | 12.0 | 11.3 | 10.7 |
| Rest of world | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **23.5** | **24.4** | **24.8** | **21.4** | **20.4** | **19.6** |
| **Sector net lending (% of GDP)** | | | | | | |
| Households | -0.5 | -2.8 | -5.2 | -0.1 | 0.5 | 0.6 |
| Government | -4.5 | 2.1 | 0.3 | -6.4 | -6.0 | -6.4 |
| Corporate and finance | -0.9 | -4.4 | -0.8 | -1.2 | -0.7 | -0.7 |
| Rest of world (current account deficit) | 5.9 | 5.1 | 5.8 | 7.7 | 6.3 | 6.6 |
| **Total** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| **Net liabilities as per cent of GDP (households gross liabilities)** | | | | | | |
| Households | 54.0 | 71.4 | 94.0 | 128.3 | 113.0 | 113.7 |
| Government | 19.6 | 3.1 | 6.2 | 15.9 | 30.4 | 40.1 |
| Rest of world | 52.4 | 52.8 | 58.5 | 74.3 | 82.4 | 88.3 |
| **Expenditure shares in GDP (%)** | | | | | | |
| Real private and public consumption | 79.3 | 77.7 | 79.4 | 79.8 | 79.6 | 79.9 |
| Real non dwelling investment | 14.5 | 17.0 | 19.3 | 20.6 | 20.9 | 21.5 |
| Dwelling | 4.5 | 4.6 | 4.3 | 4.8 | 5.3 | 5.7 |
| Real exports of goods and services | 18.7 | 21.4 | 20.5 | 23.0 | 24.8 | 26.1 |
| Real imports of goods and services | 18.9 | 22.7 | 25.8 | 28.4 | 30.2 | 32.3 |
| Real service exports | 4.5 | 4.6 | 4.3 | 4.8 | 5.3 | 5.7 |
| **Industry share in real gross product at factor cost** | | | | | | |
| Total tradable sector | 21.9 | 21.1 | 19.9 | 20.1 | 20.5 | 20.5 |
| Total tertiary | 78.1 | 78.9 | 80.1 | 79.9 | 79.5 | 79.5 |

| | 1995-2000 | 2000-2004 | 2004-2010 | 2010-2015 | 2015-2020 |
|---|---|---|---|---|---|
| Average annual GDP growth rate | 4.3 | 3.1 | 2.8 | 2.9 | 2.7 |

Growth is kept going under this current trends scenario by the government sector using its strong balance sheet to increase its dissaving to offset the rise in household saving which occurs as households realise they are over-indebted. Large public sector deficits start appearing from 2007. Over the 2010 to 2020 period the government sector's net borrowing averages 6 per cent of GDP. This borrowing requirement comes about in part because of the increase in household savings, but also because of the maintenance of high current account deficits for the period which, in Table 4.2 is represented by net lending from the rest of the world. By 2020 public sector net financial liabilities reaches 40 per cent of GDP compared to 6.2 per cent in 2004.

One reason for the maintenance of a high current account deficit is the assumption that world interest rates will rise by between 1.5 and 2.0 percentage points to 2010 as a result of sustained world growth.

In the main, the increase in public sector borrowing is allocated directly or indirectly to consumption. It is either used to support private consumption via tax reductions, current government expenditure increases and, most importantly, increased transfer payments as a result of the growth in Social Security dependent households.

The share of nominal investment in GDP falls to around 20 per cent of GDP by 2015, although in real terms the share of investment in GDP increases. Poor growth in skilled employment and the resulting growth in Social Security dependent households reduces the incentive for private investment in education.

Real import penetration increases steadily in line with past trends. The growth of the share of exports in GDP (led by mining and energy) increases at the same percentage rate. However, the trade balance gap is not closed. This has been the story for the Australian economy from the early 1980s. As a result, net international obligations of Australia to the rest of the world increase from 59 per cent of GDP in 2004 to 88 per cent by 2020.

The manufacturing share in GDP at factor cost continues the downward trend of the past two decades. By 2020 manufacturing gross product falls to 10.6 per cent of GDP at factor cost.

The economy profiled in Table 4.2 is in a highly precarious position. Any faltering of growth would have the effect of reducing cash flows for debt servicing which would result in asset prices declining sharply and the economy entering a vicious recessionary cycle. In practice the Table 4.2 profile is one where it is likely that the economy will suffer a severe recession within the next few years.

**"Any faltering of growth would have the effect of reducing cash flows for debt servicing."**

### 4.3.3 An alternative scenario: structural change and infrastructure investment

Table 4.3 indicates that Australia's investment share in GDP is similar to other countries. However, this disguises the fact that to maintain competitiveness Australia has to achieve a higher investment to GDP ratio. This is because of Australia's:

(i) geographical isolation;

(ii) small population relative to land area; and

(iii) higher rate of growth.

In order to accommodate these factors, Australia needs to have a higher level of investment in GDP in order to close the competitiveness gap.

The alternative scenario in Table 4.4 allows this structural change to occur. In nominal terms the share of investment in GDP reaches 24 per cent by 2020.

In broad terms, the two scenarios are similar to 2010 in that governments use their strong balance sheets to drive growth. Government borrowing is high. However, for this scenario the additional funds are used to support investment incentives for private business and for additional investment in public infrastructure. In response to this public sector support, exports expand more rapidly compared to the current trends case, with the result that exports reach 30 per cent of GDP by 2020 in an economy which is 17 per cent higher in terms of GDP than what is the case for the current trends scenario. This is the direct result of government funds being used to support intangible and tangible investment which creates growth opportunities in contrast to the current trends scenario where funds are used in the main to support consumption.

Under the alternative scenario the share of public and private consumption in GDP falls to 72.5 per cent by 2020, compared to 79 per cent in 2004. For the current trends scenario the consumption share is unchanged. However, total consumption expenditure by 2020 is higher under the alternative scenario because the increase in GDP more than compensates for the fall in the share of consumption.

The current account deficit only marginally improves for the alternative scenario compared to the current trends scenario. This is because of the high import content of investment expenditures. However, net foreign obligations by 2020, as a percentage of GDP, are down compared to the current trends scenario. Moreover, a much larger share of the net foreign capital inflow under the alternative scenario will go towards the creation of assets in Australia, rather than for asset ownership transfer as under the current trends scenario.

**Table 4.3 Ratio of nominal gross fixed capital formation to GDP: selected countries**

| | 1991 | 1996 | 2001 |
|---|---|---|---|
| Australia | 21.68 | 22.03 | 21.79 |
| Canada | 19.61 | 17.92 | 19.85 |
| Denmark | 19.09 | 18.55 | 20.31 |
| Finland | 24.39 | 17.02 | 20.47 |
| France | 21.97 | 18.49 | 20.12 |
| Germany | 22.33 | 20.67 | 20.28 |
| Italy | 21.04 | 18.34 | 19.74 |
| Japan | 31.83 | 28.44 | 25.76 |
| Korea | 39.03 | 37.49 | 29.54 |
| Mexico | 18.65 | 17.86 | 19.99 |
| Netherlands | 19.62 | 18.96 | 21.67 |
| Norway | 19.77 | 20.31 | 18.28 |
| Spain | 23.79 | 21.62 | 25.41 |
| Sweden | 20.64 | 16.17 | 17.46 |
| United Kingdom | 17.93 | 16.52 | 16.81 |
| United States | 17.07 | 18.61 | 19.41 |

All tradable sectors increase their share of GDP, with the share of the tradable sector increasing from 20 per cent in 2004 to 23.4 per cent in 2020. The majority of the manufacturing share increase would need to be driven by expansion in medium-high and high technology production. The increase in production for these industries would need to be approximately 1 percentage point of GDP.

| Table 4.4 An alternative scenario: structural change and export driven growth | | | | | | |
|---|---|---|---|---|---|---|
| | 1995 | 2000 | 2004 | 2010 | 2015 | 2020 |
| **Sector saving (% of GDP)** | | | | | | |
| Households | 9.1 | 6.7 | 5.0 | 7.1 | 7.6 | 7.5 |
| Government | -2.0 | 4.6 | 2.3 | -1.9 | -0.1 | -0.4 |
| Corporate and finance | 10.5 | 8.0 | 11.7 | 10.2 | 10.0 | 10.9 |
| Rest of world | 5.9 | 5.1 | 5.8 | 6.9 | 5.5 | 6.2 |
| **Total** | **23.5** | **24.4** | **24.8** | **22.3** | **23.0** | **24.3** |
| **Sector investment (% of GDP)** | | | | | | |
| Households | 9.6 | 9.5 | 10.2 | 7.3 | 7.2 | 7.1 |
| Government | 2.6 | 2.4 | 2.0 | 4.1 | 4.2 | 4.2 |
| Corporate and finance | 11.4 | 12.4 | 12.5 | 10.8 | 11.6 | 13.0 |
| Rest of world | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **23.5** | **24.4** | **24.8** | **22.3** | **23.0** | **24.3** |
| **Sector net lending (% of GDP)** | | | | | | |
| Households | -0.5 | -2.8 | -5.2 | -0.2 | 0.4 | 0.4 |
| Government | -4.5 | 2.1 | 0.3 | -6.0 | -4.3 | -4.6 |
| Corporate and finance | -0.9 | -4.4 | -0.8 | -0.6 | -1.6 | -2.0 |
| Rest of world | 5.9 | 5.1 | 5.8 | 6.9 | 5.5 | 6.2 |
| **Total** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| **Net liabilities as per cent of GDP (households gross liabilities)** | | | | | | |
| Households | 54.0 | 71.4 | 94.0 | 128.9 | 114.9 | 116.7 |
| Government | 19.6 | 3.1 | 6.2 | 15.3 | 29.8 | 39.1 |
| Rest of world | 52.4 | 52.8 | 58.5 | 71.8 | 78.0 | 82.6 |
| **Expenditure shares in GDP (%)** | | | | | | |
| Real private and public consumption | 79.3 | 77.7 | 79.4 | 78.2 | 75.0 | 72.5 |
| Real non dwelling investment | 14.5 | 17.0 | 19.3 | 21.7 | 24.5 | 28.6 |
| Dwelling | 4.5 | 4.6 | 4.3 | 4.8 | 5.3 | 5.7 |
| Real exports of goods and services | 18.7 | 21.4 | 20.5 | 24.1 | 27.7 | 30.2 |
| Real imports of goods and services | 18.9 | 22.7 | 25.8 | 29.0 | 32.2 | 36.2 |
| Real service exports | 4.5 | 4.6 | 4.3 | 4.8 | 5.3 | 5.7 |
| **Industry share in real gross product at factor cost** | | | | | | |
| Total tradable sector | 21.9 | 21.1 | 19.9 | 20.8 | 22.6 | 23.4 |
| Total tertiary | 78.1 | 78.9 | 80.1 | 79.2 | 77.4 | 76.6 |

| | 1995-2000 | 2000-2004 | 2004-2010 | 2010-2015 | 2015-2020 |
|---|---|---|---|---|---|
| Average annual GDP growth rate | 4.3 | 3.1 | 3.1 | 3.4 | 3.6 |

*Source:* To see what role manufacturing can play in driving this scenario can be seen from National Economics/AMWU, *The State of Manufacturing*, 2004.

Like the current trends scenario, it will be very lucky if the economy escapes a severe recession in the period to 2010 or 2012. However, the alternative scenario, if it were put in place, would make it more likely that the economy would recover relatively quickly and resume a reasonable growth path.

The important point from Table 4.4 is this. To be successful in the transition from debt-driven consumption growth to more public sector/export driven growth, the increase in the public sector share in GDP needed to stablise the economy must be linked to export enhancement. This in turn requires that the increase in the public/PPP investment share in the economy must be directly determined by the needs of the knowledge based regional economies. This in turn requires that local/regional government must have high level input in determining the design and implementation of investment programs. This input will only be allowed by national and State governments if local/regional governments also share the responsibility for financing the investment programs.

## 4.4 The building blocks of the alternative scenario: Investment in supporting physical, social, R&D and environmental infrastructure

In the last several years a consensus of sorts has begun to emerge which recognises that Australia has been under-investing in social and economic infrastructure.

From a macroeconomic management perspective, the strength of the Australian economy over the past decade raises issues about how much scope there was for additional infrastructure investment. This will not be the problem in the coming decade.

Household debt financing current consumption can no longer (and should no longer) be the main driver of Australian economic growth. As households rebuild savings the sheer size of the impact on growth will mean that there is ample scope for additional infrastructure investment. In addition, with public sector debt now below 5 per cent of GDP, more options for public or private funding of such investment are available than was the case a decade ago.

For Australia's tradables sector in general and its knowledge intensive manufacturing industries in particular the timing for significantly more infrastructure investment could not be better.

Trade liberalisation, whether on a WTO multilateral basis, or though the proliferation of bilateral free trade agreements, puts additional constraints on what Governments can and cannot do with various policy levers to enhance the competitiveness of their export and import competing industries. Infrastructure investment is one of the few remaining policy mechanisms that can significantly enhance productivity and international competitiveness.

It will be a major challenge to take advantage of this situation and not squander it, either through politicians pork barrelling in marginal electorates or pandering to every vested interest group’s pet project. To meet this challenge at least six conditions need to be satisfied.

1. Projects for economic infrastructure (road, rail, ports, power, the communication/ telecommunication network etc.) need to be prioritised in terms of their capacity to strengthen Australia's international competitiveness. The appropriate institutional mechanisms and processes must be put in place for this to occur. Amongst other things this will require unprecedented levels of co-operation between the Commonwealth, states and local Government. The requirements of building knowledge based regional economies must be part of the planning/prioritisation process rather than being excluded.

2. Building world class R&D infrastructure in the public research and education sector will be critical to the future of Australia's knowledge based industries. The appropriate institutional mechanisms and processes must be put in place to prioritise and timetable very substantial additional public sector investments in the R&D infrastructure. In addition there will need to be exacting reciprocal obligation criteria placed on the research/education sector in terms of the commercial outcomes to be achieved as well as linkages with the private sector which leverage up additional private investment and retain benefits in Australia.

3. Investment in education infrastructure is more than better/newer schools, improved staff/student ratios or better pay for teachers, as important as these may be. The time has come for the private sector to significantly increase its investment in training and skill formation.

   The controversial German training levy passed by that country's Parliament in May 2004 requires firms employing more than ten persons to have at least 7 per cent of their workforce employed through appropriately accredited apprenticeships. The industry partners (unions and employers) are given the opportunity to negotiate an agreement for their industry to make this happen. Where it does not happen, and where adequate additional apprenticeship positions for young people are not available, the Government will impose a levy on under-performing firms with the proceeds rewarding those firms which are doing more than required and also being used to make additional apprenticeship opportunities available.

   National Economics neither supports nor opposes the German approach. Rather it is cited here to emphasise the need for reciprocal obligation in a manner that overcomes the under-investment in training and the "free rider" problem with respect to private sector investment in apprenticeships.

   Options for leveraging up additional productive investment in skill formation will be an ongoing debate in an increasingly competitive global economy. The opportunity, particularly in vocational education and training through Government investment in TAFE linked to higher private sector investment in skills formation, is an opportunity requiring leadership and dispassionate analysis of the cost/benefit equation for various options. It is an opportunity Australia must seize to build knowledge based industries.

4. This report will not elaborate on investment in environment infrastructure at this time other than to say:

   (a) a start has been made on water but much more needs to be done; and

   (b) as pointed out in National Economics' recent *Energy Working Party Report*, policies for Australia's renewable energy industry are not adequate and will have to be revised.

5. Investment in social infrastructure (hospitals, schools, community housing, age care and retirement facilities, childcare centres etc.) will also require prioritisation. While it is an issue for all forms of infrastructure the question of whether Government debt finance, recurrent expenditure or private sector funding (through PPPs) is most appropriate is coming to a head in the social infrastructure debate.

6. The very nature of the business cycle with its peaks and troughs means that any strategic plan for future investments in infrastructure will need to be flexible and have the capacity to pull forward or defer projects as circumstances require. Given the importance of infrastructure investment the time has come to use it again as a counter cyclical tool in macroeconomic management. Having a building shelf of projects with the capacity to be shifted forward or back must become a priority of nation building in 21st century Australia.

   If Australia can do justice to the challenge of infrastructure investment over the next several decades the returns will be substantial in terms of capacity to build and enhance knowledge based industries while strengthening social cohesion and community well being. It would certainly make the nation far more FTA ready than it is today.

The 2005-06 and 2006-07 *State of the Regions* reports will explore in detail the issues raised in this section.

## 4.5 Towards reform of Australian local/regional governance structures

The first steps in reform of Australian local/regional governance structures should be anchored in the concept of flexibility. Just as flexibility is the hallmark of the innovation/knowledge economy, so it should be in the complementary approach to the development of governance structures. As Chapter 5 makes clear, this is the approach of the Western Europeans.

There is one proviso. Whatever structures are built the democratic local government bodies should, in the majority of circumstances, form the basic building block. How these building blocks are structured would be determined on a case by case basis. For example, issues of industry development would require groupings of LGAs that form an effective integrated set of industry clusters. Issues in relation to transport policy would involve LGA structures that form an efficient regional grouping for covering all the core connectivity patterns between residents and their place of work and trade and between residents and community/commercial infrastructure.

Local governance in a variety of institutional integration and coordination could well be devolved down to the individual LGA level, for example, in a range of education and community services.

In this context LGAs would be empowered by state and Commonwealth governments creating pathways in legislation for individual LGAs, or combinations of LGAs, to participate in decision making structures and play a leadership role in resource mobilisation and application. Each different socio-economic policy segment could have a different pathway for local/regional government involvement. However, they might often be coincident between numbers of sectors.

For effective results LGAs have to be appropriately resourced. Different pathways would trigger the allocation of resources if an LGA decided to participate and carry the burden of the associated responsibilities and obligations. This needs to recognise the significant structural change already being demanded of local councils as key local actors.

However, those local councils that decided to expand their responsibilities should also be entitled to an increase in general purpose funding to enable them to upgrade their skill base, data bases and governance processes to enable effective participation and planning associated with increased responsibilities.

As part of the macroeconomic adjustment process Australia will have to face in the future, the public sector will have to increase deficits in both the current (temporarily) and capital accounts. Increased current account (that is, operational) support for local government by state and federal governments to increase their competitiveness and responsibilities would be a good investment in the future.

**"The public sector will have to increase deficits in both the current and capital accounts."**

Along with this should come a greater local government role in the investment process. A formal model outlining how this is to be achieved is outlined later in this report.

# 5. Local government financial participation in infrastructure investment

This chapter focuses on possibilities for increased financial participation by local government in public sector investment. The argument for greater delegation of responsibilities to local government in the context of the increasing globalised economy was dealt with in the 2002 *State of the Regions* report. This section begins by summarising the case made in the 2002 report.

Before summarising the argument it is necessary to restate the definition of "local government". It may involve individual local governments operating alone where, for example, scale, economic catchment areas and population justify the outcome. More often than not, however, the term local government will apply to groups of LGAs combining voluntarily into regional associations to undertake greater responsibilities. These regional associations will vary in membership in accordance with the particular policy instrument being applied. Clearly, public sector infrastructure which will benefit a number of LGAs and which, in part, is to be funded by local government will require a regional association be formed. This would include all LGAs that benefit significantly from the project.

## 5.1 The rise of the regional knowledge economy: the required enhanced role for local/regional government in general and infrastructure financing in particular

A constant theme of past *State of the Regions* reports has been the importance of the rise of the knowledge-based regional economy as a driver of economic development. As has also been stated in previous reports, knowledge-based regional economies are not simply regions with so-called high technology industries. The rise of low cost sources of supply across a wider range of goods and services from China and India has meant that most Australian trade-exposed industries (both those directly and indirectly exposed) have to accelerate their rate of reduction in real costs of production and extend their rate of innovation in order simply to maintain their level of competitiveness. This goes as much for farmers in the country as it does for electronics equipment manufacturers in Northern Sydney.

Continuous cost reductions and improvements in product quality require sustained innovation. Sustained successful innovation in turn requires more efficient harnessing of the competitive strength of each region which, at its core, is the region's stock of tacit knowledge. Tacit knowledge by definition is knowledge which cannot be easily transferred as it is embodied in the institutions, experience and skills of the local workforce. It is uniquely valuable in conjunction with the physical and natural resource capital stock of the region.

National and state governments in Western Europe and North America know that efficient harnessing of regional tacit knowledge requires that regional governments be given more power to remove regional obstacles to development. As regions increasingly become the engine room of national economic development, development potential is best realised by a governance structure anchored at the regional level. This not only applies to physical infrastructure, but also to "soft" infrastructure, such as social and community network enhancements which are critical to the formation of the appropriate micro-communities (that is, groups of individuals with complementary skills) required for successful innovation.

The European Union (EU), along with North American State jurisdictions, has recognised the need to increase the responsibilities of local/regional government. Strategies to do this are at the centre of current regional development policies in Europe. The objective is to increase the effectiveness of local/regional government in:

(i) networking assistance to ensure appropriate micro community composition;

(ii) assistance in connecting micro communities with their peers in other jurisdictions including foreign jurisdictions;

(iii) resource assistance and coordination of activities;

(iv) removal of infrastructure bottlenecks; and

(v) institutional coordination (universities, research organisations, training, marketing bodies and infrastructure managers).

To be effective the EU recognises that governance structures must be local and empowered. They must be local because just as physical proximity and social interaction are important for innovation in micro communities, they are also important for governance structures to:

(i) perceive the benefit of assisting micro communities and their enterprise networks; and

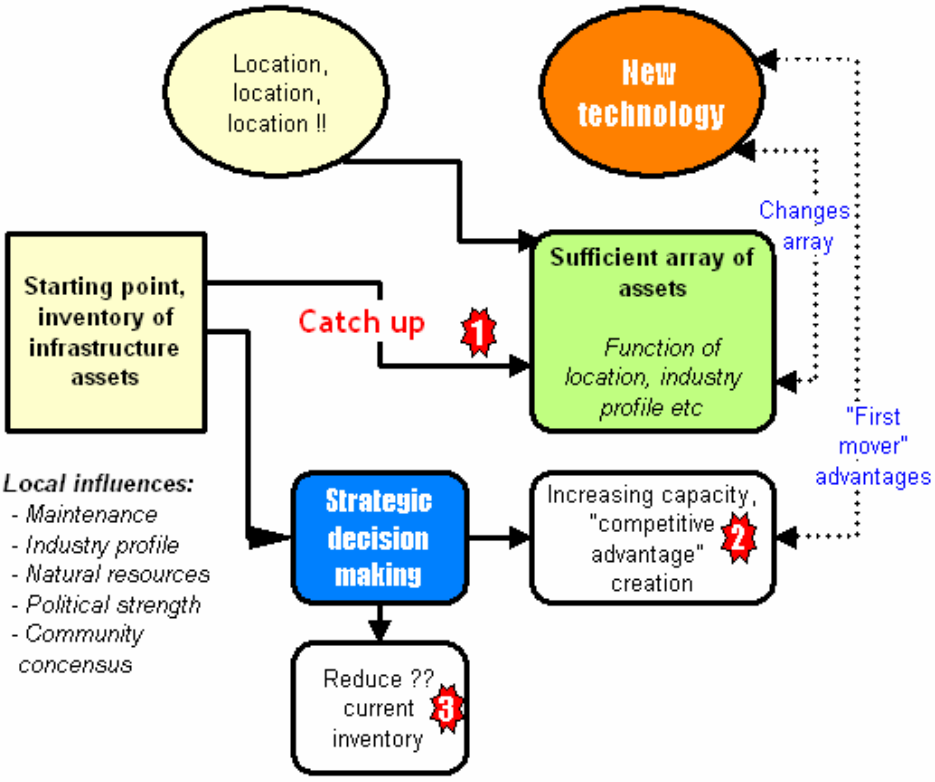
(ii) design effective assistance and coordination efforts.

To do this local/regional governments must be empowered. That is, they must be:

(i) recognised partners with all levels of state and national government and well integrated into their decision making structures; and

(ii) have access to enough resources to make a difference

Local/regional governance systems that are not empowered will be ignored and their critical role in the innovation economy will be still-born. The EU's current strategy is to prevent this from happening.




In order to develop a progressive framework in which to promote infrastructure investment this chapter introduces a strategic approach to the evaluation of infrastructure. Viewing infrastructure in terms of what can provide to economic development rather than parochially assessing comparative

levels of provision. In the House of Representatives Standing Committee report presented in 2000 and entitled *Running Out of Time*, Fred Argy had advocated "an active infrastructure policy that 'seeks, through strategic investment, to create new opportunities for competitive development and employment in regional areas' rather than simply responding to infrastructure gaps, bottlenecks or deficiencies." In the remainder of this chapter a framework for this type of implementation is presented.

The diagram shows the role of strategic decision making in the context of a regions' array of infrastructure. The starting points are the inventory of infrastructure assets, and the sufficient array of assets that the region requires. The requirements in the sufficient array are a function of location and other local influences including natural resources, industry and demographic profile and community consensus. Over time the responses made in the light of new technology and the current inventory can then be seen as either catch up, increasing competitive advantage or reducing current inventory.

The point of the diagram is that there is an array of assets sufficient to provide the services normal for a region in a particular location (for example, a remote area, a production zone). The absence or poor quality of assets of this type creates strategic weakness, but the presence of the assets does not create advantage over other regions.

Changes in technology will change the standard array, both as to inclusion and exclusion. Typical policy as regards assets in the standard array is as follows.

- The assets should be maintained.
- If an asset is missing, or if it is of a quality less than expected for the type of region, catch-up investment should take place to bring it to the conventional standard.
- If technological change increases the content of the standard array, catch-up investment should take place to attain the new standard.

Catch-up investment is important, but is not strategic. It is highly suited to finance from user charges, backed up by national grants programs which aim to ensure that all regions reach national standards of service provision.

By contrast, strategic infrastructure investment occurs when a region aims to strengthen its advantages vis-à-vis other regions, not only in Australia but globally. Strategic decisions will differ from region to region according to the interaction of opportunities with the region's established strengths, including its industry profile, natural resources, political strength and community consensus. Strategic decisions may include deliberate running-down of assets already present, in order to release funds for new initiatives.

These types of asset-management decision are discussed in much more detail in Part C of this report. The important point here is that local governments, operating at the regional level, are strongly placed to contribute to strategic decisions, and to ensure local coherence of strategic decision-making. This type of investment is not suited to grants based on catch-up to national standards, but rather to grants programs which favour lagging regions.

There is also a strong argument that regions which wish to make strategic investments should take some at least of the financial risk. This will be increasingly appropriate as projects come to be financed from government borrowing, following the macroeconomic imperatives discussed in Chapter 4. We accordingly turn to a proposal for blended loans to finance strategic investments.

## 5.2 The purpose of a blended tri-level infrastructure funding model

This is not the first *State of the Regions* report to advocate an increase in infrastructure investment. Nor have the *State of the Regions* reports been alone in this advocacy: a series of Commonwealth reports culminated in a House of Representatives Standing Committee report presented in 2000 and entitled *Running Out of Time*, have also done so.

At this time, no action has been taken by the Commonwealth government. The first was that the economy was growing quite rapidly and could not spare the resources for infrastructure construction. The second was ideological; a belief that the private sector could allocate funds much better than the public. The policy consequence of this belief was that government infrastructure providers should be privatised, or if not privatised, at least corporatised. Like any other business, they should sell their products – that is, they should survive on user-charge revenues. They should also raise their own capital on the market. The best way governments could contribute to this was by refraining from borrowing, so as not to crowd out private sector borrowers.

Chapter 4 provides a critique of this ideology, and also points out that it will not be easy to sustain the consumer borrowing spree which it unleashed. A halt to consumer borrowing will change the macroeconomic fundamentals. As household borrowing subsides, the choice will be between recession and an increase in government borrowing. The temptation will be to use government borrowing to continue to subsidise consumers, but this will only postpone the inevitable. A far wiser use of government borrowing will be to subsidise infrastructure investment.

The reasons for investing more in infrastructure than the private market is willing to provide have also already been rehearsed. The fundamental reason is that the private market does not, and can not, take into account benefits which accrue to the population as a whole, but not to the investor. The classic case is better transport, which can reduce costs and increase profits for a great range of industries. It has never proved possible to access these profits by user charges; only by taxes. This characteristic means that infrastructure investment is less risky to governments than to private investors. Not only can governments, at least potentially, control some of the risks a bit easier than private investors (mainly by ensuring that complementary investments are undertaken) but they also have access beyond user charges to the tax flows and other benefits generated by the investment. These reasons are contra to current anti-borrowing ideology at Commonwealth, state and local level, but Chapter 4, not to speak of the other *State of the Regions* reports, not to speak of the sequence of other government reports, make plain the consequences of leaving infrastructure investment to the market. The practical result has been a consumer boom and an infrastructure dearth.

**"The practical result has been a consumer boom and an infrastructure dearth."**

Given Australia's federal structure, the question arises as to which sphere of government should take responsibility for financing which projects. The present position is that each sphere of government may borrow. However, all spheres are likely to benefit if cooperative arrangements can be arranged.

The general principles which underpin the development of the funding model proposed in this chapter are as follows.

- In the light of the macro-economic issues outlined in Chapter 4 there will be a need to deliver a significant level of spending on infrastructure, over and above that currently provided. This chapter is designed to produce a comprehensive basis for such additional investment. It is not designed to replace Financial Assistance Grants (FAGs) or the like.
- Local governments and regional bodies lack the independent financial resources to directly fund large scale investment out of current expenditure or reserves.
- Many infrastructure projects, which cannot be justified on a strict user pays basis, have substantial benefits to general social and economic development.

- Borrowing from private sources can be very expensive if a significant amount of location-specific risk is generated in the projects which are funded.
- Infrastructure projects require commitment to a long-term perspective which is difficult to engineer.
- There are projects which are highly valued in local and regional communities which cannot be easily compartmentalised within a broad federal or state funding initiative.
- There are capacities at the local level for user-pays funded infrastructure which would not be appropriate in all areas.
- The allocation of risk between the public and private sector is critical to determining the appropriate mix of investment.
- There is enormous capacity at the local level to generate consensus, vision and leadership to drive the development of projects which deliver regional competitive advantage.

To meet some of these features of regional infrastructure development, we need to address the following.

- What can debt financing of a project deliver?
- How much funding should be provided by federal and state grants and borrowing?
- Where is the available investment money in the economy, what does this type of investment require to be used on local infrastructure projects?
- What is the local capacity of a community or region to service debt?
- How can the funding cost be reduced without removing the local capacity to drive development initiatives?

By including the best capacities of the three levels of government, and responding to the needs of the private sector, the proposed funding model builds a structure in which a local community can answer the question "could we really do this"?

In Australia the provision of infrastructure is hamstrung by the competing priorities of the three spheres of government.

- This is not a problem with the governments in and of themselves but simply a function of competing constituencies, broader and narrower frames of reference and timeframes.
    - For a local region, the allocation of scarce resources to the community should be based on local needs and aspirations where appropriate.
- Local communities and their perceived needs are beholden to the priorities of the state and federal governments due to a lack of access to competitive capital markets.
- Arguably, the local area should have access to a range of debt products which do the following:
    - maximise the potential to leverage up the contributions state and federal can make;
    - reduce the cost of capital; and
    - control the timing of investment to suit the needs of local areas.

## 5.3 Local leadership

> "Those regions that were making the most of opportunities were those prepared to embrace change and work at developing new businesses, capitalise on emerging opportunities, and to **accept responsibility for their own development**, rather than relying on government support and initiatives. Collaboration, inclusion of all stakeholders and a commitment to education and training were also characteristic of these regions." Chapter 2, *Time running out: Shaping Regional Australia's Future.*

Whilst local capacity and leadership can sometimes be overstated in regional development and used as a guise for a lack of interest, the role of responsibility is particular important within the context of the funding model consideration. Debt is simply an inter-temporal (across the time period) transfer of responsibility, which may safely be shouldered when, at present value, the benefits of a project outweigh the time cost of money in the interim.

A region can fail to build consensus around debt and investment for a number of reasons:

- the projects proposed are not viable; and
- a failure in the basics of political engagement, a lack of capacity to clearly demonstrate the future benefits of a project.

## 5.4 Basics of the new funding model

The cost of borrowed capital for any agent in an economy is based on the risk profile associated with the income stream which is used to service/repay the debt raised. In general the more risky or variable the income stream is anticipated to be the higher the rate of interest which would be charged.

- Riskier options attract a higher cost of capital.

Raising money against an income stream funded and guaranteed by the federal government is generally considered the lowest risk available in the economy. The interest rate charged for such funds is referred to as the risk-free rate. This risk-free rate is generally understood to reflect a small long-run return plus the expectation of future increases in the cost of living (CPI or inflation). For the purposes of the analysis presented in this report the risk free rate is equated to the ten-year bond rate of 5.85 per cent per annum.

- Income from federal government has no risk and hence the cost of borrowing which generates such income streams is the risk free rate.

Income streams from state government sources are not as safe as those from federal governments; however they are considered very safe and only require a small premium to be paid. A premium of 40 basis points or 0.4 per cent per annum is considered appropriate although in reality different states are likely to face slightly different premiums depending on their credit ratings.

Local governments will in general be considered far more risky propositions due to the relative large level of variation in incomes and expectations for future growth in each region.

All funds which are lent to another party are considered to have an opportunity cost to the lender. The opportunity cost of not having a sum today is at least equal to the amount of money which would have been earned from that amount. Hence, to receive a sum at a point in the future is considered equivalent to receiving the same amount, less the amount expected to be earned between now and the point in the future. The current value of the future amount may therefore be discounted to an equivalent present value. In this analysis the present value is equal to the discount sum of future income streams and is discounted by the risk-free rate.

***Example:***

Assume funds invested can receive a 10 per cent return. Receiving $75.10 now with the capacity to earn income from this amount for each year up to Year 3 provides the same total as receiving $100 in three years time. Hence the net present value of $100 in Year 3 is equal to $75.10 when discounted by a rate of 10 per cent.

| | Now | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|
| **Alternative 1** | 0.00 | 0.00 | 0.00 | 100.00 |
| **Alternative 2** | 75.10 | 7.50 | 8.30 | 9.10 |

### 5.4.1 Long life debt structures

Infrastructure assets generally last a long time, and yield benefits over this time. In most cases these benefits yield user charges, which provide a revenue stream from which the investment can be financed, at least in part. In addition, infrastructure investments often change patterns of economic activity and so yield increases in tax revenues. These revenues can be used to finance government investment in infrastructure, though in Australia there is an acute problem, which is that the revenues do not always accrue to the investing government. Commonly, local or state governments invest and the Commonwealth harvests the revenue. Even so, infrastructure investments by local government may yield both user charge and rate revenue, with the latter permitting a level of borrowing which would not be possible were the council to rely on financing from user charges alone.

The different patterns of tax receipt, coupled with the different patterns of risk premium, suggest that a mechanism to blend Commonwealth, state and local finance would be useful. From a local point of view, it would add a further option to the present unpalatable alternatives of doing it all yourself from rates and loans, and seeking grants from the other spheres of government. This latter alternative involves spending large amounts of time and resources in lobbying Commonwealth and state politicians who promise, but do not deliver, and seeking access to bureaucrats who seem to live in another world. The do-it-yourself alternative, however, is high-cost and as often as not results in nothing being done. From a Commonwealth and state point of view blended finance would offer an improvement in the allocation of loan funds, by getting local project proponents to put their money where their mouths are.

There are two strong arguments for making the Commonwealth part of any funding blend short-term. Firstly, the Commonwealth has an interest, not only in national development, but in macroeconomic management. If its contribution is upfront, it will be in a position to vary the flow of projects by varying funds available, so enabling it to counter ebbs and flows in private-sector demand. Secondly, the riskiest period for an infrastructure investment is when it is new and the outstanding debt is large. Low-risk Commonwealth finance is most effective during this period.

The opposite is true for local government borrowing. Infrastructure investments take time to yield user charges and rate revenue increases. The argument, therefore, is that councils should not have to contribute to loan servicing and repayment until the project is yielding revenue for them.

The states are in an intermediate position. Their interest in projects is rather like local government's interest: they desire state development much as councils desire local development. However, unlike councils whose revenues increase mainly after project completion, the states' land and payroll tax revenues are likely to increase as soon as construction starts, and their GST-related federal grants will increase so long as the Commonwealth gets its macroeconomic management right. An intermediate financial profile is therefore appropriate.

The following profile is suggested.

(For clarity the possibility of private sector borrowing is omitted, and the reader is invited to consider how this may usefully be added to the blend.)

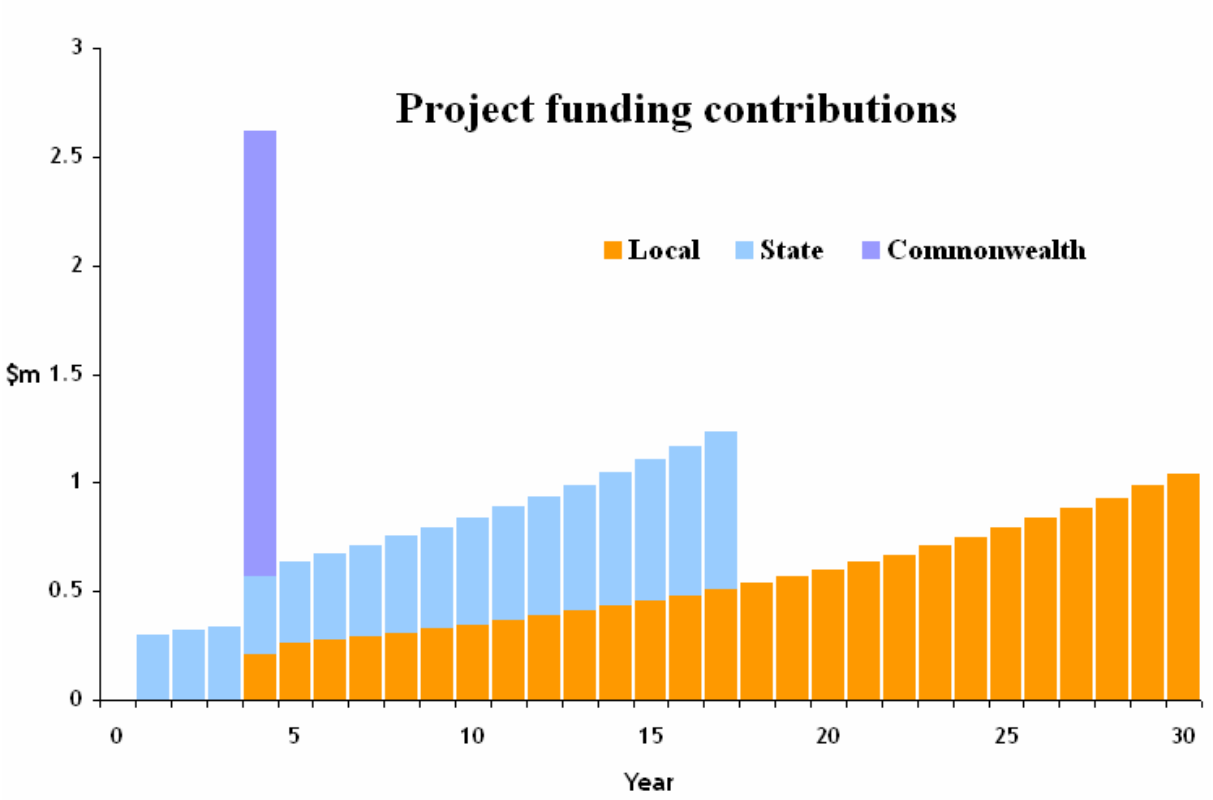
- An infrastructure market is developed in which private (e.g. superannuation) funds are sourced to build projects which have qualified for this scheme. The borrowers are the three spheres of government who set up a scheme of arrangement which provides for the following repayments schedule.
  - The Commonwealth pays off its portion of the loan with a tax-financed grant on project completion. Its contribution is thus a short-term loan which is written off by a grant. This grant can be regarded as a down-payment on the additional tax revenue which the Commonwealth will receive as a result of the project.
  - The state pays off its loan more gradually, including offsets during the construction period. As suggested, the rate of payback should be indexed to the state's GST-related grants.
  - Local government (a council or group of councils) has borrowed to finance its share of construction, but pays off the loan long-term. As suggested, rate of payback should be indexed to growth in regional gross value added.

An example is given below. The effect of this blending is that debt is repaid fairly rapidly at the beginning, tapering off as local government assumes more of the responsibility. In the example, the Commonwealth makes a small but strategic contribution, the state a considerable contribution, and local government the main contribution, but the local contributions are deferred and hence of fairly small present value. These proportions could, of course, be varied according to the balance of national and local interest in each project.

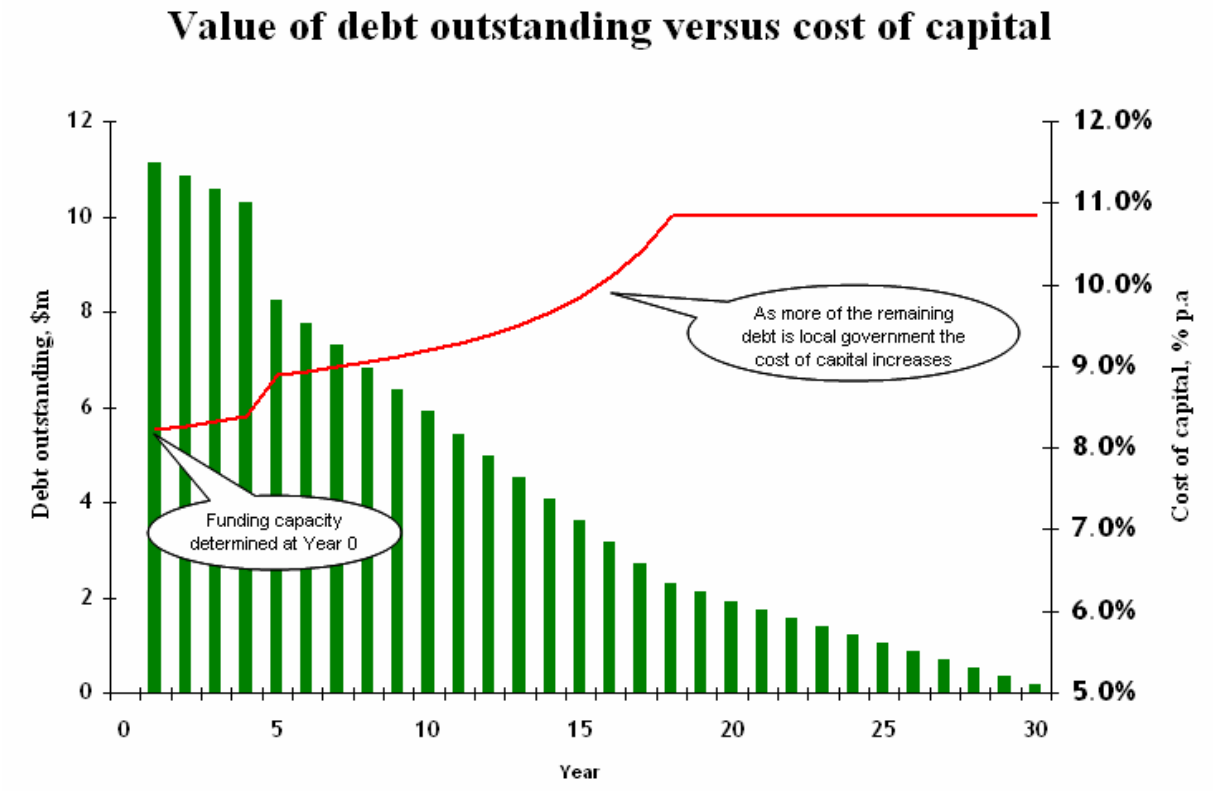
**Table 5.1 Long-term debt facility, example 1**

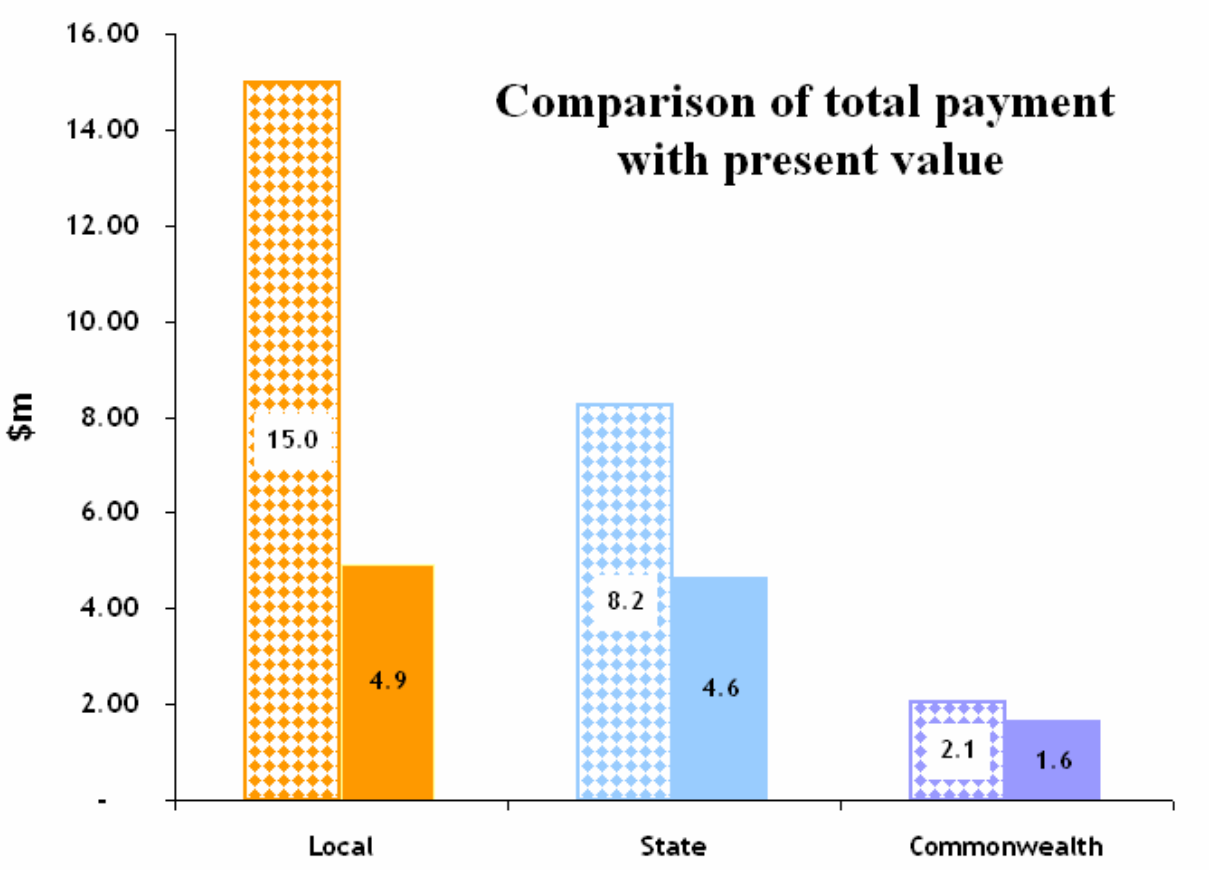
| | |
|---|---|
| Life of loan, years | 30 |
| Amount borrowed | $10,000,000 |
| Return | 8.22% |
| | |
| Federal – once off payment | $2.05 million, Yr4 |
| State - yearly | 17 yearly payments, $0.3m increasing by GSP, 5.65 %p.a.) |
| Local | 27 yearly payments, $0.21m increasing by 5.65 %p.a.) |

| *Share of contribution* | *Cost of capital* | *Net present value* | *Total nominal contributions* |
|---|---|---|---|
| Local government | 5.85% | 44.0% | 59.3% |
| State government | 6.25% | 41.5% | 32.6% |
| Federal government | 10.85% | 14.5% | 8.1% |




The effect of this profile of investment is to reduce the average cost of capital at the time of project inception. Why? Because at the beginning of the loan the total amount borrowed includes a large component of funds which are due to be repaid by federal government which has low risk. As one moves through the term of the loan, and the amount of funds outstanding falls, the reliance of funds from local government is higher and the associated risk rises.

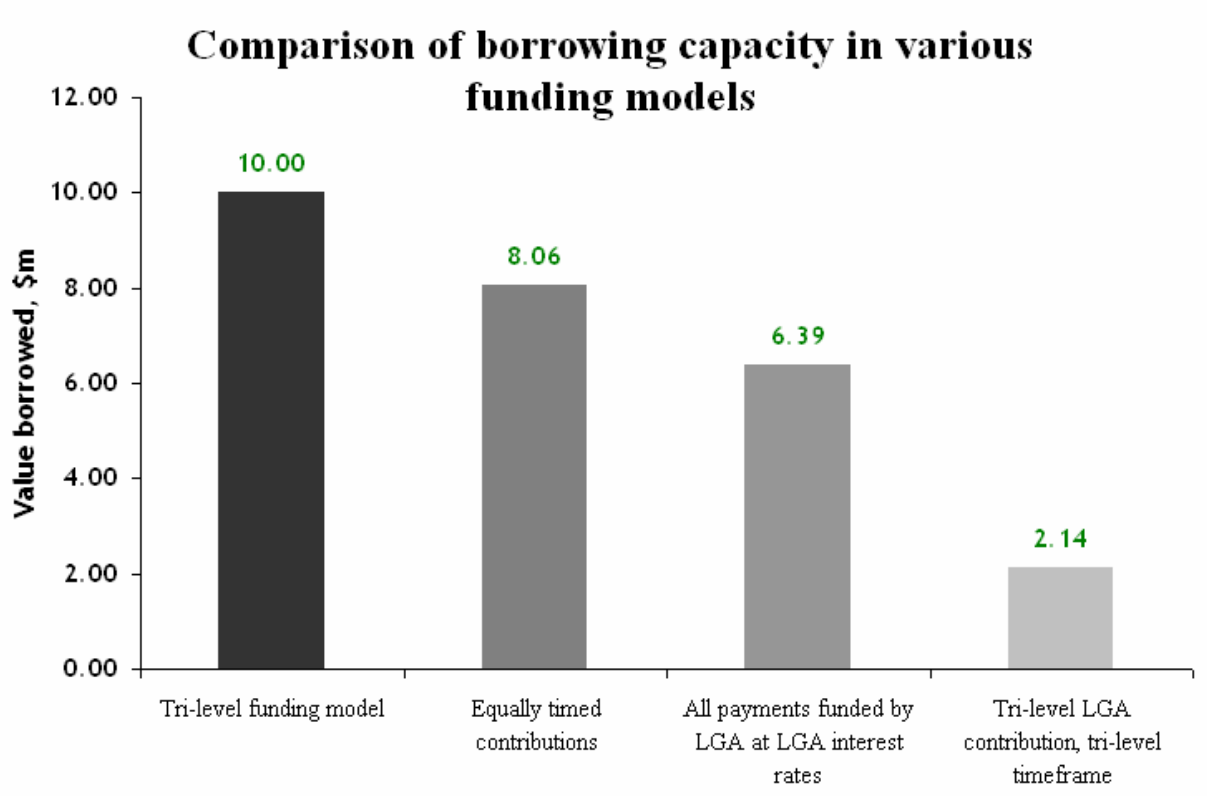





From a local government point of view, the effect is a considerable increase in the amount that can be borrowed compared to the amount that could be borrowed if a council borrowed on its own account, even if it received the same grants from the other spheres of government. This effect arises because of the lower cost of funds in the blended compared to the go-it-alone alternative.

The following graph shows the various amounts which could be borrowed under similar circumstance to the scenario outlined above.

- **Equally timed contributions:** Were similar total nominal amounts due to be paid over the course of facility by each of the contributors equally spread across the 30 years, the amount borrowed would only be $8.06 million.
- **All payments funded by LGA at LGA interest rates:** Should the profile of payments be maintained at proposed levels but paid for by the local government, at the interest rates charged for local government payments, only $6.39 million can be borrowed.
- **Tri-level contribution of LGA only, in tri-level timeframe:** Were only the nominal amounts contributed by the LGA be provided, at rates attributable to local government, on the defined profile, only $2.14 million could be borrowed.



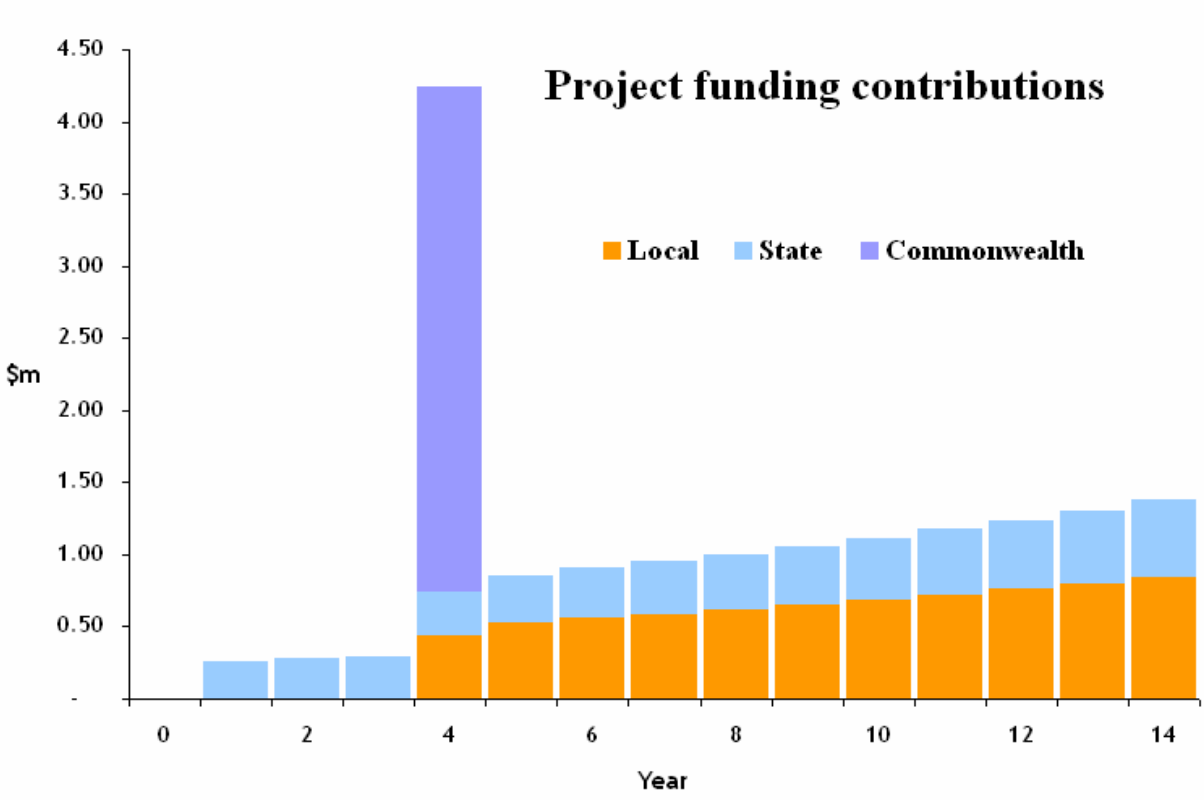

### 5.4.2 Shorter term debt structures

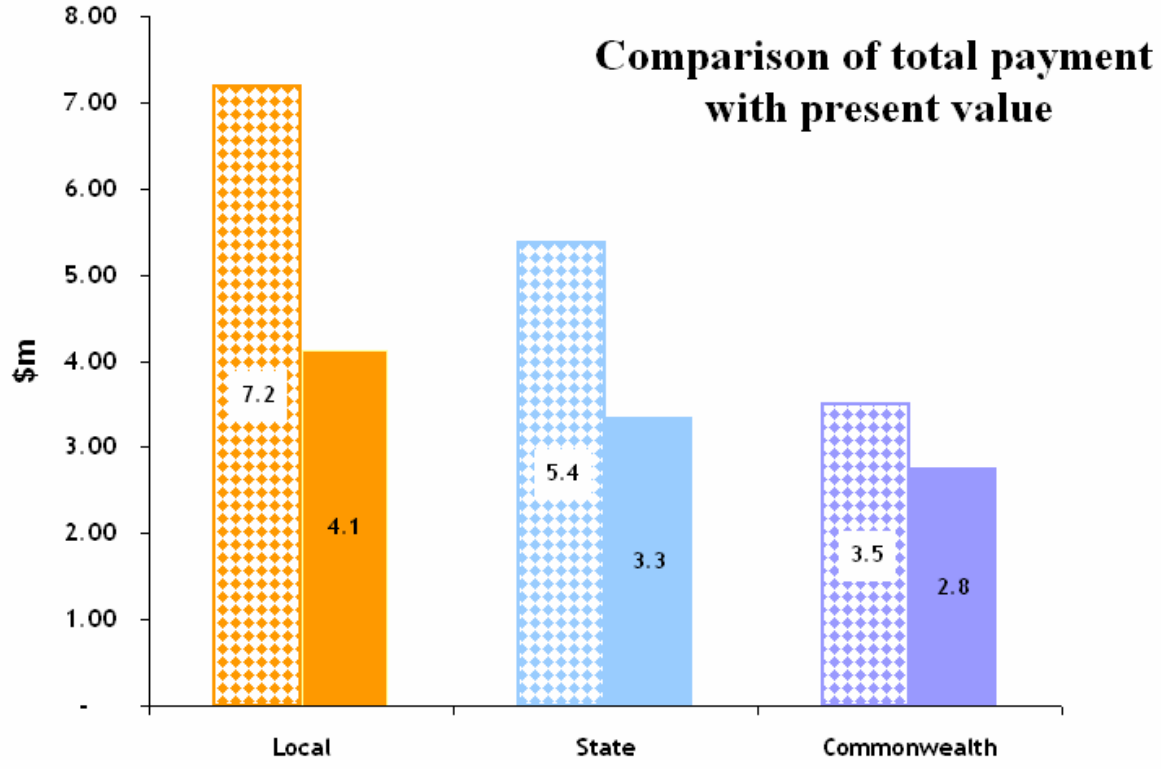
While respecting the general principle that Commonwealth contributions should be upfront, State contributions medium-term and local contributions related to the whole life of the asset, many different blending specifications are possible. Below, another example for an asset with a shorter life is given.

**Table 5.2 Short-term debt facility, example 2**

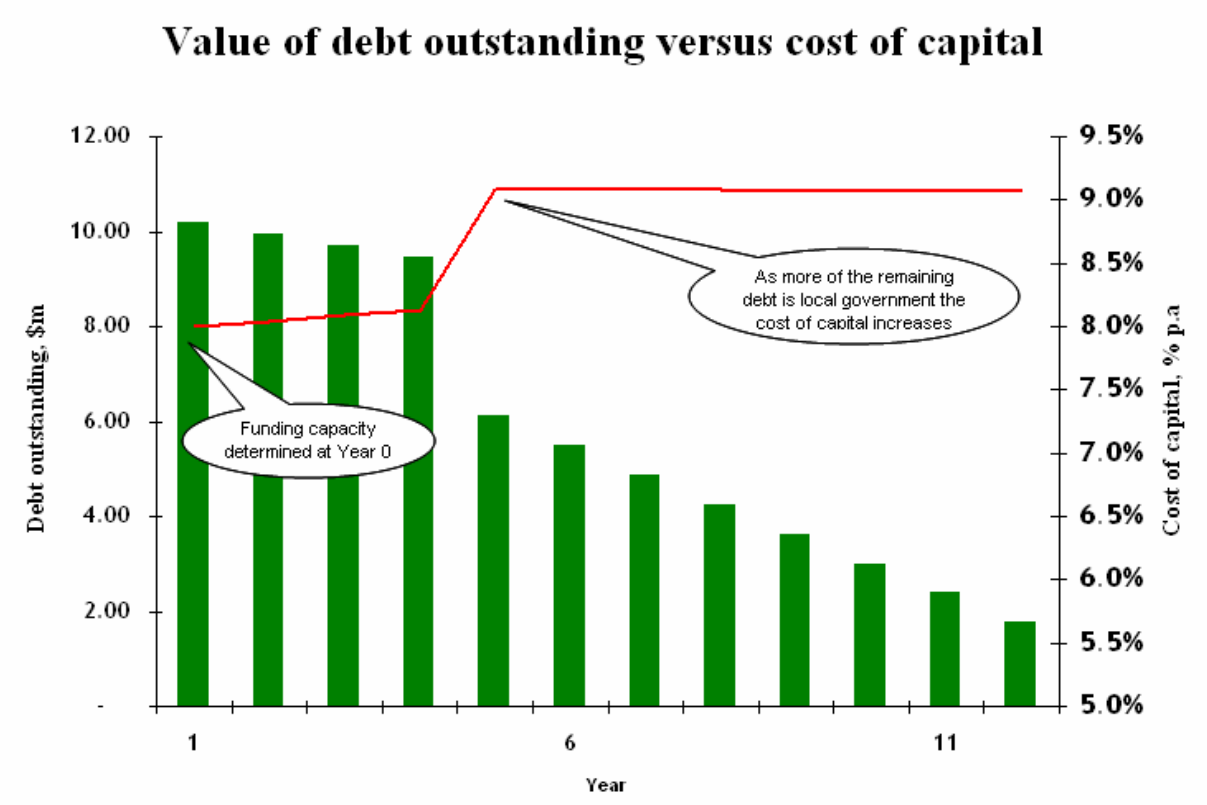
| | |
|---|---|
| Life of loan, years | 15 |
| Amount borrowed | $10,000,000 |
| Return | 8.00% |
| | |
| Federal – once off payment | $3.5 million, Yr4 |
| State - yearly | 14 yearly payments, $0.26m increasing by GSP, 5.65 %p.a.) |
| Local | 11 yearly payments, $0.43m increasing by 5.30 %p.a.) |

| *Share of contribution* | *Cost of capital* | *Net present value* | *Total nominal contributions* |
|---|---|---|---|
| Local government | 5.85% | 40.4% | 44.8% |
| State government | 6.25% | 32.7% | 33.4% |
| Federal government | 10.85% | 27.0% | 21.8% |

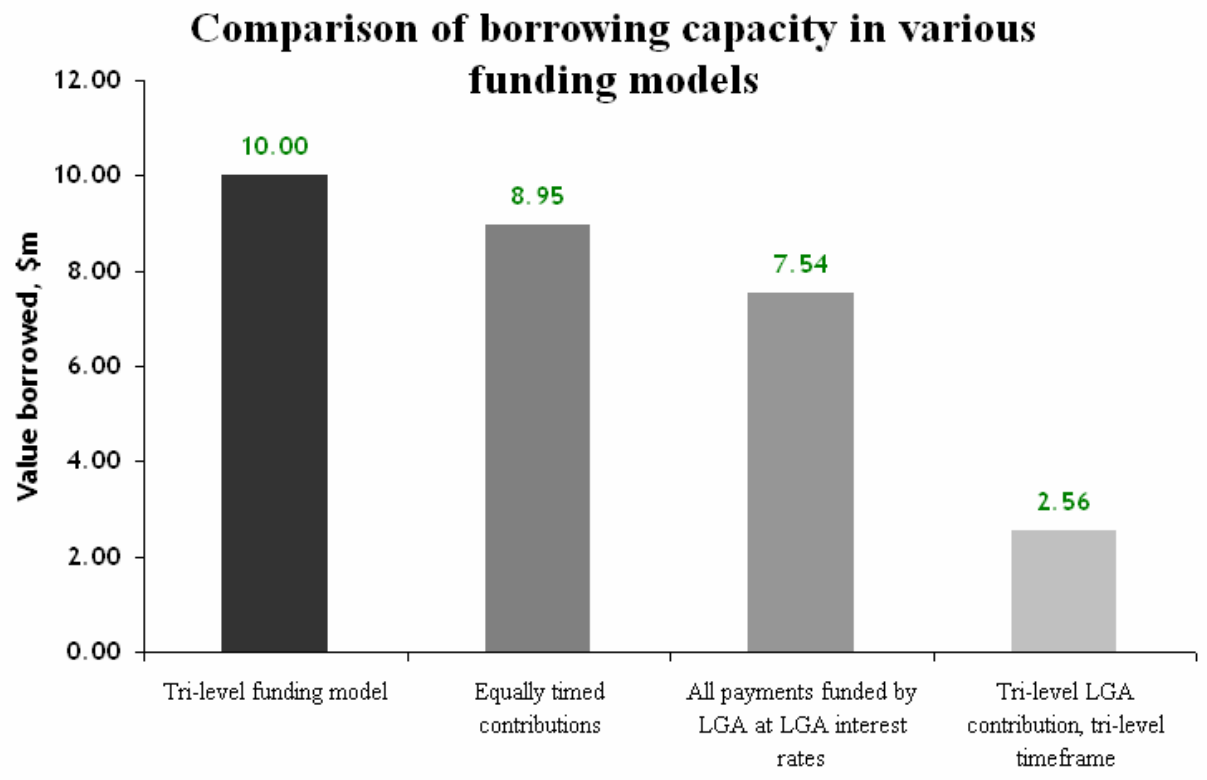



In the case of shorter-term debt structure the local contributions cannot be "back-ended" to the same degree as in the longer term structure.




The impact on affordability still exists however. The graph above shows a similar increasing profile in risk as existed in the long-term structure.



The Commonwealth would be able to vary the specifications of a blended-funding program in accordance with both macroeconomic and national development needs. The main point, however, is to increase real local participation in decisions about local infrastructure funding, rather than have them completely driven by Canberra rules and politics.

## 5.5 Analysis of funding from three levels of government

> "It is quite rare for us to run into a project where all three levels of the government are involved or interested in a significant regional project and have an agreed set of outcomes that they want to achieve and an agreed mechanism for achieving a quick result." (Australian Constructors Association, *Transcript of Evidence*, 23 August 1999, p. 105.)

This model respects the fact that not only must the three spheres of government work together, but the best results can be achieved when they do. Just like all teams, working together, utilises the best elements of each contribution. Evidence tendered to the House of Representatives Standing Committee argued that "the need for alignment of policies and directions across the three tiers of government based on joint/cooperative agreements between governments and the development of effective public/private partnerships to address infrastructure needs identified by communities on a regional basis, was a common theme".

### *Federal funding*

- The Commonwealth has responsibility for macroeconomic policy and the borrowing and spending which this may entail. Because of this responsibility, during periods of threatening recession it tends to borrow at short notice, and can be willing to support this borrowing by grants for prompt spending.
- It can borrow at low interest cost.
- When spending unlocks regional potentials, the excess of benefits over costs at national level can be considerable, so justifying Commonwealth involvement.
- Because borrowing is often at short notice, short-term politics can drive Commonwealth infrastructure spending, and there may be considerable conflict between the priorities of local areas and those of the federal government of the day. At worst, these conflicts can result in some regions completely missing out on loan-financed expenditure.
- The fine-print provisions of several Commonwealth taxes, notably personal income tax, corporate income tax and capital gains tax, strongly influence the terms under which state and local governments and private businesses can borrow.

### *State funding*

- The states now have revenue streams tied to GST, not to speak of payroll tax. Both grow as economic activity grows.
- Where spending unlocks regional potential, the excess of benefits over costs at a state level can be considerable, so justifying state involvement in regional projects.
- When the state is responsible for the operations phase of a project, either directly or through a state corporation, it is in a position to gather user charge revenue which can contribute towards financing.

***Local government***

- Local governance and democracy can be engaged to allocate funding priorities in the form of debt sourcing.
- When local government borrows, it pays a risk premium.
- When local government is directly or indirectly responsible for the operations phase of a project, it is in a position to gather user charge revenue, which can contribute towards financing.
- The capacity in the future to provide for a new array of user-pay systems to fund commitments made at present may be significant.
- Local government is closely attuned to the investment priorities of local people. The close alignment is not only based on the proximity of local leadership, but also because of localised nature of the costs of under-investment. A state government, for instance, may be quite reassured by the levels of funding for arts centres, swimming pools and the like, however a local community with either will have a sharper understanding of importance of this type of infrastructure.
- Local governments, especially those co-operating regionally, will also be able to lead the development of competitive advantage through new forms of infrastructure.

Private investors also have a role in infrastructure provision, and it is no purpose of this report to belittle this role. Further, recent experience with Public Private Partnerships has led to the accumulation of valuable experience of circumstances where private funding is desirable, circumstances where it can leverage public investment, and circumstances where it merely raises costs over the government alternative. However, the present need is for greater utilisation of government borrowing capacity and direction of this into infrastructure projects with high benefit-cost ratios. This includes projects with private participation.

As reported in *Running out of Time*, Fred Argy has argued that there is inadequate machinery for federal-state regional infrastructure planning, and a lack of a sound national system of evaluation and prioritisation of infrastructure projects. He has advocated:

- Collation of information about infrastructure needs and opportunities, with the Commonwealth taking a lead role, and
- Rigorous benefit-cost analysis by a national advisory council, with dissemination of information to investors.

He has argued that it is likely that regional projects would rank higher than otherwise if the analysis took account of all social, economic and environmental benefits to regions. In this sense it is up to the regions to develop their case, but it helps in project assessment if there is analytical consistency within and across jurisdictions. The process of developing such a case was discussed in Chapter 6. It now remains to suggest how local government may take the step from regional advocacy to sharing the risks of regional investment.

## 5.6 Infrastructure debt markets

In establishing a debt market for projects that may respond to this funding model the following issues need consideration.

- Clear information flows, an inventory of assets and a procedure for the evaluation of the impact of infrastructure development of all forms.
- The establishment of a clear set of principles on which to base the crucial state and federal funding;

- These principles may result in a ranking of all projects proposed, with this type of tri-level funding useful for those projects which have a strong local benefit but limited federal or state impact.
- For generic projects, such as broadbanding, specific local funding shares may be appropriate.

- The provision of a general fund of government contributions.
- Parameters for the behaviour of local government need to be defined in terms of maximum debt raised.
- Arguably, there is a strong democratic and consensus building basis for the establishment of "debt-elections" in which local government elections include voting on the major investment priorities of the local government.
- One of the strongest marketing features for an infrastructure development market could be the capacity of ordinary Australian's to allocate superannuation to products which invest in such development. In a similar way to the "ethical" investment products all Australian could evaluate their funds on regional development investment. At the moment this is simply not possible. The branding possibilities for superannuation funds are substantial.

**"The branding possibilities for superannuation funds are substantial."**

- Liquid markets are desirable requiring a strong continual supply of projects. This:
  - provides a market with expertise in evaluating projects; and
  - reduces the cost of evaluating projects by market participants.

    The report, *Time running out: Shaping Regional Australia's Future*, noted that "In relation to smaller, regional projects, the committee understands that one of the difficulties in obtaining funding is that tendering costs, including legal and accounting costs, make it difficult to justify projects less than $20 million".
  - Allows the pricing of specific projects and each local government area risk profile to be updated continually. This will provide more efficient pricing of future projects.
- One concern with a debt product which has a variable risk profile is the strength of the market for the product in the later years. In general, if there was strong trade in the debt products in secondary markets (a market in which the original debt is sold and resold) the existence of increasing risk profile would not be a problem.
  - For regions and projects which have been successful, the local revenue component, which appeared risky at inception, may no longer be risky. The secondary market for such revenue would value this debt highly. Furthermore new projects proposed in these regions would be rewarded by cheaper funds, in the same way as successful companies access funds at cheaper rates than riskier companies.
  - For regions which have not been successful the debt outstanding will assume a higher level of risk and this debt would fall in market value.
  - Should there be a sufficient flow of these projects the secondary market will be liquid enough to achieve a high level of efficiency promoting further investment.
- Changes will be required to current taxation problems associated with Sections 51AD & Division D of the Income Tax Assessment Act 1936. Section 51AD was devised to prevent government control of privately financed infrastructure in an era where there was no private ownership and little private management of infrastructure in Australia. In terms of this problem we cannot be clearer than the succession of reports which have already state that it **must be fixed**. Repeating the *Time running out: Shaping Regional Australia's Future* recommendation (emphasis added):

**Recommendation 15**

The committee recommends that the Commonwealth government remove Section 51AD and amend Division 16D of the Income Tax Assessment Act 1936 **as soon as possible**, to allow the development of effective, workable public/private partnerships for the financing of infrastructure.

If time was truly running out in 2000, and nothing has changed since, imagine how long it will take to achieve successful regional infrastructure funding; to be cynical, as long as it now takes to download the report in the country!

- Projects which have a high environmental or social dividend and extend beyond the region that promotes them may be able to seek additional favourable tax treatment which increases the viability of such a funding model.

## 5.7 Conclusions

The tri-level funding model proposed recognises the key issues in infrastructure funding:

- contributions by various levels of government;
- accessing private and superannuation funding;
- reducing the cost of capital at the same time as increasing the local responsibility for investment;
- effectively leverages the capacity of the local region to choose and deliver infrastructure which they need;
- strengthens local democracy; and
- removes another element of federal and state "politics" from regional development.

# PART C

# THE ROLE OF INFRASTRUCTURE AS A DRIVER IN REGIONAL ECONOMIC DEVELOPMENT

# The role of infrastructure as a driver in regional economic development – overview

It is all very well to point to the importance of infrastructure in generating competitive advantage in a globalised, knowledge-based economy, and similarly to point to the current macroeconomic imperative for government borrowing to finance infrastructure investment which yields economic advantage and also cash flows from which governments can service their borrowing. Several questions arise.

4. What is the track record of infrastructure investment? Does it in reality yield the claimed benefits?

5. How can a region identify strategic investments?

6. How can a region go about creating consensus around a strategic investment?

Where an asset is included in the standard array, required to provide standard services expected in any region, assessment can be by national standard. It is also relatively simple to create political consensus, both within and outside the region, that national standards should be attained in all regions. But strategic investments depart from national norms; they are intended to be distinctive. This creates obvious difficulties for project selection. It is not just a matter of reaching a national standard, but of selecting projects which are most likely to yield future benefits in the particular region, given where it's starting from. Similarly it creates difficulties for assessment of the track record of past projects, not only because they are so disparate and hence difficult to compare with one another, but also because it is difficult to know what would have happened without them.

Finally, all investment has the potential to create conflict between those who want change and those who do not. However, with catch-up investment conflict can often be managed because the investment is frequently incremental, and because there numerous like examples. Investment proponents can appeal to the standard array and call on the 'me-too' principle. This is much more difficult with strategic investment, where different residents in a region may have highly divergent views on where the region should go economically and socially.

Part C begins to address these questions, though without definitive answers. It is intended to address some of the questions raised in future issues of *State of the Regions*.

The discussion in this Part mainly concerns physical infrastructure. This is not to play down the importance of education, health and other government services, but rather to concentrate on the peculiar difficulties which arise in the physical infrastructure sector when we move beyond the standard array and begin to consider physical infrastructure as a source of strategic advantage. Many of these difficulties arise because strategic advantage involves combinations of investments in different areas, traditionally kept apart because of different engineering characteristics.

Chapter 6 provides an account of the role of infrastructure in economies: what it is, how it is linked to economic development (including overseas examples) and how it functions as an economic asset. Infrastructure policies in Australia have largely been catch-up in nature, but we are being pushed into a new era in which infrastructure must take on a strategic role. The nature of strategic infrastructure is such that it requires a different approach to planning as well as to project commitment.

The particular case of transport infrastructure is considered in Chapter 7. This Chapter considers the links which may exist between transport infrastructure and regional development, including a extensive and highly technical summary of economic assessments of returns to transport investment (Sections 7.3 and 7.4). It also provides preliminary assessment of the returns to selected large Australian transport investments.

The studies reported in Chapter 7 quantify infrastructure in financial terms, that is, in terms of replacement value. Conversion to financial value blots out the differences between the various types of physical infrastructure. They all have different engineering characteristics, which gives them different economic characteristics, both on the cost side and on the benefit side. Chapter 6 accordingly goes patiently through the different types of physical infrastructure, asking standard questions. Is the infrastructure typically strategic or is it part of the standard array? What does it produce and how is its output measured and priced? How is the system maintained? How might it contribute as a strategic investment?

In Chapter 8 it is argued that a major problem in the assessment of transport infrastructure is that its quality cannot be separated from its utility in connecting origins and destinations. This problem is at its most acute for passenger transport. A road can permit the fastest speeds but be of no use because it goes nowhere. Thus an assessment of the usefulness of a transport investment must be related to potential transport flows.

In Chapter 9 this problem is addressed, for passenger transport, by an analysis of accessibility. The measures chosen are in terms of destination-opportunities within a given time-limit, for example jobs within 30 minutes of residences. The measure is sensitive both to geographic proximity (the number of nearby jobs is always less in the country than in the city) and to travel speeds (which are generally greater in the country than in the city).

The accessibility measures developed in Chapter 9 can be tested for their relationship to the proportion of the working-age population which is employed. The results are reported in Chapter 10. It turns out that accessibility is a significant driver, along with age structure and skills and social capital. The greater the number of jobs within easy reach, the higher the job-holding rate. In traditional economic terms this helps to quantify the economies of agglomeration, or the benefits of bringing economic activity together in cities. Further work will be required to distinguish between the contribution of transport investments to these benefits, and the contribution of town planning and strategic location policies.

The report concludes with two examples. Chapter 11 considers an example of infrastructure policy at the Commonwealth level – the recent AusLink white paper. While it represents an advance on previous Commonwealth approaches to transport infrastructure, there is plenty of scope for further advance. The second example, in Chapter 12, describes the history of the Wimmera-Mallee stock and domestic water supply system in Victoria, and the problems of funding a project which is part maintenance, part capacity expansion and part rectification of past failure to take environmental costs into account.

# 6. Infrastructure[6]: what is its role in the regional development and related process?

## 6.1 Introduction

The word infrastructure has been around for some time, and the Macquarie dictionary chronicles its usage in the 1970s thus.

1. The basic framework or underlying foundation (as of an organisation or a system).

2. The buildings or permanent installations associated with an organisation, operation, etc. (Macquarie, 1982)

The infrastructure of a school was its grounds and buildings (meaning 2) or (meaning 1) the legal instruments and pedagogic principles which underlie its activities. The word was not used very much, since in most cases a more specific description was at hand and sounded better.

The current usage of the word dates from the 1990s, and is a consequence of the economic reforms of that decade. It is appropriate that the state which pushed privatisation furthest (Victoria) now has a Department of Infrastructure and the duties of this Department give an indication of the current coverage of the word. The Department covers three main areas: transport, telecommunications and what used to be called public utilities, namely power, water and sewerage. These services have at least two things in common.

- They all involve geographic connections: the transport of goods, people, messages, electricity, gas, water and sewage.
- The systems concerned are either in government ownership, or were until privatisation in the 1990s.

There are, however, fuzzy edges. The telecommunications system is part of infrastructure, but the computers which individuals and businesses attach to the system are not, even though the internet could not exist without them. Similarly airports are infrastructure but planes are not. Ports are infrastructure but ships are not, unless one happens to be the government of Tasmania concerned about connections across Bass Strait. Rail tracks are infrastructure and trains probably should not be, but are within the Victorian Departmental brief. Roads are infrastructure but cars and trucks are not, though buses and trams seem to be (the Department covers public transport). Among the public utilities the transport assets (pipes and wires) are of course infrastructure, but so also are the power stations, dams and sewage treatment works (collectively headworks).

When the word infrastructure became fashionable, it received various extensions beyond this basic list. People even spoke of financial infrastructure, though it is not obvious how this differed from the financial system as a whole: is there any financial institution or regulation which is not part of the financial infrastructure? The extension to 'soft' social infrastructure made more sense. This comprised services like education and health, for which governments are at least partly responsible. Inclusion of education, health and other social services has the merit of making the word synonymous with what used to be called public services.

[6] National Economics acknowledges the contribution of Dr Sally Weller to this chapter.

This raises the question of why it became necessary to re-badge public services as infrastructure. The obvious reason is that, in the rush to cut taxes and shrink government, public services were condemned as inefficient and in dire need of microeconomic reform. However, the reformers gradually re-discovered why past governments had taken such an interest in public services, which is that they are unavoidably at the foundation of both the economic and social systems. A new word was needed that was untainted by accusations of government inefficiency, and we hit on the word infrastructure.

**"Public services are unavoidably at the foundation of both the economic and social systems."**

It is commonplace for infrastructure to be classified by type - 'hard' infrastructure like telecommunications, electricity, gas, water, sewage and transport, and 'soft' infrastructure such as schools, community venues and environment. This artificial separation undervalues the complex intertwining of facilities and services that creates virtuous cycles of development. A broader definition highlights the interdependencies between types of infrastructure provision. Thus, Seeley (1993) defines public infrastructure as '… almost every support system in modern industrial society, public or private. Infrastructure is said to include not only roads and sewers, but national transportation grids, communications systems, media, housing, education … computer networks and fiber-optic (sic) 'information superhighways'. Public infrastructure is the support system for the market economy. At the same time, the regional economic environment is the outcome of inter-related and interacting infrastructure types. Since different aspects of infrastructure are provided through different agencies, actors and mechanisms, it is necessary at the outset to classify types of infrastructure. A crucial distinction is between market and non-market goods - where the private sector are more likely to be involved in the provision of marketable goods.

**Table 6.1 Infrastructure types**

| Category | Example | Institutional Arrangement |
|---|---|---|
| Physical | Roads, footpaths, water, sewage, gas and electricity, telecommunications parking, public transport | Considered marketable except for footpaths and most roads. |
| Economic | Places of business, skills training | Provide by the private sector, but subsidised by government, especially in urban regeneration projects. |
| Housing | Owner occupied, private rented, affordable | Mostly private. |
| Educational | Schools, universities colleges | Public and private. |
| Health | Hospitals, Health centres | Public and private. |
| Community | Recreational facilities, art galleries, museums, fire stations | Public |
| Environmental | Amenity<br>Landscaping, open space, street furniture, ecological | Public |
| Environmental | Conservation<br>Environmental Impacts | |

*Source:* Ennis (2003:6) (adapted).

Since 1993, Australian Accounting Standard 27 (AAS27) has been applied to local governments. It requires local governments to report on the current value and rate of consumption of their infrastructure assets. In 2000, it was estimated that the total value of investment in infrastructure assets by Australian local government of approximately $135 billion, was being consumed at a rate of $2.6 billion per year or $300 000 per hour (Howard 2001).

### 6.1.1 The Infrastructure Development Link

The continuous renewal and improvement of infrastructure are widely regarded as a very necessary part of any regional development strategy. Infrastructure has been emphasised in regions which are economically and geographically peripheral to the core industrialised regions (Peck 1996). It is usual, therefore, to review in general terms the relationship between infrastructure investments and economic development.

Hirschman (1958) detailed the role of social overhead capital in providing the base for economic activity. It is also a major source of positive spillovers that promote development (Eberts 1990). Infrastructure developments also have an important role in the psychology of development momentum: strategies that over-supply infrastructure, in the short-term, heighten the expectations that create incentives for development and reinforce the motivation of developers, prompting additional activity. The 'cranes of the skyline' can be seen as measures of growth potential.

Although the empirical evidence supporting the positive relationship between infrastructure and development is patchy and plagued by data limitations, methodological differences and variable findings, the overall the conclusions are positive. However, since infrastructure and development are intertwined in complex cycles of causation, questions remain about the direction of causation and the contextual circumstances in which the general positive relationship holds true. Moreover, the answer to the question 'Does additional infrastructure promote development?" may not be the same as the answer to the question 'Does lack of appropriate infrastructure inhibit development?' These issues are taken up later in this review as issues of 'catch up' or innovation.

**"Does lack of appropriate infrastructure inhibit development?"**

What then is the evidence? In an important study in Europe, Beihl (1982) viewed development potential as a function of the set of resources available in a place - natural resources, the endowments of labour, geographical location, the position of a place in global networks, the sectoral structure of the economy and the nature of its capital stock - as well as the mix of mobile and immobile factors. Together, these factors also indicate the limits of development or development potentialities in any place. Beihl (1982) used statistical analysis of regional inputs and outputs to explore these relationships empirically. Comparing a region's actual income to its potential income shows that infrastructure plays a key role, and that higher levels of infrastructure investment lead to higher levels of regional development (see also Diamond and Spence 1994).

**"Higher levels of infrastructure investment lead to higher levels of regional development."**

Empirical evidence of the infrastructure-development linkage in the United States context is reviewed in Felbinger (1995). A widely-cited national level study by Ashauer (1989) showed a strong connection between infrastructure and development, with every dollar invested in public infrastructure associated with a $4 increase in GNP. Others have highlighted the correlation between downshifts in public infrastructure expenditure and key economic indicators, although the direction of causation is open to question. Peeters *et al* (2000) show that infrastructure development impacts positively on the regional structure of production when it reduces transport costs. Using a simple model that takes the financing of infrastructure services into account, Sietz (2000) demonstrates that infrastructures affect the sector composition and competitiveness of cities. Using data for regions in Spain, Bosca *et al* (2002) estimate that in the long run public capital expenditures promote private investment. Deno (1986) found that public sector investment had a positive impact on private sector investment, while Costa *et al* (1987) found a positive relationship between infrastructure investment and manufacturing output.

The results are not so clear when different outcome measures are used. Eisner (1991) and Holtz-Eakin (1994), for example, found that public investment had zero impact on private sector productivity (which is one contributor to GNP). Lobo and Rantisi (1997) found no significant relationship between levels of public capital investments and levels of metropolitan productivity, but found that the growth rate of local government investments in public capital and the growth rate of metropolitan productivity were positively correlated. Haughwout (2002) examines the limitations of the dominant (aggregate production and cost functions) method of evaluating the benefits of public investments from a perspective informed by applied production and spatial equilibrium theories. He develops a spatial equilibrium model of an economy with non-traded, localised public goods (like infrastructure) to identify the role of public capital in firm production and household preferences. Using data for the United States, he shows that public capital delivers marginal benefits but that the marginal productivity of capital is low. In aggregate, he estimates that the willingness to pay for large increases in public capital is less than their cost, resulting in under-investment in infrastructure. Contextual factors are important, with the positive relationship between infrastructure and development more pronounced in urban than rural regions (Rowley et al 1990). There is also some question whether observed benefits can be attributed to the infrastructure project or to other benefits that accompany the infrastructure: Mera (1975) and Parker (1990), for example, both found a direct relationship between technology transfer and rural economic development.

The problem here is that quantitative analyses in the 'regional science' tradition treat infrastructure as an 'independent variable' in modelling exercises, when in reality infrastructure developments are intimately inter-related to other social, economic and political factors that shape the outcomes being measured (Peck 1996). Most of the models are also static, and as such are unable to fully appreciate the dynamic interactions that characterise regional development processes. To understand the relationship between infrastructure and development requires a more nuanced account – an account that takes in the contemporary reorganisation of infrastructure services.

Because urban and regional change is dynamic and intertwined with economic and regulatory changes, debates about the importance of regional infrastructure in the development process will continue. In this context, Guild's (2000) survey of the theoretical and empirical literature on the relationship between sectoral and social development and the availability of infrastructure concluded that infrastructure is a necessary but not a sufficient condition for regional growth. Furthermore, he concluded that:

1. there are modest positive developmental impacts of infrastructure investment;
2. complementary relationships develop only when there is a 'sufficient' level of productive activity, but no amount of investment in core infrastructure will overcome locational disadvantages; and
3. pressure for development may be an efficient infrastructure investment triggering device.

It should be noted at this point that infrastructure development has political advantages: for example, infrastructure has been one of the main policy instruments for generating cohesion and convergence among EU countries and regions (Canaleta *et al* 2002).

**"Infrastructure development has political advantages."**

## 6.2 Infrastructure as capital

What makes infrastructure so important? The microeconomic reformers of the 1990s assumed that it was just another input to production, a particular form of Capital. In the reformers' world of abstract theory, business management had only three tasks:

- to squeeze maximum output out of each unit of input;

- to ensure that the inputs are combined in least-cost combinations, having regard to their prices; and
- to direct Inputs to the production of those outputs which, having regard to output prices, maximise profits.

They argued that application of these rules would make infrastructure services much more efficient. Since infrastructure tends to be capital-intensive, this would save immense amounts of capital. The reduced need for investment would release resources for the delights of consumption. All that is necessary to release this cornucopia is a strong dose of competition.

There are several reasons why infrastructure fits awkwardly into this abstract world.

- Because infrastructure serves particular locations, and involves high investment in relation to the size of each local market, competition is difficult to arrange. Much infrastructure comprises of natural monopolies.
- The typical piece of infrastructure contributes to the final outputs of many industries. A road, for example, contributes to transport services which in turn contribute to production in a variety of industries, in addition to transport services which are part of final consumption. Where infrastructure provides small inputs to numerous outputs it is very difficult to apply the abstract management rules.
- Put another way, infrastructure services are found at various points along the supply chain of each good and service produced. The same piece of infrastructure can be right at the consumer end for one output but at the same time far removed from final consumption as regards another of its outputs (e.g. a road used both by pedestrians and by trucks carrying wheat for export). On average, infrastructure contributions are well back along the supply chains. Optimal infrastructure outputs are difficult to define.
- As capital items go, physical infrastructure tends to take a long time to plan and build, but once built tends to last a long time. Indeed, it may be designed to last indefinitely, if properly maintained. In these respects, infrastructure has more in common with buildings (indeed there can be overlap between the two) than with mechanical equipment. The typical contrast is between a road and a car. The road is designed to last indefinitely, provided its drains are kept clear, its verges graded, its potholes filled and it is regularly re-sheeted. The components of the car all have a design life, and when this is exceeded they tend to fail, at which point it is cheaper to replace the car than to try to keep it going. This leads to sluggishness in the adjustment of infrastructure inputs and outputs.

This sluggishness has several consequences. Sometimes more capital is needed, in relation to output, than is theoretically desirable because the relevant capital has a minimum practical size: a water supply pipe is useless unless it stretches the complete distance from the reservoir to the town. As a result of minimum size, there is also minimum cost, which may be quite frightening (consider, for example, the enormous investment which the Goldfields Water Supply was for the then tiny colony of Western Australia). Beyond the minimum size, increments to capacity are often relatively cheap; hence infrastructure may be constructed with excess capacity which turns out never to be needed. However, it is usual to build excess capacity into most types of infrastructure, not only in anticipation of growth, but to carry peak loads. It is simply not possible to vary the quantity of road supplied with each variation in traffic. Even if capacity is reached during peaks, the typical road operates well below capacity for most of the night and much of the day.

A practical consequence of accounting reform as applied to long-life infrastructure is that it has become common to over-state costs. This can happen when maintenance costs which are sufficient to keep the asset in good order for an indefinite life are added to depreciation based on a specified asset life. Councils sometimes frighten themselves with high road costs calculated by double-counting the overlap between maintenance and depreciation. However, it is also easy to sink into complacency and under-costing, for three reasons.

**"Councils sometimes frighten themselves by double-counting the overlap between maintenance and depreciation."**

- Even when maintained for indefinite life, infrastructure assets sometimes require major refurbishment. Sewerage and water supply authorities, for example, have often been caught with major expenditure needs on century-old assets. There is no substitute for keeping an eye on asset condition and providing for major maintenance in advance of its being required.
- Infrastructure assets can also become technologically obsolete. In museums there are steam engines which are still in working order despite being well over a century old. They have been discarded, not because they are too expensive to maintain, but because they are more costly to operate than newer equipment, capital costs included. (The same may be said of computers more than five years old.) Technological obsolescence can also result from the upward creep of system standards. For decades the Commonwealth and state governments have been colluding to increase permitted truck axle loads and to increase road-user expectations of speed. This has resulted in local roads becoming technologically obsolete, even in cases where total transport costs (i.e. road capital and maintenance plus road user costs) would be minimised by sticking with lower loads and speeds.
- Even if an infrastructure asset is within its technological life, it may reach the end of its economic life, in that it no longer serves a current need. At the extreme, assets may become 'stranded'. This is a serious threat for specialised transport assets. For example, gas pipelines can become stranded when the pattern of gas supply changes, and the railway to the Greenvale nickel mine in Queensland became stranded when mining ceased. Less spectacular cases of asset stranding can occur when populations decline. Many country towns have infrastructure designed for much larger populations than they now support, and indeed one of the arguments for economic decentralisation is greater utilisation of inherited infrastructure.

Three further common aspects of infrastructure give it an inevitable political aspect.

- Infrastructure is often provided as a local monopoly. Because of economies of scale, there is usually only room for one supplier in each place. Supply will also be standardised: it is not possible to supply both high-quality potable water and low-quality industrial water through the same pipe. There is plenty of room for friction between supplier and the public about quality and price. A purpose of microeconomic reform has been to challenge these local monopolies. Despite considerable inventiveness, it has not always been possible to overcome the effects of economies of scale.
- Much infrastructure provides essential services. This constrains pricing, and multiplies pensioner concessions. In other words, user charges for infrastructure are often influenced by distributional considerations, rather than the simple rules of cost recovery and profit maximisation.
- Much infrastructure also has distributional consequences on the cost side. An obvious case is the road which benefits most properties in a district, but reduces the value of immediately adjacent properties due to dust, noise and fumes. In these days of environmental impact statements, new infrastructure investments can easily arouse 'not in my backyard' (NIMBY) apprehension. Combined with uncertainty as to the eventual benefits and certainty as to the present cost, this can often defeat projects. A celebrated instance is the proposal to build a bridge over the Brisbane River at the University of Queensland, so increasing bus traffic in the

quiet streets of West End and spoiling the view. This bridge has been on again, off again through several decades of Brisbane City Council elections.

Infrastructure investments are often costly and sometimes divisive. However, it remains that infrastructure is an essential input to local economic and social activity. As explained in Chapter 4, there are macroeconomic reasons why Australia should be planning for a major increase in the level of infrastructure investment over the next few years. The question then is, what projects?

## 6.3 Changing infrastructure policies

### 6.3.1 Infrastructure as public works

Settler Australia began as a country without infrastructure. Starting from scratch, there was no shortage of projects, particularly after it was established that the country had pastures suitable for sheep and deposits of gold. Each colony set up a public works department, which started building ports, railways, waterworks, schools, hospitals and eventually sewers. The selection of projects was intensely political, but there were also general aims: economic development, and citizen entitlements to service. These latter were first established by the postal service, and then by universal primary education.

The early public works departments were responsible for roads. However, in the nineteenth century rail transport was much cheaper than road, and except in areas without railways roads came to be considered as useful only for local transport. Responsibility for roads was therefore hived off to local government. In some of the colonies local government also became responsible for water supply and sewers.

The colonial post offices were responsible for both posts and telegraphs, and this coupling continued when the two services were transferred to the Commonwealth at federation.

Unlike the traditional public works, gas and electricity were first supplied by small companies, many of which were municipally-owned. However, in the 1920s electricity was identified as strategic infrastructure, both as an essential item of consumption and as an input to industry and hence to economic development. One after the other the states set up Electricity Commissions, with the aim of supplying power to all settled areas at uniform tariffs. In the same spirit, the Commonwealth extended telephone services.

The 1920s also saw the beginning of the rise of road transport. The Commonwealth imposed a petrol tax and began making roads grants to the states. The states responded by taking back some of the responsibility for roads from local government, most of them placing it in a main roads department distinct from the public works department.

Though the range of responsibility of public works departments contracted with the establishment of special-purpose construction authorities, the public works tradition continued into the post-war era, with an emphasis on works of national importance like the Snowy Mountains Scheme. Outside the cities infrastructure investment aimed to open up the country for closer settlement. Within the cities the public works authorities struggled to keep up with urban expansion, and make good backlogs, particularly for sewerage and roads.

**"The public works tradition began to falter even during the 1950s."**

However, the public works tradition began to falter even during the 1950s. On the rural side, there was no more country to open up. For a while it was argued that the opening-up strategy could continue by intensifying rural production using irrigation, but this ran up against limits to water supply and land quality, not to speak of downstream effects. Two contrary trends developed. Within two hours' driving time of the metropolitan areas and in

scenic places generally the trend was towards rural-residential subdivision, which raised questions as to what infrastructure should be provided: urban-standard or rural-standard? In regions which remained rural, the trend was towards farm consolidation. The question is only beginning to be asked is whether this has any consequences for infrastructure provision. Occasionally the old public works spirit revives, generally in connection with resource developments: a mine is identified and haulage roads are built. However, this no longer amounts to much in relation to the overall Australian economy.

Urban projects also became less obvious once catch-up was completed and every house fronted onto a sealed street with water supply, sewerage, electricity and (mostly) gas. Technological change has brought broad-band rollout and mobile phone coverage, but these are not major investments by past standards. A generation ago it seemed obvious that the next major urban investment would be in freeways, but these have generated as much controversy as construction.

### 6.3.2 Changing relationships

Contemporary changes in both infrastructure services provision and in patterns of regional development raise the possibility that the relationship between new infrastructure and development is changing. In the nineteen century, infrastructure services were provided locally through close cooperation between local planning agencies and local private interests. The nationalisation infrastructure after World War II took the control of utilities, such as gas and electricity supply, out of local hands. The national objective of providing a high quality national system of infrastructure provision obviated local input and created a divide between local planners and infrastructure providers. The national monopoly structure enabled planning and provision to pursue national goals and objectives without drawing on the knowledge and resources of local communities. In this structure, developers dealt primarily with state and national authorities rather than local or regional agencies.

In the last 20 years, however, there has been a profound shift in the roles, capacities and governance of infrastructure resources. These new forms contrast with the normalised and standardised networks of the era of state monopoly-led provision and arise from four inter-related processes of socio-technical and political economic change:

- a decline in the authority of urban and regional planning bodies;
- the emergence of new consumption spaces (such as shopping malls);
- the emergence of extended and 'automobilised' regions; and
- the massive increases in technological control of existing infrastructure and the application of technology to the new types of infrastructure.[7]

These changes are summarised in Table 6.2 in the UK case, which – it can be argued – provides a useful guide to developments in Australia.[8] Firstly, much infrastructure provision has been privatised and fragmented into multiple private companies rather than a single monopoly provider. Secondly, the orientation of providers has altered from a supply-driven to a demand-driven model, where competition and the search for profit leads firms to 'cherry pick' customers, seeking out premium high-return markets while 'dumping' marginal constituencies. The same processes have disrupted the national grids developed in the 1960 and 70s and replaced them with a 'patchwork' of services that

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[7] For example, over the last decade a number of countries and states have successfully established complete spatial data infrastructures (SDIs) incorporating core digital map bases such as the cadastre or land parcel layer, topography, hydrology, road networks and administrative boundaries (Jacoby *et al* 2002).

[8] The liberalisation and privatisation of utilities in the UK preceded similar changes in Australia by some 10-15 years depending on the State. However, local government in the UK has less autonomy than it Australia, which distorts the comparison. Also, the distance between major cities is smaller in the UK compared to Australia, so the idea of a 'national' network is more of a reality.

feature varying capacities in different places. Defenders of this process refer to the elimination of cross-subsidies.

The form of regulation of infrastructure services has altered from central control to regulation of market processes. This shift does not necessarily imply less regulation, but certainly suggests an altered mode of regulation and greater delegation of community resources to private operators. The issue is to ensure that community interests are protected in the new context. The objectives of regulation also changed, replacing the aim to provide a high quality standardised universal national service with the imperative to maximise the competitiveness of the national space economy, and the cities within it, in the global economy. This new logic entails promoting the international profile of local leading cities, and building their profile in the network of 'world cities', while relinquishing local equity considerations.[9] The logic of world-city-led development not only envisions the world as hierarchy of places, but sees that hierarchical formation as both natural and inevitable. This logic is incompatible with the notion of convergence as the ultimate objective of urban policy.[10]

**"World-city-led development envisions the world as a hierarchy of places."**

**Table 6.2 Changes in infrastructure provision**

| | 1940s-1950s | 1980s- |
|---|---|---|
| Infrastructure Providers | Generally national, public corporations | Local, regional, national and international private companies. |
| Orientation of providers | National economic development, supply-driven, cross-subsidisation | Rate of return, 'cherry picking' premium markets, demand-driven. |
| Scale of Networks | Linking and extending local networks into national grids covering national urban systems | 'Utility patchwork' – replicating networks in lucrative areas, liberalizing access to old networks. |
| Type of regulation | Central government direction and internal management of public corporation | Regulated liberalised markets. |
| Objectives of regulators | Universal service at standard tariffs; standardised technologies | International competitiveness of national space economy and cities within it. |
| Production-economic dimensions | National economic development, regional equalization and economies of scale | Rebalancing of tariffs, recommodification, local and regional growth promotion, cross-investment. |
| Social-consumption dimensions | Universal social access to standard services – mass domestic markets | Social polarisation and fragmentation, 'pay per' revolution and social dumping. |

*Source:* Graham and Marvin (1994:229).

[9] Space prevents full discussion of the world city theories, but it is worth noting that city status is attributed to internal dynamism and network relationships with other world cities, rather than the productive capacities of city hinterlands.

[10] In addition, it is not longer true - in Europe at least – that urban dwellers are more affluent than rural dwellers. In the new world, the poor live close to the city and the rich live out of town. The fragmenting of the traditional income-distance decay function is not evident in Australia, however, where rural incomes remain well below those in cities (Watson 2000).

In the new paradigm, the production-economic dimensions, refocus from regional equity and economy of scale considerations towards greater emphasis on cross-investment and rebalancing of tariffs and charges to maximise utilisation and productivity. This results in a series of innovations in the industrial organisation of infrastructure provision which has implications for the physical configuration of services. Of particular interest to operators is the management of infrastructure services to eliminate 'hot' and 'cold' spots in the networks. This imperative promotes cooperation between operators to increase system-wide efficiencies. Another potential area of cooperation between operators is in multi-use sites. Planning for roads can no longer be comprehended solely in terms of transportation needs, since the competition for the *space under the road* is intense (Marvin and Slater 1997). In addition to the function in moving goods, services and people, roads are also the conduit for the movement of energy, water, waste and telecommunications along a complex lattice of under-road pipes, cables, wires and sewers. The superimposition of networks and the convergence between different forms of infrastructure have implications for strategic urban management.

**"The convergence between different forms of infrastructure have implications for strategic urban management."**

On the social-consumption dimension, the expectation of universal access for mass domestic markets has been replaced by the polarisation, fragmentation and increasing evidence of the deliberate exclusion of non-profitable user groups from some types of provision. Graham (2002) describes how post-monopolistic systems of infrastructure supply combined with the biased application of new technology, reinforce and reproduce inequalities in social power. He argues that under conditions of intensifying place competition and the erosion of regional planning coordination, the positive trickle-down and fiscal impacts of new, technologically advanced infrastructure are often less significant than the spatially and socially regressive cross-subsidies that support and sustain the emergence of such spaces. The development of new technologies of control reinforces the processes of exclusion. For example, Graham (2002) provides numerous examples of the application of new technologies to deliberately stratify service users. One such example is the Call Centre that automatically answer calls from 'good' users more quickly than calls from 'bad' users, thus encouraging reliable low maintenance customers. The technologies of Personal Identification Numbers (PINs) enable private service providers to adjust the level of service to the calculated risk and profit opportunities of each customer. PINs and electronic access technologies 'radically transform the cultural register of societies' by 'introducing non-negotiated contexts of interaction' (Lianos and Douglas 2000:263). These strategies enhance the social power of privileged users. On the other hand, Coutard (2000) agrees with Graham's observations of the process that appeared to be unfolding but he sees the fragmentation and selectivity of infrastructure services as a symptom rather than a cause of the development of 'secessionary spaces' of exclusion.

Graham (2000:185-7) describes what he calls 'premium network spaces: new or retrofitted transport, telecommunications, power or water infrastructures that are customised precisely to the needs of powerful users and spaces, whilst bypassing less powerful users and spaces'. This analysis highlights the development of a new phase in infrastructure provision where additional capacity is added to the system only in response to the specific and detail requirements of actual development proposals. These infrastructure investments create spaces that are neither public nor private in the traditional sense. Graham contends that the emergence of these new spaces increases social and economic disparities, especially at the intra-urban scale, because the redistributive function of state monopoly provision has been superseded. Graham's arguments reverse the conventional view of infrastructure as a public good, since the new network spaces he describes are purposively designed to minimise the extent to which resources are shared by those outside the created enclave.

**"Premium network spaces bypassing less powerful users and spaces."**

These changes in the ways governments think about infrastructure were, in part, a response to the faltering of the public works tradition. They were also responses to changing technologies and to the demand that governments vacate business opportunities to the private sector. Their practical effect, however, has been a slump in infrastructure investment, compared with the days when the public works departments were opening up the country. These departments were founded during the nineteenth century, at a time when the political elite was as convinced of the virtues of private enterprise as are present-day microeconomic reformers. However, our forebears found by experience that that the characteristics of infrastructure require government involvement. The difference in the current predicament is that, compared with the obvious nineteenth-century needs for better ports, rail transport and water supply, current priorities for infrastructure investment are far from obvious and there is, therefore, less acceptance of the need for government action.

This would not be serious if there was no particular need for infrastructure investment, however, there is a pressing need, deriving from Australia's current macroeconomic circumstances.

### 6.3.3 The infrastructure imperative

The imperative for Australian governments (Commonwealth, state and local) to put aside their current circumspect attitude to infrastructure investment and commit themselves to it wholeheartedly once again derives from Australia's current macroeconomic circumstances. The case is put fully in Chapter 4, and may be briefly summarised as follows.

- Prosperity has been maintained for the last decade because of demand generated by households going into debt.
- The household borrowing binge will have to stop sooner or later, as households find it difficult to take on and service more debt. When this happens, demand will only be maintained if another sector increases its borrowing and spending to replace the demand lost as the household sector reduces its borrowing. If this demand is not replaced, a depression will ensue.

**"The household borrowing binge will have to stop sooner or later."**

- The business sector cannot be expected to increase its borrowing to replace withdrawn household demand, for two reasons. Firstly, businesses serving the local market will be adversely affected by the reduction in household demand. Secondly, Australian business generally is under competitive stress due to its changing role in world markets. Put frankly, there are not the profit opportunities in Australia to justify much business investment. The only hope is that governments may help to create opportunities.
- By contrast with the household sector, the Australian government sector (Commonwealth, state and local) has balance sheets with plenty of room for borrowing, and income and expenditure accounts with room for additional debt-servicing. By contrast with the business sector, it does not require immediate profitability, but can service the debt from ongoing revenue. The obvious suggestion is that governments should borrow and spend in lieu of households.
- It would be possible for governments to borrow to continue the consumption boom, essentially by financing tax cuts from loan revenue. However, this would be irresponsible and would result in rapid de-rating by the financial sector, resulting in a stop to borrowing and a depression. A responsible government borrowing program would have three attributes. Firstly, loans raised would be invested so as to generate additional government revenue to service the loans. Secondly, loans raised overseas would be invested so as to generate foreign exchange revenue so as to service the loans – in other words, additional exports. Thirdly, loan money would be invested so as to generate private-business multiplier effects, by creating opportunities for business to invest.

In Australia's present predicament, the three rules for government investment should therefore be as follows.

- The investment should generate revenue. This may come from user charges or from taxes – income tax, GST, land tax, rates, whatever. (Under the Constitution, there is an obvious problem that the investing government does not necessarily receive the resulting tax revenue. A national strategy will be required.)
- The investment should generate exports. (Import-replacement is equally effective, but in today's world is not nearly as easily arranged as it was when world-scale factories were smaller.)
- The investment should generate business opportunities.

All of this has to be accomplished within the constraints of the various free trade agreements which Australia has signed. These agreements severely limit the capacity of governments to create business opportunities by 'buy local' policies, and likewise severely limit the capacity of governments to promote export production. However, the agreements do not limit the capacity of governments to pursue these aims indirectly through infrastructure investment.

**"Free trade agreements limit the capacity of governments to promote export production."**

As against the old days when infrastructure investment priorities were obvious (or became obvious as soon as a parliamentary seat became marginal), we propose that investments should add to government revenue, exports and business investment. Given that business investment in turn generates government revenue and may also increase net exports (as well as employment and other incomes), the business investment test may be incorporated into the other two. An infrastructure investment should therefore generate government revenue and (net) exports, whether directly or as a consequence of the business investment which it generates.

Assessing whether a given infrastructure investment meets these targets will not be easy. It will require detailed knowledge of where each particular proposed investment impacts on industry supply chains, and how. It will require knowledge of business opportunities, especially export-related opportunities. It will be complicated by indirect relationships, for example the relationship between residential environments and the attraction of skilled workers essential for export production. It will be further complicated by the growing importance of defensive investments, that is, those required to counter environmental degradation. These investments will not receive due weight unless the 'business as usual' case recognises the existence of growing environmental costs.

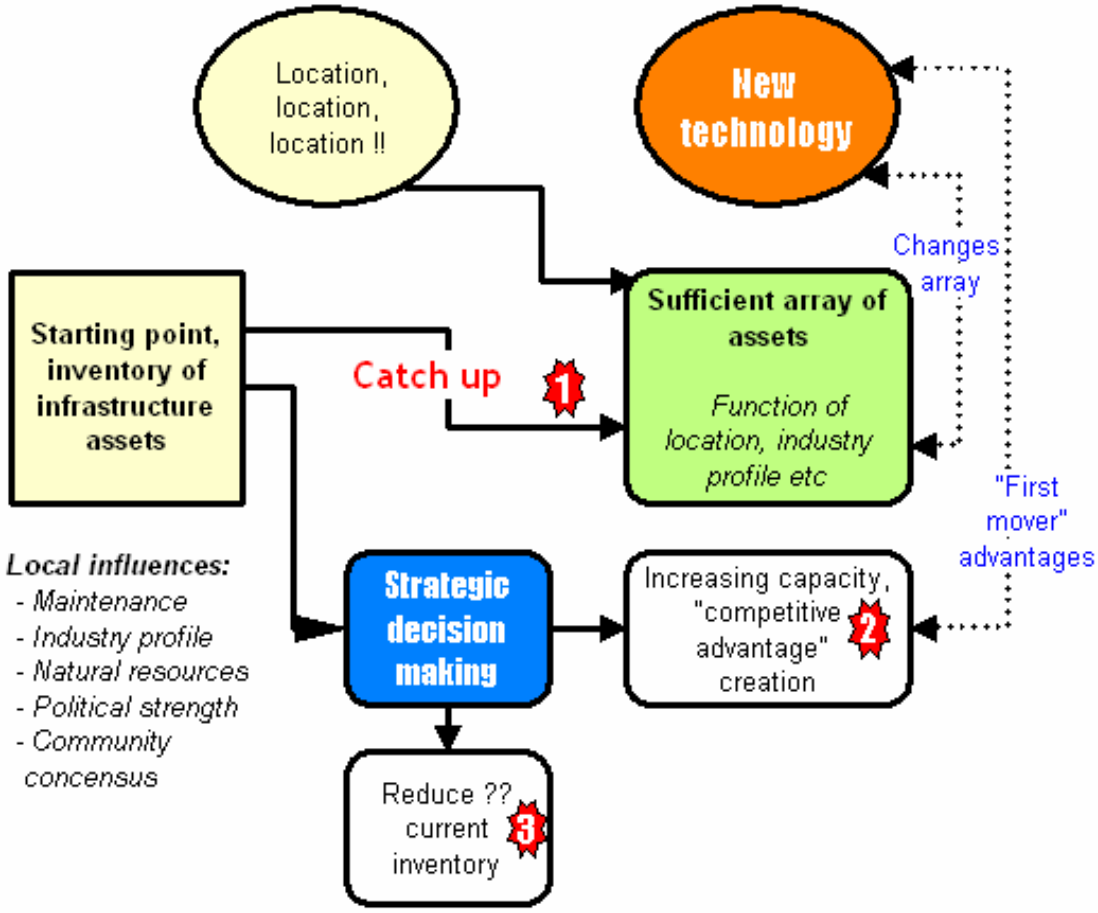
To require each and every infrastructure investment to be assessed by these criteria would be onerous. Nor would it be necessary, since there is not much point in performing a full assessment for the catch-up investments which are still required as a result of population growth and technological change. This brings us to the concept of the standard array of infrastructure, which may be defined as the infrastructure services which are generally expected in any region. Non-provision of standard services would be a distinct disadvantage in attracting both economic activity and people. On the other hand, standard services, because they are available in most similar regions, are not an advantage in attracting either economic activity or people. The corollary is that investments to maintain and update standard services, and to extend them to accommodate population increases, do not require the degree of thought required for strategic investments intended to generate revenue and export growth. This is essentially catch-up investment.

## 6.4 Infrastructure requirements

The assessment of infrastructure requirements present a range of challenges which covers issues of equitable access, minimum levels of public service provision and basic market viability. Independent of demand, there are also many regions, through historical good or bad luck, that may have a range of infrastructure which could be considered adequate or otherwise.

### 6.4.1 Standard infrastructure arrays

The infrastructure necessary to maintain the standard services appropriate for the region may be termed the standard array. The content of the standard array will differ by broad location. Consider airstrips. Each metropolitan area is served by a major airport and by a variety of supporting airfields, but no suburb considers it necessary to have a strip within its boundaries. The important matter is accessibility to the main airport. At the other extreme, in remote areas every homestead and every pub has a strip, and the quality of these strips may be more important than the quality of the roads. Airstrips are particularly important transport assets for towns situated more than two or three hours' drive from a metropolitan centre. This is an extreme example, but there are others. Piped sewerage is necessary only when population density is above a threshold, and gas reticulation is also considered uneconomic below particular demand densities. However, standard arrays have other elements which are common whatever the location: electricity supply, potable water supply and road connections. The standard array also includes infrastructure which is not connected to individual properties but which needs to be nearby. Prominent in this area are accessibility to education and health services.



In addition to varying on the continuum from metropolitan to remote area, the standard array may also reflect the industry structure of a region. Regions which produce bulk commodities for export require bulk transport to ports. Bulk transport is much less important for regions whose products do not require high-volume transport. Similarly, health and education service requirements will differ between manufacturing regions and retirement regions.

The recent inclusion of sewerage in the country-town array shows that the content of the standard array will vary over time. Gas supply to country towns provides a second example of this variation. In the nineteenth century gas supply was important for public lighting, and every town worth the name had a gasworks. When electricity became available, gas supply was dropped from the list of essential infrastructure for country towns if not for metropolitan areas. However, with the switch to natural gas, gas reticulation is returning to the standard list of country town infrastructure. Similarly, technological change demanded the inclusion of telephone connections in the standard array many years ago, and is going on to require the inclusion of broadband and mobile coverage.

Providing these standard packages involves expenditure on infrastructure. The primary form of expenditure will be maintenance to ensure continuing provision. A second form of expenditure covers population growth and technological change. In this case infrastructure investment is passive: it is merely following trends, and ensuring that the standard package is available as suburbs extend and towns expand. If a region finds itself lacking in items included in the standard array, it proceeds as rapidly as it can with catch-up investment. However, if a locality invests to add to its package beyond what is conventionally necessary, it risks a white elephant – that is, an infrastructure asset which is much less than fully utilised by the local population, and which fails to attract activities which would fully utilise it. The point of the revenue creation, export creation test and the complex analysis it requires is to reduce the chances of white elephant construction.

Inevitably, however, mistakes are made and a white elephant is built. These are usually recognised sooner or later, and after financial reconstruction go on to provide useful service. Nobody is sure whether the Snowy Mountains scheme met all the requirements of profitability, but its hydro-electric stations are certainly providing useful electricity. Fear of failure to attain target profitability can paralyse investment, and financial disaster is quite easy to imagine for investments with long asset life. To counter paralysis from fear, it should be remembered that new uses can often be found for initially disappointing infrastructure assets.

**"Technological and economic change sometimes means that inherited infrastructure no longer forms part of the standard array."**

More insidiously, technological and economic change sometimes means that inherited infrastructure no longer forms part of the standard array. This is harder to recognise, and can lead to regions being encumbered with excessive maintenance costs.

### 6.4.2 Surplus infrastructure

Not all of the inherited infrastructure of a region necessarily belongs to the standard array, in the sense that scrapping it would disadvantage the region in competition with other regions for industry and population. Sometimes the surplus infrastructure is a relic of failed strategic investments. For example, it took many decades and the wasted construction of two outports before Rockhampton admitted that it had no future as a port, given the proximity of deep water at Gladstone. Sometimes the surplus infrastructure has been stranded, though this tends to happen mainly to specialised assets such as mine-related transport facilities which become surplus as soon as the mine closes. And sometimes infrastructure is dropped from the standard array due to a combination of economic and technological change.

**"Sometimes the surplus infrastructure is a relic of failed strategic investments."**

A sign of surplus infrastructure is that the responsible authorities have difficulty in financing maintenance. The obvious cases arise where the infrastructure is being run as a business, and user charges raise insufficient revenue to cover operating costs and maintenance. According to business principles, the enterprise should be closed. The classic case was that of railways, which had long been financed from user charges but found themselves in competition with rapidly improving road technologies. Given these rapid improvements, it was obvious that some railway lines would become redundant, but the identification of precisely which was not helped by the fact that the competition was not on an even basis. Unlike railways, roads are not financed from user charges. Add to all this that both roads and railway lines may be strategic assets, featuring in the investment-attraction strategies of regions. Suffice to say that failure of user charges to cover maintenance has indeed served to identify railway lines which are candidates for closure. Many railway branch lines were abandoned as obviously unnecessary, and without subsequent regret. With hindsight, some of them should never have been built. However, there have been cases of regret, notably that of the railway from Brisbane to the Gold Coast, which was abandoned in the 1960s only to be rebuilt in the 1990s.

To guard against such cases, it could be argued that infrastructure abandonment should be treated as a case of dis-investment, and subject to similar assessment of its consequences for total government revenue and costs, and for exports, as positive strategic investment. Two interesting cases arose here as a consequence of the standardisation of the main line railway from Melbourne to Adelaide, which would have resulted in branch lines becoming gauge-isolated and so stranded. The Victorian government conducted a cost-benefit study of the Hopetoun and Yaapeet wheat-belt branch lines in Victoria and retained the lines, converting them to standard gauge. The Commonwealth conducted a cost-benefit study of the lines connecting Mount Gambier, and concluded that they should be abandoned, leaving South Australia to bear the resulting road maintenance costs. The two studies came to different conclusions, but at least some thinking was done.

Where the maintenance of infrastructure is tax-financed, it is less obvious when it is becoming a burden. Sometimes it appears to be becoming a burden when this is simply as a result of past tax cuts, as when deferred maintenance catches up with a water supply or sewerage system. The solution here has seldom been abandonment, but rather a frantic effort to find the funds necessary to fix the system. A more interesting case from a local government point of view concerns local road systems which date from the era of horse-drawn transport. Such systems have been upgraded over the years according to standard expectation. Roads have been made all-weather, and bridges have been upgraded to take the axle loads permitted by the Commonwealth on National Highways. In areas where rural residential developments are proceeding these local road systems may be under continuing development, but elsewhere they are regarded as part of the standard array. Roads which were originally laid out to serve five or six farms are regarded as an essential service for the one farm which remains. An alternative view of them is that they are inherited white elephants.

A road may be regarded as having excessive maintenance costs if these costs exceed the revenue raised by the Commonwealth from taxes paid on fuel consumed by vehicles using the road. In so far as fuel taxes are a user charge, this provides an indication that the revenue from the road is failing to cover its costs. For the purpose of this test it is not necessary that the Council actually receives the Commonwealth's revenue, though Councils with large mileages of low-utilisation roads commonly receive about as much in roads grants (including Roads to Recovery) as the Commonwealth receives in fuel tax revenue from the users of those roads. For this purpose a precise calculation is not required; merely indicative calculations of road usage and likely fuel consumption. The results may be surprising to many Councils.

This is not to argue that roads which fail to cover costs should automatically be closed: at the local level they may provide essential property access (in which case it is fair that they be paid for out of rates), and they may be strategic investments. Some may be justified by their contribution to bulk export production. However, when fuel taxes fail to cover maintenance there is a strong case for review, having in mind that vehicles, production patterns and rural residential patterns have changed markedly since the roads were designed. Such a review would recognise that road closures would increase road user costs by requiring people to forgo short cuts, but an increase in these costs is

economically efficient if it permits greater reductions in maintenance costs. If a truckie-proof way could be found to enforce load and speed limits, it may also be possible to avoid closure of some roads by limiting maintenance costs.

Questions of whether to scrap also arise when infrastructure incurs excessive environmental costs – the question here being whether it is possible to upgrade so as to avoid the costs. In some parts of Australia water resources are over-committed, particularly when account is taken of the need to maintain environmental flows. In these water basins the options are to increase the technical efficiency of water use (obtain the same output with less water, which is likely to require investment to reduce evaporation, percolation and other wastage) or to ration use, which may involve taking some infrastructure out of service. The default option is that upstream users get the full ration and downstream users get none.

Not all inherited white elephants should be scrapped. Sometimes it is possible to throw good money after bad and end up with a good result. However, to do this one enters the realm of strategic investment: how can regions add to their infrastructure, beyond the standard array, so as to assist with the national macroeconomic problem and at the same time bring benefit to themselves?

### 6.4.3 Strategic infrastructure investments

Infrastructure beyond the standard array can attract business investors directly, if it creates a location which they cannot refuse, as when gas is supplied to a port which also has high-quality bauxite and so creates a location which cannot be surpassed for an alumina smelter. Occasionally, too, a high-risk opportunity arises where an infrastructure investment changes the economic patterns of a whole region. An example would be the investment by the Cairns Port Authority in an international airport, which placed Cairns at the centre of the North Australian tourist trade. Once the airport was a fait accompli, Cairns had first mover advantage and no directly competing investment was likely to succeed.

**"Infrastructure can attract business investors directly."**

However, such spectacular cases are only possible where new infrastructure is expected to have a major effect on industry costs and opportunities. Such cases are now unusual. It is more common for regions to have no obvious investment opportunities, beyond maintaining the standard array. However, as we have noticed, they need to get beyond the standard array if they are to compete in the global economy. They also need to have projects ready, if they are to participate in the coming round of infrastructure investments. In selecting projects, they should start from the need for infrastructure projects to generate government revenue (from both user charges and taxation) and to generate export revenue (to correct the balance of payments deficit). The two paths to this end are cost-cutting and innovation.

A national interest in cost-cutting arises because Australia has chosen to rely heavily on commodity exports. The main characteristic of a commodity is that it is standardised, which means that a tonne of it produced anywhere can be substituted for a tonne produced anywhere else. Commodity producers therefore have to accept world market prices. Since revenue per tonne cannot be increased above world market levels, the route to profitability lies in cutting costs. Australians have been adept at this, and for two centuries have been using infrastructure investments to reduce the costs of commodity production. Methodologies have been developed to determine whether an infrastructure investment, or for that matter an infrastructure dis-investment, is likely to lower costs. It is also possible to forecast whether the investment will yield revenue to cover its costs to government.

Whatever clever country rhetoric there may have been in the past, Australia has been less successful than the average wealthy nation in generating exports based on innovation; on knowledge rather than natural resources. Past issues of *State of the Regions* have pointed to the importance of knowledge and innovation in maintaining sustainable prosperity, and there is no need to labour the point here. Many regions are basing their development strategies on the hope that they can become knowledge economies. However, little has been written on the role of infrastructure in Australian knowledge economies.

**"Australia has been less successful than the average wealthy nation in generating exports based on innovation."**

## 6.5 Infrastructure planning

The rise of the knowledge economy means that the 'public works' paradigm that has dominated infrastructure provision since the industrial revolution must be replaced with new models and systems that enable communities to control and influence the nature and extent of provision.

Investment decisions involve estimates of future demand for products and the distribution of that demand over space and time. Future expectations are particularly important in decisions about physical infrastructure investments, given their longevity, immobility and specialisation (Neutze 1997:58). The advantage of a state monopoly over infrastructure provision is that predictions are more dependable – expressed as a function of population, industrial mix, labour endowments and technology – than is possible for private operators, for whom competitive shares of the local market are added to the equation. Planning increases the predictability of development, which in turn increases the confidence of potential investors. One way of reducing uncertainty is to integrate infrastructure with land-use planning, and then applying appropriate charging regimes to ensure that infrastructure services are subject to the desired location incentives.

**"Planning increases the predictability of development, which in turn increases the confidence of potential investors."**

Infrastructure impacts on regional development by stimulating inward investment. But basic infrastructure provision is a 'necessary but not sufficient' precondition to inward investment. Increasingly, infrastructure has become a theme of negotiation between local authorities and potential investors, where firms demand specific infrastructure provisions to accommodate their needs (Peck 1996). In these negotiations, firms demand control, not only of labour, but also of physical resources that many would consider to be 'public' resources. In this political process, local authorities are faced with the task of maximising the local community benefits derived from facilities put in place for specific purposes. In Peck's view, local authorities are thus engaged in the *production of space* to the requirements of industry. This changes the role of local authorities. In the case of Melbourne's Docklands development (and the many similar developments around the globe that it imitates) the project includes a range of public and private facilities and their shared infrastructure. The planning of mega-project developments and urban regeneration projects revises previous thinking by viewing all forms of infrastructure provision together in an integrated overall concept.

### 6.5.1 The effects of privatisation

Privatisation of public utilities over the last twenty years has altered both systems of delivery and community expectations. The privatisation of infrastructure provision creates new challenges for urban planners. Privatisation shifts responsibility for some aspects of infrastructure from the public to the private sector. Yet many aspects of infrastructure are essential in the sense that they are needed by the community regardless of income. As such, they require collective, public decision-making even when provided by private firms. Therefore, we can understand privately operated infrastructure services as taking on community responsibilities in return for payment or for the right to collect revenue from users. Private sector involvement takes a variety of forms but includes:

- contracting out of particular functions, which, through competition, reduces costs and increases the flexibility of services, although usually at the expense of jobs;
- contracting out the construction and operation of services. In this type of arrangement, the state instrumentality retains the risks associated with provision;
- private provision with government control over revenue collection; and
- private provision with market determination of charges.

The advocates of privatisation argue that it increases efficiency by allocating resources to where they are most demanded (at least by those with the capacity to buy), and thereby lowers the overall costs to consumers while producing more responsive services. Sale of assets to private interests raises revenues for fiscally strapped governments. Transferring public assets to the private realm depoliticises the decision-making process by placing it outside the democratic structures of government accountability. Private ownership confers a perception of 'right' over the use of the resources which insulates it, to an extent, from public scrutiny. The involvement of the private sector in large scale projects nevertheless makes the projects viable without necessitating increases in taxation. Privatised utilities have many similar characteristics to property markets – the capital invested attracts a rent (through tolls or service charges) which provides a profitable return on investment (ROI) over a long time horizon.

The opponents of privatisation base their arguments on social and ethical rather than economic arguments. They insist that infrastructure should be owned collectively by the community, primarily because the extent and choice of privatised infrastructure development will be determined by profit expectations rather than community needs. They also claim that privatisation does not necessarily increase efficiency, and that when is does, there is no guarantee that the gains will be passed on to consumers. Past experience with local monopolies has been that price controls have had to be introduced to curb excess profits.

Privatisation has implications for utility regionalisation. The traditional language of costs and benefits obscures the shift in relationships between developers, infrastructure providers and local authorities. With privatisation and fragmentation has come a new logic of infrastructure provision in which greater emphasis is placed on short-term considerations. Infrastructure providers require an element of certainty before proceeding, which in practice means that additional infrastructure is commissioned in conjunction with specific developments. There has been a fundamental shift in orientation from a supply to a demand-led approach. Combined with widespread community resistance to infrastructure plans, this has transformed the regulatory and financial framework governing infrastructure decision-making. Importantly, as infrastructure providers seek to configure their networks to maximise the extraction of value, they are promoting a negotiation-based operating style grounded in close cooperation with developers, who have a shared interest in network efficiencies (Marvin and Guy 1997:2024).

**"A new logic of infrastructure provision in which greater emphasis is placed on short-term considerations."**

This new collaborative logic creates a community of interest in environmentally sensitive development activity through technologies such as Demand-Side Management (DSM), which aim to calm demand in 'hot' parts of the network and spread demand to under-utilised areas. The implementation of DSM requires cooperation with leading users, which promotes network-based forms of organisation, and also transforms the network itself as an 'actor' in the bargaining process. The divisive language of costs and impacts is not able to accommodate these emerging collaborative styles based on the extraction of maximum value from the network. In this approach, a new building is not viewed in isolation, but rather is viewed as a node on a network with the condition of that network having profound implications for how the new nodes become linked (Marvin and Guy 1997: 2033). Clearly, inter-firm and inter-agency cooperation in the privatised UK system is finding a way to recreate the network perspective of a national grid, but without the accompanying national institutional framework. In conclusion, Marvin and Guy (1997) anticipate environmental benefits and argue for a new vocabulary that avoids the confrontational logic of the idea of 'developer contributions'.

### 6.5.2 Costs and benefits

Assessments of the economic feasibility of proposed development projects often define the problem and the solution in narrow terms that fail to take full account of the social and community implications of the development proposal. This can lead to political stalemates and cost blow-outs. Cost-benefit analysis is grounded in welfare economics, where the benefit of a proposal for the community is taken as the weighted sum of utilities across community members. Put crudely, cost-benefit analysis extends market-based financial calculations of potential profitability to cover costs and benefits not valued on the market, by giving them shadow market valuations. It asks two questions:

1. do the benefits outweigh the costs?
2. are the benefits of sufficient magnitude to justify the costs?

In other words, does this proposal offer greater benefits than alternative uses of scarce resources?

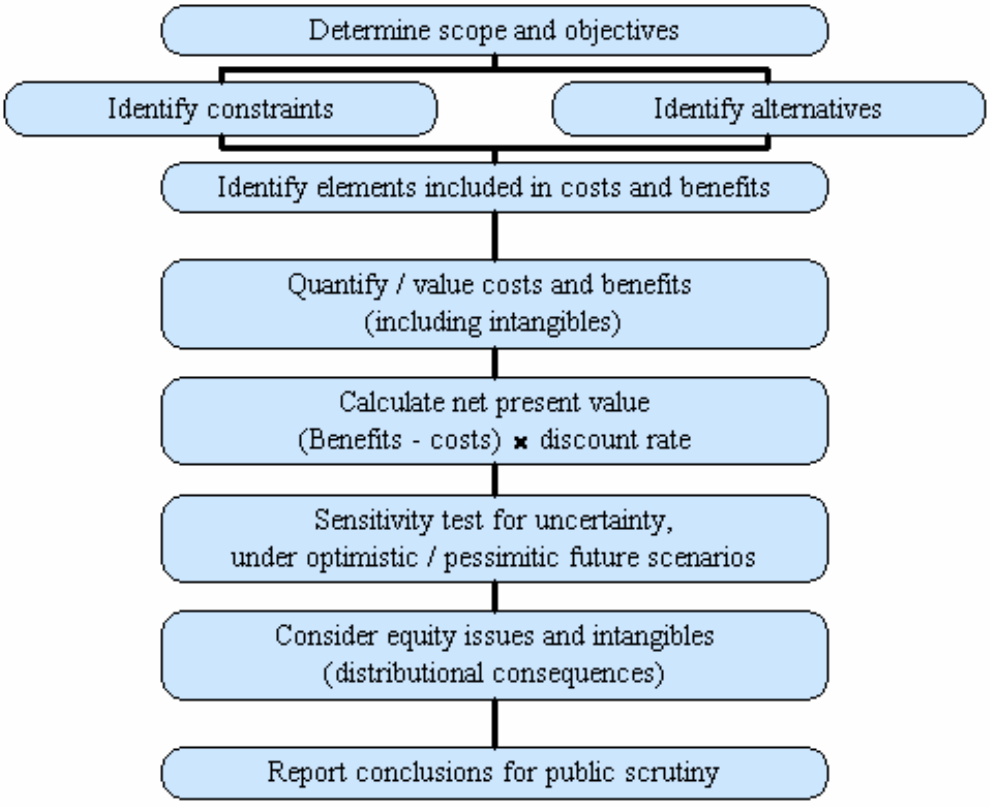
Answering these questions demands aggregate measurement of the project's value and costs in such a way that comparisons can be made between competing claims. Community, local government and developer perspectives on which issues are taken into account in the cost-benefit analysis of any infrastructure development are likely to differ because:

- People have different understandings of the constituency included in the assessment of benefits … whether it is the local business community, labour force, local community or extra-local community, or national benefit. This is important because the benefits of infrastructure development do not necessarily accrue in the place where the development is located. Consider, for example, a new road to a mine site. The road may assist the mine, but if the surplus created by the mine is captured in a capital city or overseas, the local community may see little benefit from their investment. This is an issue of the scope of cost-benefit analysis.
- People have different understandings of the time horizons over which a development should be assessed, and different opinions about the extent to which a current generation should support future generations. If there is no guarantee that an infrastructure development will be needed in 50 or 100 years time, then it is more difficult to justify a large project. On the other hand, once a project is certain to advance, the costs of increasing its size to accommodate possible future demand is relatively small. This issue is particularly salient in the case of energy-related projects, where critics argue that contemporary infrastructure development should be designed mindful of the future energy crisis as oil and gas reserves dwindle.
- It is always uncertain whether the anticipated outcomes of an infrastructure development will materialise. There is considerable evidence, for example, that many freeway developments that were undertaken to reduce traffic congestion actually increased congestion or moved it to a different location. At a smaller scale, turning a main street into a mall will not necessarily increase the amenity or the amount of business activities where local spending power is finite.
- There is always potential for disputes about what costs and what benefits are taken into account in a cost benefit analysis. The cost-benefit analysis is an exercise in quantification: all the parameters that are included in the analysis must be quantified. This is a problem because many important community and environmental values resist quantification. How can the loss of a visual landscape be quantified, or the impact of new road that might split a community in two? How do you include the effects of a project on air quality or noise pollution? What will be the long-term cost of allowing wastes generated by the development to accrue in the environment? How do you account for environmental impacts like acid rain or global warming, which impact at sites distant from the discrete development project? Similarly with benefits, how do you put a dollar value on the improvement to community wellbeing arising from a new community facility?

Because these issues are laden with ethical and political implications, there can never be a purely objective assessment of the cost-benefits of a proposal. The process is inherently political. And it is

the political issues associated with infrastructure development that create one of the most significant impediments to proposals progressing to implementation. An important issue, then, for local and regional administrators, is managing the politics of infrastructure development While the cost-benefit analysis cannot replace the assessment and decision-making process, its efficacy can be improved by incorporating, as far as is practicable, a dollar value for the 'intangible' cost and benefits. A typical sequence for cost benefit analysis is shown in the following diagram.

The processes depicted in the diagram are politically charged and therefore require careful planning and management. Determining clearly the scope of a proposed development and the objectives that it aims to achieve is an important starting point. Often, infrastructure projects reach a detailed planning phase before the various stakeholders realise that they have different visions and objectives. While these are likely to be contested, there is no point proceeding until everybody understands the difference between the project on the table and their own preferred vision. At this point, constraints can be identified and alternative means to achieve the same objectives debated. In urban transport projects, for example, the proposal to build a new road needs to be compared to public transport options and to interventions that will reduce the amount of traffic in the congested area.



The next step is to identify the elements that are to be included in a cost benefit analysis. It is crucially important to consult with community and environmental groups to ensure the timely inclusion of non-tangible values and to ensure the initial planning for the project accommodates serious local concerns as well as the concerns of broader non-local interest groups. If these issues are not addressed at the outset, their appearance at the end of the process – in the Environmental Impact Assessment phase – has the potential to defeat the development or hold it up for long enough for local coalitions of support to lose interest. There are also a range of 'hidden costs' to consider – long-term effects on local revenues, taxation effects, interest payments and other costs associated with the repayment of loans. At this early stage, it is also important that local authorities think through and establish base-line data to monitor the social and community impacts of the development if and when it eventuates.

Once the elements included in the cost-benefit analysis have been identified, the next task is to quantify their value. Political concerns arise when community groups oppose the valuation of resources that are 'not for sale'. Nonetheless, there are various techniques – such as 'contingent valuation' and 'willingness to pay' or 'revealed preference'– that can be used to value non-tangible resources. These are imperfect measures that in no way remove the political decision making obligations of government. One of the major problems with techniques that ask people to value an environmental resource is that higher values are placed on attractive views and cute animals, when the needs of biodiversity imply valuing equally, the unattractive and ferocious. There are also a range of methods by which resources might be priced – opportunity cost, cost of next alternative use or market price.

In cost-benefit analysis, the decision rule is typically the Internal Rate of Return on the development. But this is insufficient and often misleading – it is also necessary to perform what is known as a 'capture analysis' to sort out *who benefits* from the cash from non-cash benefits (see Pearce 1994). At the local level, an infrastructure development should be scrutinised to maximise local multipliers, and either rejected or referred to another level of government if a major share of the benefits are expect to leak from the locality.

It is difficult to include non-tangibles like 'community wellbeing' in cost-benefit analyses because these are goods that have no market value – they are not commodified. Non-market valuations which establish a price value for such goods, are justified on the basis that things do have an implicit value that the valuation process make explicit. Non-market evaluations can take several forms.

- **Existence value** – benefit from knowledge that something exists.
- **Option value** – the benefit achieved by retaining the right to use the resource in the future.
- **Bequest value** – the benefit the current generation obtains by preserving the environment for future generations.

Contingent valuation uses a survey to construct a hypothetical market for a good, where the willingness to pay is taken as a measure of market value. However, its validity is open to question due to individual differences in capacity to pay, familiarity with the resources, and differences in the notion of value itself. The travel cost method is used in feasibility studies of recreation and tourist developments, where the value of a resource is inferred from the amount of money people are willing to pay to get there (their travel cost). Hedonic price techniques are used to assess the impact of developments in local residential areas, in particular the effect on property prices of, for example, the noise of an airport or smell from a waste facility. The decay of the price differential with distance from the offending site provides an indication of the extent to which the development constitutes a cost to neighbouring properties. It is possible to compare sites using indexes based on similar events in different times and places. These values are used to identify compensation amounts. Another method to assess the environmental costs is through threshold valuation, which measures the costs of redressing the disbenefit or eliminating the externality, for example, by blocking noise and dust, or cleaning up contaminated soil. This cost is sensitive to the extent of local regulation of environmental quality. All forms of non-market valuation are plagued by technical and methodological problems. Valuations are sensitive to the instruments used, the context, the research personnel, the general level

of optimism or pessimism in the community, and the faith that people have in the fairness of the process. In addition, people tend to understate their preference for public goods, and current willingness to pay does not take into account the needs of future generations.

The next step in the process is sensitivity analysis, or examining the efficacy of the proposal under different long-term growth and long-term economic conditions. What would happen if interest rates increased significantly or if the population increased unexpectedly? A good project continues to look good even when the 'worse case' scenarios are considered. When uncertainty is high, and when the impacts of a development irreversible, risk-adverse strategies are usually recommended.

Consideration of equity issues and distributional consequences should infuse the entire cost-benefit process. The penultimate step requires that the anticipated distributional and equity impacts of an infrastructure development are made explicit. A formal Social Impact Assessment not only identifies the social and distributional implications of a proposal, but also designs a mitigation strategy which ensures that the 'losers' of change are appropriately compensated.

### 6.5.3 Building consensus in long-term projects

Thorough examination of the feasibility of an infrastructure development is costly, but less costly than building a white elephant with minimal benefit now or in the future. Early and genuine consultation with interested parties in the community will ensure that the full range of issues are taken into account, and increase the probability that a sound proposal will be able to maintain a coalition of support through to implementation stage.

In the 1980s infrastructure development in the United States stalled, for several reasons. Growth had slowed so there was less demand to infrastructure, communities had become disenchanted with the development agenda as modernisation was perceived increasingly as detrimental to community wellbeing and environmental values. Books like Marshall Berman's *All that is Solid Melts into Air* – which describes the destruction of the New York Bronx district in the name of modernisation – had a profound impact on attitudes to development. There was increasing awareness that the benefits of development were being oversold and the costs inadequately assessed. The outcome was increasing community scepticism about the utility of additional infrastructure development.

The outcome of this change in social perspective was that development projects became non-routine (Altshuler and Luberoff 2003). While in the heyday of infrastructure development, engineers could plan and design a development and justify it on 'scientific' grounds, the disquiet of the 1980s thrust development into the political arena. People questioned vigorously the justifications provided by engineers and no longer accepted their expertise as sufficient to warrant a project proceeding. The resultant politicisation of development meant that, to bring a project to fruition, it became necessary to form and maintain stable and committed local political coalitions of support for the project. For large projects, the support group may need to hold together for five to ten years while the project's detail and funding is negotiated. Altshuler and Luberoff argue that in this context, only projects with a strong and committed leadership can succeed. In addition, they argue, while in the past coalitions of support could succeed with municipal and local business support, contemporary coalitions must also accommodate the interests of social activists and environmental groups. Because under the US Congressional system the federal jurisdiction is reluctant to become embroiled in local political disputes, federal funding support is in practice forthcoming when the local coalition has bipartisan political support and is well connected among Washington lobbyists. As local support becomes an increasing important determinant of whether or not a project is supported with federal funding, the sorts of projects now being funded are those able to muster the political support, regardless of their 'objective' costs and benefits.

**"The sorts of projects now being funded are those able to muster political support?"**

### 6.5.4 Pricing and funding

While privatisation shifts some responsibilities from the public to the private sector, it is not in itself a means of funding, since with the exception of taxes, most sources of funding are available to both the public and private sectors (Neutze 1997:197). Infrastructure costs differ between locations (due to differences in topography, climate, isolation, 'out-of-sequence' development and other factors).[11] Federal policies – especially the deductibility of state and local taxes - have a significant impact on municipal infrastructure investments (Eberts and Fox 1992). Inter-governmental aid also has a modest positive influence. Federal policies appear to influence municipal willingness to raise resources through debt. Local capacity to fund infrastructure projects is also constrained by limited capital resources (Garvin et al 2000). In the past local administrators often lacked the tools and techniques for analysing capital investment and project execution decisions. In the United States, software programs are now available to enable more thorough local evaluations.[12]

In the past, when infrastructure provision was in the hands of national monopolies, historical average cost pricing was the norm. It spread the costs uniformly through the nation, so that people received a standard service at a standard price that was independent of the real cost of providing the service in each particular location. This policy had a clear re-distributive function, shifting resources from urban to regional areas. An optimal strategy, according to Neutze (1997), would be to ensure that costing and pricing of infrastructure encourages infrastructure development toward lower cost sites through identifying for each type of infrastructure service an optimal mix of 'access' and 'use' charges including variations in charges for different times and places. These flexible charges need to be sufficient to maintain and upgrade the existing system.

Internationally, the mechanisms which have been developed to fund new infrastructure reflect local government structures, infrastructure regulation, finance and banking regulation as well as environmental protections. American and British local governments have a wider range of powers than local government in Australia (Worthington and Dollery 2002). Australian local governments are responsible for providing basic physical infrastructure services such as roads, drainage, recreation facilities and public buildings and in some states water supply and sewerage. Social services are mainly the responsibility of the state governments are responsible for education, health, police, fire, public housing and community welfare services, but in some states the delivery of parts of these services are delegated to local jurisdictions.

**"An acceptable level of return on investment is not always evident in infrastructure projects."**

In the United Kingdom, local administration has less autonomy than in Australia, and no capacity to develop an independent financial base. In the United Kingdom, infrastructure development and regional planning functions have been separated by entrenched institutional arrangements that weaken local capacities for long-term strategic planning. Most infrastructure was provided by the public sector until the change to a more market oriented economic approach in the 1970s. The Sheaf Report (1972) recommended that local authorities use existing planning provisions to establishing developer contributions to infrastructure supply. In the 1970s and 1980s an ad hoc system emerged in which local authorities negotiated with developers to secure the infrastructure requirements of a proposed development in a Planning Agreement. In the absence of clear guidelines to govern these negotiations, outcomes have been variable and often contentious. Legislative changes in the 1991 Planning and Compensation Act formalised and codified development contributions. Nonetheless, the UK considers each case on merit, so there continues to

[11] It is possible to create an index to measure urban infrastructure cost disparities (Yang 2001).

[12] An example is the Massachusetts Institute of Technology CHOICES software which models life cycle cash flows of capital projects using variable delivery methods and finance options and aggregates them with forecasted operating revenues and expenses at a portfolio level.

be a wider range in actual contributions. Developers now accept responsibility for both 'hard' and 'soft' infrastructure provision.

The reality is that most infrastructure projects are very expensive. When projects are instigated by the government, finance is raised from taxes and/or by borrowing from banks and investment funds (which then has to be repaid by taxes or revenues. Banks and investment funds invest in activities that provide them with an acceptable level of return on investment (ROI), which is not always evident in infrastructure projects instigated.

### 6.5.5 Infrastructure investment finance

Financial options for infrastructure investment include the following.

#### *Development charges*

In Australia, it is standard practice for developers to contribute to supply with-in project infrastructure, contribute to off-site costs, and fund community mitigation of adverse environmental and social impacts.

There is some disagreement regarding the extent to which developers should fund off-site infrastructure. The Industry Commission (1993) suggests that if the full cost is not forthcoming from the developer, then others in the community will effectively subsidise the development. Full payment for off-site costs encourages the efficient utilisation of existing resources (but promoting urban density and discouraging 'urban sprawl'. Neutze (1997), on the other hand, argues that developers should pay only for off-site infrastructure above an agreed basic provision threshold. In Canada, too, development charges have become a routine method of accommodating infrastructure capacity in new development. In the United Kingdom and United States, the contributions of developers are the subject of site-specific negotiations. This alters that role of local planners and politicises the contribution process. The relationship between developers and planning agencies and the institutional frameworks that have provided the parameters for securing developer contributions are discussed in Ennis (2003). What is required of developers reflects the political and social institutions of each nation. Negotiations with developers need to be sensitive to the power relationships involved - the financial power of developers is more stable than the power of government agencies which is dependent on the institutional framework.

#### *State sponsored bond banks*

In the United States, state sponsored bond banks have a broad range of financial powers that enable them to promote an active state role in guiding investment choices (Humphrey and Maurice 1986). These institutions are structured to provide a pool of investment capital, participate in investment project decisions, and promote better planning and management of infrastructure projects by their borrowers. Up until 1997, there was a rapid increase in the use of tax-exempt bonds to finance infrastructure development. Borrowing on the tax-exempt bond market increased from $8 billion in 1960 to $230 billion in 1992 (Leigland 1995). In 1997, however, the US Internal Revenue Service tightened the regulation of tax-exemptions. There is considerable regional variation in the use of bonds to finance infrastructure: administrations in the US 'snowbelt' – which is roughly synonymous with de-industrialising northern states – rely more heavily on bond issues. A designated special district qualifies for additional infrastructure funding from the Federal level (Scoefield 1989). By 1995 special purpose districts accounted for 42 per cent of all spending on public works.

### *Interest free loans*

In the United States, the National Council on Public Works Improvement (NCPWI) and the Rebuild America Coalition proposed a "State and Local Government Empowerment Act" to provide interest-free loans to states and local administrators (Whiteside and Distelhorst 1997).

### *Borrowing*

Temple (1994) presents a model of state and local governments' reliance on borrowing in which the optimal share of debt in the financing of capital investment depends on the relative costs of tax and debt finance. He shows that local levels of private incomes plays and important role in capital investment and financial decisions.

### *Infrastructure funds*

Australia has eight ASX listed infrastructure funds which provide stable share-like income for investors. Because of their apparently secure long-term horizons, infrastructure funds are attractive to institutional investors such as superannuation funds (UniSuper, for example, has 15 per cent of its funds in infrastructure). "Not a lot can go wrong with a mature toll road in Australia … They also offer much superior yield growth to listed property trusts" (Craig Stafford, Director Infrastructure, USB, in The Australian 5/11/2003).

**"Not a lot can go wrong with a mature toll road in Australia."**

Whatever happens, Australia's macroeconomic position is such that the current policy by which governments finance infrastructure investment solely from current taxation (that is, from their own current saving) cannot continue in the short to medium term. Whatever form it takes, a government borrowing program for infrastructure finance is required. Further suggestions to this end will be found in chapters dealing with issues of tri-level funding, the macroeconomic environment and local government and infrastructure financing.

## 6.5.6 Conclusion

In the past, discussion of infrastructure has been 'steeped' in the technologically deterministic assumptions of urban engineering and public works. Graham (2002:175) argues that this perspective needs to be replaced by a relational, critical and socio-technical analyses of the relations between technology, infrastructure and the restructuring of space. However, some of the old inevitability hinges in catch-up investment required to maintain the standard array of infrastructure in each region.

The emergence of horizontally organised regional utility companies providing multiple types of services will create the incentive to develop multi-network coordination mechanisms. Local authorities need to be aware of the opportunities and problems that accompany this convergence between different forms of infrastructure. The traditional language of costs and benefits obscures the already shifting relationships between developers, infrastructure providers and local authorities. With privatisation and the fragmentation of services has come a new logic of infrastructure provision in which greater emphasis is placed on short-term considerations.

In this new world, infrastructure providers challenge to council for strategic investment beyond the standard array require an element of certainty before proceeding, which in practice means that additional infrastructure is commissioned in conjunction with specific developments. There has been a fundamental shift in orientation from a supply to a demand-led approach. Combined with widespread community resistance to infrastructure plans, these developments are impelling the transformation of the regulatory and financial frameworks governing infrastructure decision-making. Importantly, as infrastructure providers seek to configure their networks to maximise the extraction of

value, they are promoting a negotiation-based operating style grounded in close cooperation with developers, who have a shared interest in network efficiencies (Marvin and Guy 1997:2024). This new collaborative logic creates new spaces for community involvement. In environmentally sensitive development activity, technologies such as Demand Side Management (DSM) – which aim to calm demand in 'hot' parts of the network and spread demand to under-utilised areas – requires cooperation with leading users, which promotes network-based forms of organisation. These developments also transform the network itself as an 'actor' in the bargaining process.

Importantly, the language of costs, benefits and impacts is not able to accommodate these emerging collaborative styles based on the extraction of maximum value from the network. In this approach, a new building is 'not viewed in isolation, but rather is viewed as a node on a network with the condition of that network having profound implications for how the new nodes become linked (Marvin and Guy 1997: 2033). In the longer term, inter-firm and inter-agency cooperation in the privatised system is recreating in new organisational form the network perspective of a national grid. In these new formations, managing environmental impacts - the conflict between conservation and development objectives - is the 'quintessential point of contention' (Ennis 2003:8) in contemporary planning.

**"Spectacular development occurs at the expense of schools and hospitals in less prestigious locations."**

In conclusion, one of the most important issues here concerns contemporary urban and regional theories in which the objective of convergence has been replaced by notions of strategic localism which aim to enhance the infrastructural power of dominant core sites through the enhancement of both physical and social infrastructures and networks. This new approach entails acceptance of regional divergence. As governments strive to establish their major cities as nodes in global networks, the surrounding hinterlands may be asked to subsidise their growth through regressive public taxation. Spectacular development on the waterfronts and alleyways of cities occurs at the expense of schools and hospitals in less prestigious locations (Gleeson and Low 2000). The changes in the infrastructures provision raise important questions about the relationship between networks and territories.

# 7. Transport infrastructure and regional development: issues and findings

In past *State of the Regions* reports, the infrastructure associated with regional knowledge economies was explored in detail. This chapter will rebalance the debate in that transport infrastructure will be considered in its own right as a driver of regional economic development. The case will be made that the rise of the knowledge-based regional economy has in fact increased the importance of transport infrastructure.[13]

## 7.1 Transport infrastructure: channels for influencing regional economic development

The figure below shows the channels by which transport infrastructure can influence regional economic development. The types of growth drivers unleashed by transport infrastructure can be allocated to three general categories, namely:

- generative impacts;
- geographic impacts; and
- transfer impacts.

### 7.1.1 Generative impacts

The generative impacts are the impacts which are net positive because they increase economic activity and yield other benefits. They include:

(i) the benefits to the users of the transport infrastructure (freight and travel operating cost savings);

(ii) employment and income growth;

(iii) agglomeration economies (that is, the benefits from cluster concentration of industrial/commercial activities);

(iv) labour market agglomeration economies by allowing wider labour market access; and

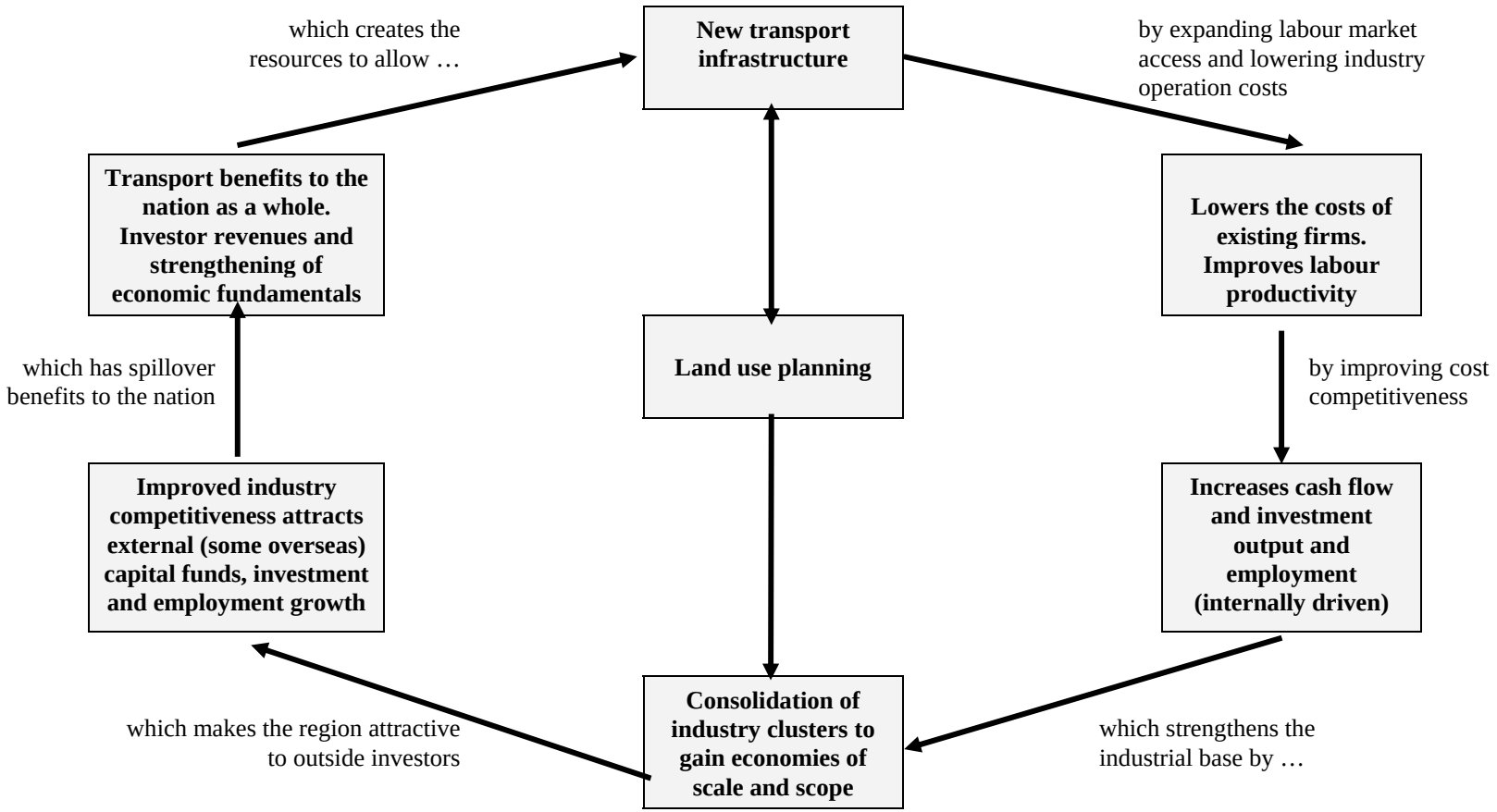
(v) source benefits (more equal regional distribution of income).

That is, the net benefits come from:

- travel cost savings;
- improved industry competitiveness; and
- high labour productivity from a better match between skills of labour available and skills required by employers.

[13] Much of the material for this section is drawn directly from National Economics, "*Transport infrastructure: a perspective and prospective analysis of its role in Australia's economic growth*", Australian Council for Infrastructure Development Limited (AusCID) and the Association of Australian Ports and Marine Authorities (AAMPA).

## The virtuous cycle of infrastructure expansion and economic development



### 7.1.2 Geographic impacts

Geographic impacts deal with the redistribution of economic activity within a region and between regions. This comes from the concentration of economic activity from changes in land uses encouraged by the design and operation of the transport infrastructure.

There is a third type of impact that focuses on the link between the region and the nation.

### 7.1.3 Transfer impacts

Transfer impacts deal with:

(i) the spillover effects of the net benefits created at the regional level to the rest of the nation;

(ii) the degree to which regional infrastructure improves the competitiveness of the nation (or growth leveraging factors); and

(iii) the financial transfers between regions, states and institutions within nations.

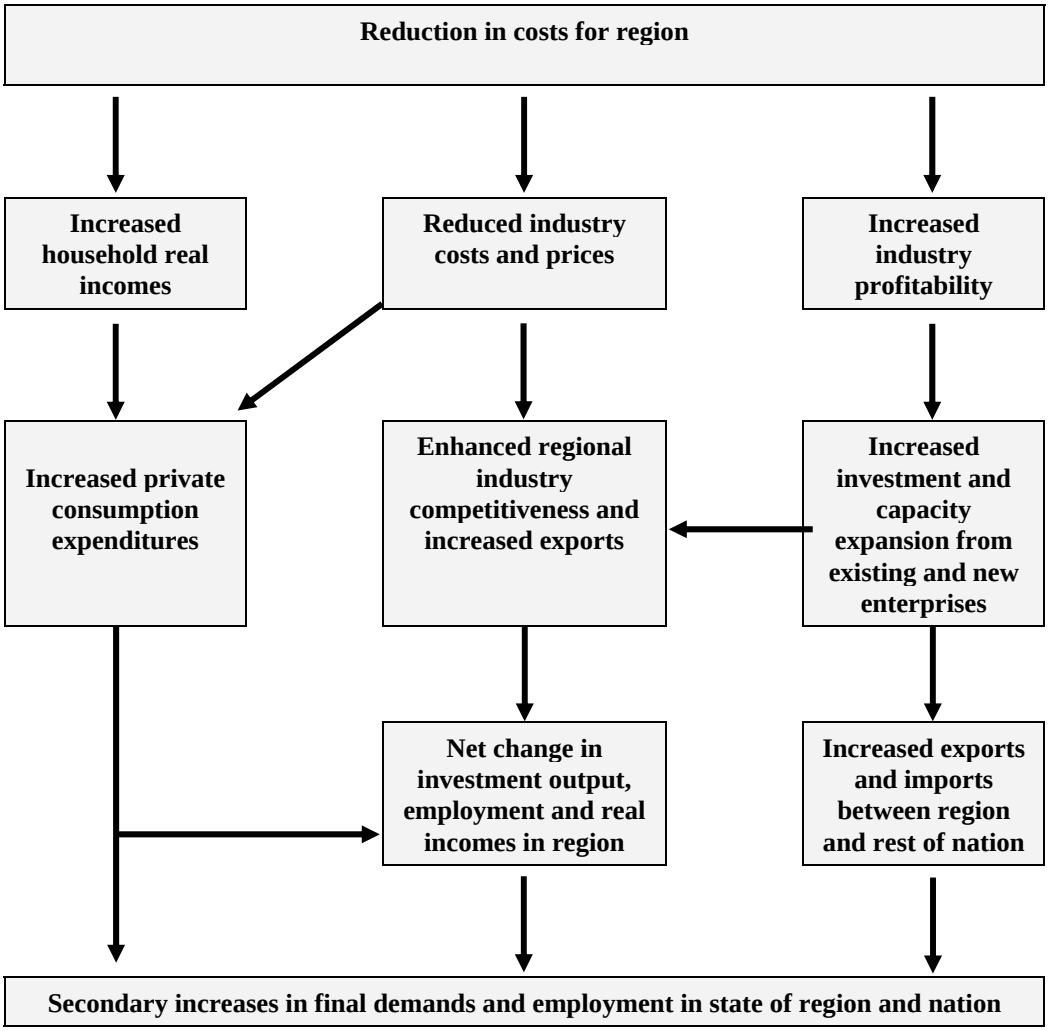
The spillover benefit to the nation as a whole, in the first instance, is transmitted from the region in which the transport infrastructure is installed to the rest of the nation via inter-industry flows and inter-regional trade relationships between regions within a nation.

The power of the growth leveraging factors will depend on the obstacles or constraints to growth facing the nation and the ability of transport infrastructure to unleash benefits to ameliorate the constraints to growth.

The financial transfer issue is relative to which governmental jurisdiction least benefits from the tax revenues generated from the benefits generated from the transport infrastructure and how they use the additional funds.

Table 7.1 lists the above factors in terms of the impact on various institutional sectors. The following figure gives an outline of the transmission mechanism from transport infrastructure to economic growth.

**Transport infrastructure and economics: growth channels of causation**



| Table 7.1 | Transport infrastructure: factors influencing net benefits |
|---|---|
| **A.** | **Direct household impacts and outcomes** |
| (i) | Increased travel range |
| (ii) | Lower transport costs – increased consumption in other areas |
| (iii) | Increased workforce commitment/higher real incomes |
| (iv) | Improved workforce opportunities/higher real incomes |
| (v) | Reduced accident costs (repair/injury/loss of life) |
| **B.** | **Direct enterprise impacts and outcomes** |
| (i) | Reduced costs per vehicle – km |
| (ii) | Better access to markets – more competitive |
| (iii) | Reduced freight costs – increased investment potential |
| (iv) | Increased workforce commitment and productivity from employees |
| (v) | Increased profitability and/or reduced prices |
| (vi) | Increased investment and output from both existing and new firms attracted to the region |
| (vii) | Industry cluster consolidation |
| **C.** | **Regional positive and negative externalities** |
| (i) | Emission enhancement/reduction |
| (ii) | City structural consolidation and improved competitiveness (more efficient land use outcomes) |
| (iii) | Workforce integration and efficient skill matching |
| (iv) | Better equality of opportunity from better labour market access |
| **D.** | **National benefits** |
| (i) | Unutilised resource take-up and net additional tax revenues |
| (ii) | Fully utilised resources – revenue redistribution |
| (iii) | Amelioration of balance of payments and other constraints to growth – higher indirect national growth |

## 7.2 Transport infrastructure and the rise of the knowledge-based regional economy

The rise of the knowledge-based regional economy, as a response to the pressures of globalisation, was extensively explored in previous *State of the Regions* reports. What has not been extensively explored has been the role of globalisation in increasing the importance of transport infrastructure as a driver of economic growth and development. This increased importance comes from the increased importance of:

(i) efficient goods delivery;

(ii) labour market reach; and

(iii) social invention and the knowledge economy,

in determining enterprise/plant competitiveness in the age of economic globalisation.

### 7.2.1 The importance of efficient goods transport

When governments could use quotas and other non-tariff barriers to protect tradable goods industries the efficiency of transport infrastructure above minimum requirements was not a major issue. As long as it was physically possible to deliver products to markets the cost of doing so was not an issue. The existence of congested and inefficient and high cost (to the user) rail, port and road systems would be

neutralised, in terms of its potential negative impact on economic development, by increasing the rate of effective protection to the tradable goods industry.

This option is now not available for a variety of reasons. At the political level international trade agreements are constraining what governments can do to directly protect industry. International trade agreements aside, technological change has effectively ended direct protection. The scale of least cost plants in conjunction with an increasing product segmentation and specialisation has meant more and more products across all tradable goods industries have had to reach world markets for maximum efficiency. The level of protection required to keep in business those companies with product lines which have failed in the race for significant world market share has, in most instances, become prohibitive.

In this environment the availability of transport infrastructure is not enough. Those companies in countries with efficient low cost transport infrastructure have a much better chance of winning the race for minimum threshold world market shares. This is because winning and maintaining minimum acceptable world market shares requires:

- price competitiveness which can be impossible with high cost transport infrastructure; and
- "just-in-time" delivery which can be impossible without efficient infrastructure.

It is not only in delivery of the final product to the customer where the quality of the transport infrastructure is important. To reach maximum competitiveness plants have increasingly specialised in producing a few or even just one of the components for a finished product, rather than all the components required at one or a small number of sites. Component and even sub-component manufacturer is outsourced to specialised plants which can produce at large scale and least cost. The same components or sub-components are generally sold to many different enterprises producing a range of final products including directly competitive final products.

In the outsourcing revolution of the last decade, the ability of a nation to retain value added from production has depended on the competitiveness of its networked economy. This in turn depends on how efficient intra-industry trade could be carried out with the development of multiple production sites for a given finished product. This in turn depends on the efficiency of the transport infrastructure.

In the modern economy import replacement activity (that is, thickening inter and intra industry trade flows) depends not on tariffs and quotas, but on (in part) on the efficiency of the actual or potential connectiveness between plants and enterprises.

Governments have now learnt that one way to "protect" their strategic tradable goods industries is to provide the most efficient installed transport infrastructure.

The quality of the transport infrastructure also has an indirect impact on industry competitiveness which can be just as great, or even greater, than the direct impact. The indirect impact is via two mechanisms, namely:

(i) the labour market impact; and

(ii) the knowledge economy.

### 7.2.2 The labour market impact

Over the last two decades industry in general has been subject to what economists call "skilled biased technological change". What this means is that having access to labour market participants with higher levels of:

- education;
- technical skills; and
- appropriate training and experience,

have become critical factors in commercial success. Gone are the days when plants could be sited only with reference to transport infrastructure with the assumption being that the workers would come or could be induced to come. This was the height of the age of mechanisation which ran from the early 1900s to the 1970s. The age of mechanisation allowed any worker with minimum education and motivation to be quickly trained for effective employment.

Skilled biased technological change requires that for existing and new plants, to survive over the longer term, the plants must be constructed in areas with access to best practice skills. Given the layout of residential areas, the quality of local transport infrastructure will determine the labour market catchment for a given plant and, therefore, the probability for securing a labour force for minimum acceptable levels of competitiveness. That is, the local transport infrastructure, in terms of:

(i) the road network; and

(ii) public transport integration,

will determine travel times and in turn the effective reach of households in metropolitan areas to the industrial/commercial zones.

### 7.2.3 The knowledge economy

The ending of the age of mechanisation and the rise of the importance of skills, education and experience, is directly linked with the rise of the knowledge economy. The knowledge economy is used to indicate the importance of knowledge in determining the innovation potential of an economy and the likelihood of successful commercialisation. The rate of innovation, or more accurately the ability of enterprises to maintain best practice rates of effective innovation, is the key factor determining the maintenance of long run competitiveness.

The quality of transport infrastructure is a key factor in determining the rate of innovation because of the importance of tacit knowledge and face-to-face interaction in innovation. The information revolution (internet) has made codified knowledge available to all. Competitive edge now rests with combining codified knowledge with tacit knowledge. Tacit knowledge by definition cannot be written down or easily commercialised. It is in the heads, accumulated experience and institutional memories of local workers. It is best mobilised with face-to-face interaction. The probability of successful innovation is increasingly being determined by the probability that the right combination of individuals will meet. This in turn will depend on the mobility of local residents and on the existence of suitable meeting points, which in part depends on the quality of local transport infrastructure.

In short, transport infrastructure is increasingly important because, in the globalised economic age, as the mantra states, "think globally, act locally".

## 7.3 Measuring the impact of transport infrastructure to economic development: summary of findings

One way to measure the significance of transport infrastructure, along with other factors of production to economic development, such as:

- labour;
- equipment;
- buildings; and
- power stations.

is estimating a production function – a mathematical relationship between inputs and outputs. Economists traditionally estimate the impact of factors such as labour and capital on output. Therefore, the explicit role of transport infrastructure can be explored by specifying a production function by the form:

$$Y_j = A(t)\, f\,(TCAP_j, OCAP_j, L_j) \qquad (7.1)$$

Where:

$Y_j$ = gross product of country/region *j*

$TCAP_j$ = total transport capital stock of country/region *j*

$OCAP_j$ = other capital stock of country/region *j*

$L_j$ = labour impact generally measured in terms of man-hours in country/region *j*

The *A(t)* term stands for the increase in overall multifactor productivity. This represents the increase in productivity (either expressed in terms of labour, capital or all three factors combined) that is not explained by the increase in impacts of the specifically specified factors. The *A(t)* term is commonly referred to as capturing the rate of technological progress or unexplained growth.

To estimate the significance of transport infrastructure is to use the estimated parameters of the $TCAP_j$ variable to calculate the elasticity of gross product with respect to the stock of transport infrastructure capital. A relatively high estimated value for this coefficient would indicate a strong role for transport infrastructure in driving economic growth. This elasticity will be given the short-hand designation *Eyt* in discussion of the empirical findings below.

The paper which transformed the debate over the role of public infrastructure in general on economic growth was D.A. Aschauer "Is Public Expenditure Productive?", Journal of Monetary Economics, Volume 23, p.177-200, 1989. Aschauer was one of the first to explicitly include public capital (transport plus, energy plus water) in a production function for the United States. Aschauer found that the elasticity of United States private gross domestic product to the public infrastructure was 0.36. That is, if United States public infrastructure capital stock was increased by 1.0 per cent, then United States private gross product would increase by 0.36 per cent. That is:

$$Eyt = \propto_{4,j} = 0.36$$

The Aschauer result received widespread attention for a number of macroeconomic reasons that extended well beyond the issue of the importance of transport infrastructure.

As a result of the oil price shocks and other factors, the period from 1973 to 1992 in OECD economies was one of relatively high inflationary regimes and a focus on the use of restrictive monetary and fiscal policies to restore structural balance and return the economy to a low inflation environment.

One of the consequences of this was that governments cut back infrastructure investment primarily on the grounds of:

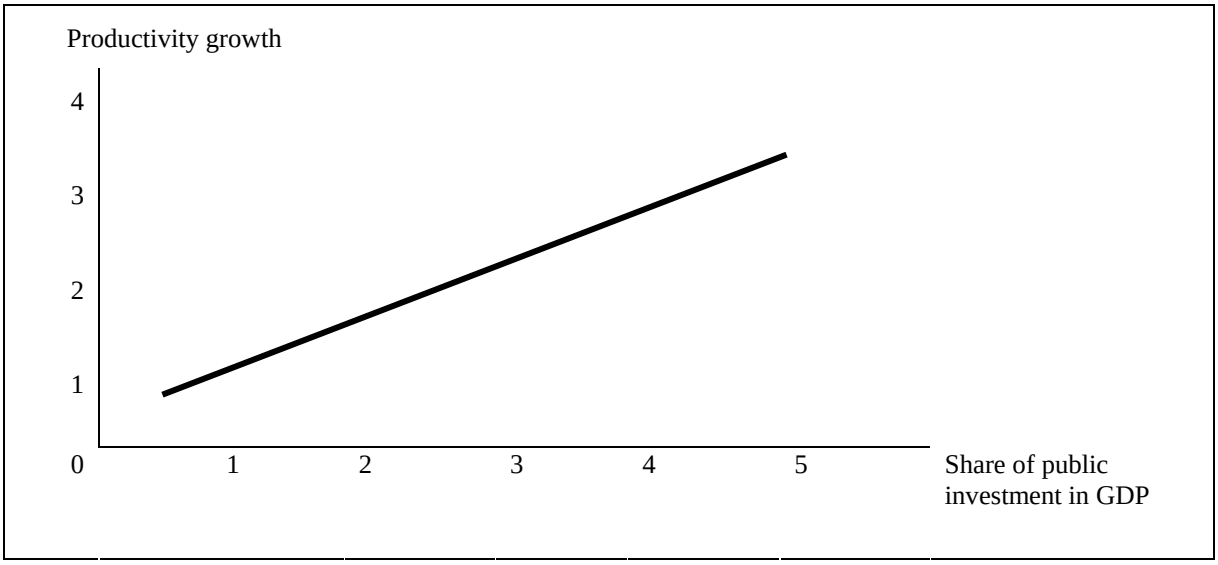
(i) lower desired level of economic activity due to inflation rates being higher than desired;

(ii) much higher competition for scarce fiscal resources, including the new political objectives of (in the short term) preventing further rises in tax rates and, in the longer term, of bringing tax rates down; and

(iii) a lower trend rate of GDP growth.

Across OECD countries between 1973 and 1992 this produced a sharp reduction in the trend rate of productivity growth, whether measured by labour productivity or total factor productivity.

Typically, over the 1970s and 1980s, total factor productivity/labour productivity growth declined by 0.5 to 1.5 per cent per annum, compared to the 1950 to 1970 period, while the rate of growth of public infrastructure declined by 0.8 to 2.0 per cent per annum. Given the output-public capital elasticity, the conclusion derived from this was that up to half of the productivity slowdown could be attributed to the reduction in the growth rate of public sector infrastructure capital stock.




This conclusion was backed up by the empirical relationship over the 1970 and 1980s for the major OECD economies. That is, the higher the share of public investment in GDP (that is, the higher the public capital stock growth rate) the higher the productivity growth rate.

The policy inference was that a restoration of public investment towards its pre 1973 level in GDP would increase long run growth via its impact on total factor productivity. In fact, the rate of return to the economy would be high. The marginal physical product of public investment, *MPP(T)*, is:

$$MPP(T) = E_{YT} \cdot (Y_j/TCAP_j) \qquad (7.2)$$

Given values of $E_{YT}$ or the ability of GDP with respect to transport/public sector capital stock of between 0.2 and 0.5 with values of $(Y_j/TCAP_j)$ being between 2 to 4 depending on the degree of additional public sector infrastructure being included over and above transport infrastructure, then the value of *MPP(T)* will be around 0.7 to 1.0.

This means that \$1 of $TCAP_j$ investment will increase annual GDP by between \$0.7 and \$1.0. This implies a rate of return of between 70 and 100 per cent per annum. The inference is, given the importance of transport infrastructure in the public sector capital stock, then the result for a transport infrastructure only analysis would be for a similar marginal physical product.

As this is considerably higher than the 20 to 30 per cent return on private capital, the policy implication is clear. To accelerate productivity growth rates and overall economic growth, the rate of public infrastructure capital stock growth should be accelerated relative to private capital stock growth.

It should be noted that to avoid confusing changes to symbols the variables are being used inter-changeable for the case of transport infrastructure or broader public infrastructure.

## 7.4 The empirical role of transport infrastructure: economic growth – response to the Aschauer study

Given these conclusions, the Aschauer study drew a wide response. In general analysts adopting the same framework obtained similar conclusions. This included the Australian case. G. Otto and G. Voss "*Public Capital and Private Sector Productivity*", Economic Research, Volume 70, 1994, found a $E_{YT}$ of 0.4.

Not surprisingly, however, given the importance of the conclusion for policy, Aschauer's work was subject to widespread critical analysis. Most critical analysis started from the perspective that the high rates of return to public investment were not plausible, especially in the context of the relatively low return to private capital. Most of the critical analysis, therefore, was directed at attempting to discredit the high values for the $E_{YT.}$

The first place to start is the issue of spurious relationships.

### 7.4.1 Spurious relationships

It is well known that two or more series can be highly correlated, that is have similar trends, but can be in fact unrelated. Economists now use a variety of tests to determine how functional forms should be specified to remove the risk of spurious relationships corrupting the results. This generally involves the need to first or second difference the estimated functional form.

When such tests have been carried out on the types of functional forms used by Aschauer, it is found that the functional forms need to be at least first differenced. John A. Tatom, "*The Spurious Effect of Public Capital Formation on Private Sector Productivity*", Policy Studies, Journal Volume 21, No. 2, 1993, pp.391-395. When this is done analysts have found no statistical effect of public capital stock on output.

It was argued that because of long lags in the relationship between changes in public and private capital stock and output, the relationship being captured by necessity is a long term case with differencing destroying the long term relationship in the data.

In order to develop desirable stationary properties but retain the long run properties in the data, one study uses data differenced by 10 year periods. As this means that for a 20 year data set only two years of data would be available, it would mean that such a methodology could only be employed with mixed time series if cross-section data was available. That is, when the analysis was carried out at the multi-regional level.

The study that did adopt this approach, M.G. Boarnet, "*Infrastructure Services and the Productivity of Public Capital: The Case of Streets and Highways*", National Tax Journal, Volume 50, 1997, also used a capacity utilisation variable that captured the congestion cost when roads were being used above their capacity. The importance of transport infrastructure was verified. However, the most important finding was that in terms of increasing (California) regional output, reducing congestion rates was at least as important as increasing the stock. This places emphasis on the efficiency of use of the capital stock.

### 7.4.2 Alternative empirical findings: regional studies

One line of approach was to break down the possible distortions created by aggregation bias and spurious relationships between the aggregate series by using cross section and pooled time series data. To do this a consistent database across a number of regions is required.

One such study of this type is by A.H. Munnell, "*How Does Public Infrastructure Offset Regional Economic Performance?"*, New England Economic Review, September/October 1990. The Munnell study applied the Aschauer model to pooled time series cross section data for United States regions between 1970 and 1986. The value of the national output-public infrastructure capital stock elasticity was found to be 0.15 or less than half the Aschauer result, implying a marginal product for public capital of 0.35, which is similar to the marginal product of private capital.

The Munnell study did verify that public infrastructure capital was a significant driver of regional and national development. It did not, however, put to rest whether or not in the United States there was an under-provision of public infrastructure capital. This was because, if spillover effects are important, then the benefits will extend beyond a region. Thus, a regional based analysis would be expected to produce a low estimate of national $E_{YT}$ because the estimated model does not allow the spillover effects from other regions for public infrastructure to affect a given region's multi-function productivity. If this could be allowed for the national value of the $E_{YT}$ would be significantly higher.

Munnell also directly tested for the influence of public capital stock in private investment. The finding was, a $1 million increase in public capital, increases private investment by $0.45 million.

Another interesting regional study is that carried out for the French economy for road investment.[14] The database was for output, private capital and road infrastructure capital stock services for 20 French regions between the early 1970s and the end of the 1980 decade.

The estimated elasticities of output with respect to road infrastructure capital stock was found to be in the range of 0.085 to 0.1. This translates into an annual rate of return for road investment of 60 to 70 per cent. This was considerably greater than the annual rate of return on private capital which was estimated at 10 to 15 per cent. The regional analysis also indicated that road infrastructure investment stimulates overall net growth in a region and the national economy and does not simply shift economic activity between regions.

### 7.4.3 Regional studies not considered in the AusCID study

A number of recent studies have been produced attempting to quantify, or at least identify the link between infrastructure investment and economic growth that were not cited in the AusCID study. This section of the report considers these studies.

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[14] Bernard Fritsch and Remy Prud'Ronnme, "*Measuring the Contribution of Road Infrastructure to Economic Development in France*", in E. Quinet and R. Vickerman (eds.), The Econometrics of Major Transport Infrastructure, Chapter 3, London, Macmillan, 1997.

### *University of Barcelona – Evidence on the complex link between infrastructure and regional growth*

A study undertaken at the University of Barcelona by the Department of Econometrics, Statistics and Spanish economy analysed the link between infrastructure (including infrastructure other than transport infrastructure) and regional growth. The study analysed the link between public capital and productivity for Spanish regions between 1964 and 1991. The following issues and findings were discussed in the study.

**"Infrastructure funding has in part been used as a tool to promote growth in under-developed regions."**

- Infrastructure funding in the European Union has in part been used as a tool to promote growth in under-developed regions. The controversial aspect of this strategy is whether infrastructure, despite being accepted as necessary to facilitate growth, may not be a sufficient condition alone for economic growth.
- Despite consensus on the need for a certain level of infrastructure provision, once this level is reached the economic benefit of further additions has been hotly debated. Some studies undertaken in the United States have concluded, based on econometric models, that there is a weak effect on per capita product (GRP) on United States' metropolitan economies. Other studies have identified that infrastructure provision indirectly benefits a region by increasing the relative attractiveness to firms' locational decisions.
- The effect of infrastructure on productivity depends on three issues:

    1. different types of infrastructure will have different impacts on output dependent on their purpose;

    2. different sectors of the economy will benefit differently from infrastructure increase or improvement; and

    3. economic development depends on a region's existing capital stocks.

- It is important to understand that most infrastructures, especially transport and communication, typically are parts of an overall network, increasing the interrelationships between regions. Therefore, benefits will also be felt beyond the regional boundaries of where the infrastructure was constructed.
- An important issue discussed in the study was that the impact of infrastructure provision on a region is dependent on the existing capital stock and the degree of congestion to the existing network. Additions to infrastructure that already exist would have differing impacts to new infrastructure, and benefits of infrastructure provision to uncongested networks would differ to congested networks. Therefore, it appears that there is a threshold level that once reached will reduce the benefits to the region.
- The parameter linking basic public capital to output had a value of 0.044, indicating a 1.0 per cent increase in capital would produce a productivity increase of 0.044 per cent. The study found that in Spanish regions, infrastructure was severely lacking and as such the provision increased productivity growth. On the other hand, United States regions with large initial infrastructure endowments would have reached a saturation point.
- Some studies have found that infrastructure provision will have a different impact on different sectors of the economy. It was argued that if this could be proven, infrastructure policy could be used to develop the economy by stimulating certain sectors.

- Andalucia, one of the least developed regions of Spain, had a large amount of infrastructure provided by the public sector but without other factors such as an adequate industrial mix, human capital and connection with dynamic centres, the region did not benefit, an example of the necessary, although not sufficient condition.
- In Spain's experience, infrastructure has had a positive, albeit subtle, effect on economic growth.

In Spanish regions it has been demonstrated that infrastructure is a development factor with a positive but very modest effect on productivity, which is decreasing in time. In fact, the differences in infrastructure impact depend on regional and sectoral development, the reduction in this impact when the size of the infrastructural network increases, and the presence of inter-dependencies between regions. These issues complicate the link between infrastructure and growth. In addition, it has been seen that the effect of a certain infrastructure is higher if it is placed in an industrial area with high agglomeration economies, showing how the effect of public capital depends on the spatial distribution of infrastructure networks. Besides, even though the infrastructure is placed in a specific region, the network characteristic of most and the consequent interrelationships between regions imply the presence of spatial association processes, making it necessary to introduce the spatial dimension in any thorough study of the impact of government investment.[15]

### *North Carolina, United States of America*

For the region of North Carolina (10th and 11th Congressional Districts), Dr Graham Toft, Senior Fellow at the Hudson Institute, Indianapolis, Indiana, undertook an in-depth scan of infrastructure status and trends to determine strategic issues within a forward-looking economic development strategy. The report focused on what is broadly known about infrastructure and what major barriers impede infrastructure as a tool for development.

The following are general infrastructure findings from the report.

- In an under-developed economy, the adage 'Build it and they will come' still applies. In the innovation economy, this alone will not be enough to generate business investment in the region. Therefore, 'for the advanced, high-pay economy…, infrastructure provides a more subtle contribution to economic progress. Instead of access to infrastructure being a primary factor, today's economy requires access plus service and quality. Cost, convenience, reliability, safety and security have increased in importance.' (page ii)

**"Build it and they will come."**

- Three principles can be used on which to base infrastructure investment in the knowledge economy. Although specific for the North Carolina region, most of these principles are relevant to Australia's regions. The principles are as follows:

#### *1. Today's infrastructure solutions are invariably regional in nature*

Regional areas face unique infrastructure issues which require tailor-made solutions to solve their problems. Of great importance is the ability to enable leaders within the region to assess, plan and implement infrastructure solutions. 'Parochialism is the anathema of good infrastructure solutions.'(page ii)

**"Parochialism is the anathema of good infrastructure solutions."**

[15] Moreno, Artis, Lopez-Bazo & Surinach, *Evidence on the complex link between infrastructure and regional growth*, University of Barcelona, Spain, 1997, pp25.

### *2. Infrastructure investment must fit the economic development strategy*

The region must capitalise on current infrastructure assets. For this to occur, there must be a link to the region's overall economic development strategy.

### *3. Infrastructure investments remain a useful economic recovery tool*

During growth cycles of the economy, the cost of capital and public infrastructure becomes more expensive. During recessionary times, these costs fall and infrastructure expansion can be used as unemployment relief.

## *Transportation investment in the Philadelphia Metropolitan Region*

A working paper was prepared by the Federal Reserve Bank of Philadelphia titled Transportation Investments in the Philadelphia Metropolitan Area: Who Benefits? Who Pays? And what are the consequences?

The following general findings from this report are relevant for Australia's regions.

- As was previously discussed, there have been a number of studies debating the impact of infrastructure on regional growth. Regardless of these findings, transport infrastructure plays a significant role in determining the geographic pattern of economic activity in a metropolitan region.
- Poor transport infrastructure investment planning could result in inefficient patterns of development.
- Extensive investment in a well connected road transport network is necessary although not sufficient to sustain low density development.
- Communities with better transportation infrastructure are likely to be more attractive to people and firms than communities with declining infrastructure.
- Regions fortunate enough to receive public funding for infrastructure will have a distinct advantage in attracting people and firms.

## *Canada Transportation Act Review – A review of studies on the relationship between transport infrastructure investments and economic growth*

A research paper was commissioned by the Canada Transportation Act Review in 2001 that reviewed a number of studies on the link between transport infrastructure investment and economic growth. The findings of the study predominantly relate to highway infrastructure investment in Canada and the United States. The study concludes that transport infrastructure investments can expand the productivity of a region both by increasing resources and enhancing the productivity of existing resources. Infrastructure may also act as a catalyst of regional economic growth by attracting resources from other regions.

**"Transport infrastructure investments can expand the productivity of a region."**

This study relied on a study undertaken by Lynch in 1994 which found that the elasticity of output to transportation capital is 0.0784. That is a 1.0 per cent increase in transportation capital results in a 0.0784 rise in output which is consistent with the 0.044 elasticity finding of the University of Barcelona's findings discussed above. See Lynch, M. (1994), "*Applied Economics: Linking Transportation Policy and Economic Growth*", a paper presented at 29th Annual Conference of Canadian Transportation Research Forum, Victoria, B.C., May 1994.

### 7.4.4 More sophisticated production functions

Another approach has been to move away from the basic Cobb-Douglas production function form and adopt a cost function derived from sophisticated (that is flexible) production functions. This approach, while still showing that the public capital has a significant impact on labour or private capital productivity, obtains parameter estimates which are up to or two thirds below the Aschauer results.

These studies also have a number of drawbacks. Firstly, the more sophisticated the production function, the more complex the formulas for the key elasticities in terms of the estimated parameters and hence, the more sensitive the elasticities are to parameter estimates. As a result, low values for the $E_{YT}$ can also be found to co-exist with implausibly low values of the elasticity of output with respect to private capital. (Sau-Him Paul Lau and Chor-Yiu Sin, "*Public Infrastructure and Economic Growth: Time Series Properties and Evidence*", Economic Research, Volume 73, June 1997.)

There is another basic problem which has limited the application of the more sophisticated functions. Estimation and/or interpretation requires the use of relative factor prices. This creates difficulties for public capital because it has no rate of return indicator since all the returns accrue to the private sector.

A Swedish study[16] found values of $E_{YT}$ that were greater than Aschauer when the basic Cobb-Douglas production function was employed. Resort to more sophisticated functions still shows the slowdown in public capital stock growth over 1974-1988, explaining 16 per cent of the multi-factor productivity slowdown in Sweden over the same period.

After a decade of analysis, the general conclusion is that public capital in general and transport infrastructure in particular is more important as a driver of economic development than what was considered to be the case before the Aschauer study. There is doubt, however, whether it is as important as the Aschauer study found it to be.

## 7.5 Transport infrastructure and economic growth: the Australian macro case

Using economy-wide data, National Economics estimated variants of equation (7.1) using economy-wide data for the AusCID report and the results reproduced in Table 7.2. The major change from equation (7.2) is the grouping of the enterprise stock variable with the capacity utilisation variable.

The aspects which stand out from the analysis are:

(i) the stability and high statistical significance across specifications and estimation time periods for the *A(t)* coefficient;

(ii) the instability (even taking wrong signs) and at times weak statistical significance of the enterprise capital stock variable; and

(iii) the evidence that the value of the $\propto_{4,j}$ coefficient had increased over the 1990 decade. This can be seen from the estimated value of the $\propto_{4,j}$ coefficient for the 1967 and 2001 sample period compared to the longer sample period to 1985.

Averaging across the eligible estimated equations gives an average value of $E_{YT}$ elasticity of 0.18 and an average GDP-enterprise capital elasticity of 0.26. In the early years of the 1950 decade the marginal physical product of transport capital was in excess of 1, implying an annual return in excess

[16] E. Berndt and B. Hansson, "*Measuring the Contribution of Public Infrastructure Capital in Sweden*", Scandinavian Journal of Economics, Volume 94, 1992.

of 100 per cent. By 1970 the expansion in the transport infrastructure capital stock reduced its marginal physical product to $56. However, the relatively slow growth of transport infrastructure capital stock over the last 20 years has meant a steady rise in its marginal physical product. By 2001 the transport infrastructure marginal physical product was back to the 1970 level, implying an annual (long run) rate of return of 70 per cent. This is consistent with findings in other economies.

Also consistent with other studies, the marginal physical product of transport infrastructure is well above the level for enterprise capital. Over the 1950 and early 1960 decade the marginal physical product of enterprise capital was 0.3. This steadily fell to 0.2 by the early 1980 decade. Over the last 20 years the marginal physical product of enterprise capital has remained in the 0.18 to 0.20 range.

The implication of this is as follows. If transport infrastructure expenditure since the late 1980 decade had maintained a level so that the ratio of transport infrastructure capital stock remained at 30 per cent instead of falling to 26 per cent, then the level of GDP in 2001 would have been $13 billion higher, implying an additional GDP rate of growth of 0.2 per cent per annum over the last 12 years. This assumes that the increase in transport infrastructure expenditure is offset by an equal decline in enterprise capital stock, so that the total capital stock installed is the same.

In order to achieve this objective the level of transport infrastructure expenditure would have to have been 27 per cent above the level that actually prevailed since 1988. Since 1988 total transport infrastructure expenditure to 2001 has been $120 billion in year 2000 prices. Thus, to achieve the additional 0.2 per cent growth rate, the total level of transport infrastructure expenditure would have had to have been $152 billion, or a cumulative $32 billion more than what was allocated. The annual average expenditure would have to have been $2.6 billion greater than what was the case.

**Table 7.2 Regression results Cobb-Douglas production function of the Australian economy**

| Regression | Constant | Log($ECAP_{-1}$ . CAPU) | Log(HWORK) | Log($TCAP_{-1}$) | Time | $R_2$ | DW | Period |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.700 | 0.157 | -0.404 | 0.138 | 0.011 | 1994 | 1.8 | 1956- |
| | (0.7) | (1.2) | (2.9) | (3.1) | (2.1) | | | 1985 |
| 2 | -0.982 | 0.410 | -0.608 | 0.152 | | 0.993 | 1.94 | 1956- |
| | (1.3) | (11.5) | (6.0) | (3.2) | | | | 1985 |
| 3 | 1.693 | -0.217 | -0.084 | 0.243 | 0.020 | 0.995 | 1.41 | 1967- |
| | (1.4) | (3.0) | (0.9) | (4.9) | (8.1) | | | 2001 |
| 4 | -6.664 | 0.218 | 0.093 | 0.184 | | 0.982 | 1.56 | 1967- |
| | (5.9) | (2.51) | (0.6) | (2.1) | | | | 2001 |
| 5 | 2.552 | -0.114 | -0.221 | 0.161 | 0.020 | 0.996 | 1.23 | 1956- |
| | (3.2) | (1.8) | (2.8) | (6.0) | (9.6) | | | 2001 |

*Notes:* The dependent variable is log(GDP)–log(HWORK) where GDP = gross domestic product 2000 year prices, and HWORK in total hours worked. ECAP is public and private enterprise capital stock, while TCAP is road, rail, airport and harbour infrastructure capital stock. CAPU is the capacity utilisation rate.

## 7.6 Transport infrastructure: the benefits from selected potential transport projects

As part of the AusCID study, National Economics completed the economic impact and project liability study of a number of Australian infrastructure projects. As part of this study the link between the amount of money invested in transport infrastructure and the nation's economic growth was explored.

In addition, ways of evaluating transport infrastructure projects were developed and, in a similar way to this report, provided justification for a broader focus for infrastructure investment. The study found that Australia had failed to exploit infrastructure investment to its fullest potential as a driver of economic growth which produced consequences such as greater regional inequalities.

The unequivocal finding was that there is a direct relationship between transport infrastructure investment and Australia's economic growth.[17]

The study considered 48 transport infrastructure projects with a combined cost of more than $20 billion. They included:

- 10 port access and related projects and other inter-modal terminals;
- 6 road projects;
- 8 long-distance rail projects;
- 21 urban public transport projects; and
- 3 remote area road projects.

In general, the annual internal rates of return are high but projects should not be ranked. All citizens should be given equal opportunities to high income employment and, thus, regional balance in project allocation is essential.

The problems with transport infrastructure policy in Australia include:

- short term focus;
- insufficient cooperation between governments or with the private sector;
- failing to account for greenhouse gas emissions when allocating funds;
- rail investment is ad hoc and what exists is not performing well enough;
- existing infrastructure is not being used as efficiently as it could be;
- new technology is slow to be adopted; and
- there is no overall national transport infrastructure plan or strategy and thus nothing to guide priorities.

The problems outlined above will not be easily overcome and will need a complete review of the way in which transport investment is assessed. As well:

- transport infrastructure provision and land use planning need integration. The two are inseparable for good returns to all types of transport investment;
- there is increased scope for both the public and the private sectors to contribute to transport infrastructure finance. There is now a strong argument for much greater use of private sector capital and expertise in operating and managing roads, for instance; and
- accept that transport should be provided by an integrated system dedicated to achieving sustainable national economic growth and development.

In Chapter 11 we assess how far the AusLink White Paper fulfilled this need.

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[17] *ibid*, Executive summary, page (i).

### *Project evaluation: an overview of outcomes*

Table 7.3 gives a summary of indicator outcomes across the selected projects/project combinations. The net present value is obtained using a 6 per cent real discount rate. In total the project expenditure of $7.3 billion will generate:

- $39.5 billion of additional gross domestic product (GDP) by 2030 over and above what would have prevailed in 2030;
- 212,000 additional employment positions; and
- $91 billion in terms of cumulative discounted consumption benefits.

The GDP increase of $39.5 billion represents just under 3 per cent of the projected 2030 national GDP in the absence of the transport infrastructure expenditure.

However, this represents only part of the expenditure. The complete City of Cities suite of projects for Sydney alone includes new centres in or near:

- Penrith;
- Sutherland;
- Gosford;
- the Illawarra; and
- Newcastle.

These centres have the potential, with leverage enhancement between the projects, to add up to $110 billion to national GDP. This represents 7.3 per cent of national 2030 GDP.

Melbourne is less advanced than Sydney in its City of Cities plans, but there is scope for a similar approach. Perth, Adelaide and Brisbane could also be encouraged to develop along these lines.

In total the projects listed in Table 7.3 have the capacity to increase national GDP by 2030 by approximately 3 per cent. This translates into an additional GDP growth rate of 0.3 per cent per annum over the period to 2030.

**Table 7.3 Project evaluation: a summary of indicator outcomes**

| Project | State | Internal rate of return (%) | Invest-ment (2002 $b) | National net present value consumption benefit (2002 $b) | GDP – 2030 (2002 $b) | Employ-ment – 2030 ('000s) | Marginal physical product (ratio) |
|---|---|---|---|---|---|---|---|
| 1. Geelong By-Pass | VIC | 9 | 0.3 | 0.1 | 0.06 | 0.3 | 0.2 |
| 2. Fremantle Portlinks | WA | 36 | 0.04 | 0.7 | 0.4 | 1.5 | 10.0 |
| 3. Port Kembla Expansion | NSW | 22 | 0.4 | 1.5 | 0.8 | 3.5 | 2.0 |
| 4. Port Phillip Channel Deepening | VIC | 79 | 0.2 | 32.7 | 14.8 | 82.7 | 74.0 |
| 5. Tullamarine – Eastern Freeway Link | VIC | 25 | 0.8 | 3.2 | 1.0 | 5.4 | 1.3 |
| 6. Melbourne-Brisbane Rail – Stage one | VIC/QLD | 14 | 1.4 | 1.9 | 1.4 | 6.7 | 1.0 |
| 7. Melbourne-Brisbane Rail – Stage two | VIC/QLD | 29 | 0.4 | 3.6 | 1.9 | 9.2 | 4.8 |
| 8. Melbourne-Sydney Rail | VIC/NSW | 35 | 1.3 | 18.1 | 8.5 | 42.8 | 6.5 |
| 9. Sydney-Brisbane Rail | NSW/QLD | 23 | 1.1 | 5.1 | 2.6 | 12.4 | 2.4 |
| 10. City of Cities – Campbelltown section | NSW | 49 | 1.3 | 20.6 | 5.9 | 32.0 | 4.5 |
| 11. Barry Point Port | VIC | 29 | 0.1 | 3.4 | 2.1 | 15.4 | 21.0 |
| **Total** | | | **7.3** | **91.0** | **39.5** | **212.0** | **5.4** |

*Note:* A 6 per cent discount rate is used to obtain net present value estimates. The model results in the report are in 1996 prices. They are converted to 2002 prices for the summary table.

## 7.7 The 2004 AusCID study

In August 2004 EconTech completed a study for AusCID entitled 'Modelling the Economic Effects of Overcoming Under-investment in Australian Infrastructure'. The report calculated the effect on the national economy of a $25 billion program of infrastructure investment. The main results are that the program would:

- induce an increase in business and housing investment by around 1.5 per cent;
- generate an increase in exports of around 1.8 per cent; and
- result in an increase in GDP of 0.8 per cent and consumption of 0.4 per cent.

In other words, the investment program would be worthwhile in terms of its effect on national economic indicators. The projects would also be commercially viable provided suitable user charges were available.

National Economics regards this as a conservative conclusion, for the following reasons.

- The project list was limited to projects for which engineering costing has already been completed. As with the selection reported in National Economics' AusCID study (Section 7.6 above), there is no guarantee that the most urgent potential projects have been evaluated. For example, rail gauge standardisation in Victoria was not included, despite its potential returns.
- The assessment using the Murphy 600+ model did not make any allowance for macroeconomic circumstances, as outlined in Chapter 4 above. In an environment where an increase in government borrowing and infrastructure investment is a macroeconomic necessity, the effective returns will be higher.
- The assessment similarly did not take into account Australia's current perilous balance of payments position. This means that it under-valued the benefits from the increase in exports.
- The assessment was conducted at an abstract level driven by changes in relative prices. It therefore did not take into account strategic returns, such as underpinning knowledge-economy developments.

All of these criticisms are to the effect that the returns to infrastructure investment were under-estimated. It is therefore highly significant that the EconTech study generates positive results.

## 7.8 Conclusion

The macro evidence of the significance of transport infrastructure is strong. A core objective of the 2004-05 *State of the Regions* report is to investigate whether or not the macro evidence can be validated using data based on Australian regions. After all, it is the regions where the benefits from transport infrastructure investment are generated. This issue is explored in the following chapters.

# 8. Evaluating infrastructure: A regional development perspective

As a preliminary to developing strategies for investment planning, this *State of the Regions* report attempts to measure the quality in infrastructure regions and relate it to measures of their prosperity and social development. In Chapter 6 of this report we introduce the concept of an infrastructure array at the broadest level. In an economy and political environment without competing interests the determination of the path of development and so of infrastructure investment required at the local level would simply be a logistical problem. However in a system which suffers from under-investment in all forms of infrastructure, particularly at the regional level, determining the best way forward requires careful consideration of the issues previously highlighted.

## 8.1 Basic evaluation rules

It is worth noting that health and education infrastructure is not considered in any detail in this report, as it is the intention to cover these key sectors in the 2005-06 *State of the Regions* report.

To introduce a way in which various forms of infrastructure can be evaluated it is best to set out ground rules (or ideologies if you prefer) for the evaluation of the outcomes of regional development. At the heart of these rules is the aim of reducing regional inequality of opportunities, employment, wealth creation and incomes. This aim is considered worthy of competing for priority with national economic growth, that is, where an investment proposal or development program decrease regional inequality it could be considered even if it is also expected to reduce national growth.

In the Standing Committee on Primary Industries and Regional Services report of March 2000, entitled *Time running out: Shaping Regional Australia's Future*, the importance of infrastructure was defined;

"Equitable access to infrastructure, both economic and social, is vital to the rejuvenation of regions. A number of studies both in Australia and overseas over the last two decades demonstrate the link between increases in infrastructure investment to productivity, output, employment and growth."

In general, quality infrastructure facilitates economic growth and improves quality of life by:

- reducing production costs, including by reducing domestic transaction costs and increasing access to market information;
- diversifying production into more productive and higher return activities by facilitating growth of alternative employment and consumption possibilities; and
- raising the population's standard of living and welfare[18]".

The flow chart introduced in Chapter 5 allowed for three local responses to infrastructure demands, catch-up, investment that is designed to search for competitive advantages, and possible divestment or run-down of current assets. The time dimension to the problem allowed for new technologies or locational factors to constantly change the sufficient array for a particular area.

[18] Report page 3, section 1.9 partly drawn from Department of Industry Science and Resources, Submission no. 168 p.4

Given these response mechanisms, in order to evaluate various forms of infrastructure within the Australian context we need to consider the degree to which each infrastructure type performs in terms of:

- requiring on-going catch-up type investment;
- **capacity** to deliver competitive advantage potential; and
- likely changes to the required **form** of infrastructure.

Should the infrastructure type have the capacity to deliver legitimate competitive advantage potential we need to consider issues surrounding **implementation.**

- What has been the **effectiveness** of the infrastructure type in Australia at delivering competitive advantage?
- How does this **effectiveness** for delivering competitive advantage change in the light of innovation and global trends including the environment?
- Reliance on external markets for innovations, and capacity to change its reliance over time.

Of course there are many elements of the infrastructure array which do not deliver competitive advantage, and even for the regions which do not require catch-up, the decision to maintain services or capacity remains a vital component of planning. As such we also consider the following.

- How is catch-up or divestment likely to increase or decrease current competitiveness or regional sustainability in the light of innovation, global trends including the environment?
- The risks imposed on a region's sustainability associated with the infrastructure's ongoing operation, including maintenance and environmental costs.
- Possible changes in the **capacity** of an infrastructure type to deliver future competitive advantages currently not appreciated, due to innovation or social change.

Using form, capacity, effectiveness and implementation as signposts for the evaluation of each infrastructure type we hope to provide a template to consider infrastructure within the context of limited financial resources and political room for manoeuvre. We also provide the AusCID Infrastructure Report Card rating for 2001. An 'A' rating means that infrastructure in 2001 was fit for current and future use, an 'F' rating that it was seriously inadequate. We also provide an assessment as to whether the inadequacies are 'catch-up' or 'strategic', and note the amount which would have to be spent to remedy the immediate shortfall as listed in EconTech's report "Modelling the Economic Effects of Overcoming Under-investment in Australian Infrastructure' (report to AusCID, August 2004). These assessments cover projects 'in the pipeline' which have been costed for engineering purposes, and do not necessarily include all projects required to bring national infrastructure to a favourable standard. They also deliberately exclude projects in industries where current standards are considered passable. We include EconTech's estimate of the nominal pre-tax rate of return in the projects they selected in each sector. The EconTech study is briefly summarised in Section 7.7.

The use of qualitative evaluation techniques is worthy of comment. In 2002 National Economics conducted a consultation on benchmarking Australian regions, commissioned by ALGA and funded by the Commonwealth Department of Transport and Regional Services under the Local Government Incentive Program. At the consultations, local governments stressed the importance of infrastructure as the foundation of local economic and social development. It turned out to be fairly easy to suggest measures by which the educational infrastructure of regions could be compared, and measures were even suggested for health services. However, when it came to measuring the transport, telecommunications and public utility infrastructure of regions, local government was stumped. There was general agreement that these services were extremely important, but attempts at measuring the adequacy of infrastructure at the LGA level melted away in a plethora of local concerns. This provides an introduction to the immense political implementation problem which plagues this topic.

One council wanted gas supply, another an electricity upgrade, many were concerned about the deficiencies and costs of telecommunications, and most wanted better roads, but none could suggest summary measures of public utility service, telecommunications service or road service.

In seeking summary measures of infrastructure quality, it is as well to begin with infrastructure function. A possible classification hones in on the transport aspects, and distinguishes three tasks: the transport of people, messages and freight. These tasks are often further classified by purpose. People travel to work, to school, to shop and so on; messages may be for business or personal; freight may be classified by commodity and by the industries which are forwarding and receiving the freight. However, a concentration on infrastructure means that the primary classification should emphasise infrastructure requirements.

Transport of people covers a wide range of options.

- People have inbuilt transport capacity as pedestrians. This primary form of mobility is today used mainly for short distances, and the national failure to walk is associated with the current high incidence of obesity, along with an emphasis on the health benefits rather than the transport usefulness of walking. Walking for transport merges with walking for recreation. Pedestrians benefit from footpaths, and particularly from footpaths which are interesting to walk along. They are also vulnerable, and benefit from investments which enhance their safety both from vehicles and from street crime.
- Walking range can be extended by cycling. There is again an interface with recreation. Most cycling is carried out on public roads, but poor safety has led to increased provision of cycle paths.
- Pedestrian range can also be extended by public transport. Short and medium-distance public transport is mainly road-based, supplemented in the metropolitan areas by rail. Long-distance passenger transport is mainly by air, and airports have become important transport nodes.
- The currently dominant mode, in terms of person-kilometres, is motoring, requiring infrastructure investment in roads and car parks.

Transport of messages is predominantly by telecommunications, but it should not be forgotten that messages can also be conveyed by post. Telecommunications include broadcast messages and point-to-point messages, with a hazy in-between zone where point-to-point technology is used to access generally-available content. Point-to-point messages rely on switching technology. Messages are carried on wires, fibre-optic cables or by radio, sometimes involving satellites. Given that a range of broadcasts is available in most of Australia, and that switching is performed electronically, concern over telecommunications infrastructure mainly reflects the capacity of point-to-point connections, particularly whether they are broad-band. Mobile coverage is also important.

The freight category can be subdivided thus.

- Bulk freight may be carried on narrowly specialised infrastructure – electricity in transmission lines, oil, gas, water and sewage in pipes, and sullied water in drains. Gas, electricity, water and sewage not only involve bulk hauls, but connections to individual properties. The quality of service from any reticulation depends on the capacity of its headworks, hence their inclusion in the investment list.
- Bulk freight may also be carried on non-specialised infrastructure, which is available for other types of freight and often for passenger transport as well. These freight flows are of two types: bulk commodities and general freight in containers. The infrastructure concerned includes roads, railways and ports.
- The remaining small consignments are carried almost entirely by road and air. Over long distances they may be bulked-up as container loads.

It is not hard to think of overlaps. oil, gas, water and wastes (if not sewage) can be carried as general bulk freight as well as on specialised infrastructure. The iron-ore railways of the Pilbara carry a single

commodity and are virtually as specialised as pipelines. Different flows can be carried together: long-distance buses carry passengers, messages (in post bags) and small-consignment freight. On land, the roads provide general-purpose transport infrastructure, catering to pedestrians, cyclists, public transport, small consignment freight and bulk freight. These overlaps affect the infrastructure appropriate for particular transport flows, and infrastructure quality cannot therefore be measured independently of demand.

In general, pipes and wires carry but one commodity per system, and are therefore free of the complication of multiple flows on a single system. Their adequacy and quality reflects a single demand. They will be considered first.

## 8.2 Quality in reticulated services

The chief reticulated, or network, services are as follows.

- Electricity supply.
- Piped gas.
- Water supply.
- Sewerage.
- Drainage.
- Telecommunications.

Each of these services has alternatives.

In lieu of mains supply, electricity can be generated on-site, and usually is in remote areas. Where requirements are small, photo-voltaic electricity can substitute for mains electricity, e.g. to provide lighting. Electricity requirements may be reduced by substituting direct use of fuels (particularly gas instead of electric heating), and also by substituting on-site solar and wind power (hot water, windmills). The availability of these alternatives places a cost-cap on the geographic areas where it is reasonable to expect electricity reticulation.

Bottled gas can substitute for mains gas across the range of applications. Electricity and other fuels can also be substituted. These substitutes again place a cost-cap on the areas where it is reasonable to expect gas reticulation.

Water can be harvested and stored on site, and as a last resort it can be trucked. These alternatives place a cost-cap on the areas in which it is reasonable to expect water reticulation, whatever the purpose: domestic, stock or irrigation. However, this is not the end of the matter, since harvesting of runoff has downstream effects, and pumping of groundwater affects other users. The capacity to self-harvest is also affected by climate, as is the need for supply: there is little demand for irrigation water in a rain forest.

Sewage and other waste water can be disposed of on site if development densities are low enough. This places a cost-cap on the areas where it is reasonable to expect piped sewerage. In both sewered and unsewered areas there can be concerns about groundwater pollution.

All of Australia apart from the sandy deserts possesses natural drainage systems, and at low densities these suffice to drain human settlements, provided the waste water is not sullied. Urban development changes runoff characteristics, and requires the natural drainage system to be augmented and protected from pollution. Additional drainage requirements arise when urban development ventures onto flood plains.

Radio provides a substitute for hard-wire telecommunications connections. In areas with coverage, mobile phones can substitute for land-line phones, though not for the full range of telecommunications services. Radio connections can also substitute for land lines in remote areas, again with limitations on transmission capacity and reliability. Information can also be conveyed by physical transport of hard copy, and the postal service has been regarded as an important infrastructure system. However, from a transport point of view it is a specialised sub-sector of small-consignment freight.

These substitutes and cost-caps make it plain that the quality of reticulated services is of concern mainly in urban and semi-urban areas. From an economic point of view, each service except telecommunications has a cut-off density below which reticulation is irrelevant. In regions below the cut-off density, the quality of alternative supply becomes important, and also its cost. It is arguable that the equivalent to reticulated supply in low-density areas is an income sufficient to afford alternatives.

## 8.3 The finance and planning of reticulated services

Except for drainage, reticulated services connect to particular properties. User charges are therefore practicable, and are indeed imposed for all reticulated services in various mixes of once-only connection charge, annual connection fee, volume of use charges and time of use charges. With such a range of pricing techniques, what hinders market provision of these services?

Reticulated services are not like food or clothing, produced as discrete, readily-transported items with a range of alternatives to suit every need and every budget. They have the following characteristics.

- Service quality on any reticulation depends on common headworks. (In the case of telecommunications, the headworks are the exchanges; in the case of sewerage and drainage the treatment plant.) It is not possible to provide potable water to one house and cheap, low-quality water to the house next door.
- Reticulations are capital-intensive, and the assets often last indefinitely if property maintained. Operating costs are generally low compared with capital and maintenance costs. Response to fluctuations in demand involve raising, or writing off, considerable amounts of capital, and is inevitably sluggish.
- Economies of scale mean that reticulations are natural monopolies, or nearly so.
- Continuous easements are required, in which buildings are in general prohibited, though some forms of land use, such as grazing, may be allowed. Urban reticulations invariably use road easements.

These characteristics generate government interest in reticulations. Interest arises both in construction and operation of the system. When systems are under construction, governments assist with the provision of easements, adjudicating disputes and imposing design standards, especially with regard to environmental effects. Governments may also regulate service standards, and this may involve them in raising capital so that reticulation and headwork investment is sufficient to meet the standards they require. When systems are in operation, governments commonly regulate charges to prevent exploitation of natural monopoly. They often impose service standards and may also supervise maintenance to ensure that owners do not run down their systems.

For any reticulation, the capacity of the headworks must be kept in proportion to the capacity of the reticulation itself. For some kinds of reticulation, lack of capacity in the headworks can be remedied by further investment. This is particularly true for telecommunications, where exchange capacity can generally be increased. It is also generally true for electricity, where there are numerous generation and long-distance transport options, and hence many opportunities for amplification. Gas headworks are not quite so simple, since the location and productivity of gasfields is given by nature, but in the last analysis long-distance sea transport can be used to maintain supply. The hydraulic services are the most difficult in this respect, for two reasons.

- The flow of water through any catchment is limited. Headworks cannot be indefinitely expanded to catch more water. Diversion of water from other catchments is sometimes a possibility, but creates conflicts between the people of the catchments involved similar to the more familiar upstream-downstream conflicts.
- The waste absorptive capacity of any catchment is also limited. Though treatment is usually possible, rising flows tend to encounter rising marginal treatment costs.

With increasing demands on the hydraulic services, governments are called upon to adjudicate priorities.

This range of public interests in any reticulation generates a range of service quality targets. The detail depends on what's being reticulated, but will tend to include measures of the following.

- Availability.
- Reliability.
- Quality of supply.
- Price.
- Quality of system maintenance.

## 8.4 Electricity

### *Availability*

Thanks to the efforts of the former state electricity monopolies, mains electricity is available to nearly all properties in Australia – probably to many more than is justified by the economics of reticulation versus on-site production. There is little call, therefore, for measures of electricity availability, though availability of high-voltage power may be important for some specialised industrial location decisions. Electricity supply is part of the standard array of infrastructure across the whole country.

### *Reliability*

For electricity, reliability denotes continuity of supply and maintenance of nominated voltage. This requires that generation capacity is sufficient to meet the maximum instantaneous demand, that the distribution system has matching capacity and that it is not subject to interruption. In the eastern states and South Australia, headworks are pooled through the National Electricity Market (NEM), and regulators elsewhere have been generally successful in maintaining sufficient capacity to meet demand. (Some would argue that they have been more than successful, and that generation capacity is greater than would be required in the presence of better demand management.) Distribution systems are more variable. In the metropolitan CBDs, sufficient redundancy is provided to guarantee against supply failure due to interruptions in any particular circuit, while at the opposite extreme many rural properties are at the far end of quite tenuous transmission lines.

### *Quality of supply*

For electricity, once the voltage is determined quality of supply is synonymous with reliability.

### *Price*

Electricity tariffs are complex, and not easily summarised. Large, high-voltage customers are less costly to service than small customers, and discounts are regularly given to them. The same is true of customers with continuous load. The average revenue for any region will reflect the presence or absence of such customers. Cost of supply also varies with distance and voltage of transmission, but the state utilities had a policy of geographic cross-subsidisation so that uniform tariffs were usual. The reforms of the 1990s were intended to reduce cross-subsidies. Some idea of the range of variation can be gained from current interstate differences. Despite the NEM, average revenue per kilowatt-hour sold differs, with Queensland 12 per cent below national average and South Australia currently 24 per cent above. Including the jurisdictions not at present connected to the national market increases the range, from Tasmania at 23 per cent below national average to the Northern Territory at 64 per cent above.

### *Quality of system maintenance*

System maintenance is a major concern of the state regulators, but it is doubtful whether they collect summary statistics on system condition at the regional level. Strictly speaking, the condition of a long-lived capital asset can only be determined by inspection, resulting in specification of a maintenance program required to bring the asset up to standard. A rough alternative, sometimes used at the all-system level, is written-down value calculated from past investment expenditure and an assumed depreciation rate. A further simplification would be to resort to subjective measures, such as good condition and bad condition. Another approach is to rely on measures of system failure, for example, outages per annum. Other measures could include the proportion of customers who have installed voltage control devices, and the proportion who have installed auxiliary generators.

## Infrastructure for regional development scorecard – Electricity

AusCID rating = B–
Type of inadequacy = catch-up
EconTech investment required = $1.15 billion
EconTech rate of return = 10.5 per cent

- *Competitive Advantage / Catch up / Divestment*

  Mostly catch-up rather than competitive advantage, opportunity for reduction in current inventory in areas of regional decline. In case of the mining industry provision of large scale reliable power sources can be crucial in the exploitation of new resources in remote areas. In industries where the cost of power as an input is less important the competitive advantage is limited.

- *Social Consumption Dimension Indicator* – Inclusive.

**Capacity to deliver competitive advantage**

Electricity is generated largely from fossil fuels at environmental cost, causing likely pressures on Australia's competitiveness due to future international environmental laws and trading systems. No particular regional advantage can be gained through increases in electricity infrastructure provision given broad availability.

Low cost fossil fuels have provided advantage to regions with access to coal fired power. If this price advantage continues these regions will maintain locational advantage for large electricity consumers.

- *Availability* – All Australia except remote. It is possible to argue that the electricity grid has been over extended and in some remoter areas local generation through use of renewable energy technologies is more cost effective. A NEM commenced in December 1998 and included New South Wales, Victoria, Queensland, South Australia and the ACT (NEM States). Tasmania will be included from 2005.

**Effectiveness of electricity infrastructure**

- *Price* – Increasingly cost based. From their peak in 1982 -83, real average electricity prices in Australia have declined by over 30 per cent, falls were particularly marked in NSW, Victoria and Queensland, these falls in part driving the growth of consumption. The actual outcome for electricity prices over the next five years will be driven by regulatory reforms, continued excess capacity in New South Wales, ownership and aggregation of generation assets, the response of industry to full retail competition, new generation capacity coming online and greenhouse related impacts. However, it is uncertain whether current prices can be maintained given concerns over fossil fuels and the need to recover long-term capital costs. Major industrial investment decisions have been made on the basis of declining electricity prices and ready availability. Given increasing global environmental cost pressures, what are the possible impacts on existing high volume industrial users in terms of their likelihood of maintaining operations in Australia? High input industries will be particularly sensitive to increases in price.
- *Sensitivity* – In terms of demand Australia's electrical consumption represents around 19 per cent of the nation's final energy consumption. Australia's electricity consumption increased at an average rate of 5.6 per cent per annum for the period 1985 to 1990 and slowed following the recession in the early 1990s to an average increase of 3.1 per cent per annum in the period 1990 to 2000. Forecast economic conditions for 2005 and 2006 will create renewed interest in resource projects and associated demand with an expected average per annum growth in demand to 2010 of 2.8 per cent. This demand will require additional generation capacity in both NEM and non-NEM States.
- *Environmental* – High reliance on fossil fuels for electricity generation and subsequent greenhouse issues. Low electricity prices have increased demand for domestic air-conditioners at the expense of better house design and insulation practices, however, several State Governments are addressing this by raising regulatory standards.
- *Investment* – Mostly based on current generation practices with investment directed at improving the greenhouse outcomes of continued use of fossil fuels. There are small investments in sources of alternative energy generation with wind generation currently the most prominent, but current government policy is to discontinue incentives to this investment.
- *Policy* – Directed at improving the environmental impacts that will result from the continued planned heavy reliance on fossil fuels for generation.

**Forms of electricity infrastructure in the process of developing competitive advantage**

Electricity is considered to be a form of infrastructure which has strong capacity to deliver economic advantage in ways not yet envisaged.

- *Current Regional Capacity* – As some regional towns decline there may be a reduction in current inventory as part of the recognition of the real costs of supply, which could lead to alternative electricity sources which are more localised or respond to differing potentials such as methane, biomass etc.
- *Environmental Response* – Additional types of generating capacity include wind, wave, solar and biomass in addition to the existing hydro sources. On the basis of proposed plant development or plant under construction, wind is emerging as the preferred renewable energy

development. Global wind generation capacity has quadrupled over the last five years. As a result of the scale of wind farms and the growth in their development the impact of this technology in parts of regional Australia may cause controversy. There is evidence in Europe and the USA of emerging patterns of protest because wind farms tend to be located in non industrial and often highly scenic and environmentally sensitive areas.

**Implementation in the process of development**

- The biggest issues in implementation occur when demand is not met. In Australia we have recently seen this in SE Queensland, Western Australia and South Australia for a variety of reasons. In general, considering the large increase in demand, capacity is expanding to meet these needs. Additional flexibility has been due to the NEM and shortfalls relate more to catch-up issues than to opportunities lost.
- *New Technology* – Technological advances throughout the electricity supply industry are improving productivity, these improvements are driven by imported technologies.
- *Ownership* – Corporatised, partly privatised, often foreign owned, aggregating.
- *Social concerns* – new electricity infrastructure, especially forms which are not environmentally advanced present implementation challenges. Infrastructure related to distribution can also present challenges in terms of amenity. The demand for below ground supply is often a feature of new residential developments. In high fire danger areas this option is far safer.
- *Optimal Investment* – The nature of user pays which dominates the supply of electricity is, in general, perfect for private investment. Externalities which may not be adequately covered from a regional development perspective include capacity for greenfield development to occur in areas where supply leads demand, an outcome unlikely in a private finance oriented model.
- *Security* – Secure and regionally diverse generation and successfully moving towards a national grid
- *Maintenance* – Increasing cost, particularly in established regions as delivery infrastructure continues to age.

## 8.5 Gas

Gas is used in industrial processes and may also be used by households and in commercial buildings, mainly for heating. This means that gas supply is more significant in the colder parts of the country, though this could change if gas appliances become less costly than electric appliances in uses such as refrigeration. Gas is also used to generate electricity.

### *Availability*

The ready availability of substitutes for gas means that it is not so widely reticulated as electricity. However, the substitutes are more costly, and lack of supply has been debited with failures in industry attraction for plants which require process heat. Lack of supply can also increase household costs, particularly in cold climates.

Around 1900, town gas supply was part of the standard array of urban infrastructure, but the 1960s the fashion for all-electric homes meant that gas was no longer automatically extended to new urban areas. The introduction of natural gas improved the competitiveness of gas, and it can once again be regarded as part of the standard urban array.

### *Reliability*

Over the past decade there have been several instances of headworks failure leading to widespread gas supply disruption. These instances are likely to fall in significance as interstate pipelines are built, providing alternative sources of supply to the main cities. Failure of gas reticulation tends to take the form of leaks rather than complete disruption, as in electricity, and is not generally an issue except for the suppliers.

### *Quality of supply*

Natural gas is supplied at uniform specification, and deviations from this are not usually a cause of trouble.

### *Price*

Gas prices vary with volume sold and are also lower for continuous demands. They also reflect source of supply, and market conditions applying a decade or more ago may be locked in by long-term contracts. There have been significant interstate divergences in average revenue, and during the 1990s Western Australia was 16 per cent below national average and Queensland 50 per cent above, to say nothing of the Northern Territory where average revenue was 2.5 times national average. Additions to the pipeline network and the development of new sources of gas, both new natural gas fields and coal seam methane, are changing price patterns, but prices for the large industrial users are commercial in confidence and the resulting price patterns are poorly documented.

### *Quality of system maintenance*

As for electricity, gas is of uniform quality and what matters is reliability. The equivalent of the voltage-control device and the auxiliary generator is stored gas, or in some cases stored distillate which is substituted in the burners in the event of failure of mains gas supply. As an example, restrictions on gas supply to Perth due to full capacity utilisation on the Dampier to Bunbury pipeline have caused major users to invest in backup supplies of distillate.

## Infrastructure for regional development scorecard – Gas

AusCID rating = C
Type of inadequacy = part catch-up, some strategic
EconTech investment required = $2.6 billion
EconTech rate of return = 12.5 per cent

- *Competitive Advantage / Catch up / Divestment*.

  Mostly catch-up, to some extent competitive advantage is driven by availability of supply – can be influenced by regional demand.

- *Social Consumption Dimension Indicator* – inclusive.

**Capacity, gas infrastructure, exploration processing and supply in the process of development**

- *Economic Advantage* – Australia's natural gas industry has historically been characterised by regional markets and the development of state based natural gas resources and delivery infrastructure. This resulted in considerable interstate divergence of gas prices, which affected industry attraction and also household choice of energy sources. As a result of market reforms, pursued at both the state and federal level, there is a greater integration of

regional markets underpinned by the construction of new gas pipelines and the removal of regulatory barriers to interstate gas trade. These broader market opportunities are partly responsible for driving renewed interest in exploration and development projects, particularly in Victoria. Plentiful supply and improving practices and regulation should improve contribution to industrial development and competitiveness.

- In the gas exploration and extraction industry, there has consistently been an under-investment in potential associated manufacturing industries. Major export opportunities exist for LNG with demand expected to double in the next 25 years and this growth will need to be supported by appropriate infrastructure developments. New projects include the development of a world scale LNG plant in Darwin using gas from the Bayu-Undan field in the Timor Sea to supply gas to the Tokyo Gas Company for a 17 year period commencing 2006
- *Availability* – From an industrial and household customer perspective most urban areas of Australia have domestic gas, some regional areas have seen this supply expanded to major towns. For instance the Victorian governments Natural Gas Extension Program which is part of the Regional Infrastructure Development Fund has committed of $70 million over four years to make natural gas available to between 70,000 and 100,000 homes and businesses in country Victoria. It is estimated that between 225,000 and 250,000 Victorian households are not currently reticulated with natural gas. This is clearly a case of catch-up, however it could be argued that the program has contributed to recent population movements in country Victoria.
- *Sensitivity* – In terms of demand Australia's natural gas consumption is expected to increase at an average rate of 5.2 per cent per annum for the period to 2010. The strong growth in industrial gas consumption is expected to reduce slightly. Open access arrangements, direct negotiations of contracts and removal of cross subsidies will all result in downward pressure on industrial gas prices. Gas reserves are strong, for example National Economics believes that ultimately recoverable reserves in the Otway and Bass Basins are several multiples higher (5 to 10) than the official estimates. Coal seam methane is also entering the market. Consumption growth will be particularly strong in the commercial sector because natural gas has demonstrated price advantage in areas of small scale cogeneration in hospitals and new or improved gas technology in heating and cooling.

**Effectiveness of in the process of development**

- *Quality of Supply* – Uniform when available.
- *Price* – Increasingly cost based; the actual outcome for gas prices over the next five years will be driven by regulatory reforms and industrial demand. Competition between gas and electricity is likely to intensify as a result of microeconomic reforms including deregulation of markets and major infrastructure developments.
- *Reliability* – Good, uniform.
- *Quality* – Good, uniform.
- *Environmental* – The use of natural gas in cogeneration plants which supply both steam and electricity is expected to grow. Natural gas has a number of advantages over alternative fuels for electricity generation. Investment can be in small to medium sized capacity developments close to load areas with shorter lead times and fewer greenhouse gas emissions.
- *Investment* – Mostly based on current generation practices with investment directed at improving the greenhouse outcomes of continued use of fossil fuels. There are small investments in sources of alternative energy generation with wind generation currently the most prominent.
- *Policy* – Directed at improving trading potential of gas resource such as the removals of barriers to interstate trade.

**Form in the process of development**

- *Current Regional Capacity* – Australia's gas transmission networks currently total around 18,000 kilometres. The location of reserves has meant that there are three main transmission networks, one in the eastern states and South Australia and the other two serving Western Australia and the Northern Territory separately. Tasmania is linked to Victoria by a pipeline from Bell Bay to Longford. New links are to be expected but no major changes in distribution technology.
- *Environmental Response* – A significant number of new natural gas power stations are under consideration with the Queensland Government's 2000 Cleaner Energy Policy providing a significant boost to gas fired electricity generation developments. Continued development of more efficient gas appliances for cooking, heating and cooling.
- *Capacity to deliver export potential* – Renewable energy sources not only offer regional communities the capacity to develop alternative energy sources they also represent a source of export earnings. In the *Time running out: Shaping Regional Australia's Future*, recommended "that the Commonwealth government continue to fund renewables R&D, commercialisation, venture capital, and subsidies to customers beyond the anticipated four years." In the light of the importance of renewable energy on regional Australia it is disappointing to see Federal decisions in this sector.

**Implementation in the process of development**

- *Increasing Capacity* – Capacity is meeting demand with additional flexibility due to additional pipeline developments and deregulation.
- *Competitive Advantage Creation* – New industrial technologies may increase demand for gas because of competitive advantage creation.
- *New Technology* – Technological advances throughout the supply chain improving productivity, these improvements are driven by imported technologies.
- *Ownership* – Privatised, often foreign owned, aggregating.
- *Security* – Secure and regionally diverse generation and successfully moving towards a national grid.
- *Maintenance* – Relatively stable, will increase as network grows.

## 8.6 Water: urban

There are, broadly, two types of water supply system in Australia: systems whose primary purpose is the supply of potable water for domestic use, and those whose primary purpose is irrigation or farm supply. Though the systems are interlinked, the relevant quality measures diverge so we will treat them separately, taking urban supply first.

It is usual for urban supply to be potable, but there are exceptions.

- In a few towns, non-potable water is supplied, leaving it to the residents to supply drinking water from rainwater tanks or other sources.
- More commonly, non-potable water is supplied from such sources as sewage treatment works for urban irrigation, mainly of public gardens and golf courses.

Not all potable supplies taste good, and (for example) the citizens of Adelaide have long provided themselves with rainwater tanks. Such tanks are now being encouraged in other cities as a water-conservation measure.

### *Availability*

Domestic water is supplied in all cities, most towns, many townships and to some high-density hobby-farm developments. Where it is not supplied, householders must rely on rainwater from roofs, groundwater from bores, water drawn from streams and dams or trucked water. These alternatives will be considered under rural supply.

Because availability is so widespread, an indicator of availability is not likely to be of much interest. However, availability has its costs, particularly downstream effects (water diverted for urban use is not available for use downstream, and urban discharges may pollute the water downstream). Any economic analysis must bear in mind that water supply in any catchment is a finite flow.

### *Reliability*

In all cities and towns except those in areas of high and reliable rainfall (for example, arguably Tasmania and some parts of the Queensland coast) supply is rationed in times of drought. Rationing can be severe, and some towns have had to resort to trucking water, with entitlements measured in bucketfuls per household. Data may be available on the probability of severe restriction, though this is necessarily uncertain since recent restriction experience depends as much on the vagaries of drought as on the adequacy of the headworks. A town which has built storage capacity to maintain supply through a drought may still be caught out when several drought years occur in a row. The need for restrictions also depends on demand management techniques, which include pricing, restrictions on the installation of water-intensive gardens and equipment, and campaigns against water-intensive activities.

In any catchment, water flow is limited, and as demands increase reliability is likely to be reduced. In many catchments the main demands are rural, and urban supply can usually be maintained by giving it priority. However, all the mainland metropolitan areas except Darwin have reached the point where there are no nearby unexploited catchments, and incremental supply will have to come from conservation, demand management and waste water treatment.

Like gas pipes, water pipes tend to leak rather than to fail completely. Supply disruptions to any property therefore tend to occur when maintenance is required, and usually occur upon notice.

### *Quality of supply*

Most urban water systems in Australia supply potable water. However there are differences in turbidity, chemical content and the like.

### *Price*

Over the past thirty years there has been a shift from property rates to user charging for urban water. A two-part tariff is typically applied. Considerable differences in price occur, for several reasons.

- There are major differences in headworks costs due to catchment characteristics and history.
- There are also major differences in resource rents between catchments.
- Except for systems which rely on pumping, operating costs are very low in relation to capital costs. Many different rules can be used in the calculation of capital costs, resulting in quite different prices. A system which is heavily subsidised according to one capital-cost recovery rule may be overcharging according to another.

- Cross-subsidies are common. There may be cross-subsidisation between water, sewerage and drainage (commonly provided by the same authority) and a uniform tariff may be adopted despite differences in costs of service for different parts of a reticulation.

### *Quality of system maintenance*

System maintenance is a major concern, but summary statistics on system condition are unlikely to be available. Strictly speaking, the condition of a long-lived capital asset can only be determined by inspection, resulting in specification of a maintenance program required to bring the asset up to standard. A rough alternative, sometimes used at the all-system level, is written-down value calculated from past investment expenditure and an assumed depreciation rate. A further simplification is to resort to subjective measures, such as good condition and bad condition. Another approach is to rely on measures of system failure, for example, leakage (though this depends on all sales being accurately metered).

## Infrastructure for regional development scorecard – Urban water

AusCID rating = C
Type of inadequacy = catch-up
EconTech investment required = $3 billion
EconTech rate of return = 9 per cent (with water supply)

- *Competitive Advantage / Catch up / Divestment* – Catch up.
- *Social Consumption Dimension Indicator* – Inclusive.

**Capacity in the process of development**

- *Economic Advantage* – It is estimated that urban water usage accounts for 25 per cent of Australia's water consumption. Water is an essential resource for both domestic and industrial use, without adequate supplies and effective conservation measures economic development is severely restricted.
- *Availability* – All urban.
- *Sensitivity* – High levels of urbanisation, increasing urban water use and the impact on related catchments and storage systems have changed the natural water cycle, hydrology and sustainability of urban environments in Australia. It is not only the consumption of water in urban environments but also the return of waste water to the environment that disrupts the natural water cycle. If these impacts are not managed, and increasingly with great care, the cost to Australian cities of a miscalculated management regime will be highly costly, in terms of requiring new infrastructure (for example, desalination plants) or significantly restricting the opportunity for future development and perhaps even leading to urban contraction in some regions due to lack of suitable water supply.

**Effectiveness in the process of development**

- *Quality of Supply* – Some variation.
- *Price* – Increasingly cost based, with likelihood of further price increases in the future in an attempt to reduce consumption. Expenditure on urban water supply and meeting local needs may make some regions uncompetitive.
- *Reliability* – Reflects supply and demand.
- *Environmental* – Subject to reduced availability of water as a resource due to environmental degradation and global warming. These effects are both local and regional, and may be due to local land clearing and urbanisation combined with the impacts of regional land clearing, Australia-wide land clearing, the massive impacts of climate change and rainfall change caused by the destruction of forests in Central and South East Asia and the impacts of carbon

emissions. The potential for localised correction is unknown. Some major Australian urban centres are now under stress in terms of urban water supply, these include Perth, Canberra and Adelaide. Several regions have resorted to groundwater, but this supply is also limited and past misuse may have resulted in its being polluted.

- *Investment* – Mostly based on improving and upgrading current practices with investment directed at improving treatment and water quality. Much of the technology employed is sourced from international markets. Water shortages in the wetter States, where there is still water to dam, may precipitate major new infrastructure investments in new water storages.
- *Policy* – Mainly directed at reducing consumption.

**Form in the process of development**

- *Current Regional Capacity* – Australia's regional domestic water supplies are particularly vulnerable to changes in precipitation caused by the environmental effects described. Changes in policy direction can be measured by political and cultural rethinking and are thus a significant measure of change as a result of major differences in circumstance, what was unthinkable once is now the imperative. Here is an example – a shift in policy to allow water collection from roof run off in urban areas is unleashing innovative and creative ways of water storage from city based knowledge workers. Recycling of grey water needs far more attention.
- *Environmental Response* – Considerations of environmental responsibilities and urban water supply are undergoing a major shift in perception, driven by shortages and not necessarily as a result of broader strategic considerations. This thinking now includes understanding broader environmental impacts, caution due to the lack of certainty and flexibility in terms of price.

**Implementation in the process of development**

- *Increasing Capacity* – Storage capacity is mostly adequate, but water availability will be increasingly hard to manage given the extremes of new environmental conditions.
- *Competitive Advantage Creation* – those regions that can conserve and supply industrial and domestic water requirements in urban environments will be the winners.
- *New Technology* – Technology advances tend to relate to quality of supply and treatment. Further consideration must be given to improving efficiency of water use and applications through technology and separation of use of water of different qualities.
- *Ownership* – Corporatised.
- *Security* – Unknown and critical in some urban areas.
- *Maintenance* – Increasing as infrastructure continues to age.

## 8.7 Water: rural

### *Availability*

Rural water is obtained from various sources, including the harvest of on-property rainfall (by rainwater tanks off roofs and by dams off paddocks), pumping from groundwater (which may be sourced on-property but is more often drawn from an aquifer which underlies many properties), pumping from creeks and rivers and by formal piped or channelled supply. With the elaboration of catchment management schemes the distinction between these sources is falling. In many catchments withdrawal from a creek or river is equivalent to withdrawal from a channel, and similarly for groundwater.

The primary source of rural water supply is local rainfall, the adequacy of which varies with the evaporation rate as well as with reliability and seasonal patterns. This natural supply can be increased and its reliability improved, with the positive effect of upgrading potential land use. The rural water

supply map is accordingly an overlay on the primary supply map. The primary indicator of success is the upgrading of pastoral, agricultural and forestry potential due to the water supply works.

Rural water supply can thus be assessed in two ways:

- the combined effects of natural and system supply; and
- the upgrade effects of system supply.

The combined effects determine what production is possible, but it may not be easy to distinguish these effects from what is actually grown. The upgrade effects come closer to a measure of water supply input to rural production, but again it would be easy for input and output measures to become confused. It might be simplest to start out with a classification, like the following.

- Land with natural supply only.
- Land with distribution works only (generally pumping from streams or aquifers).
- Land with headworks and distribution works.

Where there is supply, this could be classified into the following.

- Land with limited supply, chiefly drinking water for stock.
- Land with irrigation supply.

Irrigation supply is frequently made available only for part of each property. It may be used in rotation, or particular parts of the property (e.g. vineyards) may require constant availability.

Economic assessment of returns to rural water supply is difficult. As with urban supply, withdrawal of water from streams and aquifers results in its unavailability downstream. Downstream users also suffer from upstream pollution. It is possible for the infrastructure which makes water available in some places to withdraw it from others. Returns to rural water infrastructure can be negative from combinations of the following.

- Headworks costs are high (not only the capital invested, but the land occupied by dams).
- Reticulation costs are high (not only the capital invested, but environmental effects on river flow).
- Downstream costs are high, whether by withdrawal or pollution of downstream supply.
- Returns in the supplied areas are low, whether from low product prices or high operating costs, including costs of land degradation brought about by inappropriate water use.

### *Reliability*

Rural supply is notoriously unreliable. There are, perhaps, three grades of supply.

- Deep groundwater is not affected by drought, but is strictly limited in total supply. Over-exploitation results in unreliability.
- Some catchments have major headworks which serve to switch supply between the seasons, and provide some guarantee against the vagaries of rainfall fluctuations. However, supplies still vary considerably between high-rainfall years and drought.
- Systems without major headworks are even less secure unless they operate in regions of high rainfall reliability.

Security of supply also depends on demand. The various catchment administrators have prepared assessments of supply/demand balance, but the balance varies between drought and high rainfall years.

### *Quality of supply*

Rural supply does not aim at human potability, though town supplies may be drawn from the general rural supply and treated. The main concerns are the content of dissolved minerals with soil-destroying properties. Water quality is likely to diminish in times of short supply.

### *Price*

It need only be said that rural water pricing is contentious, and presents a constantly evolving maze of political compromises. As a start, it might be possible to distinguish the following.

- Areas where land freehold includes all water rights.
- Areas where freeholders' rights to water are limited by restrictions on harvesting, whether surface or ground water.
- Areas where supplementary supply is provided, whether delivered by pipe, channel or natural watercourse. This includes the irrigation/stock supply areas considered above. Traditionally supply was paid for by a rate on the land.

Where harvesting rights are restricted, or supplementary supply is provided, it is possible to separate water pricing from land prices. Two prices are developing, volume charges and quota prices. The latter are subject to the former: those who possess water quotas must pay whatever volume charges apply. Other things being equal, the higher the volume charge, the lower the price of the relevant quotas. By established practice, quotas were attached to land, and their value was hence included in its freehold price. However, there has been a trend to detach the water quota and make it tradable in its own right. Except where catchments are connected by pipeline, quotas are not transferable between catchments, which creates classification difficulties at the LGA level – many LGAs are in more than one catchment, which may have different quota practices.

### *Quality of system maintenance*

While major irrigation systems have existed for decades, catchment-wide systems are only just being developed. Although further construction of major dams is unlikely, due to lack of sites and the high conservation value of any remaining sites, the downstream parts of rural water supply are still under construction, including the substitution of pipes for open channels and the conservation of natural river flow.

## Infrastructure for regional development scorecard – Rural water

AusCID rating = D–
Type of inadequacy = mainly catch-up (environmental rectification)
EconTech investment required = not assessed

- *Competitive Advantage / Catch up / Divestment*.

  Catch up – hard to control outcomes from regional perspective given pace of environmental change.

- *Social Consumption Dimension Indicator* – Inclusive.

**Capacity in the process of development**

- *Economic Advantage* – Rural industries use by far the greatest proportion of Australia's water (approximately 70 per cent of Australia's harvested water) to meet their share of economic output. With rural water supply subject to increasing price competition it is likely the strategic effectiveness in terms of water use between agricultural sectors will increasingly

drive the success or failure of agricultural output and regions. The competitive advantage of high rainfall regions may rise.

- *Availability* – Patchy; not needed in all areas.
- *Sensitivity* – Given the demand for 'quantity' of water in rural irrigation and agriculture generally, rural water supply must develop more effective water conservation measures and realistic pricing policies. Technologies to reduce waste are critical to maintaining performance and sustainability in the agricultural sector. It is possible to state that in general rural water supplies have been under priced, have not recovered costs and as a result have been subsidised through the taxation system. The under pricing of water has led to its overuse and subsequent land degradation and damage to land productivity.

**Effectiveness in the process of development**

- *Quality of Supply* – High variation, traditionally wasteful delivery networks over extended – technological solutions exist, but cost questions arise.
- *Price* – Increasingly cost based, with likelihood of further price increases in the future in an attempt to reduce consumption. Water will increasingly be treated as a commodity to create a market value for the resource.
- *Reliability* – Reflects supply and demand.
- *Environmental* – Reduced availability of water as a resource is likely due to environmental degradation and global warming. These effects are local and regional due to local land clearing and urbanisation combined with the impacts of regional land clearing, Australia wide land clearing and the additional impacts on climate change and rainfall caused by the destruction of forests in and the impacts of carbon emissions. The potential for localised correction are unknown. Further risk to rainfall patterns may be created by clearing of forests in Tasmania. Future land clearing in the Northern Territory will also create great additional risk in relation to changing rainfall patterns on the Australian continent. Precise impacts of these major changes to Australia's water cycle systems are unknown but past practice and outcomes are an indicator of likely results. Arguably, these impacts are cumulative rather than separate in their impacts so regional activity must be recognised as causing national effects. Understanding these impacts is crucial to allocating costs to those regions creating negative impacts on the nation's economy as a whole.
- *Investment* – The Council of Australian Governments' (CoAG) water reform framework states that 'future investment in new schemes or extensions to existing schemes be undertaken only after appraisal indicates it is economically viable and ecologically sustainable'.
- *Policy* – That rural water investment programs should at least recover direct costs and establish whether the project is expected to generate sufficient revenue, define the broader social benefits or costs and establish the community service obligation relating to the project.

**Form in the process of development**

- *Current Regional Capacity* – Australia's rural water supplies are particularly vulnerable to climate change and measures to improve conservation are inevitable.
- *Environmental Response* – Rural water infrastructure developments can be small, a small on farm dam or small pump on a river, to large water storages, weirs and irrigation systems. The assumption is that the larger the project then the larger the environmental impact. Environmental management responses to new projects include environmental assessments, environmental management plans and the subsequent monitoring of any developments to assess their environmental impact.

**Implementation in the process of development**

- *Increasing Capacity* – Likely not to increase, water availability will be increasingly hard to manage given the extremes of new environmental conditions. An example of increasing the capacity for rural water supplies is presented in a separate chapter in this report which deals with the Mallee-Wimmera Pipeline proposal.

- *Competitive Advantage Creation* – those regions that can conserve and supply water efficiently to high value adding agricultural activities will have created an advantage.
- *New Technology* – More efficient delivery systems to reduce waste, water use management systems including monitoring of moisture via sensors, for example, to ensure that the correct amounts of water are used.
- *Ownership* – Local water authorities.
- *Security* – Unknown and critical in some areas.
- *Maintenance* – Increasing as infrastructure continues to age.

## 8.8 Sewerage

Sewerage collection and treatment systems differ from water supply in that their main aim is to mitigate downstream effects. Effluent standards have long depended on these effects, with high standards for discharge into rivers from which water is drawn downstream, and low standards for discharge into the sea. Catchment management schemes are extending the coverage of these standards from mass treatment systems to include unsewered properties where discharges have downstream effects. Where mass treatment systems are available, it is required that properties connect to them (unlike gas or electricity, where connection is optional) and where they are not available standards may be enforced for alternative treatment systems.

### *Availability*

For equivalent quality of treatment, urban density determines the cost-effectiveness boundary between sewered areas and areas required to rely on individual-property treatment systems. Strictly speaking, this boundary should depend on water availability, water-borne sewage systems being more economic in areas where water is abundant, but in practice most towns now have water-borne systems.

The requirement that sewerage be installed as a condition of urban land development means that most areas which warrant sewerage are now sewered. However, it may still be possible to identify some areas which should be sewered and are not.

### *Reliability*

The chief indicators of unreliability in sewerage systems are leaks, whether from the pipes or from the treatment plant. Systems can also become unreliable if there is not enough water to operate them.

### *Quality*

From the viewpoint of the residents of a town, the quality of the sewerage system is inseparable from its reliability. From the viewpoint of people downstream, the quality is inseparable from the treatment standards. In turn, these are affected by what is put down the sewers, since treatment plants cannot cope with any but a limited range of industrial liquid discharges.

### *Price*

Sewerage costs have generally been recovered by a property tax, since measurement of volume and strength from individual properties has not been practical. In some jurisdictions the sewerage charge is

now a percentage addition to the water use charge, which contrary to all experience implies that water flushed is a constant proportion of all water used.

### *Quality of system maintenance*

System maintenance is a major concern, but comparative summary statistics on system condition are not available. Strictly speaking, the condition of a long-lived capital asset can only be determined by inspection, resulting in specification of a maintenance program required to bring the asset up to standard. A rough alternative, sometimes used at the all-system level, is written-down value calculated from past investment expenditure and an assumed depreciation rate. A further simplification is to resort to subjective measures, such as good condition and bad condition, or subjective assessment of the probability of failure. Another approach is to rely on the incidence of actual failure. However, major failure of the sewer system has such unpleasant consequences that authorities attempt to avoid such failures, and a quality measure which does not kick in until they have occurred is not sensitive enough.

## Infrastructure for regional development scorecard – Sewerage

AusCID rating = C–
Type of inadequacy = catch-up
EconTech investment required = $2.7 billion
EconTech rate of return = 9 per cent (with water supply)

- *Competitive Advantage / Catch up / Divestment* – Catch up.
- *Social Consumption Dimension Indicator* – Inclusive, fragmented.

**Capacity in the process of development**

- *Economic Advantage* – Mostly environmental.
- *Availability* – Most urban, some rural.
- *Sensitivity* – In some rural areas it may not be possible to build new housing without access to adequate sewerage arrangements. This may impact on future viability of small rural townships that do not have sewerage systems. New technologies will also provide more acceptable environmental solutions to areas not on mains sewerage systems.

**Effectiveness in the process of development**

- *Quality of Supply* – Uniform.
- *Price* – Local flat rates.
- *Reliability* – Usually high from the user point of view, but effluent standards vary.
- *Environmental* – Collection of waste and subsequent treatment produces beneficial environmental outcomes particularly if untreated waste was previously discharged directly into rivers or oceans.
- *Investment* – Urban complete except for extensions, new regional projects underway.
- *Policy* –Often related to infill sewerage programs which place greater emphasis on the need for reticulated sewerage as a means of eliminating the health and environmental risks posed by septic systems in both cities and country centres and to assist in orderly development and redevelopment of land.

**Form in the process of development**

- *Current Regional Capacity* – Reticulated sewerage systems need modern and technology

based treatment plants.

- *Environmental Response* – Reticulated sewerage systems are developed to mitigate environmental and health risks in both the local and broader environment. Consideration needs to be given to more effective use of grey water and water recovered after treatment.

**Implementation in the process of development**

- *Increasing Capacity* – Urban infill plus new schemes in regional areas.
- *Competitive Advantage Creation* – Areas with reticulated sewerage systems may have less constraints on new residential and business developments.
- *New Technology* – More efficient and environmentally effective treatment plants.
- *Ownership* – Local water authorities.
- *Security* – Good.
- *Maintenance* – Increasing as infrastructure continues to age.

## 8.9 Drainage

### *Availability*

As for water supply, drainage comes in urban and rural variants. The main reason for urban drainage is the prevention of flood (particularly the flash floods which are so easily generated by the high rates of urban runoff) while the main reason for rural drainage is the maintenance of soil condition. The latter is probably best treated as an aspect of rural water supply.

It can be assumed that at least rudimentary drainage is available in all urban areas.

### *Reliability*

Urban drains are not always equal to their task. An indicator of their adequacy would be the value of property damage due to flooding, per annum. Unfortunately this indicator is not reliable, since flash floods are generated by unusual weather events, and the rating of a particular system may depend on the recency of the last one-in-one-hundred-year storm.

### *Quality of supply*

Urban off-wash is sullied, particularly when it picks up pollutants and garbage from the streets and excess fertiliser from gardens. Drainage systems may be assessed for whether they observe best practice in removal of pollutants from storm-water.

### *Price*

Unlike other services involving water flows, there are often no single identifiable beneficiaries of drains. Except where particular properties are benefited (e.g. by drains which permit building on otherwise flood-prone land) there is no alternative to cost recovery from taxation.

### *Quality of system maintenance*

Because drainage systems are generally open, they are more easily inspected than most networks. A more crucial aspect is the maintenance of treatment systems, which should be adequate to major flow events.

## Infrastructure for regional development scorecard – Drainage

AusCID rating = D
Type of inadequacy = catch-up
EconTech investment required = $0.3 billion

- *Competitive Advantage / Catch up / Divestment* – Catch up.
- *Social Consumption Dimension Indicator* – Inclusive.

**Capacity in the process of development**

- *Economic Advantage* – Mostly environmental and flood mitigation, schemes such as the drainage strategy in the Murray-Darling Basin will improve water quality and save over 500,000 hectares of agricultural land from water-logging and associated salinity problems. Creates advantage by allowing utilisation of otherwise unproductive land.
- *Availability* – Urban good, rural patchy.
- *Sensitivity* – Crucial in rural areas to overcome water-logging and salinity problems and in urban areas to reduce risk of flooding. Systems to clean water of pollutants are required to achieve best practice standards.

**Effectiveness in the process of development**

- *Quality of Supply* – Much variation, partly related to variation in need.
- *Price* – Local flat rates.
- *Reliability* – Capacity generally adequate except in time of flood.
- *Environmental* – Beneficial in overcoming water-logging particularly in irrigation areas. Care required in planning process to ensure significant wetland areas are retained.
- *Investment* – Urban complete except for extensions, new regional projects underway.
- *Policy* – moving towards integrated management strategies to include drains, rivers and creeks. Litter management policies and water quality also form part of considerations in urban areas.

**Form in the process of development**

- *Current Regional Capacity* – Little change in prospect.
- *Environmental Response* – Rural drainage schemes to control water-logging and salinity levels and to prevent flooding in urban areas.

**Implementation in the process of development**

- *Increasing Capacity* – Urban extension plus new schemes in regional areas.
- *Competitive Advantage Creation* – Capacity to restore agricultural areas or degraded land and to provide required for further urban development.
- *New Technology* - Mostly management systems to remove pollutants from urban off-wash.
- *Ownership* – Local water authorities.
- *Security* – Good.
- *Maintenance* – Continues at steady rate, includes gutters and drains and maintenance of treatment systems.

## 8.10 Telecommunications

In many respects the battle for telecommunications is the bellwether of infrastructure development in Australia. The information "super-highway" and associated terminology all point to it as a key piece of modern infrastructure. Its modern forms of mobile and broadband are also perhaps the first type of

infrastructure development in Australia, which has emerged in an era of significant and rapidly growing regional inequality.

Many reports and inquiries by government and private groups alike have discussed the problems in telecommunications infrastructure. Everyone understands its importance to regional development, although there is debate about its merits alone in generating competitive advantage exist. What is clear is that regions with the greatest need for broadband and other high quality telecommunications at the lowest price are the ones who are the least likely to get it. For it is those groups who lack the local clustering, the physically based informal networks, the density of creativity communities and the world class social and education infrastructure which can benefit the most from high-speed communication which help removes the impendence of place.

Previous *State of the Regions* reports have highlighted all of the economic development trends which distance threatens. One the flipside we have noted that it is the local or tacit knowledge which helps create strong innovation, but only when it builds on the codified knowledge we all have access to. But without great telecommunications infrastructure we haven't all got access to the codified knowledge to begin building an innovative base from.

Over the past five years independent commentators such as Paul Budde has reported that the cost of broadbanding Australia would be in the order of 5 billion dollars[19]. But without an overarching vision of what is hoped to be achieved in terms of social and economic development such a cost will always appear too high.

Instead policy tends to concentrate on the issue of telecommunications infrastructure as a series of welfare initiatives. It can be termed "welfare based", because the initiatives recognise the need for infrastructure in regions[20], which could not be supported by direct market based approaches as a lack of economic capacity. Instead of considering a broader vision of the potential for strategic economic development which this technology provides, broadband is considered akin to roads; where political support can be generated, largesse is distributed.

### *Telecommunications Infrastructure*

Telecommunications includes a number of technologies.

- Free to air broadcasting.
- Long range radio broadcasting.
- Interpersonal communication using mobile technologies.
- Interpersonal communication using land lines only.
- Internet or data based services.

### *Availability*

The range of free to air broadcasting available across Australian regions has not recently been a matter of concern, though access to free to air broadcasts may become a matter of concern once again in the process of switching from analogue to digital broadcasting.

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[19] For example CNN Report, August 28th 2002 "Telstra profit slide disappoints investors".

[20] City and regional communities alike. There are many outer suburban and newly formed suburbs along with small rural town which have no access to broadband.

In principle, long-range inter-personal radio is available throughout the continent, but the restricted frequency spectrum and its inherent costs mean that it is effectively a mode of last resort in the remote areas. Inter-regional differences occur mainly with respect to land lines and short-range radio.

Land lines are available to all but the most remote settlements.

Outside the major cities, short-distance radio or mobile coverage is patchy. The position is complicated by the existence of several providers, whose areas of coverage are not the same.

The key element of the structure of regional telecommunication infrastructure is the lack of responsible independent bodies. The key to the successful determination and provision of improved telecommunications will be the role that local communities can take in the ownership or custodianship of the new capacity that telecommunication will provide. The role of government will be to support this growth and ensure through the various authorities that provide oversight that the technical details of this growth.

### *Reliability*

Telecommunications breakdown can be caused by the failure of switching systems, by the failure of land lines and by the failure of radio links.

### *Quality of supply*

Telecommunications links vary considerably in capacity. With the abandonment of the Morse telegraph, all systems currently in use are capable of voice transmission, but not all can transmit the volumes of data now regularly being sent from computer to computer.

A possible new direction is coming from the involvement of local councils. In the USA and Europe it was the local councils that either started, or were the key initiators in the cable TV network during the period between 1950 and 1970. Recent developments in Australia are seeing a higher level of involvement by the local councils in the development of regional cable TV networks. A legal ruling in late 2000 however, resulted in a short-sighted view to look at ways to tax the current players rather than on using their powers to develop new infrastructure projects for their communities.

### *Price*

Telecommunications costs are recovered from user charges. The former Telecom and its predecessors had a policy of geographically uniform charges, which involved cross-subsidies. With these at least partially withdrawn there may be a need to document geographic variation in prices. (The position here is akin to electricity.)

### *Quality of system maintenance*

The system comprises a mixture of short-life assets (exchanges, transmitters, receivers) and long-life land lines. Its condition is probably best represented by failure rates.

## Infrastructure for regional development scorecard – Telecommunications – Landline/Mobile/Broadband

AusCID rating = B
Type of inadequacy = both catch-up and strategic
EconTech investment required = nil

- *Competitive Advantage / Catch up / Divestment.*

  Mobile, catch up, strategic decision.
  Broadband catch up strategic decision.

- *Social Dimension Indicator* – Inclusive, likely to deviate to polarised.

**Capacity in the process of development**

- *Economic Advantage* – Costs of telecommunications are falling due to increased competition and technology benefits. Telecommunications, particularly broadband internet technology and its applications create ability to access new markets, improve supply chain integration and have the potential to create new business opportunities in rural as well as urban areas. Availability of high quality and fast telecommunications systems may attract global knowledge workers to areas that they were previously unable to access because of poor communications capacity.
- *Availability* – Urban good, rural patchy, broadband very patchy.
- *Sensitivity* – Rural areas may be disadvantaged because of slow roll out of high speed telecommunications infrastructure, the cross-subsidies from city users to develop rural telecommunications networks may be a thing of the past. Wireless technologies and other new technologies may create a more competitive telecommunications environment in urban areas at the expense of rural infrastructure development.

**Effectiveness in the process of development**

- *Quality of Supply* – Urban uniform, rural patchy.
- *Price* – Costs recovered from user charges, price subject to increasing competition in urban areas.
- *Reliability* – Urban uniform, rural patchy particularly the mobile network.
- *Environmental* – Perceived effects from mobile phone towers.
- *Investment* – Required for upgrade of rural systems, particularly broadband.
- *Policy* – Deregulation and privatisation.

**Form in the process of development**

- *Current Regional Capacity* – Mobile and broadband patchy – coverage is to be increased.
- *Environmental Response* – Appropriate positioning of mobile phone towers.

**Implementation in the process of development**

- *Increasing Capacity* – General upgrade of infrastructure particularly in some regional areas.
- *Competitive Advantage Creation* – Telecommunications technologies have the ability to create competitive advantage and those regions that are left behind in terms of modern and acceptable standards of telecommunications may be disadvantaged.
- *New Technology* - Technology driven sector, wireless technology is likely to have major impact in both urban and regional environments.
- *Ownership* – Most infrastructure is owned by Telstra. There is a clash between commercialisation of the telecommunications industry on one side and regional development aspirations on the other. Previous *State of the Regions* reports have clearly shown that sustaining and developing knowledge based societies is a vital part, and can only be supported with adequate infrastructure.
- *Security* –Some vulnerability.
- *Maintenance* – Significant maintenance costs for fixed line and other infrastructure, wide geographical spread.

## 8.11 Freight

Electricity carried in wires, and liquids in pipes, use specialised facilities which are generally managed as an integral part of the industry concerned. Until recently gas and electricity utilities owned their distribution systems, though the distinctions between consignor, consignee and carrier have now been introduced. By contrast, for general freight, we find that:

- the consignor-carrier-consignee difference is routine; and
- carriers are not usually the providers of the infrastructure used in carriage. The exception was railways, but a carrier/infrastructure provider distinction is being introduced even here.

Consignors and consignees of freight are almost always businesses, interested in getting value for their transport dollar, including:

- damage-free, theft-free transport;
- timely transport; and
- low freights.

Speedy, just-in-time service commands higher freight rates.

Carriers are also businesses, surviving in a highly competitive market. Competitive survival requires that they provide low-cost, reliable transport services. This competition results in intense pressure on infrastructure providers to build and operate public works which enhance the competitive position of carriers. At the same time, carriers are under competitive pressure to contribute as little as possible to infrastructure costs. In the case of rail, port and airport infrastructure, user charges maintain sanity in the relationship between infrastructure providers and carriers. These do not always achieve full cost recovery, but can in principle do so, and at least any subsidies are reasonably identifiable. By contrast, lack of user charges for roads introduces economic mayhem, worsened by the fact that roads are the primary on-land transport system.

User charges are not entirely absent from the road system: they are collected for a tiny but important proportion of Australia's road mileage in the form of e-tags and other tolls. The technology exists to broaden coverage, but there is very strong political opposition. One of the arguments put by this opposition is the claim that fuel taxes act as an effective user charge. This claim is defective for several reasons.

- The Commonwealth Treasury insists that fuel taxes are an excise and not a user charge. The High Court agrees: if fuel taxes were a user charge, it would be constitutionally valid for the states and local government to impose them, but since they are an excise within the terms of the constitution only the Commonwealth can collect.
- Fuel taxes are demonstrably not related to the costs imposed on the road system by any class of vehicle, or by any particular vehicle operating on any particular road. The amount raised is a Commonwealth budgetary decision, and no efforts are made to calculate costs, let alone recover them. (In this context, costs are different from expenditure on roads, and may be defined to include a return on road capital as well as maintenance and such operational costs as police and ambulance services.)
- Fuel tax revenue goes to the Commonwealth, whereas constitutional responsibility for road construction and maintenance lies with local government and the states. Recognising its dominant position in Australian public finance, the Commonwealth pays roads grants from its general revenue. In local government's case, these grants fall short of road expenditures, which are financed mainly from property rates.

The lack of direct user charges means that roads cannot be privatised (though construction and maintenance is routinely contracted out). Decisions as to where to provide roads, and to what capacity, are political rather than business decisions, whether or not they are informed by cost-benefit analysis. Government decisions on roads also impact on railways, shipping and airways. The whole area is inevitably one of public interest.

Despite these peculiarities of roads, the general transport modes share the following characteristics with the reticulated services.

- Service quality depends on that of the network as a whole. This continually focuses attention on weak links and black spots.
- General transport infrastructure is capital-intensive, and the assets often last indefinitely if properly maintained.
- The road system is a natural monopoly. No other system provides general transport access to all properties.
- For on-land transport, continuous corridors are required. This requirement is stronger than the easement requirements of the reticulated services. The provision of infrastructure for medium and long-distance transport regularly results in the erection of barriers to local transport. Unless they are built in tunnels or on stilts, arterial roads, railways and freeways have only occasional crossing-places.

These characteristics reinforce government interest in transport. Interest arises both in construction and operation of the system. Land subdivision includes road reserves. When systems are being augmented, governments assist with land resumption, adjudicating disputes and imposing design standards, especially with regard to environmental and severance effects. Governments are responsible for road service standards and for safety standards on the competing modes. This involves them in capital raising so that the infrastructure meets the standards they require. Road users are such a disparate lot that governments are continuously involved in adjudicating conflicting claims, right down to the detailed level of parking conditions, pedestrian crossings and right-hand turn arrows.

This diversity means that it is best to approach the quality of the land transport system from the point of view of each main class of user.

## 8.12 Bulk freight

Virtually all sea freight is bulk. On land, bulk freight may be defined by:

- loads of 20 tonnes or more, or 20 cubic metres or more, per vehicle, in conjunction; with
- flows of more than a thousand tonnes a day, though not necessarily on all days. Much bulk freight is seasonal, and much is not time-sensitive so that it can wait for a large payload to be accumulated.

Bulk freight comprises, first, commodities handled in specialised vehicles (hoppers, tankers, livestock carriers) and, second, small-consignment freight which takes on bulk characteristics by being loaded in containers. As usual there is overlap: bulk commodities can be carried in containers, and often are when the specialised loading and unloading facilities required for hopper transport are not available. Commodities which in large flows warrant pipelines can be sent as bulk freight for lesser flows, and slurry pipelines are sometimes proposed as alternative transport for minerals usually sent as bulk freight.

On land, there are two major modes handling bulk freight, public roads and railways. A third possibility is private roads, as are sometimes found in the timber and mining industries. From an economic point of view private roads have the advantage that all costs fall on the road owner, who is usually also the vehicle operator, and in a position to choose the combination of road standard, axle

loads and vehicle dimensions which minimises costs. They will not be further mentioned here since they are generally integrated with the owner's mine or forest.

Given that the defining characteristic of bulk freight is quantity, the need for bulk facilities arises when there are large quantities to be moved from particular origins to particular destinations. Reflecting the importance of commodity exports, a large part of the total bulk freight task in Australia consists of port-related traffic, which in turn may be divided into point to port traffic (bulk traffic generated at a mine or factory) and diffuse-source to port traffic (traffic gathered from a district to a receival point whence it is carried in bulk, the typical example being grain). Given Australia's pattern of trade, the big tonnages are exports, but bulk imports also arrive. Most of these are unloaded in the port-capital cities, but some (mostly in containers) find their way into inter-capital or up-country trade.

Additional bulk traffics include inter-capital containerised freight, conveyance of commodities for processing at manufacturing plants, and distribution of products from manufacturing plants. However, not many flows to and from Australian factories are large enough, and concentrated enough as to origin and destination, to qualify as bulk freight.

Different industries have very different propensities to generate bulk freight.

- The pastoral and fishing industries, including wool growing, generate very little. Their consignments are too small.
- Grain growing generates a lot. Not only is considerable tonnage produced; grain is not time-sensitive and can be held for shipment in large consignments. Export grain is always a bulk flow, but many domestic grain flows are too small to qualify as bulk.
- Timber also comes in large loads, comprising local loads to sawmills and paper mills, and port traffic in woodchips and woodchip logs.
- Other agricultural activities vary, with a tendency for heavy but perishable tonnages. In different ways this applies to dairy, sugar, orchards and market gardens. The traffic tends to be local. Though it may be carried in 20 tonne loads and more, it rarely satisfies the thousand-tonne a day criterion for any route.
- Iron ore, coal, bauxite and base metal mining generate heavy loads, and the economics of a mine depends heavily on transport costs. Most traffic is to ports. By contrast, gold and diamond mining generate negligible outbound freight.
- Petroleum refining and cement manufacture generate respectable levels of freight, but distribution tends to be too diffuse for the flows to be truly bulk.
- The steel industry generates bulk freight between its various facilities, and between them and the capitals.
- Most other industries generate little bulk freight save for long-distance traffic in containers. Short distance traffic is conveyed on a small-consignment basis. In particular, retailing depends on small consignments: individual loads may be 20 cubic metres or more, but they do not meet the criterion of a thousand tonnes a day.

With respect to bulk freight, Australia's LGAs may be divided according to their participation in bulk traffic flows.

- Those which generate, or have the potential to generate, port-oriented bulk traffic.
- Those (mainly metropolitan) LGAs with industries which do not generate or receive bulk freight in their own right, but participate via freight forwarding and containers in inter-capital bulk flows.
- Those which neither receive nor dispatch bulk traffic.

The adequacy of port-oriented bulk transport depends not only on the quality of the transport route (where cost and the capacity to handle large loads are important characteristics) but on the associated

storage and loading/unloading facilities. From a knowledge of industries, transport installations and bulk handling facilities it would be possible to develop a rough score, with points for:

- Closeness to port;
- Availability of heavy-haul rail;
- Availability of secondary rail only (the default option being road transport only); and
- Availability of state-of-the-art bulk handling terminals (the default being terminals/storage no longer appropriate for the area's bulk products).

By contrast, container traffic is usually time-sensitive, and important qualities are origin-destination speed and reliability in addition to price. Suburban LGAs differ in the time taken to access the inter-capital exit roads, rail terminals and the freight-forwarder depots where small shipments are made up into container loads. It would be possible to develop an index of time taken to urban exit points and terminals.

LGAs which neither receive nor dispatch bulk traffic can be identified from their industry characteristics and given a 'service irrelevant' score.

Some success stores in regional freight include the installation of new container terminals at Morwell and Boort and increasing the inter-modal traffic by more than10 per cent.


**Inter-modal, container terminal in Boort, 260 kms north of Melbourne.**

## 8.13 Small-consignment freight

Small-consignment freight is carried almost entirely by trucks and light commercial vehicles, though some goes long-distance by air. Long-distance small consignments which do not go by air are generally bulked-up into container loads.

Trucking costs can be analysed into those which, for a given truck, vary with distance (fuel and vehicle maintenance) and those which vary with time (the driver's wages, capital costs of the truck, inventory costs for the shipper and loading/unloading costs). Given the preponderance of time-variant costs, the faster the truck moves and the more it carries, the lower its costs per tonne-kilometre, hence an emphasis on speed and high axle loads when truckies assess road quality. However, the emphasis on high axle loads, hence high payload per driver, is most important in bulk freight. Though some heavy loads are carried, trucks bearing small consignments are notorious for their low level of capacity utilisation, and for them axle loads are not an important constraint.

If speed is the primary consideration for small-consignment freight, the quality of the local transport system could best be represented by the speeds attainable on the roads in each LGA primarily used for small consignments. By this criterion, the transport system is best in flat country and worst in the hills and in the cities. What speed does not take into account is length of journey: Tennant Creek lies on the fastest roads in the country, but is not a very convenient place for small consignments since most origins and destinations are far away.

Investors considering the convenience of a LGA from a small-consignment point of view are likely to take into account, not speed, but time-distance from likely consignment origins and destinations. Therefore the quality of roads is not independent of the developments served by the roads. Slow roads serving high-density origins and destinations can yield shorter time-distances than fast roads serving dispersed origins and destinations. And this is typically the choice. In the cities, trips are generally short-distance but speeds are low; in the country distances are longer but speeds are faster.

This suggests that road quality, from the point of view of the consigners and consignees of small consignments, should be assessed jointly with patterns of origin and destination. The basic approach, for each LGA, would be to draw up a list of roads relevant to small consignment shippers and consignees in the LGA, and assess speed on this list of roads. For a single business receiving small consignments, say a retailer, the relevant roads would be those on which stock for the shop is conveyed. Some roads would be more important than others: some would be used daily for the conveyance of supplies, while at the other extreme some might have merely potential relevance, that is, connecting alternative sources of supply which are not used at present. To give another example, a pastoralist would be interested in those roads which are used to bring supplies and those which are used to convey products to market, again with some roads of more interest than others.

Given a list of relevant roads, and assuming that consignors and consignees share transport costs (either paying directly, or indirectly through price effects) costs will depend on distances to be covered (distances from points of supply and distances to markets) and on speed. There are accordingly two ways to reduce trucking costs: increase speeds or shorten distances. Individual businesses have little control over speeds, and the chief means open to them to control their transport costs is accordingly choice of supplier and choice of market. They can also vary costs by varying shipment frequency, receiving and dispatching frequent small shipments or less frequent full truckloads. The shipment frequency decision will be affected by perishability and the value of stock in relation to transport costs, and also by both speeds and distances.

For this approach to the assessment of transport system quality to be of any use, it is necessary to generalise from individual consignors and consignees to the generality of small consignment demand for businesses in a LGA. The result would be a small-consignment accessibility index with a specified regimen of trips which reflects the origins and destinations of small consignments as a whole. The regimen would include a list of trips to/from port(s), airport(s), general manufacturing areas, retailers

and the like. It would be expressed in time-distances. It would be possible to specify a formula with a decay function which values nearby opportunities more heavily than distant. Where a LGA is large, it would probably be desirable to construct several indices, one for each major segment, and weight them according to the significance of each segment in freight generation and receipt.

The objection to such an index is that it measures more than just road infrastructure. The answer to this objection is that road infrastructure is useless without origins and destinations for trips – just as origins and destinations generate no trips without roads to connect them. It is unavoidable that freight road quality can only be measured in relation to patterns of road use. A major problem, however, is that there is a feedback from road speed to location patterns.

One of the interesting aspects of the freight accessibility index is that an initial improvement in the index due to the construction of a new road may be succeeded by a worsening. This, unfortunately, is inherent in road transport technology, and specifically in its land requirements. Why are speeds in the country high? Because as soon as traffic increases to the point where congestion threatens to develop, the road authorities expand road capacity. Quite often the expanded road is better and even faster than its predecessor. Why are speeds in the city low? Because when congestion increases, even amply-funded road authorities cannot afford the land to expand road capacity. They may also find themselves accused of neighbourhood or environmental destruction, which further limits their capacity to bulldoze new roads. Hence, areas with high density activities, which therefore have high densities of trip origins and destinations, have slow roads, and areas with low density activities have fast roads.

Two factors should be added to this simplified account.

- Trucks are as much the victims as the cause of congestion. On almost all roads they form a minority of total traffic, with the bulk of the traffic being private cars. If the cars disappeared, the existing road system would provide fast passage for freight even in high-density urban areas.
- Fast speed encourages developers to adopt low densities. Thus relatively high road speeds in the outer suburbs of the metropolitan areas (made possible by generous road reservations) have encouraged the development of broad-acre manufacturing and warehouses – single storeyed, with gardens and car parks, and with room for manoeuvre and expansion, the resulting job-density being much lower than their inner-urban counterparts. (This is not, incidentally, generally true of outer suburban residential developments, where lot sizes are similar to the middle suburbs.)

Taken together, these factors explain the typical speed-history of urban roads. Consider a new outer-urban arterial road, which initially affords high speeds at all times of day. When the road is opened, it does not affect our accessibility index very much, because it serves outer-suburban paddocks that do not contain many potential origins or destinations. However, the new road has two effects on journey patterns.

- The high speeds allow carriers to take advantage of additional destinations brought within reach, within reasonable time, by the new road. Traffic builds up because of trips diverted to pre-existing destinations which were previously too far away.
- Location patterns are similarly adjusted: new houses, factories, warehouses and shopping malls are built in areas made accessible by the road. Traffic builds up because of changes in the location of origins and destinations.

Our outer suburban paddocks are now filled with origins and destinations. The additional destinations will improve the freight accessibility index for our outer suburb, and the additional origins will increase its weight within the total metropolitan area. The index for neighbouring suburbs will also probably improve. To the extent that the metropolitan area has grown, with more origins and destinations in total, its index may improve, but to the extent that activity has re-located from other suburbs, the index for the suburbs of origin will worsen, due to reduced density of origins and destinations.

Then comes round three. Inevitably, traffic increases. Once the road reserve has been fully covered in bitumen, increases in road capacity cannot match any further increases in traffic, and congestion rises. Speed falls. The freight accessibility index for the new suburb may or may not fall: this depends on the balance between the falling speeds and increasing origin/destination opportunities. However, the index is likely to fall for the metropolitan area as a whole. This is alarming, because it means that road construction is not guaranteed to produce improvements in the quality of freight service, at least in urban areas where congestion is a reality.

## 8.14 Transport of people

People are not businesses. Quality in personal transport, therefore, cannot be assessed simply in terms of bottom-line effects. This adds further complexity to a task we found difficult enough for freight transport. Not only do we have to deal with feedback from speed to location patterns; we have to do so without a definitive indicator of what is preferred.

The demand for personal travel comprises two elements.

- Travel for its own sake, from walking for exercise to going for a drive.
- Travel as a derived demand, meaning that the travel is incidental to the geographic separation of activities. Travel from home to work is the standard example.

It is usually assumed that most travel is a derived demand, in which case time spent travelling is a cost in addition to any cash costs incurred. On this assumption, personal travel can be analysed in much the same way as small-consignment freight. The problem is that the subjective cost of time spent travelling varies greatly between individuals and trips. Where travel is for its own sake, the time spent is not a cost but a benefit. Where travel is a derived demand, the subjective cost of the time spent will be the higher:

- the more the travel itself is stressful (as, for example, driving in heavy traffic may be stressful, or bumping around in a plane in a thunderstorm);
- the less the opportunity for secondary activities which convert wasted time into useful time (e.g. groups travelling by car can converse; individuals travelling by air can eat, read or watch videos);
- the greater the urgency of the activity at destination – people who are running late seek to minimise travel time; and
- the more the travelling time intrudes into time for other activities. As a rule of thumb, when a regular daily commute exceeds half an hour each way the commuter is likely to be anxious about the time intrusion, and to wish that the journey can either be sped up or reduced in distance.

With these factors in mind we can consider the different types of transport infrastructure.

### *Pedestrian infrastructure*

Though motor vehicles carry the great majority of person-kilometres in Australia, walking remains the primary mode of personal transport. Drive-ins excepted, participation in activities at both origins and destinations requires motorists to walk to and from car parks. And not all personal transport requires motoring: it is possible to walk from origin to destination, and to extend walking distance by use of public transport.

The unsung benefit of walking is exercise. Walking is low cost, and is potentially both sociable and meditative. However, its speed is necessarily slow. This restricts walking to short trips and to the beginning and concluding sections of trips which involve other modes. It also means that the derived

demand component of total walking travel is small relative to other modes: exercise and pleasure are important pedestrian motivations.

A consequence of the short distances for which walking is a practical means of transport is that pedestrian potential is maximised in high density, mixed-use urban areas, where trip origins and potential destinations lie close together. It is also important that the footpath system should be direct and highly connective. Suburb layouts with boulevards and cul-de-sacs are not pedestrian-friendly. Where frequent crossings are not provided, pedestrian potential can be seriously curtailed by creeks, rail lines and arterial roads.

Basic pedestrian infrastructure comprises footpaths, which are usually beside roads but may go off by themselves, particularly in parks. Pedestrian traffic is generated when the walk is interesting and pleasant, as would be expected for a form of passive recreation. It is repelled when walking is dull, unpleasant or dangerous.

People are likely to differ in their view as to what constitutes dull walking: perhaps long straight streets with parked cars to one side of the footpath and unbroken walls on the other. Walking can also be made unpleasant by motor traffic, particularly the inseparable pollution. Dangerous walking has two main causes: motor traffic again, and antisocial individuals. When town planners first realised the incompatibility between pedestrians and cars they proposed Radburn-style separation, but this created lonely footpaths ideal for antisocial activity. The most common current view is that pedestrian amenity is compatible with moderate, low-speed vehicular traffic, which adds interest to precincts and adds to subjective security. It is not compatible with heavy fast traffic, particularly at close quarters. Congested streets, from a pedestrian point of view, are an intermediate case. Stopping and starting vehicles cause serious local pollution, but a congested road is relatively easily crossed, and is less of a barrier than one with constant free-flowing traffic.

It would require a large amount of information on footpath layout, vehicular traffic and origin-destination layout, all at a very local level, to construct indices of pedestrian potential. The chief interest would be to see how they diverged from measures of job/population density.

### *Cycling*

Cycling shares many of the benefits of walking, but is inherently less sociable and considerably faster: in distance covered within half an hour it is competitive with public transport and with motoring on congested roads. Historically, cycling was popular in flat cities like Adelaide and not at all popular in hilly cities like Sydney. Historically, again, cyclists were expected to share the road with vehicles, and were more vulnerable than pedestrians to death and injury as motor traffic increased.

Latent demand for cycling can be actualised by construction of cycle paths, and by traffic calming which reserves streets for cyclists plus limited, slow vehicular traffic. However, the cycling revival has probably not reached the stage where it is crucial in any comparison of infrastructure between LGAs.

### *Public transport*

Public transport is essentially an adjunct to walking which extends pedestrian range. In present-day Australia it has three roles:

- Provision of ‘social welfare’ levels of minimum mobility for those who cannot drive, or cannot afford to drive. The target groups include school children, the minority of adults who cannot drive (or who have lost their licences) and people for whom car operation would be a financial burden.
- Provision of alternative transport in high-density areas and for major events where motor vehicles are subject to severe traffic congestion.

- Provision of faster inter-city transport than is possible by car, chiefly by air.

### *Country public transport*

A rail service which matches car speeds over distances of one or two hundred kilometres will gain patronage, not only from non-motorists, but from those who find it less stressful and those who prefer to read or snooze rather than drive. However, it will not gain the patronage of those whose trip origins and destinations are off its route, nor from those who cannot adjust to its times of departure. In Australia traffic density is only sufficient to justify such services on radial routes from the capital cities to major provincial centres, and the services gain much of their competitive advantage from relatively fast routes through the suburbs, where cars are slowed by congestion. Beyond around three hundred kilometres air transport comes into its own.

Apart from such services, public transport in rural areas is provided mainly for minimum mobility groups, supplemented on some routes by tourists. Much service is specialised, particularly school buses and senior citizens' buses. The quality of service tends to be judged by whether it is possible to get from each little town to whatever major centre has a full range of medical services, attend an appointment and get back in a day. A possible indicator would be the proportion of an LGA's population for whom this is possible without resort to taxis, assuming a maximum walking distance of (say) two kilometres to the bus stop or station.

Historically, air transport charged high fares, but the discount operators have changed this on the high-traffic inter-capital routes. (Given the prominence of fuel in aircraft operating costs, reversal may occur if fuel prices rise.) A continuing disadvantage, inherent in the mode, is restriction to one or at the most two airports in each city. In all but the remote areas, airport access times restrict air travel to long-distance journeys. A second factor contributing to this restriction is the cost structure of air travel, with terminal, take-off and landing costs accounting for much of the cost of any trip. Accordingly, fares per kilometre taper strongly with distance.

From any LGA, air travel quality depends on access to airports and the service frequency and route availability once there. There is a major distinction between hub airports, most of which are in the capital cities, and feeder airports. Minimum traffic flows are necessary to justify a service, and most of the feeder airports are connected to just one hub. Australia has very little in the way of scheduled cross-country air services.

### *Urban high-density public transport*

Public transport differs from motoring in that it benefits from economies of scale. The greater the passenger flow, the better the service (providing capital is available for infrastructure). By contrast, the high land requirements of motoring have so far stymied attempts to serve high-density urban development with motor vehicles alone. Either the high-density centre is blown apart by freeways, streets and car parks, or traffic congestion becomes so severe that mobility can only be maintained by supplementing motoring with public transport, particularly for peak flows.

Currently the historic city centres and inner suburbs are the only high-density areas in Australian cities. This is true despite the fact that residential densities are fairly similar right to the urban fringe (though not into the hobby-farm belt beyond). The difference lies in the concentration of economic activity: in the CBDs and inner suburbs there is more activity than there are car parks; in the outer suburbs no activity centre is allowed to grow beyond the capacity of its car parks.

The question has been asked whether we need high-density urban centres. One answer, in Europe, Australia and Canada at least, lies in the property markets, which have lately been marking-up the high density areas. The rationale for this seems to be economics of global cities: high-density areas can accommodate a mixture of activities which is more productive than the same mix spread thinly. This

realisation has brought forth arguments that inner-city conditions should be created elsewhere, preferably without inner-city land costs. The case for this was most strongly stated in the Warren Centre's recent 'City of Cities' study.

The quality of public transport depends on the destinations served, as well as the speed, frequency and reliability of service. Rail transport has an advantage over bus in that it is steadier, and therefore it is easier for passengers to reduce their time costs by reading. It might be possible to draw up a regimen of destinations and construct a public transport accessibility index which covers service frequency and time-distance, perhaps with a factor reducing rail times to account for the better ride. One thing is certain: the index will heavily favour the inner suburbs.

### *Urban social welfare public transport*

A technically similar index could be used to measure social-welfare public transport services in urban areas, the difference being that local destinations are more important, as is route coverage. High-density public transport will often be accessed by park-and-ride or kiss-and-ride, but these are not so relevant for the social-welfare groups.

It is possible that the two indices might be put together.

## 8.15 Motoring

Much of what needs to be said about motoring has already been said under small-consignment freight. Basically, road improvements increase speed. This creates the opportunity to travel further within a reasonable time budget. The benefit of better roads is not, as popularly supposed, time savings, but longer commutes.

In the country, this means that people can live in one town and work in another; they can live on a rural property and work in town, or vice versa. They can live in one town and shop in another. The effect has been to centralise shopping in major towns. Towns which come under the retail shadow of major centres may survive as rural manufacturing towns, or tourist towns. As a last resort they provide low-cost accommodation for social security recipients. Better roads accordingly have strong distributional effects: capital gains and prosperity in the major towns, capital losses and decline in the bypassed centres.

Greater road speed also changes urban-rural relations. The faster the roads, the greater the distances which can be accomplished by semi-commuters: people who either live in the country and visit the city often, or the other way about. Some maintain two dwellings, or perhaps a country dwelling and a city office which they visit several times a week; others are weekend tourists. Many towns in the metropolitan penumbra, under threat of loss of retail trade due to faster roads, have been rescued by semi-commuters. Better roads in these areas seem to bring unequivocal benefits, with the chief complaints coming from traditionalists who expect a sharp division between town and country. Semi-commuters create a car-dependent countryside, which is fine for drivers, but is as restrictive for residents who do not drive, as with any belt of farmland, without the compensations of farm life.

Finally, better roads within cities also encourage longer distance travel. Some of the effects have been similar to those in the country. Small shopping centres have lost trade to large malls. Employers, particularly manufacturers, have been able to establish themselves at low-cost, peripheral locations without having to worry about attracting a workforce. Universities have developed outer-suburban campuses accessed primarily by car. However, there is an important caveat. Because car travel is land-intensive, requiring space both for roads and car parks, there is an upper limit to the amount of activity which can be incorporated into a car-oriented centre. As a result, and with one or two possible exceptions in each of Sydney and Canberra, Australia has yet to create a multi-purpose activity centre outside its historic CBDs and inner suburbs.

Dependence on private car transport thus prevents the development of competitors to the established CBDs. In the post-war period it was thought that activity in the CBDs would shrink to the level sustainable by car transport, but this has not happened. Instead, we now have the global-city hypothesis that high-density urban areas perform functions which cannot be replicated in car-linked dispersed centres. If this is the case, urban road construction can only be assessed in conjunction with the pros and cons of the urban pattern which it supports: fundamentally a choice between urban cities with limited numbers of high-density centres (including new high-density centres in addition to the CBD) and cities with no centre larger than a shopping mall, but lots of them, and lots of car travel into and between them. While retaining cars for inter-suburban travel, the cities with high-density centres would rely on walking and people-movers in the centres, and would avoid heavy investment in road access and parking for the centres by getting people in and out of them by public transport.

At a much more mundane level, urban roads are notoriously congested. The reason for this has been discussed when considering small-consignment freight, and arises because urban land is too valuable to provide enough roadspace so that all motorists can drive at the speed limit on any road at any time. Following construction of a new road, the same sequence arises as for freight: an initial improvement in accessibility, followed by traffic diversion and generation, much of the latter related to location changes which are a response to the speed available on the new road. As in the freight case, money spent on new roads cannot be guaranteed to reduce congestion, though it can be guaranteed to increase travel distances.

How, then, to assess road quality from a people-transport point of view? As for small freight, the obvious resort is to accessibility indices. For people-transport, these can be based on residential areas, and measure a regimen of time-distances, with a decay function to allow for choice between nearer and further destinations. Such an index has obvious high values in the centres of the metropolitan areas (high destination density is likely to overcome the disadvantage of slow road speed) and will have obviously low values in remote areas. It may be possible to regress the index against major drivers (such as distance from a CBD – the regression probably not being linear) and interpret the deviations as covering matters more under local control. The indices have a close relationship to those proposed, above, for public transport. In present-day cities they will demonstrate the superiority of motor-accessibility over public transport, but as soon as restrictions are placed on motoring as a means of access to high-density areas, thus superiority is no longer guaranteed.

Another approach might consider the question of surplus roads. These are a familiar rural phenomenon, where farm consolidation has removed the need for many nineteenth century access tracks. Some of these have already been closed, and more could be. There is also the question of appropriate standards for rural access roads. Except perhaps where a remote property is tens of kilometres from a main road, the appropriate standard is likely to include all-weather access, but need not include guaranteed fast speed. The question then arises whether some roads are being maintained at a higher standard than is required for access purposes, essentially as short cuts. The time savings for short-cut traffic do not necessarily justify the maintenance cost.

In urban areas the distinction between access and arterial roads is increasingly being enforced at the behest of neighbourhood groups which object to traffic in their street. Frontage onto an arterial road, or a rat-run, is a strong negative for house values. Theoretically at least it would be possible to calculate the proportion of dwellings in a LGA which are traffic blighted; that is, subject to more than a threshold level of traffic volume, noise and pollution, or to a level which reduces value. This could be treated as an offset to the accessibility index.

## Infrastructure for regional development scorecard – Road network

AusCID rating = national roads C, state roads C–, local roads D
Type of inadequacy = mostly catch-up, some strategic
EconTech investment required = $10 billion

EconTech rate of return = 12.5 per cent

- *Competitive Advantage / Catch up / Divestment* – Catch up plus reduce current inventory.
- *Social Consumption Dimension Indicator* – Inclusive.

**Capacity in the process of development**

- *Economic Advantage* – Roads provide infrastructure for a diverse range of commercial and private transport. By creating improved and fast access, new major road projects, can transform regions or previously difficult to access urban areas in terms of land value and shaping economic activity. Funding models are increasingly flexible and allow public or private participation.
- *Availability* – The road network may be over extended in some regions and hence a disadvantage through excessive maintenance costs.
- *Sensitivity* – Maintenance costs of extensive road networks particularly in rural areas where roads may be under utilised and require bridge infrastructure which also needs to be maintained. It is important to determine the most appropriate maintenance cycles to keep maintenance costs at a minimum. Pressure to develop toll roads to shift risk from public to private sector and associated public resistance to these developments. Increasing congestion on major roads is the price of keeping them toll-free.

**Effectiveness in the process of development**

- *Quality of Supply* – Much variation.
- *Price* – Usually no direct cost recovery although technology now makes toll collection effective and cheap to implement.
- *Reliability* – Mostly reasonable.
- *Environmental* – Heavy freight might be more appropriately transported by rail.
- *Investment – AusLink* local roads policy requires funding from other parties other that the Commonwealth government.
- *Policy* – New projects assessed on the basis of their strategic benefit in terms of enhancing the ability of regional industries and communities to compete in national and global markets, the project should target a local transport link of regional significance.

**Form in the process of development**

- *Current Regional Capacity* – Extensive and in some cases may be over supplied.
- *Environmental Response* – New road design standards are generally high with major new road projects designed to blend into the landscape with more sensitivity. Extensive tree planting in corridors adjoining major new road developments.

**Implementation in the process of development**

- *Increasing Capacity* – Increased efficiency of road systems, the use of new technology to enable more efficient solutions, new works based on strategic assessments. However, without road pricing it is difficult to arrange efficient supply.
- *Competitive Advantage Creation* – Strategically planned to provide best possible linkages to regional, national and global markets.
- *New Technology* – Traffic management systems, which may include freight priority.
- *Security* – Road safety issues relating to design standards, maintenance, driver stress and road system reliability.
- *Maintenance* – Good road maintenance practice is essential in reducing the need for capital expenditures associated with rebuilding. Targeted maintenance polices, that is, additional attention and expenditures for major routes will be beneficial in terms of overall lifetime costs and also safety.

**Bulk grain train approaching Lake Grace**

## Infrastructure for regional development scorecard – Passenger network

- *Competitive Advantage / Catch up / Divestment* – Catch up plus reduce current inventory.
- *Social Consumption Dimension Indicator* – Inclusive, some fragmentation.

**Capacity in the process of development**

- *Economic Advantage* – Good rail access in urban areas reduces road congestion, provides increased safety and rapid travel time for commuters removed from congested road systems during peak hours. Fast passenger services to regional areas allow access to employment and educational opportunities and influence development in outlying areas. Tram networks, particularly in Melbourne, have proved long-term and sustainable contributors to the urban transport system.
- *Availability* – Generally good but many urban transport systems need to catch-up with outer urban developments.
- *Sensitivity* – Sometimes under-staffing issues may cause problems with fare collection, vandalism and safety. Determining the most appropriate maintenance cycles to keep maintenance costs at a minimum.

**Effectiveness in the process of development**

- *Quality of Supply* – Much variation in infrastructure condition.
- *Price* – Usually reasonable and in some instances, given infrastructure maintenance and running costs, may be unrealistic in the long-term.
- *Reliability* – Mostly reasonable.
- *Environmental* – Usually energy efficient and relatively clean.

- *Investment* – Systems could be improved through higher levels of investment with speed and service quality key determinants of usage. Significant improvements to linkages could only be expected with large levels of investment.
- *Policy* – Probable move towards outsourcing management of various aspects of the rail network following the British model, which is not regarded as successful, issues relate to quality and sustainability of services as well as issues of maintenance, safety and cost.

**Form in the process of development**

- *Current Regional Capacity* – Adequate, under-supplied in outer urban areas.
- *Environmental Response* – Build improved freight service to target more goods transport. Continue to upgrade trains to improve environmental standards.

**Implementation in the process of development**

- *Increasing Capacity* – Investment priorities are increased capacity on commuter routes, especially in Sydney.
- *Competitive Advantage Creation* – Strategically planned to provide best possible linkages to regional, national and global markets and transport hubs. Rapid and efficient journey to work times.
- *New Technology* – Greener, cleaner, more energy efficient modes of transport.
- *Security* – Urban rail systems and associated rolling stock subject to high levels of vandalism which also spreads from railway corridors to domestic and commercial building stock and other public, often local government infrastructure. Rail travel is sometimes unsafe at night, both during travel and at stations and their surrounds, because of inadequate levels of supervision to ensure passenger safety.
- *Maintenance* – Extensive maintenance required, particularly on ageing urban rail networks.

## Infrastructure for regional development scorecard – Freight network

- *Competitive Advantage / Catch up / Divestment* – Catch-up.
- *Social Consumption Dimension Indicator* – Inclusive, fragmented.

**Capacity in the process of development**

- *Economic Advantage* – Rail transport provides significant benefits in regard to the bulk transport of manufactured goods and agricultural produce, particularly on long distance routes. The National Road Network provides improving road transport links, but places passenger and large freight vehicles together.
- *Availability* – Closure of some regional lines but improvements to National Network including the opening of the Alice Springs to Darwin line, as well as continuing improvement programs for major highways.
- *Sensitivity* – Maintenance costs of extensive rail networks, particularly in rural areas, where rail may be under-utilised and require bridge and other infrastructure which also needs to be maintained. Damage to roads caused by heavy freight vehicles. Determining the most appropriate maintenance cycles to keep maintenance costs at a minimum.

**Effectiveness in the process of development**

- *Quality of Supply* – Much variation in infrastructure condition.
- *Price* – Cost recovery – see AusLink chapter for coverage of cost recovery issues and what costs are to be recovered. Low returns.
- *Reliability* – Mostly reasonable.

- *Environmental* – Heavy freight might be more appropriately transported by rail, conserves energy, reduces pollution and enhances safety in relation to volumes carried.
- *Investment* – New approaches such as the investment strategy for the Alice Springs to Darwin railway project which is being managed as a Build, Own, Operate and Transfer Back (BOOT) scheme, with lease arrangements covering a 50 year operation period before the railway is handed back to the Northern Territory and South Australian Governments.
- *Policy* – Inter-model co-ordination, provision of upgraded inter-capital connections to reduce cost of inter-capital flows, problems ahead for adequately funding enhanced export flows, particularly ports. Priority for small consignment freight flows in metropolitan Melbourne.

**Form in the process of development**

- *Current Regional Capacity* – Adequate.
- *Environmental Response* – Build improved rail freight services to target more goods transport. Continue to upgrade trains and road transport to improve environmental standards.

**Implementation in the process of development**

- *Increasing Capacity* – Investment priorities at increased speed.
- *Competitive Advantage Creation* – Strategically planned to provide best possible linkages to regional, national and global markets and transport hubs.
- *New Technology* – Mostly related to improving environmental outcomes and performance.
- *Security* – Economic security of investments depends upon environmental trends, competition, technology and environmental assessments on competitiveness of different technologies.
- *Maintenance* – Extensive maintenance required on rail and road systems.

AusCID rating for the rail network = D–
Type of inadequacy = both catch-up and strategic
EconTech investment required = $8.06 billion
EconTech rate of return = 12.5 per cent

## Infrastructure for regional development scorecard – Ports

AusCID rating = B
Type of inadequacy = strategic
EconTech investment required = nil

- *Competitive Advantage / Catch up / Divestment* – Catch up plus strategic decision.
- *Social Consumption Dimension Indicator* – Fragmented.

**Capacity in the process of development**

- *Economic Advantage* – Major trading ports in Australia have been developed to handle bulk export of agricultural and mineral production with major city ports handling a range of exports and imports of manufactured goods and components or ingredients for local manufacture. Landside transport links, particularly rail, are critical in completing the infrastructure network for effective import and export of goods. Ports must operate and

compete to international standard otherwise they impact on the competitiveness of Australia's exports as a whole. They are a critical component of the integrated supply chain. There has been a continuing trend of reform and productivity increases at Australian Ports.

- *Availability* – All states and include trading ports, specialized trading ports, non trading ports and community ports.
- *Sensitivity* – The major trading ports will be subject to changes to shipping fleets including size of ships. The need to remain competitive will mean that major trading ports will have to provide the required infrastructure, technology and facilitate deepening of shipping lanes. Other issues relate to land side services and freight efficiencies and proper access to rail.

**Effectiveness in the process of development**

- *Quality of Supply* – Much variation depending on type of port but considerable modernisation in major trading ports.
- *Price* – Competition between ports controls price.
- *Reliability* – Mostly reasonable.
- *Environmental* – Greater move to creating landscaped environments, pollution control around ports.
- *Investment* – Required to keep up with shipping trends. Some ports may have to be downgraded.
- *Policy* – Include an increasingly strategic view which includes consideration of port development as part of the greater integrated supply chain by facilitating improved links to and from the port and improving logistics capabilities, security and new technologies.

**Form in the process of development**

- *Current Regional Capacity* – Mostly good.
- *Environmental Response* – Close monitoring of discharges and oil spills, emergency clean up response plans in case of major disaster.

**Implementation in the process of development**

- *Increasing Capacity* – Capacity increased by major channel works, port development, introduction of new technologies and improved goods handling and logistics.
- *Competitive Advantage Creation* – Efficient ports impact on the competitiveness of Australia's exports, particularly in the mass export of primary production with no value adding. Best practice includes effective integration of land and maritime operations, improving global market intelligence to meet competitive pressures, ensuring that capital investment is sufficient to allow for competitive pricing, improved relations between parties including stevedores and shipping lines to maximise output and development of long-term planning framework covering a port wide economic and physical integrated approach.
- *New Technology* – Security measures, goods tracking, new goods handling and logistics systems and a more integrated global approach.
- *Security* – New security measures `being introduced including scanning facilities.
- *Maintenance* – Essential to maintain competitiveness and safety.

## Infrastructure for regional development scorecard – Airports

AusCID rating = B
Type of inadequacy = strategic
EconTech investment required = nil

- *Competitive Advantage / Catch up / Divestment* – Catch up plus strategic decision.
- *Social Consumption Dimension Indicator* – Polarised.

**Capacity in the process of development**

- *Economic Advantage* – Good access to airports enhances global connectivity for business and provides access for overseas travellers to the region. Airports also provide access to airfreight services for high value export production ranging from fresh agricultural produce and high tech manufactured goods. Airport infrastructure can attract investors directly and are those that want to locate businesses close to the airport. Global knowledge workers also require proximity to airports for access to international markets.
- *Availability* – Generally good.
- *Sensitivity* – Expansion of major airports can become a difficult process as in the case of the still unresolved plan to expand Sydney Airport. Local opposition, particularly in built up areas, can often be successful at stalling progress of airport development and increased capacity. Unresolved airport infrastructure upgrades can lead to major congestion and subsequent negative economic impacts. Politically, airport development is a no win situation and this dimension is a major barrier to progress in resolving the situation in Sydney. Capacity for major airports to take larger long haul jets, both runway and docking facilities, will shortly be required.

**Effectiveness in the process of development**

- *Quality of Supply* – Much variation from major international to regional airports and outback station landing strips.
- *Price* – Cost recovery from charges to airlines.
- *Reliability* – Mostly high.
- *Environmental* – Noise pollution and noise abatement policies are major factors particularly on take-off and landing.
- *Investment* – Catch-up with aircraft requirements.
- *Policy* – Major airports have been privatised and the policy is to protect the investors' returns. Changes to technologies.

**Form in the process of development**

- *Current Regional Capacity* – Good.
- *Environmental Response* – Quieter and more fuel efficient aircraft, carefully planned take-off and landing procedures and curfews to assist in noise abatement. Many of Australia's airports are away from residential areas and do not have to deal with the same issues that face Sydney Airport.

**Implementation in the process of development**

- *Increasing Capacity* – Most urgently required for Sydney.
- *Competitive Advantage Creation* – Strategically planned to provide best possible linkages to national and global markets.
- *New Technology* - Air traffic control systems and more efficient aircraft. A trend towards far larger aircraft on international routes.
- *Security* – Upgraded at major airports, regional airport security not as high.
- *Maintenance* – good at major airports.

# 9. Infrastructure impacts: accessibility to employment and retail services

As explained in Chapter 8, the benefits from investments in infrastructure for bulk freight transport are fairly easily identified, and generally derive from reduced costs. Other things being equal, these increase the profitability of regional bulk commodity production. It is much harder to be precise about the benefits from investments in infrastructure for small-consignment freight transport and equally difficult to assess the benefits from investment in passenger transport infrastructure. As explained in Chapter 8, the reason for these difficulties is that transport improvements invariably result in changes in patterns of location. These changes do not always enhance the benefits of the transport investment; they quite often detract from the benefits.

A crude measure of the benefits from investment in passenger transport infrastructure is the increase in speed as a result of such investments. This measure underlies the 'time savings' approach to benefit assessment, and is vulnerable to the criticism that people do not use speed to save time, but rather to increase distance travelled. In Chapter 8 we argued that it is better to assess improvements in passenger transport and small-consignment freight transport in terms of additional destinations accessible from the trip origins served by the investment, and also the additional trip origins accessible from the destinations served by the investment – in other words, assess its contribution to the economics of agglomeration.

It is not possible to assess transport investments without a base case against which the improvements can be measured. This Chapter reports preliminary work to develop base-case measures on an all-Australia basis.

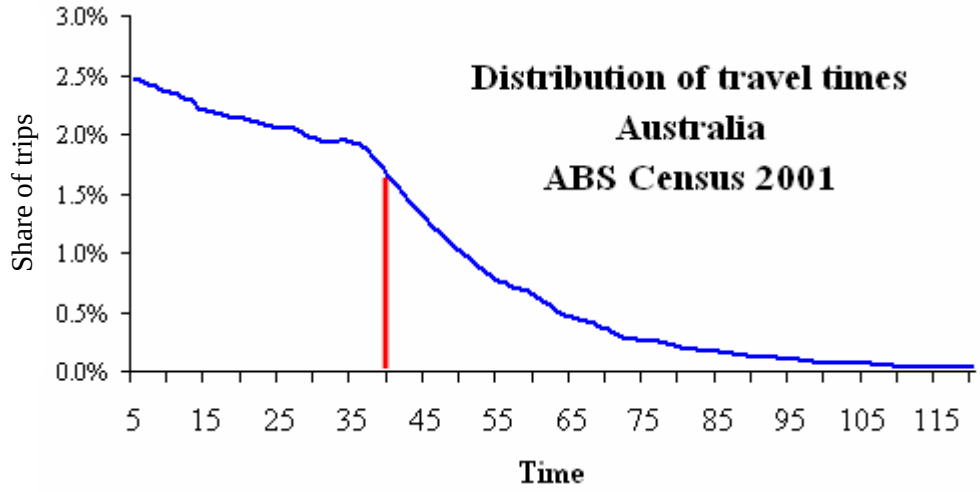
## 9.1 Accessibility measures

Accessibility measures describe the relative level of access to resources between regions. In the research presented in this section the YourPlace database is utilised to measure the level and quality of employment available to businesses and households within Australian regions.

The following series of measures at the ABS Statistical Local Area (SLA) have been calculated.

- The total number of jobs (employment positions at location of work) accessible from each SLA within various catchments defined by travel time. This measure is relevant to workers deciding where to live.
- The total number of workers (at place of usual residence) within various catchments accessible from each SLA defined by travel time. This measure is relevant to employers deciding where to locate in order to attract a suitable workforce.
- Based on revealed travel times within Australia, weighted access measures which determine the effective level of access to jobs or workers.
- Weighted access measures, which also take into account the jobs available by industry in each location and how they relate to the industry requirements of the residents of each SLA.
- Weighted access measures which also take into account the workers employed by industry and how they relate to the industry requirements of the businesses of each SLA.
- Weighted access measures of jobs and workers based on the occupational needs of residents and businesses for each SLA.
- Additional weighted access measures which determine the level of access to global knowledge jobs for each SLA.

The weighted access measures utilise the revealed behaviour of workers in respect of their travel times. The revealed travel times are shown in the following graph. From the graph it is clear that there is a significant tailing off of workers travelling greater than 40 minutes.




The travel time measures that have been used in this analysis are based on the "door to door" travel times. As such they include not only the travel time, as estimated by a commercial courier peak travel time software program, but also consideration of walk wait times and internal distances within a specific geographical region. To determine the appropriate points within each geographical area in which to measure distances a population based measure of centrality is used to identify relevant suburbs.

The analysis of travel time also includes public transport options which exist between all locations[21] in Australia. Where public transport options represent a faster option, for instance travel to CBD locations from well connected suburban nodes, the travel time used for calculations will be the public transport option.

The walk wait times used depend on the level of service provision in the case of public transport and the level of local parking and congestion in the case of private car options. For instance in CBD locations the walk wait time includes an appreciation of the parking requirements associated with "door to door" travel. On the other hand an outer suburban location with private off-road parking the walk-wait time is considerably less.

For each measure, the score for each SOR region is the weighted average of the SLA scores. As usual, these weighted averages conceal considerable intra-regional variation.

### 9.1.1 Total jobs accessibility

**"Inner Melbourne has far and away the highest accessibility to jobs."**

Our accessibility measures are reported in Appendix 1. The simplest measure to interpret is the number of jobs accessible within 30 minutes' travelling time from the houses of a region. The measure confirms the obvious: the number of jobs within half an hour is much less for the rural/small town regions than for the cities. Again, within the cities the number of jobs accessible from the outer suburbs is less than from the inner suburbs. However, there is interesting variation between the metropolitan areas. At the half-hour travel

[21] The 1340 Statistical Local Areas used in the 2001 Journey to Work matrix.

time limit, Inner Melbourne has far and away the highest accessibility to jobs, at 240 000 jobs on average. A couple of Melbourne suburban regions follow, then Central Adelaide, Central Perth, Brisbane, Global Sydney and ACT follow, with accessibility ranging from 98 000 down to 86 000. The Gold Coast is not far behind. Suburban regions in Melbourne, Adelaide and Perth in general do better than those in Sydney and Brisbane.

If the accessibility time-limit is extended to an hour, the number of accessible jobs increases, although in the rural regions it generally does not increase by much except in regions where an extra half-hour's drive allows workers to access additional towns beyond their home base. Extending the time allowed increases the jobs accessible from the metropolitan outer suburbs. The smaller capitals start to fall behind Melbourne and Sydney, reflecting their smaller total job numbers, but Sydney suburbs in general have worse accessibility to jobs than Melbourne. However, even at an hour's travelling time job accessibility from Sydney Outer South West, Sydney Outer West and the Central Coast, is significantly less than from Richmond-Tweed in NSW (which has access to the Gold Coast) and from Barwon in Victoria. This poor accessibility improves at the very long work journey time of 100 minutes, but at this time cut-off remains much less than anywhere in Perth, anywhere in Adelaide, anywhere in Melbourne (and Barwon for that matter) and anywhere in Brisbane.

These scores are summarised by the accessibility factor, which includes all jobs up to those 100 minutes away at weights which diminish with time-distance. This factor confirms that job accessibility in Sydney is generally less than in Melbourne. It would be tempting to blame this on lack of investment in Sydney's transport infrastructure, but it is more likely that the poor accessibility is the price of Sydney's glorious site. The Harbour is beautiful to look at but reduces accessibility. The hills and swamps which surround Brisbane have much the same effect.

As would be expected, total jobs accessible from residences within the travel-time limit declines sharply from the city centres outwards. Three examples are shown in the table below: Melbourne Westernport, as an outer suburb, has poorer accessibility to jobs than inner-metropolitan regions, but better than rural regions (which have SOR ranks below 14). The total number of workers, accessible to employers within any travel-time limit, declines with distance from the city centre. However, the balance of the two measures does not exhibit this pattern. By and large, rural areas have a rough balance of jobs accessible to workers and workers accessible to employers. Central areas like Global Sydney and Sydney Inner West have a high ratio of jobs accessible to workers compared with workers accessible to employers, reflecting the high concentration of employment in these regions. Outer suburbs like Melbourne Westernport have a high concentration of workers accessible to employers compared with jobs accessible to resident workers, reflecting the typical outer suburban dilemma that local job provision has not caught up with residential expansion.

| Region | Total jobs accessibility | SOR rank | Catchment jobs to workers score | SOR rank |
|---|---|---|---|---|
| Global Sydney | 809 | 5 | 1000 | 1 |
| Sydney Inner West | 895 | 2 | 966 | 2 |
| Melbourne Westport | 535 | 14 | 0 | 64 |

### 9.1.2 Industry and occupational matched accessibility

In measuring general levels of accessibility to total jobs there is a problem that the jobs to which you have access may not necessarily match the type of industry or occupations in which you are qualified to work. Take, for instance, the western suburbs of Melbourne, which have quite good access to total employment which including the jobs in the CBD of Melbourne. However in general, many of these CBD jobs are not in the industry which the workers who live in the western suburbs require work in.

Alternatively, in newly developed outer-suburban locations, which do not have tremendous access to jobs in general, due to their distance from economic activity, the workers living in the area are likely to be well matched to the types of industry which provide local work. This result is, of course, due to the selection bias which relates to the decisions to live in such suburbs, the consideration being cost and access to employment likely to sustain the purchase of new housing.

Insight into these matches and mismatches is provided by comparing the general level of access to employment with the relative levels of access after correcting for the occupational structure of the residents. In general city regions are characterised by exceptional relative access to total employment which matches the skills profile of their residents. Whilst some of these areas also represent quite strong matches to industry profiles as well, this is not always the case. Consider the following table.

| Region | Relative occupation accessibility factor | SOR rank | Relative industry accessibility factor | SOR rank |
|---|---|---|---|---|
| Global Sydney | 888 | 5 | 8 | 18 |
| Sydney Inner West | 647 | 14 | -1000 | 64 |
| Melbourne Westport | 784 | 7 | 981 | 2 |

The balance that exists in country regions, between total jobs accessible to resident workers within a travel time limit and total workers accessible to employers within that time limit, is not much disturbed by taking occupation and industry into account. The main differences occur in regions of high commuter activity, where it is commonplace for people to live in one region and work in another. On an occupational basis, it can be seen from the table that the skills of resident workers and the skill requirements of jobs in Global Sydney are well matched, basically because only people with matched jobs elect to pay the high housing costs of the region. Something similar occurs in Melbourne Westernport. People move to these suburbs only when their skills match the jobs locally available. To a lesser extent it is true of Sydney Inner West. The same is true of matching by industry, with the striking exception of the Sydney Inner West, where the industry composition of resident workers matches very poorly with the demands of local employers. Two reasons may be identified for this, first, the Sydney Inner West has been settled for a long time, and many of its residents will have chosen to live there at a time when the industry match was more favourable and, second, many Sydney Inner West residents work in the CBD, despite the region's moderately poor accessibility.

## 9.2 Retail accessibility

The importance of accessibility to the creation and sustaining of vibrant, large and diverse retail centres should not be underestimated. Similar to other issues in infrastructure, there can be a debate concerning which factors lead and which follow. Concerning retail and economic advantage, does retail follow or does it play a role in leading economic advantage?

In previous *State of the Region* reports, a case has been made that high-skilled, innovative, high human capital people make residential locational decisions based on diversity, vibrancy and amenity. Regions with large scale retail within close proximity typically exhibit the kind of diversity and vibrancy likely to attract high-skilled people to the region. It is also known that high-skilled, talented people value their leisure time. Regions with a spread of retail options within close proximity further strengthen their attraction to this section of the population.

The indicator is based on two key determinants – proximity and scale. The Australian and New Zealand Standard Industrial Classification (ANZSIC) allows statistical analysis to be undertaken at the regional level on workers in certain industries. The retail accessibility indicators National Economics has developed are based on the 44 retail ANZSIC classifications.

### 9.2.1 Shop Till You Drop Indicator

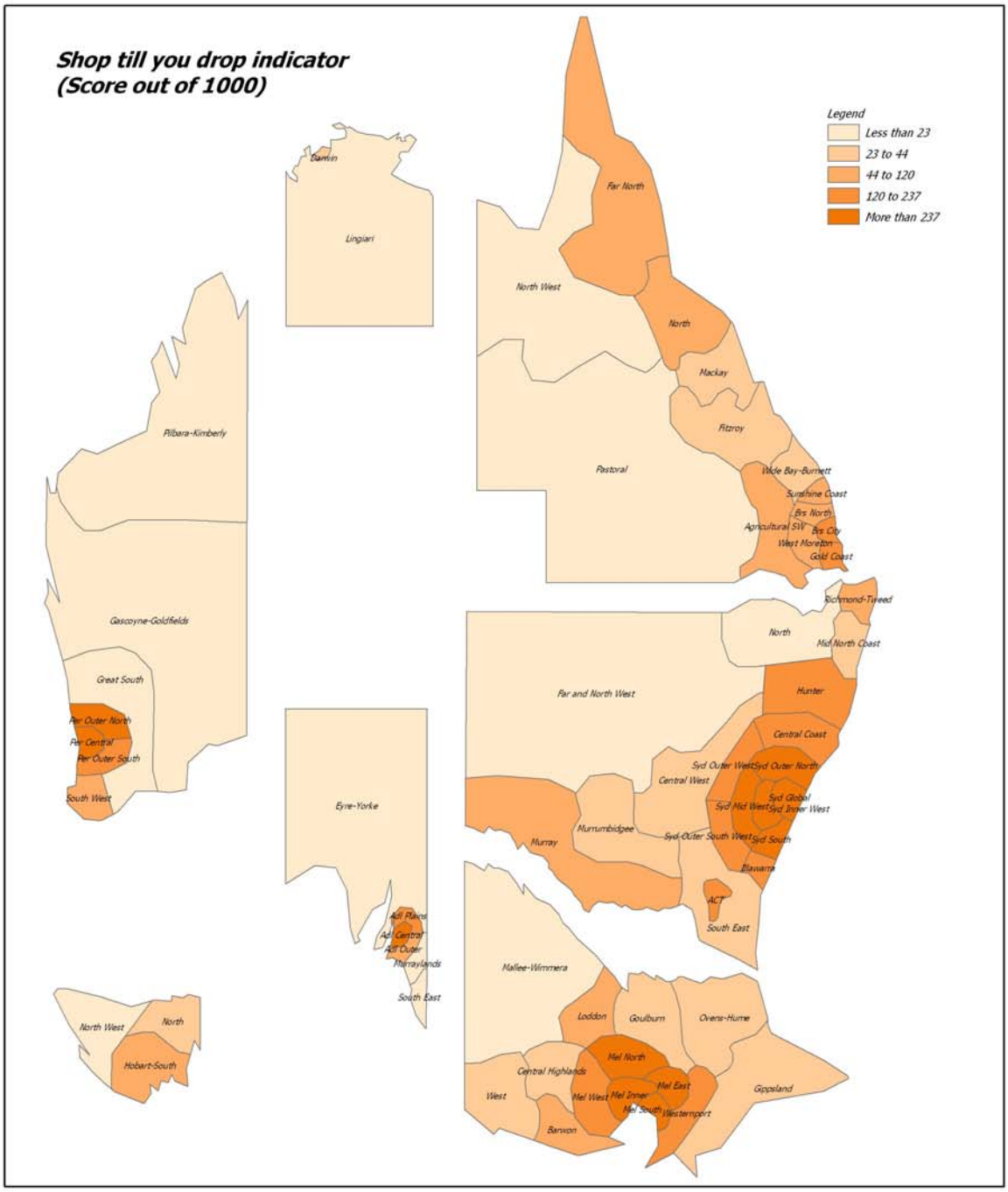
The Shop Till You Drop indicator analyses the average proximity to retail using the number of workers in the 44 specific ANZSIC classifications as a proxy. This indicator is derived by calculating the average proximity to a minimum of 300 supermarket and grocery store jobs (ANZSIC code 5110), and a minimum of 100 retail jobs in each of the other 43 retail classifications. A score is given to each region out of 1000 which is based on both the distance to the minimum number of jobs and the actual number of jobs.

For the LGA of Bayside, the average proximity to the minimum number of retail jobs is 7km. However, by travelling this distance, you actually access twice the minimum number of jobs. Therefore when calculating the score for the region, not only distance but scale (i.e. number of retail jobs) are the key determinants. If a region can access more jobs in the same distance than another, then the region will score higher. If a region can access the same number of jobs in a closer proximity then the region will score higher. The score is an index so a region with a score of 200 has twice the accessibility to retail jobs as a region with a score of 100.

Table 9.1 shows the top and lowest performing SOR regions for the Shop Till You Drop Indicator. Not surprisingly the inner regions of Melbourne and Sydney are the highest performing regions in Australia due to both their proximity and their scale. The lowest performing regions are the isolated outback regions of Western Australia, the Northern Territory, Queensland and South Australia.

**Table 9.1 Shop Till You Drop Indicator (score out of 1,000)**

| Top 5 | Score | Bottom 5 | Score |
|---|---|---|---|
| Melbourne Inner | 1000 | WA Pilbara-Kimberly | 1 |
| Global Sydney | 749 | NT Lingiari | 2 |
| Sydney Mid West | 409 | QLD Pastoral | 3 |
| Melbourne East | 395 | QLD North West | 6 |
| Melbourne South | 393 | SA Eyre and Yorke | 7 |


Shop till you drop indicator
(Score out of 1000)
Legend
Less than 23
23 to 44
44 to 120
120 to 237
More than 237
Darwin
Lingiari
Pilbara-Kimberly
Gascoyne-Goldfields
Great South
Far Outer North
Far Central
Far Outer South
South West
Eyre-Yorke
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
North West
North
Hobart-South
Far North
North West
North
Mackay
Fitzroy
Pastoral
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Far and North West
Hunter
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Mallee-Wimmera
Loddon
Goulburn
Ovens-Hume
Mel North
Central Highlands
Mel East
West
Mel West
Mel Inner
Mel South
Westernport
Gippsland
Barwon

### 9.2.2 Distance to Retail Scale Indicator

This indicator score is the distance required to travel to access the minimum number of retail jobs as outlined previously.

Melbourne Inner has the closest proximity to retail jobs at only 3.1 km. Once again the inner regions of Melbourne and Sydney dominate. On the other hand, the Pilbara-Kimberly region is 703 km from the minimum retail requirements. This is not surprising due to the region's remoteness. Again the remote, isolated regions of Western Australia, the Northern Territory and Queensland are the poorest performing regions for these types of indicators.

**Table 9.2 Distance to Retail Scale (km's)**

| Top 5 | Km's | Bottom 5 | Km's |
|---|---|---|---|
| Melbourne Inner | 3.1 | WA Pilbara-Kimberly | 703 |
| Global Sydney | 4.0 | NT Lingiari | 555 |
| Sydney Inner West | 4.5 | QLD North West | 420 |
| Melbourne East | 4.5 | QLD Pastoral | 356 |
| Melbourne South | 4.9 | WA Gascoyne-Goldfields | 281 |

### 9.2.3 Percentage Shortfall Indicator

Another way of looking at the accessibility to retail is to assess the proportion of retail shortfall within a 40km radius. That is, if you were to travel 40 km from the centre of the region, how much retail would you not be able to access based on the 44 retail classifications and the minimum job number in each classification. Table 9.3 below shows the highest and lowest performing regions for this indicator. The metropolitan regions of Melbourne are ranked the highest with all retail categories covered within a 40km radius. This is also the case for Brisbane and Sydney.

At the other end of the scale the Queensland Pastoral region has no access to retail within 40km. Other isolated regions of South Australia and Western Australia also have poor access to retail jobs with all of them missing out on at least 85 per cent of retail within 40 km.

**Table 9.3 Percentage retail shortfall within 40km's**

| Top 5 | Per Cent | Bottom 5 | Per Cent |
|---|---|---|---|
| Melbourne East | 0.0 | QLD Pastoral | 100.0 |
| Melbourne East | 0.0 | SA Eyre and Yorke | 94.5 |
| Melbourne South | 0.0 | SA Murraylands | 92.2 |
| Brisbane City | 0.0 | WA Pilbara-Kimberly | 88.2 |
| Global Sydney | 0.0 | WA Wheatbelt-Great Southern | 85.0 |

The retail types which are covered in this analysis are included here for reference.

| Code | ANZSIC Industry Name | Code | ANZSIC Industry Name |
|---|---|---|---|
| 5110 | Supermarket and Grocery Stores | 5251 | Pharmaceutical & Cosmetics |
| 5121 | Fresh Meat, Fish and Poultry | 5252 | Antique and Used Goods |
| 5122 | Fruit and Vegetables | 5253 | Garden Equipment |
| 5123 | Liquor | 5254 | Flower |
| 5124 | Bread and Cakes | 5255 | Watch and Jewellery |
| 5125 | Takeaway Food | 5259 | Retailing, nec |
| 5126 | Milk Vending | 5261 | Repairs & Services (Electrical) |
| 5129 | Specialised Food , nec | 5269 | Repairs & Services, nec |
| 5210 | Department Stores | 5311 | Car |
| 5221 | Clothing | 5312 | Motor Cycle Dealing |
| 5222 | Footwear | 5313 | Trailer and Caravan Dealing |
| 5223 | Fabric and Other Soft Good | 5321 | Automotive Fuel |
| 5231 | Furniture | 5322 | Automotive Electrical Services |
| 5232 | Floor Covering | 5323 | Smash Repairing |
| 5233 | Domestic Hardware and Houseware | 5324 | Tyres |
| 5234 | Domestic Appliance | 5329 | Automotive Repair / Services, nec |
| 5235 | Recorded Music | 5710 | Accommodation |
| 5241 | Sport and Camping Equipment | 5720 | Pubs, Taverns and Bars |
| 5242 | Toys and Games | 5730 | Cafes and Restaurants |
| 5243 | Newspaper, Book and Stationery | 5740 | Clubs (Hospitality) |
| 5244 | Photographic Equipment | 9511 | Video Hire Outlets |
| 5245 | Marine Equipment | 9526 | Hairdressing and Beauty Salons |

## 9.3 Conclusion

This discussion of the accessibility of jobs and retail services from residences, and of worker's residences from job locations, is a preliminary analysis. There is additional scope for the construction of additional indicators, for example indicators relevant to small consignment freight movements, and indicators of the difference in accessibility by walking/public transport versus the best of all modes, as used here. Further analysis may reveal that some of the indicators are redundant.

If accessibility indicators are to contribute to the evaluation of the benefits from transport investments, there is also a need to differentiate the contribution of transport infrastructure from that of town planning. There will also be a need to convert the resulting accessibility scores into dollar equivalents. This is an area identified for further work.

# 10. Infrastructure and regional economic performance: 1996-2001

The objective of this section is to quantify the relationship between infrastructure and regional economic performance. The indicator of regional economic performance selected in gross household income from industry covers the benchmark years 1991, 1996 and 2001.

## 10.1 Drivers of regional economic development

Since a general indicator of economic activity has been selected, it is necessary to adopt a general (but hopefully relatively simple) model of regional development that captures as many of the infrastructure (and related drivers) as possible. The model should indicate all the physical and other infrastructure identified as important drivers of economic development in previous *State of the Regions* reports.

### 10.1.1 The role of human and social capital

The 2001 *State of the Regions* report focused on the importance of knowledge capital and the importance of creating knowledge to maintain a high rate of economic growth. Both the international and domestic data showed strong correlations between non-mining gross regional product per capita and:

- patents;
- workforce skills; and
- research activity.

The 2002 *State of the Regions* report went further to try and explain why concentrations of workforce skills were found in certain regions and not in others, given that for high technology industries in particular the location choice is heavily influenced by the availability of appropriate skills. The conclusion from that report was that the high skilled workforce, in particular, were located in regions with high degrees of social capital (i.e. social infrastructure) as represented by indicators of:

- lifestyle choice;
- creative human capital (writers, artists, etc.); and
- cultural diversity (ethnicity, etc.).

For the development model estimated in this section, the stock of human capital (workforce adjusted for education attained) is used to represent both the skills available to an industry and the stock of social capital. The high correlation between the two "infrastructure" stocks meant that one had to be selected to represent the other.

Also used to represent research capacity is the value of output of post-secondary education and the output of three digit ANZSIC 781, that is research and technical services industry output.

### 10.1.2 Agglomeration economies

In Chapter 9 of this report, various accessibility indicators are derived and applied. These indices in fact represent the quality/quantity of the available transport infrastructure in relation to urban and regional layout. These indicators are directly applied in the Regional Development Model put forward here. In particular, the indicators used are:

- total employment accessibility (resident perspective);
- total employment accessibility (employer perspective); and
- industry corrected accessibility.

### 10.1.3 Market forces

Neoclassical factors, or market forces, should also be included. The core neoclassical driver is relative wages with the expectation being that the higher the real wages of a region, everything else being equal, the lower will be hours of work available per capita. Also, real wages will reflect the cumulative stock of historical outcomes which give a region strong (or weak) competitive advantages.

### 10.1.4 Ageing

Following the 2003 *State of the Regions*' conclusion that an ageing demographic profile could be a negative for economic growth potential, it would be inappropriate to leave out demographic features as a driver of economic development. In particular, the 2003 *State of the Regions* report found that the share of the population aged over 54 years had a negative impact on the productivity (i.e. real incomes) that could be achieved by the working age population.

## 10.2 The model: *a priori* specification

Given the above, the formal specifications of the regional economic development model are:

$$
\begin{aligned}
ln\,(hwpc^{w}{}_{i})_{t} \;=\; & \propto_{1} + \propto_{2} ln\,(rwh\$^{w}{}_{i})_{t-5} + \propto_{3} ln\,(avag^{w}{}_{i})_{t} \\
& + \propto_{4} ln\,(spop55^{w}{}_{i})_{t} + \propto_{5} ln\,(ro^{w}{}_{i})t + \propto_{6} (ln\,(ro^{w}{}_{i})_{t})^{2} \\
& + \propto_{7} ln\,(ag^{w}{}_{i})_{t} + \propto_{8} ln\,(min^{w}{}_{i})_{t} + \propto_{9} ln\,(aai_{i})_{t} \\
& + \propto_{10} (ln\,(ai_{i})_{t})^{2} + \propto_{11} ln\,(hcsc^{w}{}_{i})_{t} + \propto_{12} ((hcsc_{i})_{t})^{2} \\
& + \propto_{13} railf^{w}{}_{i} + \propto_{14} pt^{w}{}_{i} \\
& + \propto_{15} ln\,(aib_{i})_{t} + \propto_{16} ln\,(aiib_{i})_{t}
\end{aligned}
$$

Where:

| | | |
|---|---|---|
| $hwpc^{w}{}_{i}$ | = | total hours worked per capita of the working age population for LGA *i*; |
| $rwh\$^{w}{}_{i}$ | = | real hourly wage rate, dollars, in 2001 prices for LGA *i* in relation to the LGA with the highest real wage rate; |
| $avag^{w}{}_{i}$ | = | average age of population of LGA *i*; |
| $spop55^{w}{}_{i}$ | = | share of population over 54 in LGA *i*; |
| $ro^{w}{}_{i}$ | = | post-secondary and research industry output in $2001 million per capita of the working age population for LGA *i*; |
| $ag^{w}{}_{i}$ | = | agricultural output per capita of working age population for LGA *i*, $2001; |
| $min^{w}{}_{i}$ | = | mining output per capita of working age population for LGA *i*, $2001; |
| $ai_{i}$ | = | total accessibility index (residents perspective) LGA *i*; |
| $hcsc^{w}{}_{i}$ | = | stock of human capital per capita of working age population per LGA *i*; |
| $railf^{w}{}_{i}$ | = | rail freight access rating for LGA *i*; |
| $pt^{w}{}_{i}$ | = | public passenger transport quality rating, LGA *i*; |
| $aib_{i}$ | = | labour market balance indicator, LGA *i*; |
| $aiib_{i}$ | = | industry corrected labour market balance indicator, LGA *i*. |

The *w* superscript indicates that each LGA is combined with surrounding LGA indicators with the weights assigned the value of the variable for the distance decay factor. A distance cut-off of 100 kilometres was applied with the decay weights proportional to the reciprocal of the distance raised to 0.6.

As the $ai_i$ variables, by definition from Chapter 9, take into account distance decay factors they are unweighted.

The human capital variables are the sum of results with:

- post-graduate qualifications;
- graduate;
- diploma;
- Certificate III and above; and
- other,

with each category weighted by their average productivity (relative to the post-graduate category) with relative average incomes taken to reflect relative productivity.

As the basic data is taken from Census sources, the benchmark years are 1991, 1996 and 2001. The quadratic terms are included to capture non-linear effects.

## 10.3 The estimated model

The coefficients of the estimated model are given in Table 10.1.

**Table 10.1 The estimate model coefficients and statistical prospects**

| | 1991 | | 1996 | | 2001 | |
|---|---|---|---|---|---|---|
| Variable | Estimated coefficient | t-statistic | Estimated coefficient | t-statistic | Estimated coefficient | t-statistic |
| constant | -1216.4000 | -1.4269 | -678.6230 | -0.8423 | 128.3680 | 0.1557 |
| rwh$ | -0.3235 | -6.6646 | 0.0820 | 1.6724 | -0.1027 | -3.6868 |
| avag | 0.4679 | 10.8514 | 0.2879 | 7.5410 | 0.2560 | 10.9743 |
| spop55 | -0.2268 | -10.5486 | -0.2235 | -11.0499 | -0.2217 | -13.4823 |
| ro | -0.0251 | -0.7805 | -0.0065 | -0.2400 | 0.0319 | 2.3503 |
| (ro)**2 | -0.0004 | -0.2604 | 0.0001 | 0.0861 | 0.0010 | 1.6449 |
| ag | 0.0104 | 6.3430 | 0.0006 | 0.4571 | -0.0123 | -10.7599 |
| min | 0.0071 | 2.0721 | 0.0130 | 4.0574 | 0.0154 | 5.6348 |
| ai | 992.3260 | 2.8128 | 647.6130 | 1.9152 | 223.9290 | 0.6535 |
| (ai)**2 | -174.7590 | -4.4301 | -104.8290 | -2.7609 | -48.3876 | -1.2916 |
| hcsc | 1.9764 | 15.3698 | 1.2223 | 11.3582 | 0.9330 | 8.8639 |
| (hcsc)**2 | 2.4659 | 14.8718 | 2.3185 | 11.4476 | 2.2630 | 8.6295 |
| railf | 0.0067 | 1.0359 | 0.0019 | 0.3089 | 0.0109 | 1.8319 |
| pt | -0.0013 | -3.1100 | -0.0014 | -3.6774 | -0.0013 | -3.3851 |
| aib | 0.0124 | 0.4732 | 0.1065 | 3.6594 | 0.0883 | 3.7454 |
| aiib | 0.3339 | 13.7019 | 0.1081 | 3.7162 | 0.0262 | 0.8445 |
| *R-squared* | | *0.9750* | | *0.94* | | *0.86* |
| *Durban-Watson* | | *1.9307* | | *0.983* | | *0.989* |

*Note:* Estimated across 627 LGAs using the YourPlace database. The regions are weighted by the size of the working age population. That is, the bigger LGAs are given a greater role in determining the estimated coefficients. As the *ai* indicators are not weighted, the coefficients cannot be interpreted as elasticities.

In general, the statistical performance of the model is excellent, with most of the coefficients the expected sign and reasonably stable across years.

The 2003 *State of the Regions* finding of a negative influence of population over 54 on productivity of the working age population is further validated. The signs of the quadratic terms indicate increasing returns to human/social capital and research output and (after a point) decreasing returns to total accessibility.

The *aib* and *aiib* variables also have the correct sign. The greater the catchment area, from the employment perspective, the more productive the industry, because the employer has more choice and can select more appropriate/productive labour.

## 10.4 Regional development drivers – a stocktake

Table 10.2 shows key drivers/outcomes of regional economic development by SOR regions and regional groupings. The indicators shown are:

- wages per hour in dollars;
- average annual loss of work per capita of the working age population;
- human/social capital; and
- research and post-secondary output per capita of working age population.

In terms of hourly wage rates, Global Sydney is ranked at the top with a rate of $23.30 per hour. In terms of human capital and research output, Inner Melbourne is ranked at the top of the list. However, this is in part due to Inner Melbourne having a significantly smaller population compared to Global Sydney.

In terms of the regional groupings:

- the rural grouping has the lowest hourly wage rate, while the core metro regions have the highest;
- the resource based regions have the highest labour utilisation rate, while the lifestyle regions have the lowest;
- the rural, resource, production and lifestyle groupings all have similar human/social capital per capita; and
- the core metro regions dominate in terms of research capacity per capita.

## 10.5 Regional inequalities in accessibility: impact on regional incomes

The estimated model for 2001 from Table 10.1 can be used to estimate the income gains and losses by region as a result of infrastructure inequalities given a defined standard. The results are given in Table 10.3, using Global Sydney as the standard. The model is applied at the LGA level with the results aggregated into SOR regions.

To illustrate the interpretation of the data in the tables, the Sydney Outer North region is used. If this region had the same total accessibility rating as Global Sydney, then its total household income would be $42 million higher. Alternatively, if it had the same skills and social capital per capita compared to Global Sydney, then its household income would be $342 million higher. Overall, if Sydney Outer North had the same infrastructure standard as Global Sydney across all drivers, then its total household income would be $1.1 billion higher.

**Table 10.2(a) Infrastructure indicators by SOR regions – 2001**

| | $ wages per hour (2001 $) | Average annual hours of work available per capita – working age population (number) | Skilled labour availability per working age population (ratio) | Research and post secondary education per capita – working age population (2001 $) |
|---|---|---|---|---|
| NSW Central West | 17.1 | 1159 | 0.158 | 836 |
| NSW Far and North West | 16.5 | 1171 | 0.145 | 340 |
| NSW Hunter | 19.0 | 1018 | 0.178 | 675 |
| NSW Illawarra | 19.4 | 1014 | 0.191 | 709 |
| NSW Murrumbidgee | 16.6 | 1248 | 0.153 | 1014 |
| NSW Murray | 16.3 | 1236 | 0.161 | 458 |
| NSW Mid North Coast | 16.8 | 917 | 0.170 | 304 |
| NSW North | 16.2 | 1133 | 0.156 | 1169 |
| NSW Richmond-Tweed | 16.7 | 947 | 0.184 | 630 |
| NSW South-East | 18.0 | 1245 | 0.206 | 193 |
| NSW Central Coast | 19.2 | 1068 | 0.179 | 219 |
| Global Sydney | 23.3 | 1303 | 0.309 | 3293 |
| Sydney Inner West | 22.4 | 1286 | 0.289 | 466 |
| Sydney Outer North | 22.8 | 1305 | 0.286 | 285 |
| Sydney Outer South West | 18.8 | 1174 | 0.148 | 356 |
| Sydney Outer West | 19.3 | 1227 | 0.180 | 480 |
| Sydney Mid West | 18.6 | 1065 | 0.162 | 354 |
| Sydney South | 20.8 | 1255 | 0.222 | 410 |
| Melbourne East | 20.5 | 1236 | 0.260 | 1136 |
| VIC Gippsland | 17.0 | 1054 | 0.163 | 473 |
| VIC Barwon | 18.2 | 1094 | 0.184 | 893 |
| VC Goulburn | 16.3 | 1211 | 0.155 | 355 |
| Melbourne Inner | 22.6 | 1327 | 0.332 | 5954 |
| VIC Loddon | 17.2 | 1081 | 0.179 | 496 |
| VIC Mallee-Wimmera | 15.1 | 1271 | 0.145 | 488 |
| Melbourne North | 18.7 | 1126 | 0.189 | 645 |
| VIC Ovens-Hume | 17.2 | 1298 | 0.198 | 732 |
| Melbourne South | 20.7 | 1261 | 0.263 | 516 |
| Melbourne West | 18.6 | 1116 | 0.166 | 446 |
| VIC West | 16.1 | 1252 | 0.161 | 584 |
| Melbourne Westport | 17.7 | 1166 | 0.163 | 207 |
| VIC Central Highlands | 17.1 | 1091 | 0.175 | 695 |
| QLD Pastoral | 15.4 | 1595 | 0.143 | 251 |
| QLD Agricultural SW | 15.8 | 1213 | 0.151 | 781 |
| QLD Far North | 16.9 | 1226 | 0.176 | 370 |
| QLD Fitzroy | 18.0 | 1217 | 0.156 | 758 |
| QLD Mackay | 17.6 | 1279 | 0.160 | 229 |
| QLD North West | 19.2 | 1510 | 0.165 | 203 |
| QLD North | 17.3 | 1227 | 0.166 | 780 |

**Table 10.2(a) Infrastructure indicators by SOR regions – 2001 (continued)**

| | $ wages per hour (2001 $) | Average annual hours of work available per capita – working age population (number) | Skilled labour availability per working age population (ratio) | Research and post secondary education per capita – working age population (2001 $) |
|---|---|---|---|---|
| QLD Wide Bay-Burnett | 15.4 | 992 | 0.142 | 292 |
| QLD West Moreton | 16.4 | 1094 | 0.130 | 379 |
| QLD Gold Coast | 17.4 | 1141 | 0.165 | 274 |
| QLD Sunshine Coast | 17.2 | 1018 | 0.195 | 297 |
| Brisbane North | 17.6 | 1124 | 0.158 | 57 |
| Brisbane City | 19.7 | 1229 | 0.244 | 1545 |
| Adelaide Central | 20.3 | 1201 | 0.269 | 2319 |
| SA Eyre and Yorke | 16.6 | 1127 | 0.140 | 302 |
| SA Murraylands | 14.8 | 1231 | 0.115 | 160 |
| Adelaide Plains | 17.5 | 1017 | 0.148 | 522 |
| SA South East | 16.1 | 1309 | 0.129 | 248 |
| Adelaide Outer | 17.9 | 1152 | 0.176 | 134 |
| WA Pilbara-Kimberly | 21.2 | 1424 | 0.200 | 399 |
| WA Gascoyne-Goldfields | 18.7 | 1382 | 0.167 | 314 |
| WA Wheatbelt-Great Southern | 14.7 | 1218 | 0.144 | 385 |
| WA Peel-South West | 17.9 | 1068 | 0.152 | 190 |
| Perth Central | 20.7 | 1141 | 0.260 | 2248 |
| Perth Outer North | 18.5 | 1145 | 0.175 | 191 |
| Perth Outer South | 18.6 | 1091 | 0.177 | 318 |
| TAS Hobart-South | 18.3 | 1035 | 0.187 | 845 |
| TAS North West | 16.8 | 1000 | 0.136 | 241 |
| TAS North | 17.0 | 1041 | 0.158 | 579 |
| Darwin | 20.1 | 1273 | 0.198 | 1274 |
| NT Lingiari | 19.0 | 1122 | 0.156 | 492 |
| ACT | 22.3 | 1287 | 0.294 | 2467 |
| **Total** | **19.0** | **1161** | **0.198** | **843** |

**Table 10.2(b) Infrastructure indicators by SOR regions – 2001**

| | $ wages per hour (2001 $) | Average annual hours of work available per capita – working age population (number) | Skilled labour availability per working age population (ratio) | Research and post secondary education per capita – working age population (2001 $) |
|---|---|---|---|---|
| Rural | 16.5 | 1165.1 | 0.157 | 543.8 |
| Core Metro | 21.3 | 1237.9 | 0.272 | 2409.8 |
| Resourced based | 18.5 | 1246.3 | 0.161 | 411.1 |
| Dispersed Metro | 19.9 | 1197.6 | 0.215 | 447.6 |
| Production Zone | 18.4 | 1082.6 | 0.169 | 486.3 |
| Lifestyle | 17.3 | 1076.7 | 0.177 | 316.3 |
| **Total** | **19.0** | **1160.7** | **0.198** | **843.1** |

**Table 10.3(a) Infrastructure and ageing contribution to SOR regions income relative to global Sydney standard 2001 (2001 $ million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network) | Total |
|---|---|---|---|---|---|---|---|---|
| NSW Central West | 26 | -30 | 212 | -368 | -86 | -73 | -281 | -601 |
| NSW Far and North West | 20 | -39 | 79 | -316 | -78 | -64 | -222 | -620 |
| NSW Hunter | 48 | -310 | 518 | -1,376 | -225 | -282 | -1,803 | -3,431 |
| NSW Illawarra | 29 | -103 | 244 | -625 | -59 | -63 | -1,012 | -1,590 |
| NSW Murrumbidgee | 29 | -14 | 226 | -391 | -86 | -77 | -227 | -540 |
| NSW Murray | 13 | -24 | 73 | -156 | -38 | -38 | -69 | -239 |
| NSW Mid North Coast | 55 | -339 | 138 | -682 | -173 | -171 | -965 | -2,138 |
| NSW North | 43 | -56 | 267 | -500 | -124 | -83 | -413 | -866 |
| NSW Richmond-Tweed | 42 | -165 | 212 | -523 | -94 | -147 | -1,895 | -2,570 |
| NSW South-East | 22 | -82 | 133 | -275 | -93 | -108 | -707 | -1,109 |
| NSW Central Coast | 15 | -93 | 17 | -417 | -32 | -58 | -307 | -876 |
| Global Sydney | 4 | 17 | 39 | -42 | -0 | 10 | -32 | -5 |
| Sydney Inner West | 8 | 15 | -152 | -119 | 4 | -20 | -92 | -355 |
| Sydney Outer North | 10 | -9 | -341 | -342 | -42 | -147 | -265 | -1,136 |
| Sydney Outer South West | 17 | 144 | -20 | -461 | -27 | -53 | -459 | -859 |
| Sydney Outer West | 23 | 171 | 1 | -558 | -39 | -83 | -520 | -1,004 |
| Sydney Mid West | 75 | 321 | -837 | -1,694 | -39 | -256 | -1,464 | -3,893 |
| Sydney South | 24 | -11 | -217 | -534 | -18 | -84 | -399 | -1,239 |
| Melbourne East | 127 | -70 | 363 | -1,418 | 20 | -555 | -727 | -2,260 |
| VIC Gippsland | 52 | -148 | 315 | -713 | -97 | -168 | -1,333 | -2,093 |
| VIC Barwon | 41 | -68 | 308 | -569 | -30 | -118 | -288 | -723 |
| VC Goulburn | 56 | -141 | 147 | -679 | -119 | -145 | -736 | -1,616 |
| Melbourne Inner | 47 | 60 | 369 | -375 | 24 | -178 | -200 | -253 |
| VIC Loddon | 33 | -61 | 156 | -435 | -39 | -56 | -766 | -1,169 |
| VIC Mallee-Wimmera | 39 | -71 | 156 | -455 | -100 | -86 | -251 | -768 |
| Melbourne North | 103 | 111 | 225 | -1,335 | 3 | -311 | -874 | -2,078 |
| VIC Ovens-Hume | 27 | -84 | 126 | -244 | -83 | -83 | -402 | -744 |
| Melbourne South | 49 | -73 | 139 | -528 | 10 | -178 | -215 | -795 |
| Melbourne West | 84 | 163 | 282 | -1,252 | -4 | -215 | -868 | -1,810 |
| VIC West | 38 | -90 | 157 | -399 | -93 | -86 | -167 | -640 |
| Melbourne Westport | 111 | 68 | 309 | -1,703 | -28 | -442 | -1,072 | -2,757 |
| VIC Central Highlands | 23 | -29 | 144 | -292 | -17 | -53 | -307 | -531 |
| QLD Pastoral | – | – | – | – | – | – | – | – |
| QLD Agricultural SW | 43 | -12 | 205 | -535 | -72 | -95 | -398 | -864 |
| QLD Far North | 55 | 444 | 67 | -789 | -117 | -154 | -786 | -1,281 |
| QLD Fitzroy | 38 | 162 | 342 | -749 | -160 | -139 | -678 | -1,184 |
| QLD Mackay | 20 | 117 | 61 | -390 | -87 | -103 | -356 | -738 |
| QLD North West | 2 | 145 | 36 | -118 | -35 | -27 | -171 | -168 |
| QLD North | 46 | 314 | 506 | -832 | -148 | -176 | -809 | -1,100 |
| QLD Wide Bay-Burnett | 45 | -188 | 48 | -600 | -108 | -131 | -620 | -1,555 |
| QLD West Moreton | 48 | 69 | 160 | -759 | -63 | -141 | -737 | -1,423 |

**Table 10.3(a) Infrastructure and ageing contribution to SOR regions income relative to global Sydney standard 2001 (2001 $ million) – continued**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network) | Total |
|---|---|---|---|---|---|---|---|---|
| QLD Gold Coast | 178 | 66 | 644 | -3,169 | -240 | -835 | -2,441 | -5,797 |
| QLD Sunshine Coast | 51 | -197 | 277 | -734 | -100 | -229 | -398 | -1,329 |
| Brisbane North | 66 | 72 | 250 | -1,199 | -96 | -321 | -940 | -2,168 |
| Brisbane City | 302 | 235 | 2,448 | -4,580 | -361 | -1,082 | -3,701 | -6,739 |
| Adelaide Central | 61 | -558 | 321 | -506 | -83 | -289 | 212 | -843 |
| SA Eyre and Yorke | 17 | -43 | 92 | -306 | -66 | -53 | -204 | -563 |
| SA Murraylands | 4 | -14 | 13 | -49 | -5 | -10 | -22 | -84 |
| Adelaide Plains | 77 | -423 | 94 | -1,004 | -85 | -271 | -308 | -1,921 |
| SA South East | 8 | -6 | 30 | -124 | -23 | -22 | -314 | -451 |
| Adelaide Outer | 68 | -320 | 83 | -867 | -91 | -275 | -460 | -1,863 |
| WA Pilbara-Kimberly | -5 | -13 | 129 | -153 | -78 | -54 | -267 | -442 |
| WA Gascoyne-Goldfields | 12 | 309 | 100 | -395 | -89 | -82 | -427 | -571 |
| WA Wheatbelt-Great Southern | 8 | -15 | 42 | -103 | -28 | -22 | -63 | -182 |
| WA Peel-South West | 14 | -2 | 12 | -435 | -65 | -115 | -559 | -1,149 |
| Perth Central | 26 | -101 | 32 | -482 | -68 | -305 | -388 | -1,286 |
| Perth Outer North | 39 | 79 | -124 | -928 | -82 | -346 | -796 | -2,157 |
| Perth Outer South | 44 | -5 | -115 | -1,071 | -101 | -384 | -915 | -2,547 |
| TAS Hobart-South | 40 | -78 | 350 | -630 | -137 | -84 | -431 | -969 |
| TAS North West | 19 | -47 | 5 | -308 | -55 | -53 | -199 | -637 |
| TAS North | 27 | -55 | 123 | -400 | -78 | -63 | -448 | -895 |
| Darwin | 10 | -19 | 493 | -411 | -102 | -304 | 242 | -90 |
| NT Lingiari | 10 | -27 | 11 | -148 | -35 | -36 | -95 | -320 |
| ACT | 37 | 305 | 1,857 | -394 | -273 | -482 | -402 | 649 |
| **Total** | **2,742** | **-847** | **12,381** | **-42,945** | **-4,933** | **-11,155** | **-37,220** | **-81,976** |

*Note:* The estimated equation for 2001 used in this table was the same as given in Table 8.6, except regional income replaces hours. This is the same outcome as multiplying both sides of the equation in Table 8.1 by real wages.

**Table 10.3(b) Infrastructure and ageing contribution to SOR regions income relative to global Sydney standard 2001 (2001 $ million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network) | Total |
|---|---|---|---|---|---|---|---|---|
| Rural | 689 | -293 | 3,251 | -9,385 | -1,747 | -1,897 | -9,394 | -18,776 |
| Core Metro | 535 | -124 | 5,759 | -7,538 | -997 | -2,733 | -4,793 | -9,892 |
| Resourced based | 71 | 574 | 630 | -1,997 | -462 | -453 | -2,198 | -3,834 |
| Dispersed Metro | 483 | -114 | 36 | -8,325 | -497 | -2,483 | -6,003 | -16,903 |
| Production Zone | 616 | -173 | 1,302 | -10,317 | -531 | -2,099 | -8,427 | -19,627 |
| Lifestyle | 348 | -717 | 1,404 | -5,384 | -699 | -1,491 | -6,406 | -12,944 |
| **Total** | **2,742** | **-847** | **12,381** | **-42,945** | **-4,933** | **-11,155** | **-37,220** | **-81,976** |

For the analysis in the table, LGAs with a weighted average total hours available of less than 8 million hours are excluded. Thus, for Queensland Pastoral, there are no LGAs included and the results are zero. Realistically an LGA catchment would have to be of a threshold size and degree of economic diversity to be eligible for the model to be applied.

Global Sydney sets the standard for the analysis of Table 10.3. Its total outcome, a net $5 million loss, is (in the terms of the table) close to zero, reflecting this position.

The relative wage variable is positive for all LGAs because Global Sydney has the highest real wage rate. Thus, over time, neoclassical forces would be expected to transfer income and employment from Global Sydney. The transfer of the real wage effect shown in the table is for five years. The longer the time, the greater the income transferred.

As Global Sydney is relatively young, many regions have higher percentages of their population over 54 years of age compared to Global Sydney. As a result, the majority of regions have a negative household income outcome as a result of older populations compared to Global Sydney.

In terms of accessibility, most regions have a lower rating compared to Global Sydney. As a result they lose income by not having the Global Sydney standard. Across the nation a combined total of $16 billion in income is lost by regions not having the same accessibility standards as Global Sydney.

One issue which needs discussion is the fact that most regions have a positive contribution to income from research and post-secondary output, compared to Global Sydney. The reason for this is that the catchment area for Global Sydney's research and post-secondary education output is significantly larger than the Global Sydney boundary. Thus, when the weighted working age population is calculated, Global Sydney's output on a per capita basis is relatively low. Global Sydney's size of research and post-secondary education output is relatively small compared to the catchment area it has to serve.

This conclusion is consistent with the research and development expenditure data in Table 10.4. New South Wales and Australia rank low compared to other countries and knowledge based regions. Sydney's status as a global city will probably be at risk unless research infrastructure capacity is increased.

## 10.6 The accessibility contribution to regional income growth, 1996-2001

The model can also be used to calculate the contribution of accessibility and other drivers to regional income growth from 1996 to 2001. These results are shown in Table 10.5.

The most important driver was the growth in human and social capital with a total contribution of $39 billion. A $9 billion income loss resulted from the ageing of the population, while improved accessibility added $6.2 billion in total. The growth in research and post-secondary education output added $2.9 billion.

**Table 10.4 Economy-wide R&D benchmarks**

| | Business expenditure on research and development: countries (% of GDP) | | Business expenditure on research and development: States (% of gross state product) | |
|---|---|---|---|---|
| | 1997 | 2001 | | 2000-2002 |
| OECD average | 1.50 | 1.62 | Michigan | 5.44 |
| Australia | 0.87 | 0.78 | Washington | 4.31 |
| United States | 1.91 | 2.10 | Massachusetts | 3.50 |
| Canada | 1.01 | 1.09 | California | 3.44 |
| Germany | 1.54 | 1.75 | New Jersey | 3.39 |
| United Kingdom | 1.18 | 1.28 | Illinois | 2.29 |
| Sweden | 2.65 | 3.31 | Pennsylvania | 1.98 |
| Norway | 0.93 | 0.97 | Ohio | 1.60 |
| France | 1.39 | 1.37 | New York | 1.31 |
| Finland | 1.79 | 2.42 | Texas | 1.20 |
| European Union | 1.13 | 1.24 | Victoria | 1.13 |
| Japan | 2.04 | 2.28 | New South Wales | 0.95 |
| Korea | 1.95 | 2.25 | South Australia | 0.89 |
| China | 0.31 | 0.66 | Queensland | 0.68 |

*Notes and sources:* R&D statistics for overseas countries from OECD Science and Technology Indicators #1 2003. Australian State R&D data from ABS 8104 and State GSP from National Economics database. United States GSP data from Bureau of Economic Analysis and R&D data (for 2000) from NSF. Australian R&D data is from 1995-96 and 2001-2002 while US State data is calendar year 2000. The second column is a value added measure. From National Economics, "*The Future of Australian Manufacturing: The implications of Free Trade Agreements for industry development and Australia's manufacturing regions*", Australian Manufacturing Workers Union (AMWU), 2004.

## 10.7 The importance of transport infrastructure to regional development

The analysis above clearly showed the importance of infrastructure, in general, and transport infrastructure, in particular (via the economies of agglomeration expressed in the accessibility indices) to regional development. This is reinforced by applying a sensitivity analysis using the model and inputs from the empirical framework developed in the report.

The regional inputs are in the form of transport infrastructure investment and/or improved urban design which yield travel time savings of five minutes and, therefore, increase the accessibility index values. This results in an Australia-wide income gain of $1.1 billion. As would be expected, the biggest potential income gains are in the major metropolitan regions and in the Sydney region in particular. As pointed out in Chapter 9, relatively poor accessibility in Sydney compared to the other cities is, in part, a price of the beauty of the harbour. Improving accessibility in Sydney is likely to be as much a matter of changing layout as of investing in transport infrastructure.

The implicit elasticity of income to improved accessibility from the results in Table 10.6 is around 0.04. However, the *aib* and *acib* values are left unchanged. If these values were also increased, along with ai, the implicit *Eyt* would also increase. This is consistent with the findings reported in Chapter 7 if it can be assumed that the growth in the transport capital stock is proportional to the gains in accessibility. This assumption will be explored in the 2005-06 *State of the Regions* report.

One point that needs to be made about the results in Table 10.6 is that every year congestion via the growth of the motor vehicle fleet increases travel times. That is, every year, just to stand still economically, significant action has to be taken to maintain accessibility. This could take the form of transport investments or changes to urban layout.

**Table 10.5(a) Infrastructure and ageing contribution to SOR regions income change 2001 versus 1996(2001 $ million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network, world environment) | Total |
|---|---|---|---|---|---|---|---|---|
| NSW Central West | 5 | -64 | 20 | 203 | 1 | 14 | -19 | 159 |
| NSW Far and North West | 5 | -37 | 6 | 101 | 1 | 7 | 38 | 120 |
| NSW Hunter | 26 | -240 | 64 | 913 | 13 | 173 | -257 | 693 |
| NSW Illawarra | 19 | -143 | 110 | 703 | 9 | 120 | -71 | 747 |
| NSW Murrumbidgee | -1 | -45 | -3 | 166 | -1 | -10 | 39 | 145 |
| NSW Murray | 2 | -33 | 12 | 70 | -2 | -28 | 44 | 64 |
| NSW Mid North Coast | 14 | -98 | -7 | 351 | 3 | 38 | 86 | 386 |
| NSW North | 3 | -77 | 8 | 172 | 0 | 3 | 84 | 194 |
| NSW Richmond-Tweed | 13 | -67 | 28 | 278 | 2 | 28 | 31 | 313 |
| NSW South-East | 5 | -83 | -9 | 209 | 0 | 8 | 118 | 249 |
| NSW Central Coast | 15 | -68 | 51 | 524 | 7 | 90 | 141 | 761 |
| Global Sydney | 55 | -201 | 271 | 2,155 | 29 | 368 | -9 | 2,668 |
| Sydney Inner West | 13 | -37 | 64 | 558 | 7 | 90 | 71 | 765 |
| Sydney Outer North | 50 | -237 | 173 | 1,788 | 24 | 310 | -199 | 1,909 |
| Sydney Outer South West | 15 | -95 | 40 | 486 | 7 | 85 | 132 | 670 |
| Sydney Outer West | 21 | -141 | 45 | 703 | 10 | 124 | 99 | 860 |
| Sydney Mid West | 67 | -280 | 201 | 2,510 | 32 | 407 | 77 | 3,015 |
| Sydney South | 29 | -108 | 146 | 1,084 | 14 | 178 | -177 | 1,167 |
| Melbourne East | 68 | -469 | 203 | 2,294 | 34 | 456 | -608 | 1,977 |
| VIC Gippsland | 18 | -144 | -6 | 402 | 6 | 76 | 16 | 368 |
| VIC Barwon | 12 | -110 | 43 | 536 | 8 | 106 | 9 | 604 |
| VC Goulburn | 5 | -94 | 34 | 344 | 3 | 42 | 74 | 408 |
| Melbourne Inner | 28 | -135 | 129 | 1,061 | 16 | 215 | 261 | 1,576 |
| VIC Loddon | 7 | -69 | 20 | 304 | 5 | 62 | 46 | 375 |
| VIC Mallee-Wimmera | 0 | -24 | 28 | 227 | 1 | 14 | -24 | 222 |
| Melbourne North | 46 | -302 | 153 | 1,641 | 24 | 315 | -147 | 1,730 |
| VIC Ovens-Hume | 4 | -73 | 21 | 144 | -3 | -43 | 105 | 155 |
| Melbourne South | 26 | -131 | 88 | 952 | 14 | 191 | -144 | 996 |
| Melbourne West | 35 | -242 | 119 | 1,351 | 19 | 260 | 133 | 1,676 |
| VIC West | 4 | -44 | 18 | 227 | 2 | 23 | -43 | 187 |
| Melbourne Westport | 49 | -383 | 137 | 1,657 | 25 | 333 | 120 | 1,938 |
| VIC Central Highlands | 6 | -52 | 31 | 256 | 4 | 51 | 13 | 308 |
| QLD Pastoral | – | – | – | – | – | – | – | – |
| QLD Agricultural SW | 3 | -68 | 25 | 281 | 3 | 35 | -41 | 236 |
| QLD Far North | 27 | -87 | 114 | 319 | 2 | 23 | -300 | 98 |
| QLD Fitzroy | 8 | -122 | -13 | 275 | -1 | -14 | 98 | 231 |
| QLD Mackay | 4 | -57 | -10 | 159 | -0 | -1 | 12 | 107 |
| QLD North West | 1 | -24 | 16 | 56 | -1 | -12 | -46 | -11 |
| QLD North | 5 | -110 | -45 | 405 | 5 | 62 | 56 | 378 |
| QLD Wide Bay-Burnett | 10 | -115 | 17 | 256 | 1 | 8 | -14 | 163 |
| QLD West Moreton | 8 | -143 | 30 | 317 | 3 | 41 | -49 | 207 |
| QLD Gold Coast | 52 | -558 | 130 | 1,549 | 17 | 224 | 657 | 2,071 |

**Table 10.5(a) Infrastructure and ageing contribution to SOR regions income change 2001 versus 1996(2001 $ million) – continued**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network, world environment) | Total |
|---|---|---|---|---|---|---|---|---|
| QLD Sunshine Coast | 12 | -137 | 45 | 434 | 7 | 97 | 191 | 650 |
| Brisbane North | 17 | -272 | 28 | 612 | 8 | 101 | 219 | 712 |
| Brisbane City | 35 | -815 | 114 | 2,333 | 28 | 359 | 768 | 2,823 |
| Adelaide Central | 22 | -148 | 60 | 851 | 12 | 160 | -101 | 856 |
| SA Eyre and Yorke | 0 | -45 | -14 | 124 | 0 | 5 | -28 | 41 |
| SA Murraylands | 1 | -7 | 1 | 28 | 0 | 5 | -8 | 20 |
| Adelaide Plains | 18 | -144 | -3 | 832 | 11 | 145 | -87 | 773 |
| SA South East | 1 | -14 | -0 | 56 | 0 | 1 | -4 | 41 |
| Adelaide Outer | 22 | -194 | 34 | 755 | 11 | 138 | -20 | 745 |
| WA Pilbara-Kimberly | 2 | -27 | -22 | 127 | 3 | 47 | 37 | 167 |
| WA Gascoyne-Goldfields | 2 | -64 | -42 | 142 | 1 | 10 | -26 | 23 |
| WA Wheatbelt-Great Southern | 0 | -12 | 4 | 59 | 1 | 19 | -8 | 64 |
| WA Peel-South West | 3 | -72 | -23 | 230 | 4 | 52 | 161 | 355 |
| Perth Central | 16 | -181 | 50 | 795 | 13 | 174 | -95 | 772 |
| Perth Outer North | 22 | -264 | 42 | 857 | 13 | 179 | 300 | 1,148 |
| Perth Outer South | 21 | -289 | 20 | 983 | 15 | 201 | 31 | 982 |
| TAS Hobart-South | 12 | -140 | 22 | 415 | 4 | 44 | -160 | 197 |
| TAS North West | 4 | -53 | 31 | 138 | 0 | 3 | -105 | 18 |
| TAS North | 5 | -64 | 76 | 196 | 1 | 16 | -136 | 95 |
| Darwin | 10 | -39 | -13 | 287 | -24 | -285 | 410 | 347 |
| NT Lingiari | 3 | -31 | 22 | 81 | 1 | 7 | -16 | 67 |
| ACT | 30 | -485 | -29 | 956 | -7 | -91 | 516 | 891 |
| **Total** | **1,039** | **-9,106** | **2,905** | **39,278** | **448** | **5,858** | **2,250** | **42,673** |

**Table 10.5(b) Infrastructure and ageing contribution to SOR regions income change 2001 versus 1996 (2001 $ million)**

| | Relative wages | share of population over 54 | Research and post secondary education per capita (working age population) | Skills and social capital | Total accessibility | Industry corrected accessibility and labour market balance | Other (commun-ications, port quality, freight network, world environment) | Total |
|---|---|---|---|---|---|---|---|---|
| Rural | 118 | -1387 | 388 | 4635 | 30 | 386 | -203 | 3967 |
| Core Metro | 221 | -2182 | 669 | 9412 | 79 | 1034 | 1661 | 10895 |
| Resourced based | 18 | -339 | -62 | 911 | 6 | 90 | 208 | 832 |
| Dispersed Metro | 306 | -2268 | 870 | 11039 | 157 | 2052 | -227 | 11927 |
| Production Zone | 281 | -1986 | 853 | 10461 | 145 | 1901 | -271 | 11383 |
| Lifestyle | 95 | -943 | 188 | 2821 | 30 | 395 | 1083 | 3669 |
| **Total** | **1,039** | **-9,106** | **2,905** | **39,278** | **448** | **5,858** | **2,250** | **42,673** |

| Table 10.6(a) Five minute increase in travel time savings – impact on SOR region income (2001 $) | | | | | |
|---|---|---|---|---|---|
| | $ million | $ per capita | | $ million | $ per capita |
| NSW Central West | 3 | 15 | QLD Pastoral | 0 | – |
| NSW Far and North West | 0 | 2 | QLD Agricultural SW | 3 | 13 |
| NSW Hunter | 0 | 1 | QLD Far North | 3 | 14 |
| NSW Illawarra | 6 | 14 | QLD Fitzroy | 2 | 10 |
| NSW Murrumbidgee | 1 | 4 | QLD Mackay | 2 | 14 |
| NSW Murray | 0 | 3 | QLD North West | 0 | – |
| NSW Mid North Coast | 2 | 7 | QLD North | 6 | 27 |
| NSW North | 1 | 6 | QLD Wide Bay-Burnett | 4 | 17 |
| NSW Richmond-Tweed | 8 | 34 | QLD West Moreton | 9 | 51 |
| NSW South-East | 2 | 10 | QLD Gold Coast | 39 | 47 |
| NSW Central Coast | 0 | - | QLD Sunshine Coast | 12 | 43 |
| Global Sydney | 82 | 116 | Brisbane North | 20 | 62 |
| Sydney Inner West | 24 | 104 | Brisbane City | 79 | 83 |
| Sydney Outer North | 55 | 84 | Adelaide Central | 26 | 67 |
| Sydney Outer South West | 6 | 25 | SA Eyre and Yorke | 2 | 9 |
| Sydney Outer West | 4 | 14 | SA Murraylands | 1 | 10 |
| Sydney Mid West | 101 | 76 | Adelaide Plains | 27 | 55 |
| Sydney South | 43 | 99 | SA South East | 0 | 5 |
| Melbourne East | 77 | 93 | Adelaide Outer | 25 | 67 |
| VIC Gippsland | 9 | 35 | WA Pilbara-Kimberly | 0 | – |
| VIC Barwon | 10 | 38 | WA Gascoyne-Goldfields | 0 | 4 |
| VC Goulburn | 9 | 44 | WA Wheatbelt-Great Southern | 0 | 4 |
| Melbourne Inner | 39 | 127 | WA Peel-South West | 4 | 19 |
| VIC Loddon | 5 | 29 | Perth Central | 31 | 71 |
| VIC Mallee-Wimmera | 1 | 8 | Perth Outer North | 31 | 68 |
| Melbourne North | 60 | 83 | Perth Outer South | 39 | 71 |
| VIC Ovens-Hume | 5 | 48 | TAS Hobart-South | 10 | 43 |
| Melbourne South | 34 | 97 | TAS North West | 3 | 26 |
| Melbourne West | 48 | 78 | TAS North | 3 | 25 |
| VIC West | 4 | 42 | Darwin | 3 | 28 |
| Melbourne Westport | 51 | 64 | NT Lingiari | 0 | 2 |
| VIC Central Highlands | 4 | 29 | ACT | 19 | 58 |
| | | | **Total** | 1098 | 55 |

| Table 10.6(b) Five minute increase in travel time savings – impact on SOR region income (2001 $) | | |
|---|---|---|
| | $ million | $ per capita |
| Rural | 69 | 19.2 |
| Core Metro | 313 | 84.9 |
| Resourced based | 7 | 8.7 |
| Dispersed Metro | 335 | 69.1 |
| Production Zone | 311 | 57.6 |
| Lifestyle | 63 | 34.5 |
| **Total** | **1098** | **54.6** |

## 10.8 Conclusion

The results of this chapter clearly show the importance of physical and intangible infrastructure to regional development. However, it is important to recognise that the gains identified are one half of the statistics needed for an overall assessment. The statistics missing are the costs of increasing the infrastructure inputs. This will be the focus of the 2005 *State of the Regions* report.

# 11. Policy evaluation: AusLink White Paper[22]

The AusLink White Paper, released in May 2004, begins 'The Australian Government is embarking on a far-reaching transformation of the way Australia plans, funds and delivers land transport infrastructure. Under AusLink, the Australian Government takes a strategic approach to Australia's future by ensuring that the nation's land transport network meets future challenges. AusLink will translate better planning into better solutions by targeting transport funding to priority needs and allowing certainty for future investment.'

**"The introduction emphasises planning, strategy and targeting."**

These sentences are notable in that they do not promise an increase in funding. Although the White Paper announces an increase in Commonwealth investment in land transport, this is not reached until the fourth page of the Executive Summary. Instead of the usual promises of more money, the introduction emphasises planning, strategy and targeting and in the body of the document AusLink is referred to as a 'five year plan'. However, AusLink does not appear to be a plan for the economy as a whole, rather more akin to part of a plan for part of the transport sector. Its stated goal is 'economic growth, development and connectivity', which is to be pursued through improved connectivity. Connectivity is thus both a goal and a means. It is assumed to guarantee social cohesion, but despite their prominence as stated aims, the concepts of connectivity and social cohesion are not further developed, and play no part in the selection of projects for the proposed expenditure program.

In addition to connectivity, AusLink claims to pursue economic growth through improved logistics and enhanced trade, health, safety and security. The logistics and trade improvements may be expected to follow directly from improved transport, while the White Paper also includes measures to improve road safety and guarantee passenger security. The prologue also indicates that the program will be consistent with the obligation to sustain the environment, and will likewise be consistent with 'viable, long-term economic and social outcomes'. However, the paper includes very little discussion of environmental sustainability, nor what a long-term viable economic and social outcome might be.

Despite the ambitious statements in the Executive Summary, one of the virtues of AusLink is its consciousness that the Commonwealth's power to plan the transport system is very limited, being subject to decisions by state governments, local governments, businesses and individuals. Much of the paper is devoted to proposed intergovernmental arrangements.

## 11.1 An economically rational transport system

The authors of the AusLink White Paper had access to a white paper on transport published by the European Commission in 2001, entitled *European transport policy to 2010: time to decide*. The basis of the European White Paper is that transport requires regulated competition. The concern of the paper is accordingly to recommend government decisions which will result in beneficial competition; that is, competition which maximises net benefits to Europeans as a whole. Competition is unlikely to be beneficial if the competing transport businesses are unequally subsidised, and even then a forward-looking investment plan is required to underpin competition. The European White Paper concentrates on cost recovery and investment finance, as well as proposing expenditure on new infrastructure.

[22] This evaluation was finalised before the October election result was known. It therefore does not refer to policy changes made by the government elected on 9 October or the run up to this period, even though changes have been foreshadowed by both major parties.

The pursuit of economic efficiency starts from the general proposition that efficiency is most likely to be achieved when competing producers sell to competing consumers. As applied to services like transport, this implies that every transport business should pay its way. Services, including infrastructure services, should be financed from user charges, which should cover all costs including a return on capital invested and compensation for costs inflicted on third parties. Third-party costs inflicted by transport include carbon emissions, other pollution and noise. Over the past twenty years these cost-recovery principles have been applied to many public services, a notable case being the conversion of water supply from rate finance to user charges.

Cost-recovery implies that, once a public service is corporatised (and perhaps privatised), it might be expected to raise whatever capital it needs for investment on the market. Why not, therefore, leave all to the market? Why the European suggestion that regulated competition is required? A long answer to this question is given in Chapter 6. The answer in the European white paper has several parts.

- If there is to be competition in transport services, common infrastructure standards must apply across each transport system. Only governments can agree on and enforce such standards.
- Governments must also oversee transport safety. Not only is this important in its own right; it is important for inter-modal competition. In Europe, as elsewhere, road transport has a poor safety record compared with the other modes. The white paper recommends both measures to improve road safety, and measures to transfer traffic to the safer modes.
- Infrastructure investment should be allocated to support regulatory reform, using both to minimise transport costs as a whole. Europe suffers from a backlog of investment in freight rail infrastructure, which has been neglected because freight rail operators have been uncompetitive due to out-dated regulations and, one might add, the unfortunate decision to standardise on a braking system which limits train length. In this case microeconomic reform and infrastructure investment are both required to improve competitiveness.
- Transport infrastructure has monopoly aspects. Regulation is required to ensure that infrastructure owners do not exploit this position.
- The transport industries also suffer from monopsony (single buyer). Thus the white paper advocates government intervention on behalf of small-scale trucking businesses in danger of exploitation by large-scale consignors. In Europe, as elsewhere, screwing down freight rates is an important cause of unsafe driving.
- Transport infrastructure generates locational advantage and can correct locational disadvantage. This is particularly important in Europe, which is trying to equalise prosperity in all parts of the Community.

This case for regulated competition would remain even if user charges recovered all infrastructure costs. However, the transport sector, in Europe and much more so in Australia, is rendered even more dependent on government decisions because roads do not bear user charges. The fact that road users do not pay directly makes it impossible to put roads on a business basis.

At this point it is usual to claim that road users pay user charges in the form of registration fees and fuel taxes. The European white paper does not make this claim, arguing instead that fuel taxes (even at high European levels) are a form of environmental taxation, and should be seen as part of the program to meet greenhouse gas emission abatement targets. In Australia, the Commonwealth prefers to take no more than minimal greenhouse abatement action, and has not tried to defend its fuel taxes on environmental grounds. However, neither are fuel taxes road user charges. The legal position is clear: fuel taxes are an excise and are reserved under the Constitution for the Commonwealth. Road owners – the state and local governments – do not have the power to recoup road costs through fuel taxes, nor is it appropriate that they do so. A flat-rate fuel tax does not recover the costs occasioned by particular vehicles operating on particular roads, because road costs vary considerably in relation to fuel used. The same can be said of revenue from registration fees, which does not vary at all with vehicle usage.

With the advent of electronic toll technologies, it is no longer possible to argue that roads cannot be user-charged because of the high costs of toll collection. It would not now be difficult to impose an economically-rational set of road user charges. Vehicle owners would pay a toll for each use of each road, including capital cost recovery. They would also be required to pay environmental charges related to their emissions. Road owners would be able to vary their tolls according to vehicle characteristics which impact on costs. Vehicle operators who reduce their costs by imposing additional costs on road owners (e.g. by raising axle loads) would pay higher tolls. At least in theory, a compromise would be reached which minimises total transport costs incurred by vehicle operators and road owners.

**"It is no longer possible to argue that roads cannot be user-charged because of the high costs of toll collection."**

If roads were run as businesses, land costs would be included as part of capital, so that tolls would be much higher in urban areas, with their high land values, compared to country areas. Roads would be expected to pay dividends to their owners. Loss-making roads would be closed or downgraded unless there were compelling economic or social reasons to keep them open. Profitable roads would be upgraded, but extra land would be bought for roads only if prospective toll revenues justified the purchase.

In areas where land values are low, the rule would be to provide capacity for all traffic offering, and the toll would not therefore vary by time of day. In areas of high land value it is likely that the extra revenue required to generate the required rate of return on the high-value land would be raised from differential tolls imposed during peak periods. These tolls would work much like the high peak-period fares currently charged by the airlines.

The vision of a profitable road system financed from user charges has its practical limitations.

- It would be difficult to impose user charges on local traffic, especially pedestrian traffic. However, for traffic to and from local properties local government rates come reasonably close to a user charge.
- It would not be cost-effective to erect electronic toll gates on roads with low traffic. However, satellite-based systems may provide alternatives for such roads, and also catch vehicles using back roads to avoid charges.
- At present it is difficult to sense axle-loads and other vehicle characteristics which relate to road damage. However, technological developments should allow these characteristics to be identified and included in the charges.

A more fundamental objection to road user charges is their Big Brother aspect. Electronic road user charging systems do indeed raise opportunities for surveillance, though no more than electronic banking and other mass data systems. The general introduction of road user charges would also have major distributional effects, with much depending on the adjustments to public finance which would result from the conversion of roads from their present status as a drain on public funds to a source of profits.

This said, politics provides the main objection to road cost recovery, and the main reason why AusLink treats it with such coyness. Australia has no Switzerland – no electorate with a strong self-interest in leading the way to increased tolls. Instead, a majority of its voters are convinced that, somehow, they more than pay for the roads they use. There is little option but to soldier on in a world which is necessarily inefficient due to its lack of road pricing.

## 11.2 Australian transport policy given the absence of road user charges

Given the lack of user charges, it is very hard for a road administration to know what standard of road to provide. Decisions can become very political, since there is no business test of whether a road is profitable or not. To guard against rampant politics, and to pursue economic efficiency, road administrations have endeavoured to develop rules by which road provision approximates that which would occur were the roads to be provided on business lines. Most of these rules have been developed to guide new construction and upgrading, it being assumed that all current roads should be maintained. We suggest that upgrading rules could be developed by Councils to assist identifying redundant roads (see Chapters 8 to 15).

In rural Australia, road authority investment has resulted in the provision of plenty of road space, so that road congestion is virtually unknown. If it ever arises, road capacity is quickly augmented, since any required land can be purchased cheaply. The main questions in the administration of country roads (including inter-capital highways) are the speeds and loads for which each road is to be designed and maintained and, at lower traffic levels, whether the road is to be maintained as is, upgraded, downgraded or abandoned. These aims would be most efficiently fulfilled if the road owner had control over vehicle speeds, loads (both axle-loads and overall loads) and bad weather usage. Unfortunately, road owners have only limited control over the attributes and behaviour of vehicles using their roads. Often, they can neither charge nor prohibit, which leads to further inevitable inefficiency.

By contrast with rural areas, the land on which urban roads are built is valuable. The land costs of capacity augmentation are high, not only because of the per-hectare value of the land, but because of the near-impossibility of finding new rights-of-way which do not involve wholesale demolition of valuable buildings and devaluing adjacent properties by exposure to noise and pollution. Urban road space is thus limited in supply, and it is not always possible to provide for all traffic offering. Were user charges available, road space would be rationed during peak periods by charging a higher toll. In the absence of user charges, road space is rationed by congestion. In other words, a consequence of insisting that the road system be toll-free is that, in areas of high land value, congestion is economically efficient (at least up to a point). In the absence of user charges, congestion can only be eliminated by devoting much more land to roads than is economically justified. Further attempts to alleviate urban congestion by building more roads have hidden costs, in that they reduce over-all urban density. Trip origins and destinations move further apart, and the public must bear the cost of additional trip length.

In the absence of user charges, roads must be tax-financed. They are therefore a government responsibility, though there is nothing to prevent contracting-out of construction or maintenance or both. Here the matter could finish if the governments responsible for roads had sufficient tax revenue from which to finance the required expenditures. Unfortunately, this is not so.

We have noted that local government rates are a suitable source of funds for roads and footpaths which provide access to the properties which yield the rates. Indeed, provision of access raises property values, and rates can therefore be defended as coming close to a user charge. However, this is not true when rates are used to finance roads for through traffic, or are used to finance roads which, through noise and pollution, depress property values. Again, if they are to finance the roads, councils should have control over vehicle characteristics which impose road costs. However, they have a very limited capacity to impose and enforce such controls as load limits. The Commonwealth and the states decide such matters, and it is arguable that those who decide should pay.

Like local government, the states have a limited range of tax opportunities. The have vehicle registration fees, but these are unrelated to road use. High vehicle registration fees are regarded as a serious impost on low-income people, and registration therefore does not contribute much to road finance. The states' attempt to impose mass-distance charges on trucks was subject to widespread evasion, and was replaced in 1979 with state petrol taxes, which in due course were declared

unconstitutional and withdrawn. (Had the mass-distance charges survived into the GPS era they could have formed the basis of a rational system of road user charges.) With limited other sources of tax revenue, the states, like local government, have turned to the Commonwealth for roads grants.

A major element in AusLink is accordingly grants, paid in lieu of user charges, from the dominant tax-raiser in the Australian federation to the governments which have responsibility for roads.

When grants substitute for user charges, what are they meant to cover? In private business, user charges cover all costs, including operating costs and the servicing of capital. However, when grants substitute for user charges, the conventions of government cash accounting have been applied. The recent partial adoption of accrual accounting by various governments has not had any effect on this practice. Thus Commonwealth grants for roads are intended to contribute both to maintenance costs and to new construction. They are not intended to provide road-owning governments with a return on capital. Rather than borrow to invest and earn revenue from which to pay maintenance and service the investment, road-providing governments are expected to use grant money and their own tax revenues both to build and to maintain roads. This introduces a very considerable divergence between road finance and business finance.

It is this road-building element, , which seems to have prompted the inclusion of the railways in AusLink. The capital element would also justify inclusion of air transport and shipping and even pipelines. The reason why the railways are in, but the others are out is practical: the railways are in head-to-head competition with road transport, particularly for freight. The competition between air and road transport is mainly over passengers, who are a secondary consideration in AusLink, while sea transport competes with land for a relatively narrow range of bulk traffics. AusLink assumes that railways are able to cover their maintenance costs, but may require capital infusion. The competitiveness of inter-capital rail transport will be improved by selective investment, but the competitiveness of trucks will also be improved by raising permitted axle loads.

This discussion may be summarised as raising the question of whether AusLink represents, as claimed, a movement towards economic rationality in Commonwealth transport funding. It could represent such a move in several ways.

- By encouraging a move to user charging for roads.
- Short of this, by moving road administration closer to what would be achieved by user charging.
- By improving the allocation of capital investment in transport.

These questions are essentially tests of AusLink's claim to target transport investment to priority needs. Before considering this claim, little historical background may be useful in assessing whether AusLink really constitutes 'a far-reaching transformation of the way Australia plans, funds and delivers land transport infrastructure'.

## 11.3 History[23]

As regards transport, the Constitution provides that the Commonwealth may make laws with respect to:

> 'The acquisition, with the consent of a State, or any railways of the State on terms arranged between the Commonwealth and the State' (section 51(xxxiii) [and] (xxxiv) 'Railway construction and extension in any State with the consent of the State'. It also provides (102) that there shall be an Inter-State Commission with (102 and 104) powers to regulate rail freight rates. There is nothing about roads.

Given its powers, it is not surprising that the Commonwealth's first investments in land transport should have involved railways. In 1907 it began the survey for the railway from Port Augusta to Kalgoorlie. Substantial investment in the new east-west transcontinental railway followed, and the line opened in 1917. As owner of the Commonwealth Railways and its successors, now the Australian Rail Track Corporation, the Commonwealth has ever since been responsible for the capital budgets of the east-west transcontinental line. Meanwhile, in 1911, the Commonwealth took over from South Australia the beginnings of the north-south transcontinental railway, and began to extend them towards each other. However, construction was suspended in 1929, and the line was not completed until 2004 – and then not by the Commonwealth.

Because of constitutional limitations, Commonwealth expenditure on roads has always been via grants to the states and local government. Its first road grants, made in 1919, were to local government, not the states, and were ad-hoc payments to enable councils to employ returned soldiers on road-works. A systematic program of road grants began in 1926, following the imposition of a petrol tax. A grant of £2 million a year was distributed among the states (equivalent to around $110 million a year in 2004 dollars). Thus began a grant system which has lasted until the present day.

Initially the grants were for country main roads, but in 1931 this restriction was lifted and the grants were for the states to spend on roads in general. However, in 1947 the Commonwealth began to re-impose restrictive conditions, beginning by reserving a proportion of the total grant for rural local roads. At first this was distributed among councils by the state road authorities, but in Roads to Recovery and now in AusLink it has developed into a sub-program of direct Commonwealth road grants to local government.

Motor vehicle ownership and operating costs fell rapidly in relation to wages during the 1920s. Again in the 1950s and 1960s, motor vehicle ownership increased, and with it the demand for better roads. The Commonwealth continued and expanded its grants program. From a Commonwealth point of view, a landmark event was the setting up of the Commonwealth Bureau of Roads in 1964. This marked a move to take roads out of politics by applying cost-benefit analysis. Forty years later, under AusLink, the Commonwealth is continuing to pursue this strategy.

The work of the Commonwealth Bureau of Roads culminated in the 1969 Commonwealth Aid Roads Agreement. Whatever its merits in terms of project selection, this Agreement was no break with the past in terms of funds granted. It merely continued the established rising trend by providing road grants to the states of $250 million a year (around $2000 million a year in 2004 dollars). Roads grants were re-badged with fanfare in 1982 as the Australian Bicentennial Road Development Program, and again re-launched in 1985 as the Australian Land Transport Program. Through this series of programs the Commonwealth gradually increased its emphasis on financing the main interstate highways. To rationalise payments for local roads, the Commonwealth in 1992 shifted responsibility for distribution of its local road grants from the state road authorities to the Local Government Grants Commissions.

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[23] This history was compiled from original sources. The Parliamentary Library has recently issued a research paper on a similar topic to which the reader is referred for additional information.

Although the grants were still distributed according to an assessment of road needs, they became untied. They no longer had to be spent on roads, although there was scarcely a Council in the whole land which spent less than its identified road grant on roads.

The culmination of the concentration on inter-capital roads came in 1994. The Commonwealth defined a system of National Highways, which were essentially the inter-capital highways including their connections with one another within the metropolitan areas. The Commonwealth took responsibility for these National Highways and for no other roads. Although the states were still responsible under the Constitution, the Commonwealth planned all expenditure on National Highways, funding it through tied grants. The idea was to improve planning through a strict division of responsibility. The idea was gradually abandoned, for several reasons.

- Local and state governments both complained that the division of grants and responsibility gave them insufficient funds to maintain, let alone extend, their road systems.
- The Commonwealth complained that the states were diverting local traffic, which was really a state responsibility, onto National Highways.
- Commonwealth politicians came to feel that they were not receiving sufficient kudos for their expenditure on roads.

The result was two ad-hoc programs.

- Roads to Recovery provided earmarked road funding for local government. Although distributed as an add-on to the identified road grants, the funds had to be spent on identified projects and acknowledged with notices. By this means the Commonwealth came to be identified as the source of funds for each council's priority road projects.
- Roads of National Importance (RONI) provided opportunities for the Commonwealth to extend its finance to selected major roads other than National Highways. This program came under suspicion of pork-barrelling.

One of the purposes of AusLink is to remove the ad hoc RONI element from Commonwealth road funding, and return it to the consistent basis it originally gained in 1994. The other purpose was to integrate the previously ad hoc grants for rail capital projects.

Commonwealth capital grants for railways other than the transcontinental line under direct Commonwealth control began in the late 1920s with the construction of the standard-gauge line into Brisbane. Thus began a series of investments, undertaken at the rate of roughly one a decade (skipping the 1940s) which took until 2004 to link Perth, Adelaide, Melbourne, Sydney, Brisbane and Darwin by standard-gauge line. However, until AusLink the Commonwealth had never acknowledged that, on inter-capital routes, road and rail infrastructure investments are at least partial substitutes, and that there are potential efficiencies in balancing investment between the two modes.

As regards expenditure levels, it is difficult to compare AusLink with its immediate predecessors due to recent changes in Commonwealth financial reporting. However, the following would appear to apply.

- Funding for local roads (including identified roads grants, Roads to Recovery and regional roads) is to be maintained in real terms.
- Funding for roads included in the National Network is to be increased by around a third compared with the previous National Highways and Roads of National Importance.
- Funding for rail track investment is to be increased significantly.

A second comparison is with the five years 1991-2 to 1996-7. During this period Commonwealth infrastructure investment was running at a high level to promote recovery from the 1991 recession. This comparison is less favourable to AusLink, since on attaining office in 1996 the Coalition government cut infrastructure investment in order to reduce government borrowing. AusLink compares as follows with the five years before the Coalition cuts.

- Real funding for local roads will be approximately 80 per cent greater, continuing the increase initially made when Roads to Recovery was introduced.
- Funding for the National Network will be around 25 per cent below the level of Commonwealth grants for state and national roads in the first half of the 1990s. These amounts are not strictly comparable, because grants for state roads, other than national roads, was absorbed into general state grants in 1994. A rough judgement is that Commonwealth funding for the national road network is planned to return to around early 1990s levels.
- Rail funding will be around double the average achieved in the early 1990s, though not so much above the peak expenditure year for the Melbourne-Adelaide gauge conversion (1993-94).

In other words, the AusLink program is significant, but as regards funding levels does not represent a decisive break with the past. As implied by the document itself, its claim to significance lies in its revised approach to project selection.

## 11.4 AusLink and local roads

Local governments currently receive identified road grants, which are distributed by formulae reflecting road needs. Identified road grants are not specifically allocated to road construction or maintenance, and indeed do not have to be spent on roads. AusLink continues this distribution, with the proviso that the Commonwealth may choose to bypass the State Grants Commissions and distribute the money according to an all-Australia formula of its own devising. In the meantime, the grant for South Australia is to be increased. The interstate division of identified roads grants dates back to the Commonwealth Bureau of Roads, which was asked to identify priorities for road upgrading. Because South Australian local roads were generally in better condition in the 1960s than those of the other states, South Australia has ever since had to make do with a smaller share of the total grant than it would have earned under an updated all-Australia formula.

The Roads to Recovery program will likewise continue, with funds distributed by the same formulae as identified road grants, but spent on particular acknowledged projects. These projects can be major maintenance, but the Commonwealth may often implicitly prefer construction. However, the flow of funds under this program is to be reduced by one-third. The amount thus shaved off Roads to Recovery is to be diverted to Regional Strategic Investment. In other words, grants available for road maintenance are to be cut in favour of construction.

Given that one of the purposes of AusLink is to remove accusations of political advantage which have arisen from the selection of Roads of National Importance, the White Paper is very concerned to avoid the impression that it is re-inventing RONIs under another name. The Commonwealth envisages that there will be numerous applicants for Regional Strategic Investment, and it will accordingly be in a position to select projects using a strategic merit test with the following elements.

- The project should enhance the ability of regional industry and communities to compete in the national and global marketplace.
- The project should target a local transport link of regional significance. The proposed tests of significance include (i) connecting regions to each other or to the National Network, (ii) forming an important part of the economic development strategy of a region, (iii) assisting exports and (iv) enhancing access from regional communities to services and employment.

- The project should have been generated through a regional planning process and be consistent with State/Territory regional planning.
- It should have broad support from relevant stakeholders, including local councils, local businesses and industry, regional development organizations, Area Consultative Committees and community groups.
- It should include funding from other parties, including State/Territory governments, local government and businesses likely to benefit from the project.

Other conditions include the following.

- Except in unincorporated areas, the primary proponent must be a council, a regional organisation of councils, or a local government association.
- Preference will be given to projects which councils would otherwise find difficult to fund, including projects in regions of high growth and, conversely, projects in regions facing a declining rate base.
- Projects are not limited to road infrastructure, but may include rail or 'technology solution' elements.

**Table 11.1 Proposed AusLink grants – 2004-05 to 2008-09 ($ million)**

| | | | | National network construction | | | |
|---|---|---|---|---|---|---|---|
| | Roads to recovery | Strategic investments | National network road maintenance | Country roads | Metropolitan roads | Rail | Total |
| NSW | 223 | a | 117 | 1,656 | 177 | 560 | 2,733 |
| VIC | 162 | a | 35 | 436 | 853 | 105 | 1,591 |
| QLD | 162 | a | 67 | 453 | 1,144 | – | 1,826 |
| WA | 117 | a | 30 | 238 | 181 | 14 | 580 |
| SA | 72 | a | 26 | 76 | 107 | 30 | 311 |
| TAS | 26 | a | 7 | 134 | – | – | 167 |
| NT | 24 | a | 18 | 75 | – | – | 117 |
| ACT | 13 | a | 1 | – | 2 | – | 16 |
| Unallocated | | 400 | 1,200 | 155 | – | 30 | 1,785 |
| **TOTAL** | **800** | **400** | **1,500** | **3,223** | **2,464** | **739** | **9,126** |

*Notes:* a to be allocated by competitive tender.
Table excludes Financial Assistance Grants identified for roads.

## 11.5 The National Network

As with the other Commonwealth transport grant programs since Bicentennial Roads, AusLink concentrates at the two ends of the distance spectrum: local roads at one end and interstate routes at the other. The major change is the shift from National Highways which are completely Commonwealth-funded, and ad hoc Roads of National Importance which are partly Commonwealth and partly State/Territory funded, to a National Network of roads and railways.

National Network roads will be maintained by the States and Territories. The Commonwealth will contribute $1.5 billion towards this cost, or 20.7 per cent of road grants for the Network. It is doubtful

whether this is sufficient. In the United States the emphasis in road spending is now on maintenance rather than extension, and maintenance concerns have led the Americans to freeze truck axle loads – a policy which contrasts with AusLink's proposals for further increases. Stricter regulation of trucking is one reason why the proportion of freight tonne-kilometres carried by rail is higher in the USA than in Australia: 40 per cent as against 35 per cent.

Neglecting maintenance, the Commonwealth will invest 79.3 per cent of its AusLink National Network road grants in improvements which it expects to yield national benefits. A condition of these Commonwealth investments is that the States and Territories must not direct local traffic onto the National Network. However, they may do so if they invest to expand capacity to carry this traffic, and joint investments are also envisaged. There is nothing to prevent State and Territories, or businesses subcontracted by the States and Territories, from recouping their costs from road user charges, but this is not a requirement.

National Network railways will be maintained from user charges by the owning authority (of which there are five). The Commonwealth will contribute towards improvements which are expected to yield national benefit.

According to the White Paper, the National Network has been defined to include:

- corridors with high interregional freight volumes and passenger flows;
- links to major centres; and
- links of strategic trading importance, especially for exports.

The Network thus identified comprises interstate corridors with the following exceptions:

- Hobart to Bell Bay and Burnie;
- Connections to Wollongong;
- Melbourne to Mildura;
- Townsville to Cairns;
- Perth to Bunbury; and
- Melbourne to Sale, where, contrary to the general principle of AusLink, only the road has been included, not the parallel railway line.

The first of these exceptions covers the links from Hobart to Tasmania's three main interstate ports, but the rest are harder to justify as essential interstate links. For that matter, large sections of the National Network, which happen to form part of interstate routes, happen to carry a great deal of local, within-region traffic. This is particularly true of the urban sections.

The general rule in Sydney, Melbourne, Brisbane and Perth has been to include the following as parts of the National Network.

- Roads and railways entering from interstate to the point where they connect with each other.
- Roads and railways connecting the interstate connections to the seaport.
- A road connection to the principal airport.

In these cities the National Network comprises:

- a ring road anchored at the port and sweeping up to 180 degrees round the city – as far as is necessary to connect with the roads coming in from interstate;
- sundry connections to inter-modal terminals and airports; and
- rail lines radiating from the port.

Unlike the arterial road networks which have dominated metropolitan planning since the 1950s, the National Network studiously avoids the CBDs, though in Melbourne it comes perilously close. The National Network does not, therefore, include all the limited-access freeways constructed in these cities over the past three decades. However, most of the National Network roads in these cities are limited-access, or shortly to be upgraded to limited-access.

Adelaide is different, because it has no ring road. The National Network in Adelaide comprises a selection of that city's arterial roads, complemented by a through railway with connection to the port. In Adelaide it will be very difficult for the Commonwealth to realise its ambition of catering only for inter-regional and port-related traffic. However, Adelaide apart, the National Network would appear to accord as nearly as practicably with the Commonwealth's desire to concentrate on interregional transport.

## 11.6 AusLink and transport flows

The National Network certainly serves to identify the main inter-capital corridors. If the purpose of transport investment were to enhance national integration, the program has made its case. But how good is it assessed by national priorities more generally?

Given the importance which the Coalition government places on commodity exports, a surprising aspect of AusLink is its lack of attention to the needs of the bulk export industries. The sector is not completely neglected – the local roads program, and perhaps some of the projects contracted under Regional Strategic Investment, will contribute to the transport needs of the bulk export industries. So will the National Network, but only to the extent that export traffic uses the Network in its approach to the ports, not for that traffic which proceeds direct to port. AusLink ignores the arterial roads and the branch railways which are very important for export commodities. The danger in leaving these links to the states and to railway owners is that they will be under-funded. Within the AusLink framework this could be addressed by switching funds from the National Network to Regional Strategic Investments.

The area which the program deliberately neglects is urban transport. There are good arguments for this. In the cities, connections between transport and land use are so strong that it is important that the authorities responsible for planning land use should also plan transport investments. The responsible authorities are the states and territories, and AusLink is on strong ground in leaving urban transport to them. However, as with rural arterial links carrying export traffic, the corresponding danger is that of under-investment. There is also a danger of under-provision of public transport where this is required to support intra-urban location strategy, and also where subsidies are required to counter-balance free road use.

The Commonwealth's rejoinder could be that it is withholding funds until such time as the states and territories develop coherent metropolitan strategies, much as it withheld funds from rail investment pending complementary microeconomic reform. However, the Commonwealth has not indicated an interest in urban strategy: AusLink does not contain a chapter on rationalising urban transport, as is included in the European White Paper.

Given the Commonwealth's wish to distance itself from urban transport, there are two chief worries about the urban effects of AusLink.

- Rail has advantages in regions of high population density and land value and limited scope for the expansion of roadspace. AusLink agrees with the Europeans in planning for high-capacity freight-only rail connections to the ports, but is not giving them high investment priority.
- By extending National Network roads into the metropolitan areas, even on the restricted basis laid down in AusLink, the Commonwealth cannot but affect urban traffic patterns. One worry would be that the concentration on ring roads will result in the development of American-style 'ring cities', contrary to the various state metropolitan strategies. However, if freight-intensive activities are located along the ring roads, and people-intensive activities elsewhere, the ring

roads could made a positive contribution to metropolitan layout. This would be assisted if, as AusLink implies but does not require, they are managed for freight flows rather than car travel.

## 11.7 Conclusion

AusLink is not a far-reaching transformation of the way Australia plans, funds and delivers land transport infrastructure. Considered as a strategic approach to ensure that Australia's land transport network meets future challenges, it is incomplete because it avoids questions of regulated competition, investment finance, cost recovery and environmental costs. It is a grants program like its predecessors, a little bit larger and a little bit broader. It takes a step towards rationality and efficiency but there is still a long way to go.

From a local government point of view, AusLink locks in the welcome increase in grants which came with Roads to Recovery. However, it foreshadows further increases in axle loads. It will be difficult to prevent this increase from applying to local roads, with consequent increases in local government costs. The Regional Strategic Investment program also puts local government on notice that the Commonwealth intends to become much more active in the allocation of its grants. This could be a first step on the way to a much more European approach, where road owners are expected to integrate road transport with local social and economic development, and to be much more pro-active in the direct recovery of road costs.

# 12. Mallee-Wimmera Case Study

*The underlying theme of this State of the Regions report is that infrastructure investment will soon regain its rightful place at the foundation of economic development policy. This will require commitment to the development of proposed projects.*

*The Wimmera Mallee Pipeline Project has been selected as a current proposal, not yet financed at the time of writing, which illustrates many of the dilemmas which arise in committing to an infrastructure project. The investment involved is significant – over $500 million – and the population which will directly benefit is relatively small – less than 35,000 and currently declining. How can a small population, which lacks political clout at the federal level, justify an infrastructure investment of $15,000 per resident?*

*The proponents of the project have taken many of the steps advocated in this report. They have formed a regional coalition of local governments and other stakeholders, and have prepared a cost-benefit analysis which supports the project. They are prepared to support the project by paying user charges.*

*The project is partly catch-up maintenance, partly a response to the increase in environmental concerns (and hence also catch-up in the sense used in this report), and partly upgrading in quality of supply. It is arguable that the environmental benefits, at least, will be spread more widely than the region itself. The current sticking point in financial negotiations results from the questions: how far should user charges be increased to service on-market borrowing? and how far should the project be financed from grants from the State and Commonwealth governments as representatives of environmental beneficiaries? There is an overlay of concern for the regional distribution of income and employment.*

*Current negotiations over financing the Wimmera-Mallee pipeline serve to illustrate many of the themes of this report.*

## 12.1 Introduction

Much of Southern and South-Western Australia has a Mediterranean climate characterised by winter rains and summer drought. This climate is ideal for growing summer-ripening cereal crops such as wheat. The region can also diversify into stock farming, because paddocks not sown for grain produce a spring flush of grass. During the dry months the stock can eat feed left standing in the paddocks, or can be fed on hay harvested during early summer. However, this is only possible if the animals have water to drink. In colonial Australia water was doubly important, because the machinery used in grain farming was horse-drawn, and farming was not possible without a reliable drinking water supply for the horses, as indeed also for the farmers themselves.

In a few areas of Mediterranean climate, such as round Perth, summer water supply could be drawn from wells. Elsewhere, as in the gently hilly country north of Adelaide, the obvious way to ensure summer supply was to build dams to store water from the winter rains. At first the dams served individual farms, but small systems were soon built, with a dam in a nearby range serving a number of downstream farms.

Unlike wool, cereals are high bulk for value, and cannot be grown economically without low-cost transport to market. Early Australian cereal farms in Tasmania and South Australia relied on sea transport, but by the 1880s railway construction was opening large tracts of inland Mediterranean country to wheat growing. South Australia continued to rely on farm dams fed by local catchments, but in the Wimmera of Victoria the geography was different. The Wimmera consists of a fertile plain sloping gently north from the Grampians – the western tip of the Great Dividing Range. Several small rivers and creeks have their headwaters in the Grampians and flow northward.

## 12.2 The history of stock and domestic rural water supply

The Wimmera-Mallee stock and domestic supply system, built from the 1880s on, does not supply water for irrigation, but only drinking water for stock and water for house and garden use. About half the water supplied is used on farms, and half in the towns of the region. The system has three principal elements.

- Farm and town dams (which would be called tanks in New South Wales) are used to store water for summer use.
- A system of channels is used to fill the dams during winter. The channels run at the same time and in the same general direction as the creeks, and indeed include some sections which are also natural creek beds.
- A couple of small reservoirs in the Grampians act as intake points.

This system was gradually extended northwards in tandem with railway construction. It reached its maximum extent with the completion of various soldier settlement schemes in the 1920s.

When the wheat-sheep belt was extended into New South Wales, it did not require stock and domestic supply. Farm tanks sufficed, for two reasons:

- most of the wheat-belt Riverina is gently sloping, and generates runoff which can be captured; and
- except during droughts, it receives rain at all seasons, so there is not the problem of storing water against a regular rainless summer.

By contrast, at the other end of the continent back of Perth, the climate is uncompromisingly Mediterranean. Worse, the potential wheat country slopes generally upwards from the only area with winter rains sufficient to generate reliable runoff. It may not have developed as a wheat belt save that, during the 1890s, Western Australia benefited from a gold rush. Newly affluent, it committed itself to a number of large public works projects, among them the railway to Kalgoorlie, the harbour at Fremantle and the Goldfields Water Supply. This last originally comprised a reservoir in the ranges back of Perth, some pumps and over 500 km of pipe, the whole costing around $300 million in 2004 dollars. This was an enormous amount in relation to the Western Australian economy of that day. As often happens with infrastructure projects, even those which subsequently prove to be good investments, there was much trepidation and much criticism. It is said that criticism of his projects drove the visionary engineer in charge, C. Y. O'Connor, to suicide.

Though the Goldfields Water Supply was directed at the mining industry, it quickly proved its worth as a water supply to the wheat country it passed through en route. Western Australia later built a second scheme, to serve the southern parts of its wheat belt. However, limits to the available supply have meant that piped water was never extended to the whole wheat belt, and many cereal-growing areas of Western Australia rely on on-farm catchment and storage to this day.

South Australia took notice of the Western Australian achievement. Such was the water-parsimony of piped systems that it was possible to extend stock and domestic supply to most of Eyre Peninsula from a very small catchment above Port Lincoln. Local catchments in the Mid and Upper North were also augmented with piped supply from the Murray River. High investment by Western and South Australia in piped water may account for their tardy investment in bulk handling of cereal crops. New South Wales and Victoria converted to bulk handling during the 1930s, investing heavily in silos. The other two wheat-belt states did not convert until the 1960s.

Though it was early into bulk handling, Victoria ran into trouble with water supply. The 1930s were a dry period, much like the present, and the Wimmera-Mallee stock and domestic supply system failed to meet its commitments to farms and towns alike. The solution was seen as headworks augmentation,

it being estimated that supply could be guaranteed by spending $60 million (2004 dollars) on a new dam on the upper stretch of the Glenelg River.

The drought in 1941-45 was particularly bad, and the channels filled up with wind-blown sand. However, this experience did not cause the Victorian government to look west across its borders and consider the merits of piped supply, which it still regarded as too expensive. Instead it lectured its farmers on the importance of conservation against wind erosion, and as soon as the war was over proceeded with its dam-building scheme. Along with several others, the Rocklands dam was built in the years 1946-53, at an eventual cost of around $(2004) 85 million.

**Main street, Warracknabeal, central town in proposed scheme**

There followed a succession of wet years when the Wimmera-Mallee stock and domestic supply system operated to everybody's satisfaction. However, the test of a water supply system is drought, and in the 1990s the system was again unable to fulfil its commitments. Worse, it came under a number of additional criticisms.

- Water quality was less than satisfactory.
- Seepage from the channels was raising water tables and ruining paddocks.
- The system was denying environmental flows to the Glenelg and Wimmera rivers and to the other creeks of the region.

A little careful calculation showed that only 15 per cent of the water input into the system was actually used on farms or in the towns, the rest being lost by evaporation and percolation.

## 12.3 The pipe-it proposal

During the 1990s the northern extremity of the system, where percolation was most serious due to the sandy soils, was converted to piped supply. The obvious next step is to replace the existing channel system with pipes, and design work has already been completed. The new 'pipe-it' system has been designed to run all year, so there will no longer be any need for farm dams or town storages apart from tanks to provide for peak usage such as spraying and fire-fighting. The headworks will take on the role of transferring water from winter to summer, but even so the reduction in percolation and evaporation losses will be so dramatic that water from the Rocklands dam will not be needed. With hindsight, this dam emerges as a rather poor investment.

The problem is the price tag: $(2004) 419 million in public works, plus $82 million in on-farm costs. A lot of benefit is required to justify the making of such a large infrastructure investment.

The business case for the project estimates that total benefits will exceed total costs by 20 per cent. The benefit-cost ratio is thus 1.2, which justifies construction but does not leave much leeway for cost increases, or for overvaluation of benefits. Again, this ratio of 1.2 may not be particularly attractive to governments whose funds are limited if they are receiving proposals for other projects with higher benefit-cost ratios. The benefits include the following.

- It will not be necessary to patch up the existing system. This accounts for 26 per cent of benefits as assessed.
- On-farm, water quality and local recreational benefits account for 10 per cent.
- Improved water supply will bring economic development opportunities. These comprise 23 per cent of benefits as assessed.
- The remaining 41 per cent of benefit is expected from environmental improvements.


**Murtoa, an example of a town which requires the pipeline system maximise the population advantages of its location and amenity**


**Map of Mallee-Wimmera pipeline project**[24]

Had an equivalent list been drawn up before the State of Victoria made its investment in the current Wimmera-Mallee stock and domestic supply system, it would have been quite different. On-farm benefits and development opportunities would have accounted for the entire benefit list, and environmental effects would have featured as a cost rather than a benefit. This serves to identify the nature of the pipe-it proposal: it is mainly a catch-up investment, with a relatively small capacity-increasing component (23 per cent of benefits in the business case for the project). As such, it is an example of a type of investment that is likely to become increasingly common. For example, if energy prices rise and/or the value placed on the environmental cost of energy use rises, Australia is likely to have to invest to fix its transport system, dependent as it now is on cheap energy.

[24] Mallee-Wimmera Pipeline Project, Interim Business Case – Volume One, November 2003

Like most infrastructure investments of its day, the original Wimmera-Mallee stock and domestic supply system was paid for out of loan funds, with the loans being recouped, along with operating costs, out of town rates and farm charges, which were calculated per hectare served, not per litre delivered. The intention was that landholders should pay both the operating and capital costs of the system. However, given the substantial inflation which occurred during the payback period, the loans were not repaid in currency of the same value as that which was borrowed. In effect, the greater part of the cost was met by the bondholders, who did not get back as much as they had lent. In addition, the presence of environmental benefits in the benefit-cost calculation for the new scheme indicates that the old system incurs environmental costs which are now regarded as excessive.

One can argue that the catch-up investment should be similarly financed. The interim business case for the pipe-it proposal implies that resort to loan finance would more than double water costs in the region. Advocates of straight loan finance argue that this would simply bring home to the region the environmental costs which are imposed by the existing system and the capital costs which it avoided through inflation. Confronted with a price of this order, the regional decision would be to struggle on with the existing system, taking the risk that it will break down completely.

However, there are four main arguments why the region should not be obliged to take out a loan to cover the full cost of the catch-up.

**Table 12.1 Water for the future of the Wimmera-Mallee**

| Class | Usage | Terms of supply | Design features | Allocated volume (ML) |
|---|---|---|---|---|
| Environmental water | Flows in Wimmera and Glenelg systems* | 'Environmental Reserve' subject to management by CMA | Releases subject to operating plan | 70,000 |
| | Flows to the Murray and tributaries | No longer taken from Waranga Western Channel | Winter flows and channel release | 12,000 |
| | Flows to the Avon Richardson and Avoca Rivers | No longer required for supply | Unregulated passing flows | 7,500 |
| | Enhanced modified wetlands | Subject to management plans | Off-peak supply from pipeline | 1,000 |
| **Sub-total** | | | | **90,500** |
| Rural | Homestead | 736 kL/Household | 9.5 litres/min | 2,060 |
| | Stock and commercial | 2.575 kL/Ha based on 1992-93 stocking rate | 9.5 litres/min | 5,150 |
| | Commercial growth | 2.5 kL/Ha | 9.5 litres/min | 5,000 |
| **Sub-total** | | | | **12,210** |
| Urban | Household | Supply terms subject to customer contract | Allows 10 per cent for future growth | 8,620 |
| Commercial | Supply by agreement and intensive | Defined in contracts | Subject to meter size | 1,800 |
| New commercial – in system | Growth within system both rural and urban | System augmentation paid by user | Water allocation purchased by user | 5,000 |
| New commercial – outside system | Growth outside system | Delivery infrastructure provided by user | Water allocation purchased by user | 10,000 |
| Recreational lakes | To supplement natural catchment flows | Determined on a lake by lake basis | Supplied off-peak during winter | 3,000 |
| **Sub-total** | | | | **28,420** |
| **TOTALS** | | | | ****131,130** |

*Notes:* * Subject to the Operating Rules, Restrictions Policy and decisions of the Wimmera and Glenelg Hopkins CMAs.
** Total of 131,130 includes full resource availability from Grampians and Waranga systems.

| **Table 12.2** | **Initial pipeline capital costs** |
|---|---|
| Item | Cost ($ million) |
| Trunk pipelines | 212 |
| Distribution pipelines | 149 |
| Storages | 10 |
| Pump stations (including SCADA) | 27 |
| Power supply | 10 |
| Channel restoration | 11 |
| **Total system costs** | **419** |

| **Table 12.3** | **Pipeline operating costs** |
|---|---|
| Item | Annual cost ($ million) |
| Pipeline O&M | 1.65 |
| Storage O&M | 0.38 |
| Power | 4.30 |
| Headworks charge | 2.36 |
| Administration | 2.00 |
| **Total recurrent costs** | **10.69** |

| **Table 12.4** | **Total present value project costs** |
|---|---|
| Costs element | Present value costs ($ million) |
| System capital costs | 343.84 |
| System operating costs | 111.90 |
| On-farm costs | 61.00 |
| Early implementation costs | 21.00 |
| **Total costs** | **536.53** |

| **Table 12.5** | **Key quantified project benefits** | |
|---|---|---|
| Category | Element | Value ($ million) |
| Environmental | Wimmera and Glenelg | 228.22 |
| | Murray System | 16.02 |
| | Seepage/salinity | 13.40 |
| Avoided channel costs | Replacement of assets | 100.00 |
| | Operations and maintenance | 64.72 |
| On-farm benefits | Broad acre | 34.85 |
| Economic development | Intensive livestock | 56.30 |
| | Viticulture | 38.86 |
| | Mineral Sands | 51.28 |
| Recreational lakes | Increased value | 10.15 |
| Water quality | Reduced salinity | 23.30 |
| **Total benefits** | | **637.12** |

## 12.4 Arguments for investment support from outside the region

### 12.4.1 Interest rates now over-correct for inflation

Given past experiences, proposals to finance infrastructure from bonds which match the life of the investment meet with investor caution due to inflation risk. In theory, this caution could be overcome by financing from inflation-indexed bonds, but these have not been popular, partly because the Commonwealth has failed to revise its tax system to make them attractive. Instead, investors have preferred to reduce their inflation exposure by getting their money back quickly. In the bond market this has been expressed as high interest rates, at least compared to those prevailing in the first half of the twentieth century. Where loans are to be raised for regional investments, this effect is compounded by local area risk premiums.

The problem of local risk premiums is tackled in Chapter 5 of this *State of the Regions* report. It should be possible, by blending Commonwealth, state and local finance, to reduce the risk premium for local investments. However, the problem of high real interest rates remains. Until such time as it becomes possible to borrow at inflation-adjusted interest rates the financial system is likely to over-charge on long-term loans. In the absence of this provision, there will be under-investment in infrastructure, unless it is sweetened by up-front grants at general taxpayer expense.

### 12.4.2 Trade exposure

A second argument relevant in the Wimmera-Mallee case applies only to water supplied to trade-exposed enterprises, including farms but excluding service businesses such as retail trade. The profitability of trade-exposed production depends on the Australian dollar exchange rate. There is a view that the exchange rate is about right, since an Australian dollar (exchanged into US cents) buys roughly the same amount of hamburger in Washington as it does in Canberra. The alternative view is that the Australian dollar is over-valued, the evidence being the large Australian balance of payments deficit. On this view, the value of the Australian dollar is only being maintained by unsustainable overseas borrowing.

If this is the case, and until such time as the profitability of trade-exposed production is raised by an exchange-rate devaluation sufficient to eliminate the balance of payments deficit, there is an argument for corrective support of investment in the trade-exposed industries. This can equitably be financed by a tax on consumption, since consumers benefit from the low prices resulting from the high exchange rate.

This argument applies not only to investment to fix the water supply to the existing broad-acre farms of the region, but to most of the potential economic developments in the region. The Wimmera and Southern Mallee recognise that they are at a disadvantage in investment attraction – in common with many of Australia's agricultural areas, they find it difficult to attract people with the specialised skills required to participate in most sectors of the global knowledge economy. However, they have identified opportunities for new developments in intensive agriculture, mining and tourism. All three are based on local resources, and most of the required labour inputs are locally available. The input lacking is secure water supply. A government that wishes to strengthen Australia's trade position within the constraints of the WTO and other free-trade agreements could do far worse than invest in improved water supply to areas specialising in trade-exposed production.

It can be pointed out, however, that half the water supplied by the existing system goes to town residents and enterprises which are not directly trade-exposed. The argument for investment to improve Australia's trade position does not apply to these customers. It is also fair to point out that people who believe that the current exchange rate is correct, and who do not deplore the balance of

payments deficit as storing up trouble for the future, will be impervious to the argument from trade exposure.

### 12.4.3 An established right to water and related property values

An argument of a rather different kind derives from history. The design decisions for the Wimmera-Mallee stock and domestic supply were made over a period of 60 years, the most recent of them (Rocklands) in 1944. With hindsight, these decisions were not the best that could have been made. Wimmera-Mallee people can argue that they should be able to share the bad luck of these decisions with the community more generally. After all, the decisions were made in Melbourne.

People in the region can also point out that are not responsible for the increased political weight now being given to environmental costs. Why should they have to pay to have their water supply fixed because it was designed in an era which did not take such costs into account? At least some members of the urban electorate agree, and are willing to support investments to increase environmental flows in Victorian rivers, not only with their votes but even with subventions from private foundations, such as the Pratt family foundation.

There is also an argument from established rights. Two generations of Wimmera-Mallee residents have benefited from the current scheme, and during the century and more of its operation a cost structure has become established which is built into the economy of the region. The residents feel that they have a right to continued water supply at more or less the present cost. This argument hearkens back to the idea of minimum standards of service throughout the country. A familiar example of this notion is the old rule that a state primary school should be provided wherever six or more children could be drawn together for classes. However, arguments about entitlement to water supply at established price have been taking a beating lately, as water shortages around the country have translated into arguments for increased price.

Whether or not the language of rights is applicable, property owners in the region may point out that catch-up projects are different from capacity-enhancing projects. If a catch-up project for water supply is loan-financed, with the loan serviced from increased user charges, the effect of the additional annual costs is likely to impact back on property values. If this happens, it will defeat the intention of spreading the cost of the catch-up between the current generation of property-owners and future generations. The cost is necessarily borne by the current generation as a capital loss. By contrast, a capacity-enhancing project is likely to raise land values, and financing it from user charges simply serves to dampen an increase which would otherwise occur. This gets back to the bad luck argument, that property-owners affected by bad past administrative decisions should be able to share some of their bad luck with other property owners who have benefited from good decisions.

### 12.4.4 Ability to pay and inter-regional equity

Leaving aside the maintenance of recreational lakes, approximately half the water delivered to final customers by the current system goes to rural stock and domestic supply, and the other half goes to residents and businesses in the various towns. Apart from supply to new industries, this division is expected to continue.

Most of the towns served by the system have declining populations, with a high representation of age pensioners. The capacity to pay of these people is strictly limited. There is an argument that they should be protected against price increases on social welfare grounds. The farm population is on average considerably more prosperous, though with exceptions. As noted above, their argument for subsidy is based on trade exposure rather than on social welfare.

Whether or not concessions are given to pensioners, the more general question arises as to responsibility of the region's towns to contribute to rectified and improved services. The towns grew

up as rural service centres and social centres, and still exercise both these roles, but their business throughputs and populations are gradually declining. Improvements in agricultural productivity have reduced the farm population, so there are fewer people to service. Increases in speeds have allowed local people to seek services in Horsham, Ballarat and Melbourne. Farmers bypass their local centre when they can get better service further afield, and this has contributed to their improvements in productivity. It is arguable that the towns are not as essential to rural competitiveness as they were a generation ago. A trend projection would be for further decline, which would release water for rural use, or mean that the replacement scheme could be designed for smaller capacity than the existing system.

Rather than plan for continued decline, the pipe-it scheme allows for growth in urban demand. Part of this is expected to be generated by new trade-exposed enterprises, and outside contributions may perhaps be justified by the trade-exposure argument – attractive living conditions, in addition to water supply per se, are part of the requirement to attract the new industries. However, in part the extra capacity is an expression of faith in the future of the towns. We again refer the reader to Chapter 5, where we outline a proposal which will make it financially easier for local people to express their faith in the local future by investing in local infrastructure.

Finally, an argument can be mounted that regions which are lagging national growth have a strong claim on infrastructure investment. This argument was outlined in past issues of *State of the Regions*, with examples from Europe. The claim is especially strong for investments which are expected to increase the regional growth rate.

Who, then, should pay to pipe-it?

## 12.5 Paying to pipe-it

According to the business plan, the benefits of the project will go:

- partly to water users (who in particular will avoid having to patch the present system, but will also benefit from improved reliability and water quality);
- partly to new businesses attracted to the region (and to old businesses which benefit by increased trade generated by the newcomers, and to the local residents who gain employment); and
- partly to the environment. Though this can be regarded as another benefit to local people (who are more likely than others to wander in the swamp-forests and fish in the rivers) it can also be claimed as a general benefit, both now and into the future. People in Melbourne may be comforted that there are still live trees around Lake Albacutya. And why limit benefit to people? Why not also value the benefits to animals and plants, and, for that matter, the benefits to God?

This diversity of benefits has generated a political stalemate. The project is not wholly aimed at improving the environment and is not wholly aimed at regional development. It will generate a mixture of local and national benefits. It mixes long-term asset maintenance with a capacity increase. Given that governments keep their money in silos, this has required the project's proponents to seek funds from a variety of silo-keepers. When they go to the Environment Minister, he says that he has plenty of competing projects which will yield much more environmental benefit per dollar invested, and similarly the Regional Development Minister claims that he has other projects which will yield much more regional development per dollar invested. The balance of national and local benefits similarly generates a game of buck-pushing between the Commonwealth and state governments, the regional water authority and local government. This game will only stop if agreement can be negotiated as to who should pay for what.

One principle implied in the above discussion is that financial responsibility should parallel the distribution of benefits. On this principle:

- customers should pay for their direct benefits, up to the increase in water price which would occur if the scheme is not adopted;
- the region should take out loans to be repaid out of revenue from the new businesses it expects to attract; and
- Commonwealth and state environmental departments should pay for the environmental improvements.

We have, however, noted additional arguments which would change the distribution of responsibility. The trade-exposure and regional equity arguments imply that the country as a whole will gain from increased prosperity in the Wimmera and Mallee, and Commonwealth regional development funds should therefore contribute to the investment. On the other hand, it has been argued that the region has been extracting economic benefit from environmental costs, and should pay for at least part of the rectification. Against this, the region can argue that the high environmental cost of the present system reflects past investment decisions, and the region should not bear the whole cost of these decisions. Since these decisions were made by the state, this is an argument for state responsibility.

Whatever the outcome of these arguments, there is a strong case for investment by the region in its own future, if only as an expression of confidence which can help to inspire confidence in outside investors. We again draw attention to the proposals of Chapter 5, which are designed to encourage such self-investment.

# Bibliography


Ashauer, D. A. (1989). Is public expenditure productive? Journal of Monetary Economics 23: 177-200.

Australia, C. o. (1992). Introduction to Cost-Benefit Analysis for Program Managers. Canberra, Department of Finance, AGPS

Banister, D. and Y. Berechman (2001). Transport investment and the promotion of economic growth. Journal of Transport Geography 9(3): 209-19.

Barrow, C. J. (1997). Environmental and social impact assessment : an introduction, London, Arnold.

Barrow, C. J. (2000). Social impact assessment : an introduction, London, Arnold.

Bartlam, M. (1997). Project eurobonds. Infrastructure Finance 6(7): 107.

Batten, D. F. and C. Karlsson, Eds. (1996). Infrastructure and the complexity of economic development. Papers presented at an international workshop on "Infrastructure, Economic Growth and Regional Development" held in Jönköping, Sweden during June 1993. Berlin, Springer.

Beato, P. and A. Vives (2000). Private infrastructure investment at the subnational level: Challenges in emerging economies. Journal of Project Finance 6(2): 55.

Becker, D., C. Harris, W. McLaughlin and E. Nielsen (2003). A participatory approach to social impact assessment: the interactive community forum. Environmental Impact Assessment Review 23(3).

Beer, A. and C. Forster (2002). Global restructuring, the welfare state and urban programmes: Federal policies and inequality within Australian cities. European Planning Studies 10(1): 7-25.

Bekefi, Z., L. N. Kiss and K. Tanczos (2003). Multicriteria analysis of the financial feasibility of transport infrastructure projects in Hungary. INFOR 41(1): 105.

Bosca, J. E., F. J. Escriba and M. J. Murgui (2002). The Effect of Public Infrastructure on the Private Productive Sector of Spanish Regions. 42 2(301-327).

Bristow, A. L. and J. Nellthorp (2000). Transport project appraisal in the European Union. Transport Policy 7: 51-60.

Broadman, A. E. and D. H. Greenberg (1996). Cost-Benefit Analysis: Concepts and Practice, New Jersey, Prentice Hall.

Bruinsma, F. R., S. A. Rienstra and P. Rietveld (1997). Economic impacts of the construction of a transport corridor: a multi-level and multi-approach case study for the construction of the A1 highway in the Netherlands. Regional Studies 31(4): 391-403.

Canaleta, C., P. Arzoz and M. Garate (2002). Structural Change, Infrastructure and Convergence in the Regions of the European Union. European Urban and Regional Studies 9(2): 115-36.

Castells, M. (1996). The Rise of the Network Society.First, Malden MA, Blackwell.

Castells, M. (2000). The Rise of the Network Society.Second, Malden MA, Blackwell.

Charles, M. (2001). Congress eyes $50-billion plan for infrastructure financing. Civil Engineering 71(8): 12.

Clark, G. L., M. S. Gertler and J. Whiteman (1986). Regional Dynamics: Studies in Adjustment Theory, Boston, Allen & Unwin.

Clarke, W. and J. Evans (1999). Development impact fees and the acquisition of infrastructure. Journal of Urban Affairs 21(3): 281.

Corporation, C. R. (1969). A Study of the Effects of Public Investment. Report Prepared for the Office of Economic Research Washington DC, Economic Development Administration

Costa, J., D. S. Ellison and R. C. Martin (1987). Public capital, regional output, and development: Some empirical evidence. Journal of Regional Science 27: 419-37.

Coutard, O. (2002). 'Premium Network Spaces': A Comment. International Journal of Urban and Regional Research 26(1): 166-74.

Deno, K. (1986). The short-run relationship between investment in public infrastructure and the formation of private capital, University of Oregon.

Diamond, D. and N. Spence Infrastructure and Regional Development: Theories. Built Environment 10(4): 262-69.

Diamond, P. and J. Hausman (1994). Contigent valuation: Is some number better than no number? Journal of Economic Perspectives 8(4): 45-64.

Dovey, K. and L. Sandercock (2002). Hype and Hope: Imagining Melbourne's Docklands. City 6(1): 83-102.

Eberts, R. W. (1990). Public Infrastructure and Economic Development. Cleveland, Federal Reserve Bank of Cleveland

Eberts, R. W. (1992). The Effect of Federal Policies on Local Public Infrastructure. Public Finance Quarterly 20(4): 557.

Eisner, R. (1991). Infrastructure and Regional Economic Performance. New England Economic Review Sept/Oct.: 47-58.

Ennis, F. (1997). Infrastructure provision, the negotiating process and the planner's role. Urban Studies 34(12).

Ennis, F. (2003). Infrastructure Provision and the Urban Environment. Infrastructure Provision and the Negotiating Process. F. Ennis. Aldershot, Ashgate. 1-18.

Esty, B. C. (2004). Modern project finance, New York, Wiley.

Felbinger, C. (1995). Conditions of Confusion and Conflict: Rethinking the Infrastructure-Development Linkage. Building the Public City: The Politics, Governance and Finance of Public Infrastructure. D. C. Perry. Thousand Oaks CA, Sage: 103-37.

Flyvbjerg, B., N. Brueluis and W. Rothengatter (2003). Mega-Projects and Risk: An Anatomy of Ambition, Cambridge, Cambridge University Press.

Flyvbjerg, B., N. Brueluis and W. Rothengatter (2003). Mega-Projects and Risk: An Anatomy of Ambition, Cambridge, Cambridge University Press.

Fraser, R. and G. Spencer (1998). The Value of an Ocean View: an Example of Hedonic Property Amenity Valuation. Australian Geographical Studies 36(1): 94-99.

Fuller, I. D. and A. E. Jonas (2002). nstitutionalising Future Geographies of Financial Inclusion: National Legitimacy Versus Local Autonomy in the British Credit Union Movement. Antipode 34(1): 85-111.

Gaffikin, F. and M. Morrissey, Eds. (1999). City visions : imagining place, enfranchising people. London, Pluto Press.

Garvin, M. J., S. C. Wooldridge, J. B. Miller and M. J. McGlynn (2000). Capital planning system applied to municipal infrastructure. JOURNAL OF MANAGEMENT IN ENGINEERING 16(5): 41-50.

Gleeson, B. and N. Low (2000). Is planning history? Urban Planning in a Changing World. R. Freestone. London, Spon.

Goldman, T. and M. Wachs (2003). A quiet revolution in transportation finance: The rise of local option transportation taxes. Transportation Quarterly 57(1): 19.

Gordon, D. L. A. (1997). Financing urban waterfront redevelopment. Journal of the American Planning Association 63(2): 244.

Graham, S. (2000). Constructing premium network spaces: reflections on infrastructure networks and contemporary urban development. International Journal of Urban and Regional Research 24(1): 183-200.

Graham, S. (2002). On Technology, Infrastructure and the Contemporary Urban Condition: A Response to Coutard. International Journal of Urban and Regional Research 26(1): 175-83.

Graham, S. and S. Marvin (1994). Cherry picking and social dumping: British Utilities in the 1990s Utilities Policy. 42 2(113-119).

Graham, S. and S. Marvin (1994). Telematics and the convergence of urban infrastructure. Town Planning Review 65(3): 227-42.

Graham, S. and S. Marvin (1996). Telecommunications and the City: Electronic Spaces, Urban Spaces, London, Routledge.

Graham, S. and S. Marvin (2001). Splintering urbanism: networked infrastructures, technological mobilities and the urban condition, London, Routledge.

Gregory, R. S. (2002). Incorporating Value Trade-offs into Community-Based Environmental Risk Decisions. Environmental Values 11(4): 461-88.

Guild, R. L. (2000). Infrastructure Investment and Interregional Development: Theory, Evidence, and Implications for Planning. Public Works Management & Policy 4(4): 274-88.

Hampton, G. (1996). Attitudes to the Social, Environmental and Economic Impacts of the Construction of an Armaments Complex. Journal of Environmental Management 48: 155–67.

Hart, T. (1993). Transport investment and disadvantaged regions: UK and European policies since the 1950s. Urban Studies 30(2): 417-36.

Haughwout, A. F. (2002). Public infrastructure investments, productivity and welfare in fixed geographic areas. Journal of Public Economics 83(3): 405-29.

Henry, M. (1993). Infrastructure and Regional Development (book reviews). Journal of Regional Science 32(3): 381-3.

Hirchmann, A. O. (1958). The Strategy of Economic Development, New Haven, Yale University Press.

Howard, R., J. (2001). Infrastructure asset management under Australian Accounting Standard 27 (AAS27). Proceedings of the Institution of Civil Engineers-Municipal Engineer 145(4): 305-10.

Humphrey, N. P. and D. R. Maurice (1986). Infrastructure Bond Bank Initiatives: Policy Implications and Credit Concerns. Public Budgeting & Finance 6(3): 38.

Jacoby, S., J. Smith, L. Ting and I. Williamson (2002). Developing a common spatial data infrastructure between State and Local Government—an Australian case study. International Journal of Geographical Information Science 16(4): 305-22.

Kirwan, R. M. (1989). Finance for urban public infrastructure. Urban Studies 26(3): 285.

Kitchen, R. M. (1998a). Towards geographies of cyberspace. Progress in Human Geography 22(3): 385-406.

Lane, M. B., H. Ross and A. P. Dale (1997). Social Impact Assessment: Integrating the Technical, Political and Planning Paradigms. Human Organisation 56(3).

Leigland, J. (1995). Public infrastructure and special purpose governments: Who pays and how? Building the Public City: The Politics, Governance and Finance of Public Infrastructure. D. C. Perry. Thousand Oaks CA, Sage: 138-68.

Lobo, J. and N. M. Rantisi (1999). Investment in infrastructure as determinant of metropolitan productivity. Growth and Change 30(1): 106.

MacManus, S. A. (2004). "Bricks and Mortar" Politics: How Infrastructure Decisions Defeat Incumbents. Public Budgeting & Finance 24(1): 96.

Malecki, E. J. (2002). Hard and Soft Networks for Urban Competitiveness. Urban Studies 39(5): 929-45.

Man, J. Y. (1999). The impact of tax increment financing programs on local economic development. Journal of Public Budgeting, Accounting & Financial Management 11(3): 417.

Marvin, S. (1992). Urban policy and infrastructure networks. Local Economy 17(3): 225-47.

Marvin, S. and J. Conford (1993). Regional policy implications of utility regionalization. Regional Studies 27(2): 159-66.

Marvin, S. and S. Guy (1997). Infrastructure provision, development processes and the co-production of environmental value. Urban Studies 34(12): 2023-36.

Marvin, S. and S. Slater (1997). Urban Infrastructure: The Contemporary Conflict Between Roads and Utilities. Progress in Planning 48(4): 247-319.

Masser, I. (1993). Infrastructure and Regional Development (book reviews). Environment & Planning A 24(7): 1067-69.

McQuaid, R. W. (2002). Entrepreneurship and ICT industries: Support from regional and local policies. Regional Studies 36(8): 909.

Merrifield, A. (1993). The Canary Wharf debacle: from 'TINA' -- there is no alternative -- to 'THEMBA' -- there must be an alternative. Environment and Planning A 25: 1247-65.

Millar, A. (1988). Selecting Capital Investment Projects for Local Governments. Public Budgeting & Finance 8(3): 63.

Minehart, D. and Z. Neeman (2002). Effective Siting of Waste Treatment Facilities. Journal of Environmental Economics and Management 43: 303–24.

Neutze, M. (1997). Funding Urban Services: Options for Physical Infrastructure, St Leonards, Allen & Unwin.

OECD (1991). Funding Urban Infrastructure. Organisation for Economic Cooperation and Development. The OECD Observer(172): 31.

OECD (2002). Impact of Transport Infrastructure Investment on Regional Development, Paris, OECD.

Olds, K. (1995). Globalization and the production of new urban spaces: Pacific Rim megaprojects in the late 20th century. Environment & Planning A 27(11): 1713-44.

Peck, F. (1996). Regional development and the production of space: the role of infrastructure in the attraction of new inward investment. Environment & Planning A 28(2): 327-40.

Peeters, D., J.-F. Thisse and I. Thomas (2000). On high-speed connections and the location of activities. Environment & Planning A 32(12): 2097-113.

Perry, D. C. (1995). Building the City, Sage, New York.

Portney, P. (1994). The contingent valuation debate: Why economists should care. Journal of Economic Perspectives 8(4): 3-17.

Portney, P. (1994). The contingent valuation debate: Why economists should care. Journal of Economic Perspectives 8(4): 3-17.

Pratt, A. J. (1993). Infrastructure and Regional Development (book reviews). Regional Studies 27(1): 79-80.

Quilley, S. (1999). Entrepreneurial Manchester. Antipode 31(2): 185-211.

Rabe, B. G. (1991). Beyond the NIMBY syndrome in hazardous waste facility siting: the Albertan Breakthrough and the prospects for co-operation in Canada and the United States. Governance 4(2): 184-206.

Rephann, T. J. (1993). Highway investment and regional economic development: decision methods and empirical foundations. 30 2(437-51).

Sandler, N. (1997). Scramble for power. Infrastructure Finance 6(7): 55.

Sassen, S., Ed. (2002). Global Networks, Linked Cities. New York, Routledge.

Sassen, S., Ed. (2002). Global Networks, Linked Cities. New York, Routledge.

Scoefield, J. (1989). Briefly Noted -- Special Districts: A Useful Technique for Financing Infrastructure by Douglas R. Porter, Ben C. Lin and Richard B. Peiser. Journal of the American Planning Association 55(4): 522.

Sheppard, E. (1992). Transportation in a capitalist space-economy: transportation demand, circulation time, and transportation innovations. Environment & Planning A 22(8): 1007-25.

Sheppard, E. (1992). Transportation in a capitalist space-economy: transportation demand, circulation time, and transportation innovations. Environment & Planning A 22(8): 1007-25.

Sietz, H. (2000). Infrastructure, Industrial Development, and Employment in Cities: Theoretical Aspects and Empirical Evidence. International Regional Science Review 23(3): 259-71.

Smoke, P. (1999). Improving local infrastructure finance in developing countries through grant-loan linkages: Ideas from Indonesia's water sector. International Journal of Public Administration 22(11,12): 1561.

Swyngedouw, E. (1993). Communication, mobility and the struggle for power over space. Transport and Communications in the New Europe. G. Giannopoulos and A. Gillespie. London, Belhaven.

Temple, J. (1994). The debt tax choice in financing of state and local capital expenditures. Journal of Regional Science 34(2): 529-47.

Tomalty, R. and A. Skaburskis (2003). Development charges and city planning objectives: the Ontario disconnect. Canadian Journal of Urban Research 12(1): 142.

Tonts, M. (1999). Some recent trends in Australian regional economic development policy. Regional Studies 33(6): 581-86.

Vanclay, F. (2002). Conceptualising social impacts. Environmental Impact Assessment Review 22: 183– 211.

Vanclay, F. (2003). International Principles for Social Impact Assessment. Impact Assessment and Project Appraisal 21(1): 5-8.

Vickerman, R. W. (1993). Infrastructure and Regional Development.

Wacker, G. and G. Tollefson (1994). Consulting end-users on infrastructure worth. IEEE Technology and Society Magazine 13(2): 10-17.

Wakschlag, M. (1997). Handle with care. Infrastructure Finance 6(7): 11-13.

Wessman, J. (2002). Applying the private financing model in Finland--particularly for public building construction projects. International Financial Law Review: 43.

Whiteside, R. E. and R. D. Distelhorst (1997). Financing infrastructure interest-free. Civil Engineering 67(6): 6.

Williams, G. (2002). Guidelines and Principles for Social Impact Assessment, Washington, Argonne National Library.

Wimouth, D. (1990). Urban infrastructure issues in Australia. Urban Policy and Research 8(4): 159-68.

Worthington and B. Dollery (2002). Can Australian local government play a meaningful role in the development of social capital in disadvantaged rural communities. Australian Journal of Social Issues 35(4): 349-61.

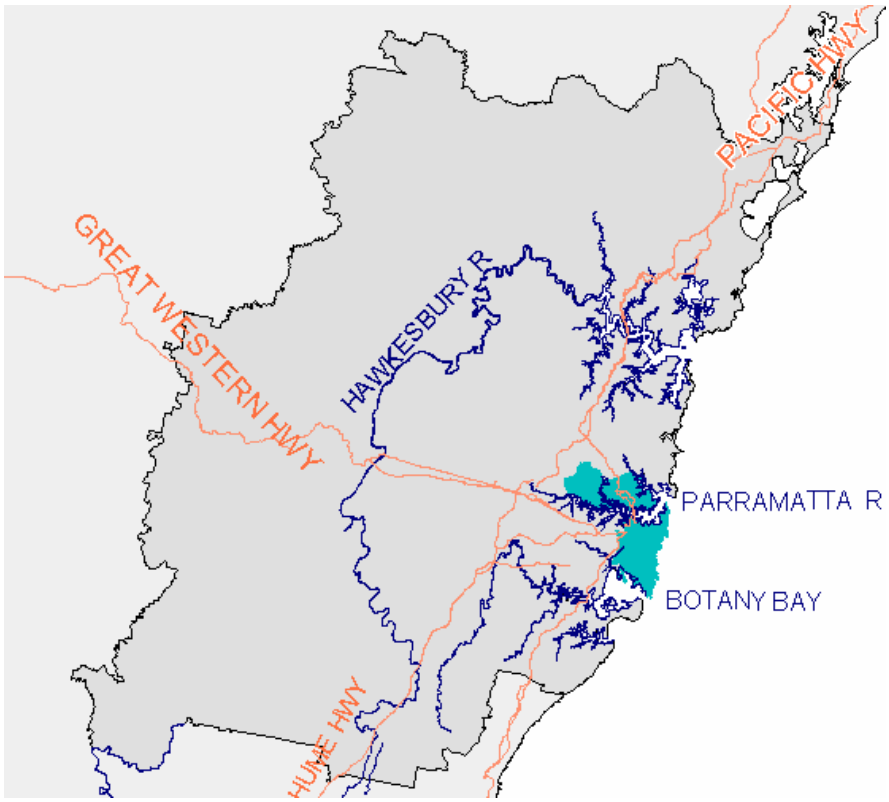
Yamaguchi, S. and E. Kuczek (1984). The Social and Economic Impact of Large-Scale Energy Projects on the Local Community. International Labour Review 123(2): 149.

Yang, J.-C. (2001). Measurement index for urban infrastructure production cost disparity. Journal of Economic and Social Measurement 27(1/2): 41.

# APPENDIX 1

# REGIONAL INDICATORS

# Global Sydney




Global Sydney comprises the CBD, the inner North Shore, the eastern suburbs and the inner southern suburbs. The inner North Shore includes a spine of city-centre activity along the ridge from North Sydney to Chatswood, and otherwise comprises high-status suburbs. The eastern suburbs are nearly all high-status and include many areas with high dwelling densities. Some of the inner southern suburbs are still low status, but at high-status land values and with office invasion proceeding. The port has been moved from its proximity to the city centre, but is still within the region, sharing a crowded site with the airport. Global Sydney is Australia's provider of central city services par excellence.

**Major centres:**

Sydney, Chatswood, Bondi Junction

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 669,747 | | 687,856 | | 701,179 | | 0.6 |
| No. households | 277,527 | | 295,115 | | 309,175 | | 1.6 |
| Workforce | 372,241 | 55.6 | 363,113 | 52.8 | 387,046 | 55.2 | 2.2 |
| Employment | 350,376 | – | 349,660 | – | 375,666 | – | 2.4 |
| Unemployment | 21,866 | 5.9 | 13,454 | 3.7 | 11,379 | 2.9 | -5.4 |
| DEET U/E | 16,277 | 4.4 | 12,740 | 3.5 | 16,516 | 4.3 | 9.0 |
| Structural U/E, % population[1] | 30,135 | 6.7 | 26,446 | 5.6 | 26,670 | 5.3 | 0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 13,744 | 20,379 | 18,211 | 26,476 | 21,585 | 30,785 | 8.6 |
| Taxes paid | 4,811 | 7,133 | 6,644 | 9,659 | 7,506 | 10.705 | 8.5 |
| GST paid | 830 | 1,231 | 1,303 | 1,894 | 1,641 | 2,341 | – |
| Benefits | 1,067 | 1,582 | 1,103 | 1,604 | 1,250 | 1,783 | 2.4 |
| Business income | 2,162 | 3,205 | 2,341 | 3,404 | 2,810 | 4,007 | 4.6 |
| Interest/dividends | 1,479 | 2,192 | 2,074 | 3,015 | 1,734 | 2,473 | 2.4 |
| Interest paid | 644 | 955 | 788 | 1,146 | 1,223 | 1,745 | 12.8 |
| Net property income | 725 | 1,074 | 839 | 1,219 | 599 | 854 | -$221 |
| Net flow of funds | 12,891 | 19,114 | 15,833 | 23,018 | 17,607 | 25,111 | 5.6 |
| Rank | | 1 | | 2 | | 2 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 809 | 5 |
| Skills corrected factor (out of 1,000) | 824 | 5 |
| Industry corrected factor (out of 1,000) | 817 | 5 |
| Global knowledge factor (out of 1,000) | 908 | 3 |
| Resident skills matching | 888 | 5 |
| Resident industry matching | 8 | 18 |
| Catchment jobs/workers | 1,000 | 1 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 815 | 5 |
| Industry corrected factor (out of 1,000) | 815 | 5 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 811 | 5 |
| Industry corrected factor (out of 1,000) | 803 | 5 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 91,729 | 89,892 |
| 60 minutes, door to door | 529,651 | 513,746 |
| 100 minutes, door to door | 1,434,261 | 1,321,055 |
| *"Congestion exposure risk factor, rank"* | 195 | 15 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 749 | 2 |
| Highest performing LGA – Sydney (C) | 1,971 | 1 |
| Lowest performing LGA –Hunter's Hill (A) | 195 | 91 |
| Distance to significant retail diversity (km) | 4.0 | 2 |
| Missing local retail types (out of 44) | 1 | 6 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.1% | 5 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,206 | 7 |
| 2001 | 1,592 | 9 |
| 2003 | 965 | 8 |
| 2004 | 623 | 33 |

YourPlace
*The place to go for the performance of Australia's local economies*

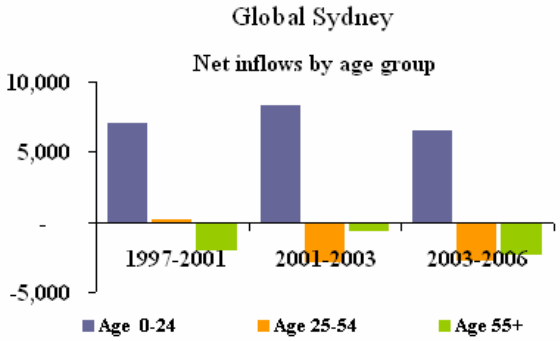
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 53.2 | 64.9% | 59.4% | 19 |
| High LGA – North Sydney (A) | 82.9 | 76.6% | | |
| Low LGA – Sydney (C) | 9.3 | 49.2% | | |
| Infrastructure | 78.8 | 20.97 | 1.53 | 5 |
| High LGA – Sydney (C) | 100.0 | 436.22 | | |
| Low LGA – Mosman (A) | 24.3 | 0.24 | | |
| Household prosperity potential | 96.0 | 263% | 100% | 2 |
| High LGA – North Sydney (A) | 99.9 | 332% | | |
| Low LGA – Botany Bay (C) | 76.9 | 158% | | |
| Global knowledge flows | 98.3 | 30.6% | 12.9% | 4 |
| High LGA – North Sydney (A) | 100.0 | 42.2% | | |
| Low LGA – Hunter's Hill (A) | 89.8 | 12.4% | | |
| Knowledge driven growth potential | 94.7 | 1.58 | 0.67 | 3 |
| High LGA – North Sydney (A) | 100.0 | 2.85 | | |
| Low LGA – Botany Bay (C) | 55.3 | 0.58 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

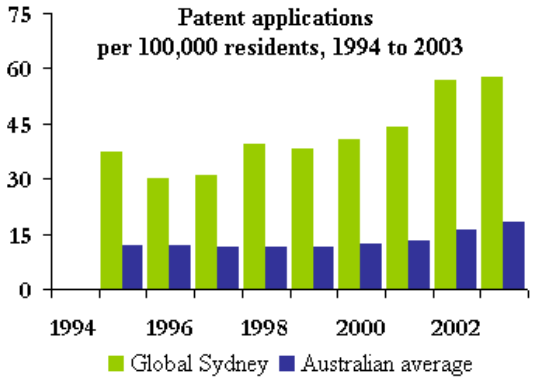
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.29 | 0.28 | 0.28 | 0.27 |
| 25 – 54 | 0.49 | 0.50 | 0.50 | 0.50 |
| 55+ | 0.22 | 0.22 | 0.22 | 0.23 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 7,032 | 8,326 | 6,529 |
| 25 – 54 | | 145 | -2,733 | -2,726 |
| 55+ | | -1,899 | -572 | -2,222 |
| Average age | 37.4 | 37.7 | 37.8 | 37.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.276%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 8.3 | 2 |
| 2001 | 7.0 | 2 |
| 2003 | 7.4 | 2 |
| 2004 | 7.1 | 1 |
| Income supported households (%) | 8.3 | 63 |

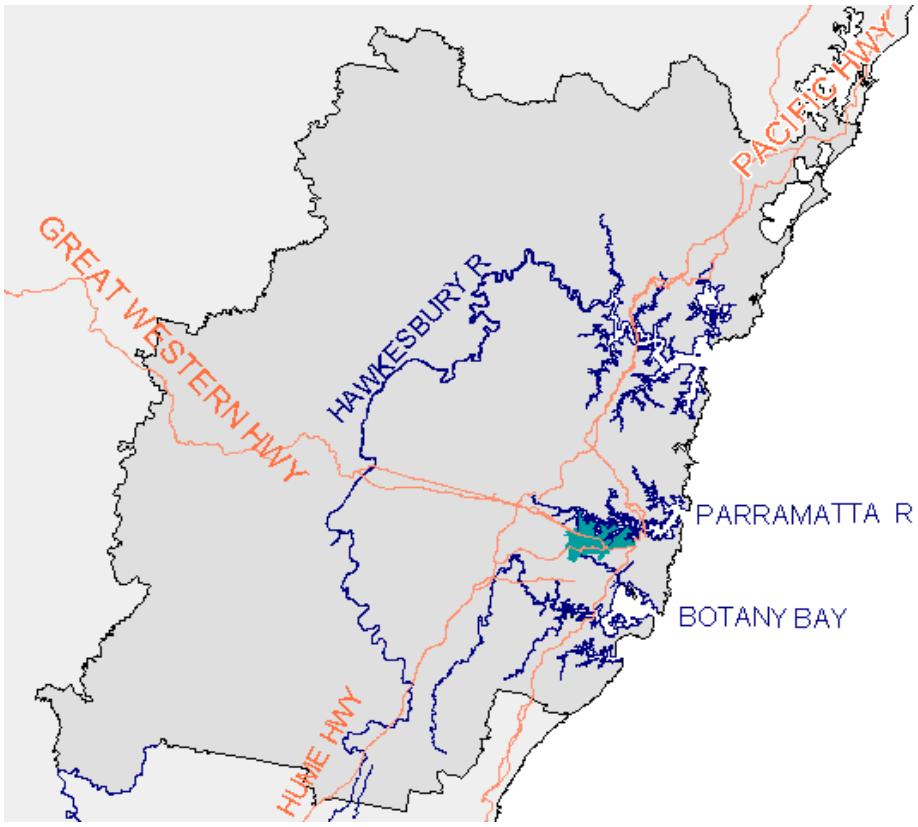



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 287.0 | 1 | 39.2 |
| Average p.a. per capita | 44.1 | 2 | 13.7 |
| Hi Tech p.a. (1994-2003) | 116.8 | 1 | 9.8 |
| Hi Tech p.a. per capita | 17.2 | 2 | 2.5 |
| Info. Tech p.a. (1994-2003) | 42.4 | 1 | 3.5 |
| Info. Tech p.a. per capita | 6.2 | 3 | 0.9 |
| Average per capita (1994-2000) | 37.3 | 2 | 9.6 |
| Average per capita (2001-2003) | 60.1 | 3 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.61 | 17 | 1.48 |

*Note:* Per capita = 100,000 people.

# Sydney Inner West




The Inner West of Sydney comprises a group of suburbs immediately west of the CBD, south of the Harbour, and east of the north-south belt of cemeteries and former industries which now houses Olympic Park. Though it had its share of port functions and manufacturing, the Inner West was not as intensely devoted to manufacturing as the LGAs to its immediate south. Leichhardt has high residential densities because it was originally developed when walking was the main means of transport. By contrast, Strathfield was originally developed with large lots for mansions. The region has gentrified and gained a modest overflow of central city functions from Global Sydney.

**Major centres:**

Burwood

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 220,061 | | 226,789 | | 233,543 | | 1.0 |
| No. households | 85,478 | | 90,157 | | 94,360 | | 1.5 |
| Workforce | 116,878 | 53.0 | 135,056 | 57.6 | 129,452 | 55.4 | -1.4 |
| Employment | 110,487 | – | 130,359 | – | 125,686 | – | -1.2 |
| Unemployment | 6,392 | 5.5 | 4,696 | 3.5 | 3,767 | 2.9 | -7.1 |
| DEET U/E | 3,312 | 2.8 | 3,780 | 2.8 | 6,300 | 4.8 | 18.6 |
| Structural U/E, % population[1] | 10,943 | 7.5 | 10,059 | 6.6 | 9,682 | 6.0 | -1.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 3,779 | 17,090 | 4,964 | 21,889 | 4,955 | 21,215 | 4.4 |
| Taxes paid | 1,207 | 5,456 | 1,552 | 6,843 | 1,670 | 7,151 | 5.6 |
| GST paid | 204 | 924 | 371 | 1,635 | 412 | 1,763 | – |
| Benefits | 429 | 1,939 | 447 | 1,973 | 507 | 2,169 | 2.3 |
| Business income | 569 | 2,573 | 585 | 2,580 | 628 | 2,690 | 0.9 |
| Interest/dividends | 204 | 920 | 312 | 1,375 | 293 | 1,255 | 6.4 |
| Interest paid | 246 | 1,111 | 326 | 1,438 | 461 | 1,976 | 12.2 |
| Net property income | 114 | 515 | 102 | 448 | 16 | 68 | -$447 |
| Net flow of funds | 3,438 | 15,546 | 4,161 | 18,347 | 3,855 | 16,508 | 1.2 |
| Rank | | 8 | | 4 | | 15 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 895 | 2 |
| Skills corrected factor (out of 1,000) | 914 | 2 |
| Industry corrected factor (out of 1,000) | 875 | 3 |
| Global knowledge factor (out of 1,000) | 955 | 2 |
| Resident skills matching | 647 | 14 |
| Resident industry matching | -1,000 | 64 |
| Catchment jobs/workers | 966 | 2 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 907 | 2 |
| Industry corrected factor (out of 1,000) | 890 | 3 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 902 | 2 |
| Industry corrected factor (out of 1,000) | 893 | 4 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 41,310 | 47,877 |
| 60 minutes, door to door | 874,523 | 679,859 |
| 100 minutes, door to door | 1,515,556 | 1,421,134 |
| *"Congestion exposure risk factor, rank"* | 206 | 13 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 369 | 6 |
| Highest performing LGA – Leichhardt (A) | 595 | 13 |
| Lowest performing LGA –Canada Bay (A) | 208 | 83 |
| Distance to significant retail diversity (km) | 4.5 | 3 |
| Missing local retail types (out of 44) | 1 | 6 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.1% | 6 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,121 | 10 |
| 2001 | 1,281 | 26 |
| 2003 | 766 | 17 |
| 2004 | 571 | 39 |

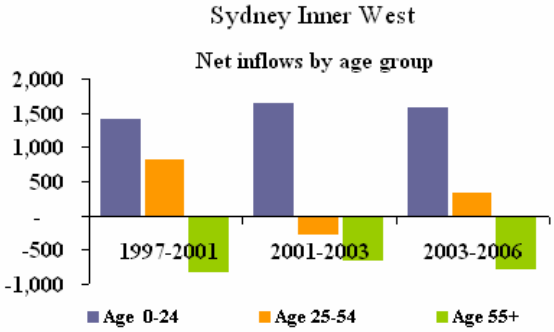
YourPlace
The place to go for the performance of Australia's local economies

| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 52.6 | 64.8% | 59.4% | 25 |
| High LGA – Drummoyne (A) | 73.9 | 71.6% | | |
| Low LGA – Burwood (A) | 21.5 | 55.2% | | |
| Infrastructure | 49.2 | 0.92 | 1.53 | 31 |
| High LGA – Strathfield (A) | 92.6 | 4.03 | | |
| Low LGA – Ashfield (A) | 19.4 | 0.19 | | |
| Household prosperity potential | 93.7 | 229% | 100% | 3 |
| High LGA – Leichhardt (A) | 98.0 | 273% | | |
| Low LGA – Concord (A) | 88.8 | 195% | | |
| Global knowledge flows | 94.3 | 16.2% | 12.9% | 6 |
| High LGA – Leichhardt (A) | 98.2 | 19.3% | | |
| Low LGA – Ashfield (A) | 87.0 | 11.5% | | |
| Knowledge driven growth potential | 74.1 | 0.83 | 0.67 | 9 |
| High LGA – Leichhardt (A) | 96.8 | 1.16 | | |
| Low LGA – Strathfield (A) | 25.8 | 0.42 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

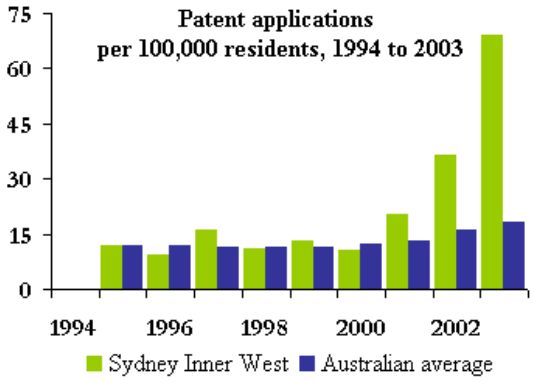
## POPULATION AND MIGRATION

| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.29 | 0.28 | 0.28 | 0.28 |
| 25 – 54 | 0.48 | 0.50 | 0.49 | 0.49 |
| 55+ | 0.23 | 0.22 | 0.22 | 0.23 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,410 | 1,643 | 1,571 |
| 25 – 54 | | 813 | -267 | 337 |
| 55+ | | -814 | -649 | -759 |
| Average age | 37.6 | 37.8 | 37.9 | 38.0 |
| Average pop. growth change 1998-2004 versus 1991-1998 (%) | | | | 0.740% |




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 12.5 | 7 |
| 2001 | 10.8 | 5 |
| 2003 | 11.7 | 5 |
| 2004 | 13.0 | 6 |
| Income supported households (%) | 11.3 | 62 |

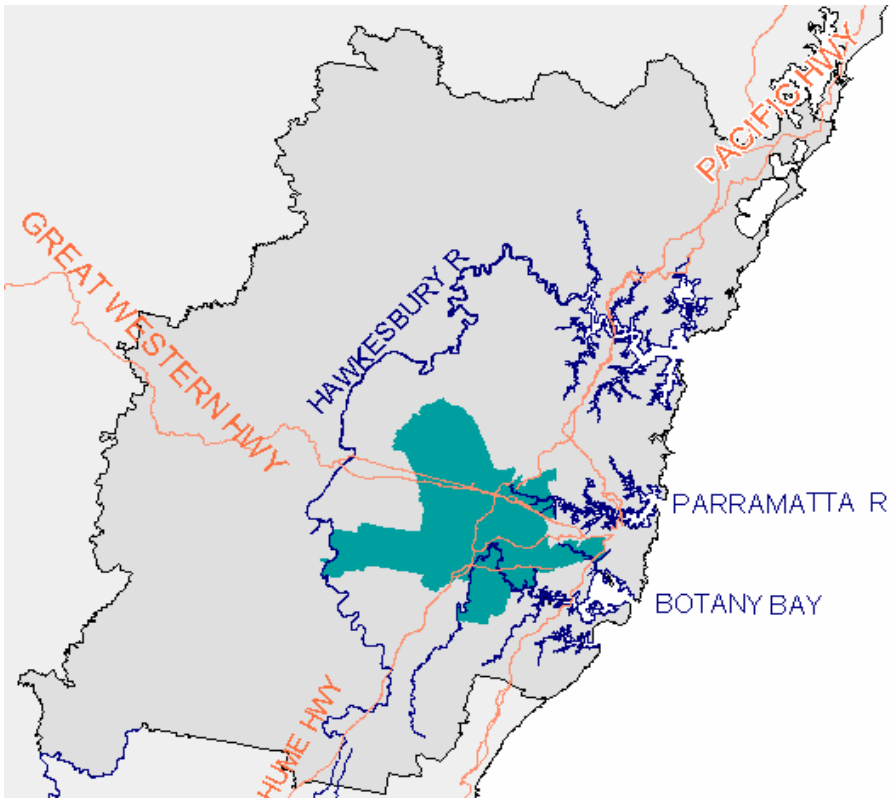



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 62.6 | 13 | 39.2 |
| Average p.a. per capita | 28.5 | 4 | 13.7 |
| Hi Tech p.a. (1994-2003) | 24.3 | 9 | 9.8 |
| Hi Tech p.a. per capita | 14.0 | 4 | 2.5 |
| Info. Tech p.a. (1994-2003) | 18.7 | 3 | 3.5 |
| Info. Tech p.a. per capita | 11.5 | 1 | 0.9 |
| Average per capita (1994-2000) | 13.1 | 12 | 9.6 |
| Average per capita (2001-2003) | 64.5 | 2 | 14.3 |
| 2001-03 avg./1994-00 avg. | 4.92 | 1 | 1.48 |

*Note:* Per capita = 100,000 people.

# Sydney Mid West




The Mid West of Sydney is a large region, stretching west from Marrickville, and including several important urban centres which are important centres of retailing. There has been some office development particularly in Parramatta. Dates of urbanisation range from the nineteenth century to the late twentieth, but socio-economic status runs middle to low throughout, with considerable ethnic diversity. The region includes a number of important manufacturing areas, but also generates considerable commuter traffic to Global Sydney. It is known for its ethnic diversity.

**Major centres:**

Bankstown, Parramatta, Liverpool, Blacktown

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 1,248,053 | | 1,294,904 | | 1,326,164 | | 0.8 |
| No. households | 407,518 | | 432,908 | | 452,849 | | 1.5 |
| Workforce | 597,890 | 47.8 | 625,379 | 48.3 | 648,397 | 48.9 | 1.2 |
| Employment | 533,497 | – | 561,808 | – | 594,320 | – | 1.9 |
| Unemployment | 64,393 | 10.8 | 63,570 | 10.2 | 54,077 | 8.3 | -5.2 |
| DEET U/E | 53,579 | 9.3 | 41,279 | 6.7 | 43,803 | 6.9 | 2.0 |
| Structural U/E, % population[1] | 95,010 | 12.1 | 99,492 | 12.2 | 96,300 | 11.2 | -1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 15,580 | 12,360 | 18,090 | 13,970 | 19,556 | 14,747 | 3.6 |
| Taxes paid | 4,234 | 3,359 | 4,454 | 3,439 | 5,082 | 3,832 | 2.7 |
| GST paid | 1,054 | 836 | 1,590 | 1,228 | 1,831 | 1,380 | – |
| Benefits | 3,162 | 2,509 | 3,484 | 2,691 | 4,073 | 3,072 | 4.1 |
| Business income | 1,932 | 1,533 | 1,927 | 1,488 | 2,178 | 1,643 | 1.4 |
| Interest/dividends | 348 | 276 | 468 | 362 | 453 | 342 | 4.3 |
| Interest paid | 1,324 | 1,050 | 1,761 | 1,360 | 2,332 | 1,759 | 10.9 |
| Net property income | 159 | 126 | 14 | 10 | -409 | -308 | -$435 |
| Net flow of funds | 14,570 | 11,559 | 16,178 | 12,493 | 16,607 | 12,523 | 1.6 |
| Rank | | 42 | | 43 | | 57 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 667 | 8 |
| Skills corrected factor (out of 1,000) | 678 | 9 |
| Industry corrected factor (out of 1,000) | 661 | 8 |
| Global knowledge factor (out of 1,000) | 662 | 8 |
| Resident skills matching | 932 | 3 |
| Resident industry matching | -506 | 54 |
| Catchment jobs/workers | 487 | 42 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 676 | 8 |
| Industry corrected factor (out of 1,000) | 686 | 8 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 671 | 8 |
| Industry corrected factor (out of 1,000) | 703 | 8 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 46,078 | 48,088 |
| 60 minutes, door to door | 471,271 | 523,420 |
| 100 minutes, door to door | 1,326,591 | 1,351,191 |
| *"Congestion exposure risk factor, rank"* | 981 | 2 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 409 | 3 |
| Highest performing LGA – Parramatta (C) | 705 | 10 |
| Lowest performing LGA –Blacktown (C) | 259 | 70 |
| Distance to significant retail diversity (km) | 5.3 | 6 |
| Missing local retail types (out of 44) | 1 | 8 |
| Highest performing LGA –Auburn (A) | 1 | 24 |
| Lowest performing LGA –Blacktown (C) | 1 | 60 |
| Percentage of retail missing (%) | 0.1% | 8 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 945 | 17 |
| 2001 | 1,288 | 23 |
| 2003 | 734 | 19 |
| 2004 | 539 | 45 |

YourPlace
*The place to go for the performance of Australia's local economies*

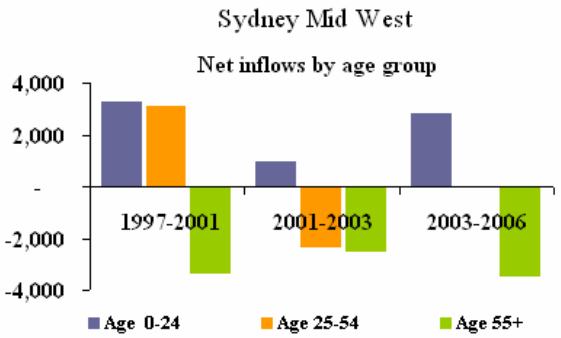
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 21.1 | 54.3% | 59.4% | 59 |
| High LGA – Marrickville (A) | 40.1 | 61.3% | | |
| Low LGA – Auburn (A) | 5.8 | 46.1% | | |
| Infrastructure | 69.5 | 1.33 | 1.53 | 8 |
| High LGA – Auburn (A) | 95.2 | 8.49 | | |
| Low LGA – Canterbury (C) | 20.9 | 0.20 | | |
| Household prosperity potential | 56.3 | 120% | 100% | 15 |
| High LGA – Marrickville (A) | 92.5 | 213% | | |
| Low LGA – Blacktown (C) | 18.2 | 47% | | |
| Global knowledge flows | 80.6 | 11.1% | 12.9% | 12 |
| High LGA – Parramatta (C) | 97.2 | 17.9% | | |
| Low LGA – Fairfield (C) | 65.2 | 7.3% | | |
| Knowledge driven growth potential | 36.0 | 0.48 | 0.67 | 49 |
| High LGA – Parramatta (C) | 73.6 | 0.73 | | |
| Low LGA – Fairfield (C) | 14.5 | 0.34 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

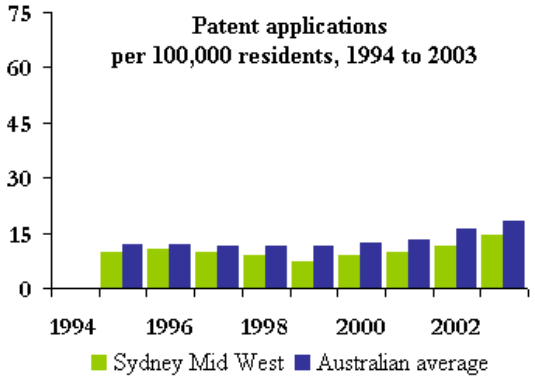
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.36 | 0.36 | 0.35 |
| 25 – 54 | 0.44 | 0.45 | 0.45 | 0.44 |
| 55+ | 0.18 | 0.19 | 0.19 | 0.20 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 3,254 | 941 | 2,822 |
| 25 – 54 | | 3,090 | -2,297 | 3 |
| 55+ | | -3,320 | -2,475 | -3,462 |
| Average age | 33.6 | 34.3 | 34.7 | 35.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.102%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 21.7 | 35 |
| 2001 | 21.5 | 36 |
| 2003 | 22.8 | 38 |
| 2004 | 24.3 | 42 |
| Income supported households (%) | 26.2 | 6 |

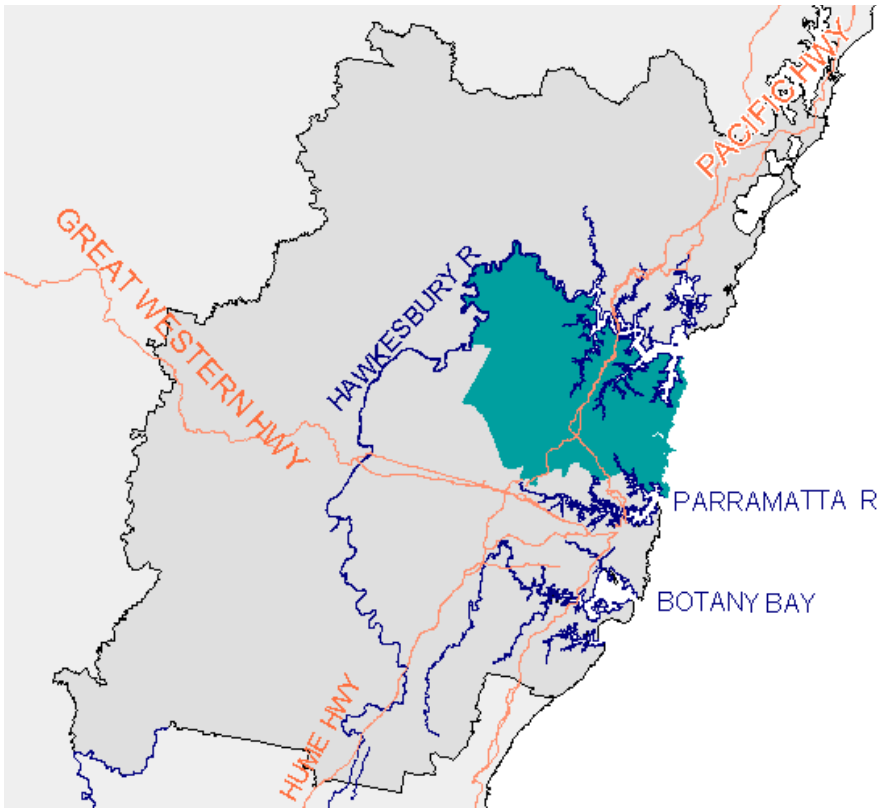



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 127.4 | 6 | 39.2 |
| Average p.a. per capita | 10.5 | 18 | 13.7 |
| Hi Tech p.a. (1994-2003) | 26.0 | 8 | 9.8 |
| Hi Tech p.a. per capita | 2.1 | 14 | 2.5 |
| Info. Tech p.a. (1994-2003) | 8.3 | 9 | 3.5 |
| Info. Tech p.a. per capita | 0.7 | 16 | 0.9 |
| Average per capita (1994-2000) | 9.2 | 19 | 9.6 |
| Average per capita (2001-2003) | 13.4 | 19 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.45 | 30 | 1.48 |

*Note:* Per capita = 100,000 people.

# Sydney Outer North




Geographically, the Outer North of Sydney splits into three sub-regions:

- Manly-Warringah-Pittwater are beach suburbs cut-off from the rest of Sydney by Middle Harbour. The attractive location means that these suburbs are generally of high socio-economic status, and a source of commuters to Global Sydney, but the limitations of transport to and from the rest of the metropolitan area mean that these suburbs are to a remarkable degree self-contained as regards retail and other consumer-service functions.
- The classic high-status North Shore rail-commuter suburbs of Ku Ring Gai and Hornsby.
- The rather newer, heavily car-dependent commuter suburbs in Baulkham Hills.

Overall, the region is of high socio-economic status, and its economic base depends on commuting.

**Major centres:**

Manly, Hornsby, Baulkham Hills

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 610,786 | | 638,130 | | 662,116 | | 1.2 |
| No. households | 207,346 | | 219,155 | | 231,320 | | 1.8 |
| Workforce | 329,683 | 53.9 | 346,873 | 54.4 | 364,498 | 55.1 | 1.7 |
| Employment | 318,494 | – | 339,380 | – | 357,578 | – | 1.8 |
| Unemployment | 11,189 | 3.4 | 7,494 | 2.2 | 6,919 | 1.9 | -2.6 |
| DEET U/E | 7,345 | 2.3 | 9,011 | 2.6 | 10,936 | 3.0 | 6.7 |
| Structural U/E, % population[1] | 13,438 | 3.6 | 12,291 | 3.1 | 12,684 | 3.0 | 1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 12,320 | 19,953 | 15,457 | 24,222 | 16,017 | 24,190 | 3.9 |
| Taxes paid | 4,110 | 6,656 | 5,330 | 8,353 | 5,436 | 8,210 | 4.3 |
| GST paid | 612 | 992 | 1,030 | 1,614 | 1,129 | 1,705 | – |
| Benefits | 752 | 1,219 | 804 | 1,260 | 961 | 1,451 | 3.6 |
| Business income | 1,883 | 3,050 | 1,987 | 3,114 | 2,195 | 3,315 | 1.7 |
| Interest/dividends | 1,146 | 1,856 | 1,610 | 2,523 | 1,313 | 1,983 | 1.3 |
| Interest paid | 716 | 1,160 | 922 | 1,444 | 1,446 | 2,183 | 13.5 |
| Net property income | 565 | 915 | 545 | 854 | 101 | 152 | -$763 |
| Net flow of funds | 11,228 | 18,184 | 13,120 | 20,560 | 12,576 | 18,993 | 0.9 |
| Rank | | 3 | | 3 | | 5 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 553 | 13 |
| Skills corrected factor (out of 1,000) | 542 | 13 |
| Industry corrected factor (out of 1,000) | 557 | 14 |
| Global knowledge factor (out of 1,000) | 606 | 10 |
| Resident skills matching | 230 | 27 |
| Resident industry matching | -153 | 36 |
| Catchment jobs/workers | 630 | 6 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 554 | 13 |
| Industry corrected factor (out of 1,000) | 558 | 14 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 548 | 13 |
| Industry corrected factor (out of 1,000) | 549 | 15 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 36,490 | 56,587 |
| 60 minutes, door to door | 256,138 | 246,206 |
| 100 minutes, door to door | 1,174,755 | 1,088,001 |
| *"Congestion exposure risk factor, rank"* | 707 | 3 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 365 | 7 |
| Highest performing LGA – Warringah (A) | 523 | 17 |
| Lowest performing LGA –Pittwater (A) | 149 | 109 |
| Distance to significant retail diversity (km) | 6.4 | 8 |
| Missing local retail types (out of 44) | 2 | 10 |
| Highest performing LGA –Baulkham Hills (A) | 1 | 24 |
| Lowest performing LGA –Pittwater (A) | 5 | 115 |
| Percentage of retail missing (%) | 0.2% | 10 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,148 | 8 |
| 2001 | 1,517 | 11 |
| 2003 | 913 | 12 |
| 2004 | 685 | 25 |

YourPlace
*The place to go for the performance of Australia's local economies*

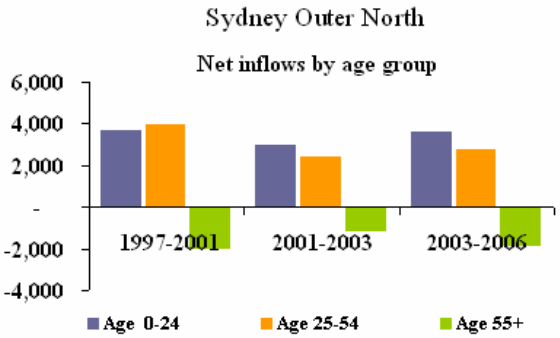
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 61.7 | 67.0% | 59.4% | 10 |
| High LGA – Baulkham Hills (A) | 68.5 | 69.2% | | |
| Low LGA – Ku-ring-gai (A) | 50.0 | 63.4% | | |
| Infrastructure | 61.6 | 0.99 | 1.53 | 35 |
| High LGA – Warringah (A) | 83.1 | 1.47 | | |
| Low LGA – Manly (A) | 7.5 | 0.07 | | |
| Household prosperity potential | 84.3 | 185% | 100% | 6 |
| High LGA – Manly (A) | 97.6 | 265% | | |
| Low LGA – Baulkham Hills (A) | 68.0 | 139% | | |
| Global knowledge flows | 94.0 | 15.2% | 12.9% | 5 |
| High LGA – Ku-ring-gai (A) | 98.3 | 19.4% | | |
| Low LGA – Hornsby (A) | 88.8 | 12.1% | | |
| Knowledge driven growth potential | 83.3 | 0.89 | 0.67 | 4 |
| High LGA – Ku-ring-gai (A) | 98.8 | 1.38 | | |
| Low LGA – Hornsby (A) | 72.2 | 0.72 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

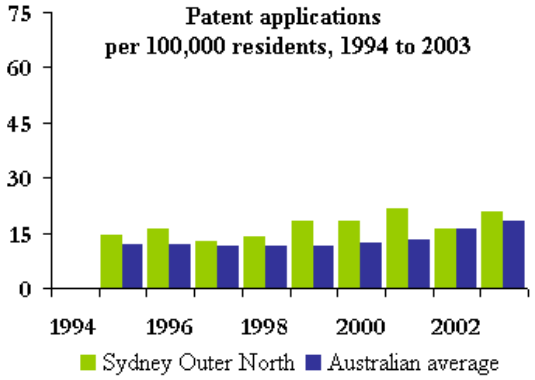
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.33 | 0.33 | 0.33 |
| 25 – 54 | 0.44 | 0.44 | 0.43 | 0.42 |
| 55+ | 0.22 | 0.23 | 0.24 | 0.24 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 3,645 | 2,979 | 3,597 |
| 25 – 54 | | 3,962 | 2,413 | 2,784 |
| 55+ | | -1,970 | -1,112 | -1,833 |
| Average age | 36.6 | 37.1 | 37.3 | 37.5 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.677%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 6.7 | 1 |
| 2001 | 6.1 | 1 |
| 2003 | 6.8 | 1 |
| 2004 | 7.6 | 2 |
| Income supported households (%) | 7.6 | 64 |

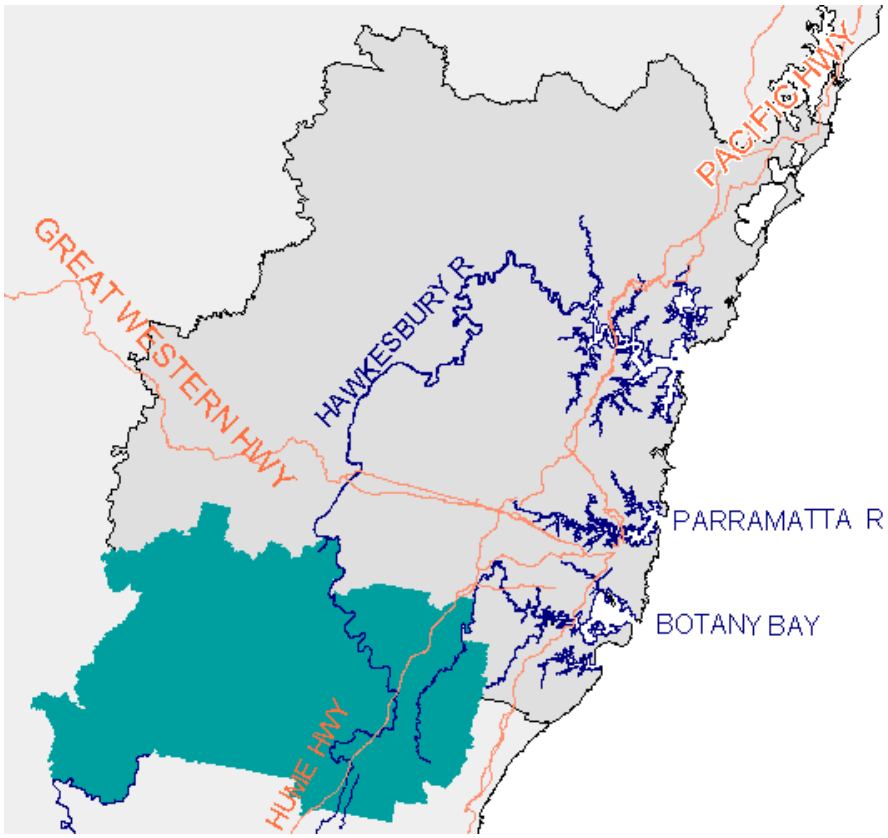



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 105.1 | 7 | 39.2 |
| Average p.a. per capita | 17.5 | 9 | 13.7 |
| Hi Tech p.a. (1994-2003) | 26.3 | 7 | 9.8 |
| Hi Tech p.a. per capita | 4.2 | 9 | 2.5 |
| Info. Tech p.a. (1994-2003) | 9.9 | 8 | 3.5 |
| Info. Tech p.a. per capita | 1.6 | 9 | 0.9 |
| Average per capita (1994-2000) | 16.5 | 7 | 9.6 |
| Average per capita (2001-2003) | 19.8 | 11 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.20 | 48 | 1.48 |

*Note:* Per capita = 100,000 people.

# Sydney Outer South West




The Sydney Outer South West, centred on Campbelltown/Macarthur, began its suburban life as a planned and balanced development of housing and manufacturing, and still bears some of the marks of this origin. However, it is mainly a commuter and hobby farm area, with a couple of large collieries for diversity. It shares campuses of the University of Western Sydney with the Sydney Outer West.

**Major centres:**

Campbelltown

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 222,342 | | 234,032 | | 242,625 | | 1.2 |
| No. households | 71,114 | | 76,096 | | 80,976 | | 2.1 |
| Workforce | 120,859 | 54.3 | 129,728 | 55.5 | 123,359 | 50.8 | -1.7 |
| Employment | 111,111 | – | 119,282 | – | 114,419 | – | -1.4 |
| Unemployment | 9,747 | 8.1 | 10,446 | 8.1 | 8,940 | 7.2 | -5.1 |
| DEET U/E | 9,232 | 8.7 | 8,985 | 7.1 | 9,633 | 8.0 | 2.3 |
| Structural U/E, % population[1] | 12,715 | 9.3 | 14,032 | 9.8 | 13,864 | 9.0 | -0.4 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 3,143 | 13,876 | 3,698 | 15,803 | 3,709 | 15,286 | 2.0 |
| Taxes paid | 860 | 3,795 | 917 | 3,919 | 1,031 | 4,250 | 2.3 |
| GST paid | 184 | 812 | 288 | 1,229 | 321 | 1,325 | – |
| Benefits | 480 | 2,121 | 527 | 2,251 | 646 | 2,664 | 4.7 |
| Business income | 359 | 1,587 | 360 | 1,539 | 382 | 1,574 | -0.2 |
| Interest/dividends | 63 | 277 | 83 | 355 | 85 | 350 | 4.8 |
| Interest paid | 332 | 1,465 | 426 | 1,822 | 540 | 2,228 | 8.7 |
| Net property income | 16 | 70 | -6 | -25 | -73 | -302 | -$372 |
| Net flow of funds | 2,686 | 11,860 | 3,032 | 12,953 | 2,856 | 11,770 | -0.2 |
| Rank | | 34 | | 31 | | 61 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 320 | 25 |
| Skills corrected factor (out of 1,000) | 304 | 24 |
| Industry corrected factor (out of 1,000) | 304 | 24 |
| Global knowledge factor (out of 1,000) | 282 | 25 |
| Resident skills matching | 484 | 17 |
| Resident industry matching | -907 | 59 |
| Catchment jobs/workers | 437 | 54 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 308 | 25 |
| Industry corrected factor (out of 1,000) | 308 | 24 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 296 | 24 |
| Industry corrected factor (out of 1,000) | 306 | 24 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 26,362 | 43,426 |
| 60 minutes, door to door | 40,458 | 68,229 |
| 100 minutes, door to door | 438,362 | 513,176 |
| *"Congestion exposure risk factor, rank"* | 208 | 12 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 212 | 20 |
| Highest performing LGA – Campbelltown (C) NSW | 277 | 62 |
| Lowest performing LGA – | 53 | 175 |
| Distance to significant retail diversity (km) | 11.6 | 20 |
| Missing local retail types (out of 44) | 10 | 20 |
| Highest performing LGA –Campbelltown (C) NSW | 6 | 121 |
| Lowest performing LGA –Wollondilly (A) | 29 | 193 |
| Percentage of retail missing (%) | 5.4% | 21 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,050 | 12 |
| 2001 | 1,288 | 24 |
| 2003 | 692 | 24 |
| 2004 | 483 | 50 |

YourPlace
*The place to go for the performance of Australia's local economies*

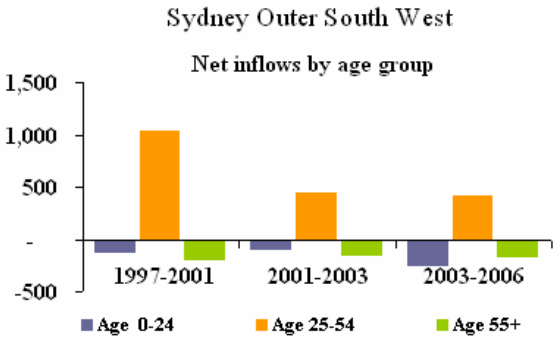
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 38.1 | 60.3% | 59.4% | 26 |
| High LGA–Camden (A) | 69.5 | 69.6% | | |
| Low LGA–Campbelltown (C) NSW | 25.2 | 56.6% | | |
| Infrastructure | 63.7 | 0.84 | 1.53 | 23 |
| High LGA–Camden (A) | 73.1 | 1.01 | | |
| Low LGA–Wollondilly (A) | 23.5 | 0.24 | | |
| Household prosperity potential | 43.5 | 95% | 100% | 28 |
| High LGA–Wollondilly (A) | 62.2 | 129% | | |
| Low LGA–Camden (A) | 30.2 | 71% | | |
| Global knowledge flows | 55.4 | 6.2% | 12.9% | 27 |
| High LGA–Campbelltown (C) NSW | 57.3 | 6.4% | | |
| Low LGA–Camden (A) | 51.7 | 5.8% | | |
| Knowledge driven growth potential | 18.7 | 0.37 | 0.67 | 63 |
| High LGA–Wollondilly (A) | 25.0 | 0.41 | | |
| Low LGA–Campbelltown (C) NSW | 15.6 | 0.35 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

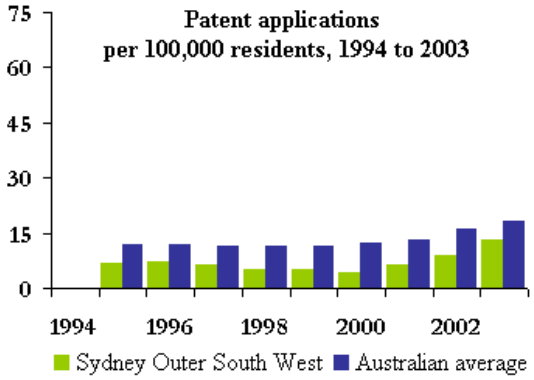
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.44 | 0.41 | 0.40 | 0.39 |
| 25 – 54 | 0.44 | 0.45 | 0.44 | 0.43 |
| 55+ | 0.12 | 0.14 | 0.16 | 0.18 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -114 | -92 | -247 |
| 25 – 54 | | 1,039 | 438 | 415 |
| 55+ | | -185 | -151 | -159 |
| Average age | 29.9 | 31.6 | 32.2 | 33.3 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.362%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 17.9 | 21 |
| 2001 | 17.4 | 15 |
| 2003 | 19.6 | 22 |
| 2004 | 22.4 | 33 |
| Income supported households (%) | 20.5 | 38 |

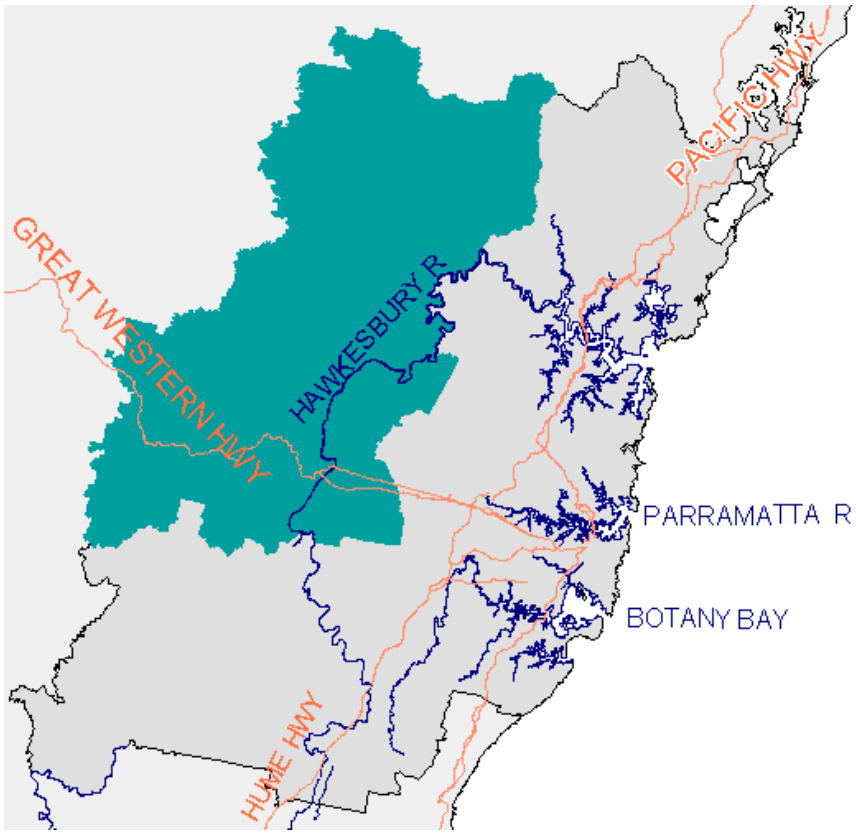



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 16.6 | 34 | 39.2 |
| Average p.a. per capita | 7.6 | 38 | 13.7 |
| Hi Tech p.a. (1994-2003) | 2.7 | 33 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 36 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.0 | 28 | 3.5 |
| Info. Tech p.a. per capita | 0.4 | 30 | 0.9 |
| Average per capita (1994-2000) | 6.0 | 40 | 9.6 |
| Average per capita (2001-2003) | 11.5 | 27 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.93 | 3 | 1.48 |

*Note:* Per capita = 100,000 people.

# Sydney Outer West




The Outer West of Sydney is centred on Penrith. It comprises two sub-regions.

- The Western part of the Cumberland plain includes new manufacturing areas and several defence facilities (particularly airfields). Its educational infrastructure is integrated into the local economy. There are extensive new housing estates, whose residents are employed locally or in Mid West Sydney, with a few commuting as far as Global Sydney.
- The strip of settlement across the Blue Mountains has more of a resort character, with a tradition of long-distance commuting and retirement.

**Major centres:**

Penrith, Katoomba

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 307,940 | | 317,248 | | 320,367 | | 0.3 |
| No. households | 104,297 | | 109,872 | | 114,220 | | 1.3 |
| Workforce | 160,061 | 51,9 | 177,121 | 55.8 | 178,285 | 55.7 | 0.2 |
| Employment | 147,177 | – | 164,219 | – | 166,633 | – | 0.5 |
| Unemployment | 12,884 | 8.0 | 12,903 | 7.3 | 11,651 | 6.5 | -3.3 |
| DEET U/E | 11,351 | 7.3 | 7,906 | 4.6 | 9,090 | 5.2 | 4.8 |
| Structural U/E, % population[1] | 15,928 | 8.3 | 16,930 | 8.6 | 16,784 | 8.2 | -0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 4,402 | 14,156 | 4,356 | 13,731 | 4,940 | 15,421 | 1.7 |
| Taxes paid | 1,221 | 3,925 | 1,104 | 3,481 | 1,443 | 4,503 | 2.8 |
| GST paid | 257 | 825 | 415 | 1,309 | 531 | 1,659 | – |
| Benefits | 628 | 2,021 | 684 | 2,158 | 821 | 2,562 | 4.9 |
| Business income | 545 | 1,753 | 547 | 1,723 | 644 | 2,011 | 2.8 |
| Interest/dividends | 117 | 375 | 136 | 430 | 147 | 459 | 4.1 |
| Interest paid | 458 | 1,473 | 603 | 1,900 | 777 | 2,427 | 10.5 |
| Net property income | 38 | 122 | 10 | 31 | -84 | -262 | -$384 |
| Net flow of funds | 3,796 | 12,205 | 3,611 | 11,383 | 3,717 | 11,602 | -1.0 |
| Rank | | 27 | | 60 | | 62 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 321 | 24 |
| Skills corrected factor (out of 1,000) | 303 | 25 |
| Industry corrected factor (out of 1,000) | 304 | 25 |
| Global knowledge factor (out of 1,000) | 288 | 23 |
| Resident skills matching | 452 | 20 |
| Resident industry matching | -945 | 62 |
| Catchment jobs/workers | 451 | 50 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 314 | 24 |
| Industry corrected factor (out of 1,000) | 301 | 27 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 296 | 25 |
| Industry corrected factor (out of 1,000) | 300 | 25 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 35,617 | 54,938 |
| 60 minutes, door to door | 45,024 | 72,454 |
| 100 minutes, door to door | 419,238 | 517,691 |
| *"Congestion exposure risk factor, rank"* | 114 | 22 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 237 | 14 |
| Highest performing LGA – Penrith (C) | 349 | 45 |
| Lowest performing LGA –Hawkesbury (C) | 76 | 148 |
| Distance to significant retail diversity (km) | 12.8 | 21 |
| Missing local retail types (out of 44) | 13 | 23 |
| Highest performing LGA –Penrith (C) | 4 | 112 |
| Lowest performing LGA –Blue Mountains (C) | 29 | 193 |
| Percentage of retail missing (%) | 8.1% | 24 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 937 | 18 |
| 2001 | 1,458 | 13 |
| 2003 | 536 | 35 |
| 2004 | 552 | 44 |

YourPlace
*The place to go for the performance of Australia's local economies*

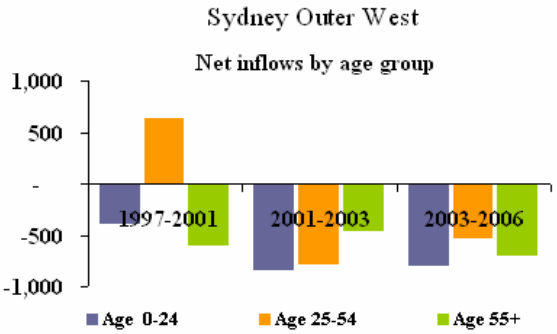
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 47.7 | 63.0% | 59.4% | 27 |
| High LGA – Hawkesbury (C) | 57.5 | 65.4% | | |
| Low LGA – Blue Mountains (C) | 40.3 | 61.3% | | |
| Infrastructure | 54.4 | 0.65 | 1.53 | 36 |
| High LGA – Penrith (C) | 66.3 | 0.83 | | |
| Low LGA – Blue Mountains (C) | 24.7 | 0.25 | | |
| Household prosperity potential | 13.6 | 28% | 100% | 64 |
| High LGA – Hawkesbury (C) | 25.7 | 62% | | |
| Low LGA – Blue Mountains (C) | 3.5 | -16% | | |
| Global knowledge flows | 63.7 | 7.1% | 12.9% | 20 |
| High LGA – Penrith (C) | 65.5 | 7.3% | | |
| Low LGA – Hawkesbury (C) | 60.0 | 6.7% | | |
| Knowledge driven growth potential | 32.7 | 0.46 | 0.67 | 38 |
| High LGA – Blue Mountains (C) | 57.2 | 0.60 | | |
| Low LGA – Penrith (C) | 23.1 | 0.40 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

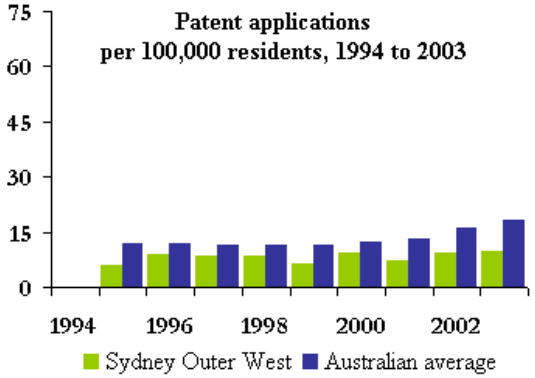
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.41 | 0.38 | 0.38 | 0.37 |
| 25 – 54 | 0.45 | 0.45 | 0.44 | 0.43 |
| 55+ | 0.15 | 0.17 | 0.18 | 0.20 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -383 | -836 | -784 |
| 25 – 54 | | 633 | -776 | -526 |
| 55+ | | -596 | -448 | -684 |
| Average age | 31.8 | 33.2 | 33.8 | 34.7 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.689%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 16.6 | 19 |
| 2001 | 19.0 | 21 |
| 2003 | 19.3 | 20 |
| 2004 | 21.8 | 30 |
| Income supported households (%) | 15.5 | 56 |

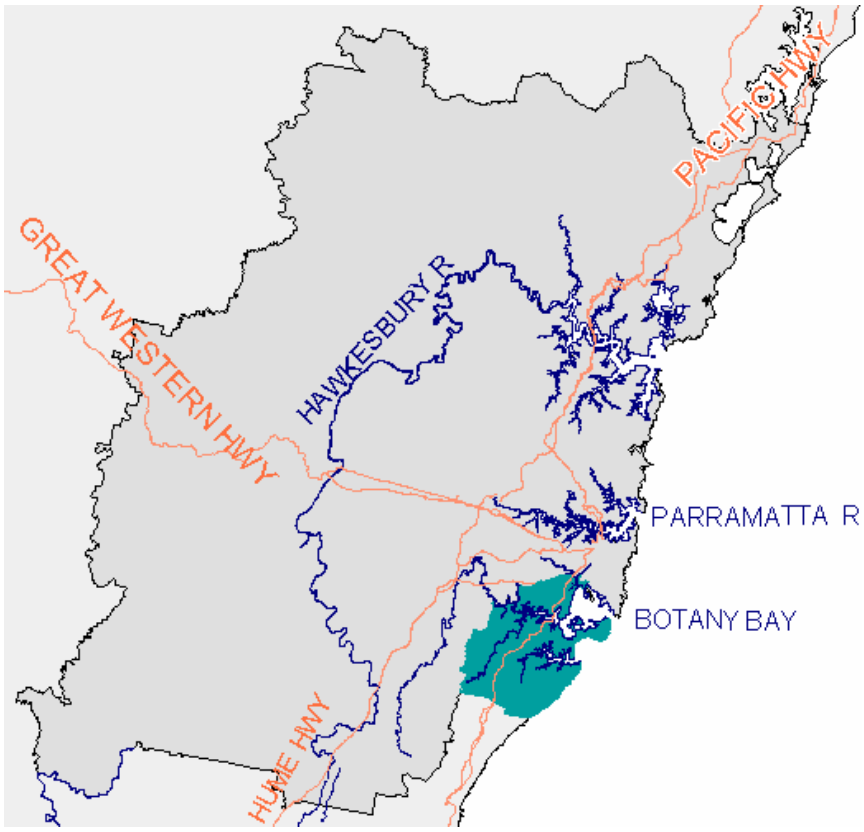



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 26.0 | 23 | 39.2 |
| Average p.a. per capita | 8.7 | 28 | 13.7 |
| Hi Tech p.a. (1994-2003) | 5.2 | 22 | 9.8 |
| Hi Tech p.a. per capita | 1.7 | 22 | 2.5 |
| Info. Tech p.a. (1994-2003) | 2.2 | 20 | 3.5 |
| Info. Tech p.a. per capita | 0.7 | 13 | 0.9 |
| Average per capita (1994-2000) | 7.8 | 28 | 9.6 |
| Average per capita (2001-2003) | 10.7 | 31 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.37 | 42 | 1.48 |

*Note:* Per capita = 100,000 people.

# Sydney South




Apart from the Shire of Sutherland, the Sydney South region was mainly built up in the first half of the last Century; the Shire followed in the second half. Though mainly a middle-status commuter zone, it has areas of manufacturing employment, and the usual suburban retail centres. Its frontage to Botany Bay does not have the social éclat of the harbour side further north – the foreshore is naturally less attractive, and much of it is devoted to the airport, the port and industry. Like Sydney north, the region abuts onto bush land which is a marvellous natural amenity when it is not the cause of bushfire scares.

**Major centres:**

Hurstville, Miranda

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 419,979 | | 433,055 | | 438,984 | | 0.5 |
| No. households | 147,571 | | 157,057 | | 161,835 | | 1.0 |
| Workforce | 217,496 | 51.7 | 224,150 | 51.8 | 236,942 | 54.0 | 1.9 |
| Employment | 206,269 | – | 214,371 | – | 228,309 | – | 2.1 |
| Unemployment | 11,227 | 5.2 | 9,778 | 4.4 | 8,633 | 3.6 | -4.1 |
| DEET U/E | 9,320 | 4.3 | 7,380 | 3.3 | 7,801 | 3.3 | 1.9 |
| Structural U/E, % population[1] | 15,985 | 6.1 | 15,788 | 5.8 | 15,764 | 5.6 | -0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 6,930 | 16,355 | 8,249 | 19,048 | 8,772 | 19,983 | 4.1 |
| Taxes paid | 2,055 | 4,849 | 2,328 | 5,376 | 2,508 | 5,713 | 3.3 |
| GST paid | 417 | 984 | 646 | 1,492 | 739 | 1,684 | – |
| Benefits | 775 | 1,828 | 837 | 1,932 | 982 | 2,238 | 4.1 |
| Business income | 984 | 2,322 | 998 | 2,305 | 1,125 | 2,563 | 2.0 |
| Interest/dividends | 376 | 887 | 495 | 1,143 | 431 | 983 | 2.1 |
| Interest paid | 482 | 1,138 | 669 | 1,544 | 902 | 2,055 | 12.5 |
| Net property income | 160 | 379 | 74 | 170 | -127 | -289 | -$668 |
| Net flow of funds | 6,271 | 14,800 | 7,010 | 16,186 | 7,035 | 16,026 | 1.6 |
| Rank | | 9 | | 10 | | 20 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 610 | 11 |
| Skills corrected factor (out of 1,000) | 603 | 11 |
| Industry corrected factor (out of 1,000) | 592 | 11 |
| Global knowledge factor (out of 1,000) | 627 | 9 |
| Resident skills matching | 481 | 18 |
| Resident industry matching | -978 | 63 |
| Catchment jobs/workers | 690 | 4 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 617 | 11 |
| Industry corrected factor (out of 1,000) | 607 | 11 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 616 | 10 |
| Industry corrected factor (out of 1,000) | 617 | 10 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 22,611 | 38,692 |
| 60 minutes, door to door | 317,171 | 387,048 |
| 100 minutes, door to door | 1,265,442 | 1,119,534 |
| *"Congestion exposure risk factor, rank"* | 527 | 5 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 285 | 9 |
| Highest performing LGA – Rockdale (C) | 365 | 40 |
| Lowest performing LGA –Kogarah (A) | 203 | 87 |
| Distance to significant retail diversity (km) | 6.7 | 9 |
| Missing local retail types (out of 44) | 1 | 5 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.1% | 6 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,145 | 9 |
| 2001 | 1,394 | 17 |
| 2003 | 988 | 7 |
| 2004 | 603 | 37 |

YourPlace
*The place to go for the performance of Australia's local economies*

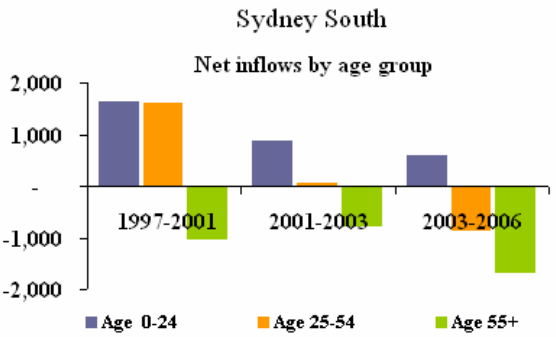
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 51.0 | 64.2% | 59.4% | 33 |
| High LGA – Sutherland Shire (A) | 66.8 | 68.7% | | |
| Low LGA – Rockdale (C) | 29.2 | 57.8% | | |
| Infrastructure | 57.2 | 0.70 | 1.53 | 18 |
| High LGA – Rockdale (C) | 74.5 | 1.04 | | |
| Low LGA – Kogarah (A) | 31.6 | 0.35 | | |
| Household prosperity potential | 79.4 | 164% | 100% | 9 |
| High LGA – Kogarah (A) | 85.7 | 183% | | |
| Low LGA – Sutherland Shire (A) | 77.6 | 159% | | |
| Global knowledge flows | 79.9 | 9.9% | 12.9% | 11 |
| High LGA – Kogarah (A) | 91.9 | 13.3% | | |
| Low LGA – Rockdale (C) | 69.2 | 7.8% | | |
| Knowledge driven growth potential | 51.6 | 0.57 | 0.67 | 26 |
| High LGA – Kogarah (A) | 70.8 | 0.71 | | |
| Low LGA – Rockdale (C) | 36.6 | 0.48 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

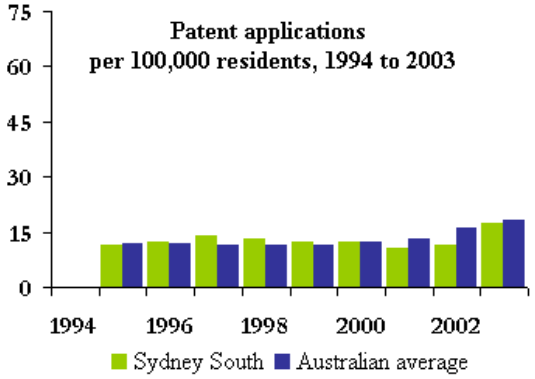
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.33 | 0.32 | 0.32 | 0.32 |
| 25 – 54 | 0.44 | 0.44 | 0.44 | 0.44 |
| 55+ | 0.23 | 0.23 | 0.24 | 0.25 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,624 | 883 | 598 |
| 25 – 54 | | 1,601 | 43 | -851 |
| 55+ | | -1,017 | -760 | -1,653 |
| Average age | 36.8 | 37.3 | 37.6 | 37.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.023%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 12.4 | 6 |
| 2001 | 11.9 | 7 |
| 2003 | 12.4 | 8 |
| 2004 | 13.9 | 7 |
| Income supported households (%) | 12.5 | 60 |

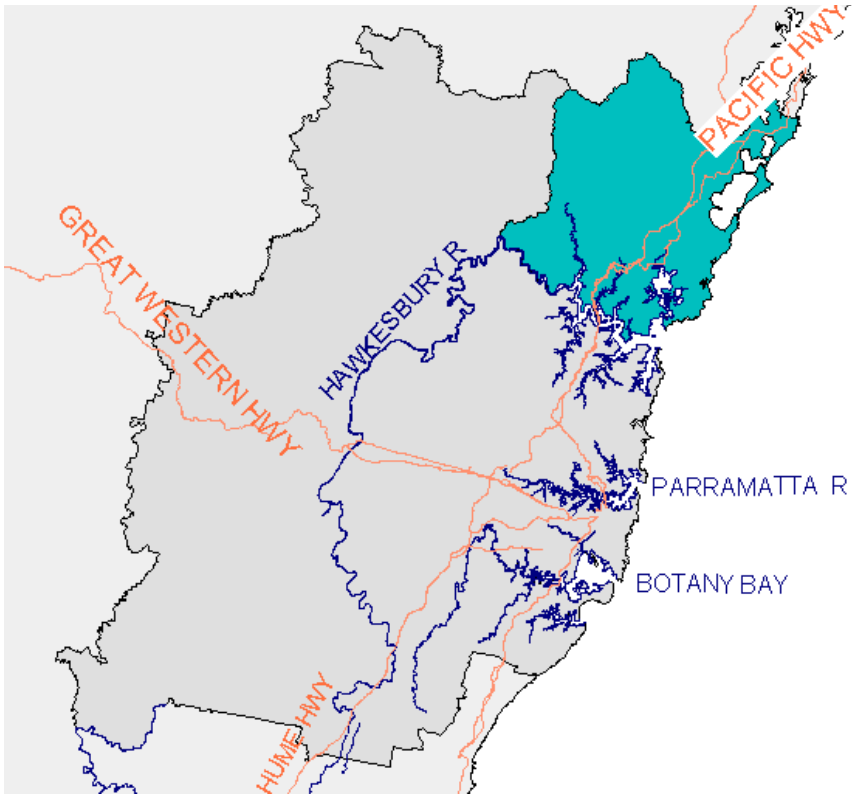



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 52.4 | 16 | 39.2 |
| Average p.a. per capita | 12.8 | 13 | 13.7 |
| Hi Tech p.a. (1994-2003) | 7.8 | 18 | 9.8 |
| Hi Tech p.a. per capita | 1.8 | 18 | 2.5 |
| Info. Tech p.a. (1994-2003) | 2.7 | 16 | 3.5 |
| Info. Tech p.a. per capita | 0.6 | 19 | 0.9 |
| Average per capita (1994-2000) | 12.3 | 13 | 9.6 |
| Average per capita (2001-2003) | 13.9 | 17 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.13 | 53 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Central Coast




Historically, the Central Coast was neither Sydney nor Newcastle; an area of holiday and retirement homes beside beaches and backing into infertile sandstone hills. Over recent decades it has received overflow from Sydney: initially long-distance commuters and increasingly manufacturing, and its population now includes many young families.

**Major centres:**

Gosford, Wyong, The Entrance

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 281,230 | | 296,258 | | 306,261 | | 1.1 |
| No. households | 106,397 | | 115,065 | | 122,391 | | 2.1 |
| Workforce | 119,777 | 42.6 | 122,890 | 41.5 | 138,839 | 45.3 | 4.2 |
| Employment | 106,798 | – | 108,487 | – | 126,878 | – | 5.4 |
| Unemployment | 12,978 | 10.8 | 14,402 | 11.7 | 11,961 | 8.6 | -6.0 |
| DEET U/E | 9,629 | 8.1 | 8,980 | 7.4 | 9,683 | 7.1 | 2.5 |
| Structural U/E, % population[1] | 19,321 | 12.2 | 21,249 | 12.7 | 21,196 | 11.9 | -0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 3,412 | 11,962 | 4,008 | 13,530 | 4,838 | 15,797 | 5.7 |
| Taxes paid | 931 | 3,265 | 1,029 | 3,473 | 1,165 | 3,803 | 3.1 |
| GST paid | 277 | 971 | 403 | 1,360 | 526 | 1,716 | – |
| Benefits | 830 | 2,909 | 913 | 3,081 | 1,094 | 3,573 | 4.2 |
| Business income | 420 | 1,473 | 419 | 1,415 | 512 | 1,671 | 2.6 |
| Interest/dividends | 150 | 527 | 199 | 673 | 178 | 581 | 2.0 |
| Interest paid | 285 | 999 | 375 | 1,265 | 486 | 1,588 | 9.7 |
| Net property income | 72 | 252 | 50 | 167 | -30 | -98 | -$349 |
| Net flow of funds | 3,391 | 11,888 | 3,783 | 12,768 | 4,416 | 14,419 | 3.9 |
| Rank | | 33 | | 36 | | 33 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 299 | 26 |
| Skills corrected factor (out of 1,000) | 293 | 26 |
| Industry corrected factor (out of 1,000) | 301 | 26 |
| Global knowledge factor (out of 1,000) | 264 | 26 |
| Resident skills matching | 204 | 29 |
| Resident industry matching | -219 | 46 |
| Catchment jobs/workers | 410 | 56 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 293 | 26 |
| Industry corrected factor (out of 1,000) | 302 | 25 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 285 | 26 |
| Industry corrected factor (out of 1,000) | 290 | 27 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 35,276 | 47,069 |
| 60 minutes, door to door | 43,115 | 57,529 |
| 100 minutes, door to door | 338,393 | 354,993 |
| *"Congestion exposure risk factor, rank"* | 54 | 34 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 159 | 23 |
| Highest performing LGA – Gosford (C) | 173 | 101 |
| Lowest performing LGA –Wyong (A) | 143 | 114 |
| Distance to significant retail diversity (km) | 15.5 | 23 |
| Missing local retail types (out of 44) | 18 | 26 |
| Highest performing LGA –Gosford (C) | 15 | 143 |
| Lowest performing LGA –Wyong (A) | 21 | 155 |
| Percentage of retail missing (%) | 7.5% | 23 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,015 | 13 |
| 2001 | 1,482 | 12 |
| 2003 | 927 | 10 |
| 2004 | 640 | 31 |

YourPlace
The place to go for the performance of Australia's local economies

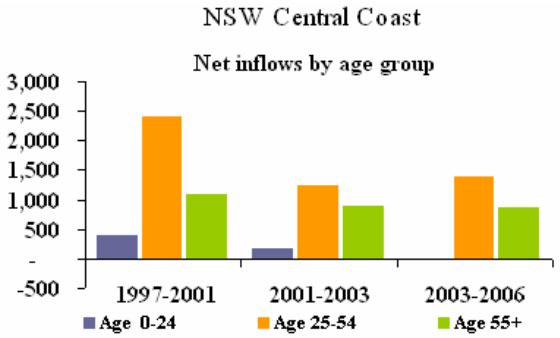
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 22.3 | 55.1% | 59.4% | 58 |
| High LGA – Gosford (C) | 28.6 | 57.6% | | |
| Low LGA – Wyong (A) | 14.7 | 52.1% | | |
| Infrastructure | 60.5 | 0.82 | 1.53 | 17 |
| High LGA – Gosford (C) | 77.7 | 1.15 | | |
| Low LGA – Wyong (A) | 40.2 | 0.43 | | |
| Household prosperity potential | 44.4 | 97% | 100% | 30 |
| High LGA – Gosford (C) | 57.1 | 120% | | |
| Low LGA – Wyong (A) | 29.4 | 69% | | |
| Global knowledge flows | 65.4 | 7.3% | 12.9% | 16 |
| High LGA – Gosford (C) | 68.6 | 7.7% | | |
| Low LGA – Wyong (A) | 60.7 | 6.7% | | |
| Knowledge driven growth potential | 33.5 | 0.46 | 0.67 | 51 |
| High LGA – Gosford (C) | 37.9 | 0.48 | | |
| Low LGA – Wyong (A) | 27.2 | 0.43 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

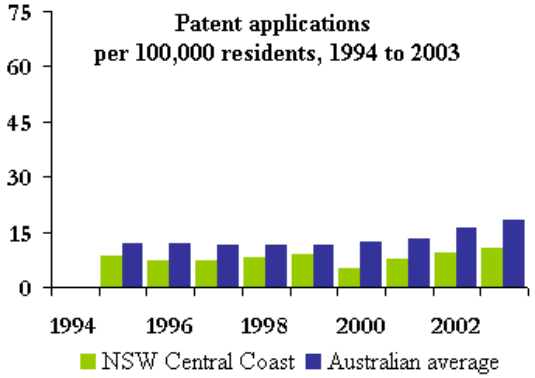
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.33 | 0.33 | 0.32 |
| 25 – 54 | 0.40 | 0.40 | 0.39 | 0.39 |
| 55+ | 0.26 | 0.27 | 0.28 | 0.29 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 406 | 174 | -9 |
| 25 – 54 | | 2,397 | 1,239 | 1,390 |
| 55+ | | 1,087 | 900 | 862 |
| Average age | 37.5 | 38.3 | 38.7 | 39.5 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.729%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 24.5 | 47 |
| 2001 | 24.1 | 48 |
| 2003 | 23.1 | 39 |
| 2004 | 24.6 | 43 |
| Income supported households (%) | 16.3 | 52 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 22.7 | 25 | 39.2 |
| Average p.a. per capita | 8.5 | 30 | 13.7 |
| Hi Tech p.a. (1994-2003) | 4.1 | 26 | 9.8 |
| Hi Tech p.a. per capita | 1.4 | 28 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.4 | 25 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 25 | 0.9 |
| Average per capita (1994-2000) | 7.4 | 33 | 9.6 |
| Average per capita (2001-2003) | 10.9 | 30 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.46 | 28 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Central West


The Central West of NSW consists mainly of hilly country, beginning just past the Blue Mountains and ending with the last of the slopes. Its principal towns include Lithgow, Bathurst, Orange, Cowra, Parkes and Forbes. The agricultural base varies from orchards in the high country round Orange to extensive wheat/sheep farming. Lithgow was first developed as a manufacturing town because of its coal mines, and coal is still mined for power generation and export. The Bathurst/Orange growth centre also has some manufacturing, particularly that gained as a result of Commonwealth growth-centre policies in the 1970s. The region is outside commuter range from Sydney, but there have been weekender and tourist developments in the hills.

**Major centres:**

Lithgow, Bathurst, Orange

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 172,795 | | 177,660 | | 179,614 | | 0.4 |
| No. households | 63,225 | | 65,833 | | 67,861 | | 1.0 |
| Workforce | 84,810 | 49.1 | 82,540 | 46.5 | 89,232 | 49.7 | 2.6 |
| Employment | 76,376 | – | 72,799 | – | 79,786 | – | 3.1 |
| Unemployment | 8,434 | 9.9 | 9,741 | 11.8 | 9,446 | 10.6 | -1.0 |
| DEET U/E | 4,747 | 5.8 | 3,609 | 4.5 | 4,164 | 4.9 | 4.9 |
| Structural U/E, % population[1] | 11,396 | 11.3 | 13,031 | 12.8 | 13,330 | 12.3 | 0.8 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,983 | 11,323 | 2,302 | 12,956 | 2,794 | 15,558 | 6.6 |
| Taxes paid | 521 | 2,974 | 567 | 3,189 | 744 | 4,142 | 6.8 |
| GST paid | 165 | 944 | 224 | 1,260 | 296 | 1,649 | – |
| Benefits | 460 | 2,629 | 502 | 2,827 | 622 | 3,460 | 5.7 |
| Business income | 283 | 1,613 | 281 | 1,580 | 317 | 1,764 | 1.8 |
| Interest/dividends | 80 | 459 | 100 | 561 | 96 | 535 | 3.1 |
| Interest paid | 185 | 1,057 | 260 | 1,466 | 323 | 1,798 | 11.2 |
| Net property income | 33 | 186 | 19 | 109 | 2 | 12 | -$174 |
| Net flow of funds | 1,968 | 11,236 | 2,153 | 12,120 | 2,468 | 13,740 | 4.1 |
| Rank | | 52 | | 50 | | 39 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 105 | 52 |
| Skills corrected factor (out of 1,000) | 106 | 53 |
| Industry corrected factor (out of 1,000) | 111 | 54 |
| Global knowledge factor (out of 1,000) | 87 | 52 |
| Resident skills matching | 76 | 48 |
| Resident industry matching | 54 | 34 |
| Catchment jobs/workers | 505 | 33 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 109 | 53 |
| Industry corrected factor (out of 1,000) | 116 | 54 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 108 | 52 |
| Industry corrected factor (out of 1,000) | 116 | 53 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 8,380 | 8,450 |
| 60 minutes, door to door | 17,575 | 17,338 |
| 100 minutes, door to door | 27,507 | 28,580 |
| *"Congestion exposure risk factor, rank"* | 18 | 40 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 27 | 48 |
| Highest performing LGA – Bathurst (C) | 46 | 187 |
| Lowest performing LGA –Lachlan (A) | 7 | 491 |
| Distance to significant retail diversity (km) | 63.5 | 46 |
| Missing local retail types (out of 44) | 38 | 53 |
| Highest performing LGA –Orange (C) | 30 | 198 |
| Lowest performing LGA –Bland (A) | 44 | 317 |
| Percentage of retail missing (%) | 65.6% | 51 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 611 | 46 |
| 2001 | 1,065 | 44 |
| 2003 | 346 | 54 |
| 2004 | 503 | 47 |

YourPlace
*The place to go for the performance of Australia's local economies*

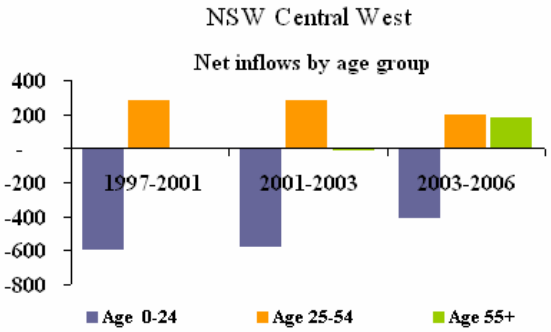
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 39.6 | 60.7% | 59.4% | 30 |
| High LGA – Bland (A) | 75.2 | 72.2% | | |
| Low LGA – Greater Lithgow (C) | 13.7 | 51.5% | | |
| Infrastructure | 59.1 | 0.79 | 1.53 | 34 |
| High LGA – Bathurst (C) | 81.3 | 1.31 | | |
| Low LGA – Evans (A) | 1.1 | 0.00 | | |
| Household prosperity potential | 58.5 | 126% | 100% | 17 |
| High LGA – Forbes (A) | 93.3 | 218% | | |
| Low LGA – Cowra (A) | 17.8 | 46% | | |
| Global knowledge flows | 50.0 | 5.9% | 12.9% | 51 |
| High LGA – Orange (C) | 69.8 | 7.9% | | |
| Low LGA – Bland (A) | 14.7 | 2.6% | | |
| Knowledge driven growth potential | 47.5 | 0.57 | 0.67 | 19 |
| High LGA – Weddin (A) | 94.8 | 1.06 | | |
| Low LGA – Greater Lithgow (C) | 14.1 | 0.34 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

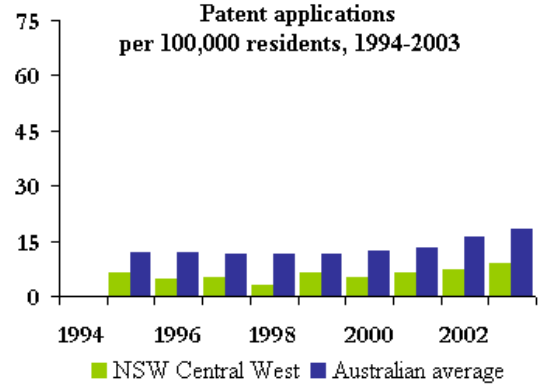
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.38 | 0.36 | 0.35 | 0.34 |
| 25 – 54 | 0.41 | 0.40 | 0.40 | 0.39 |
| 55+ | 0.22 | 0.24 | 0.25 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -590 | -568 | -400 |
| 25 – 54 | | 286 | 279 | 201 |
| 55+ | | 1 | -2 | 184 |
| Average age | 35.1 | 36.4 | 37.0 | 38.0 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.187%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 23.4 | 44 |
| 2001 | 23.3 | 45 |
| 2003 | 27.7 | 55 |
| 2004 | 25.0 | 44 |
| Income supported households (%) | 21.7 | 29 |

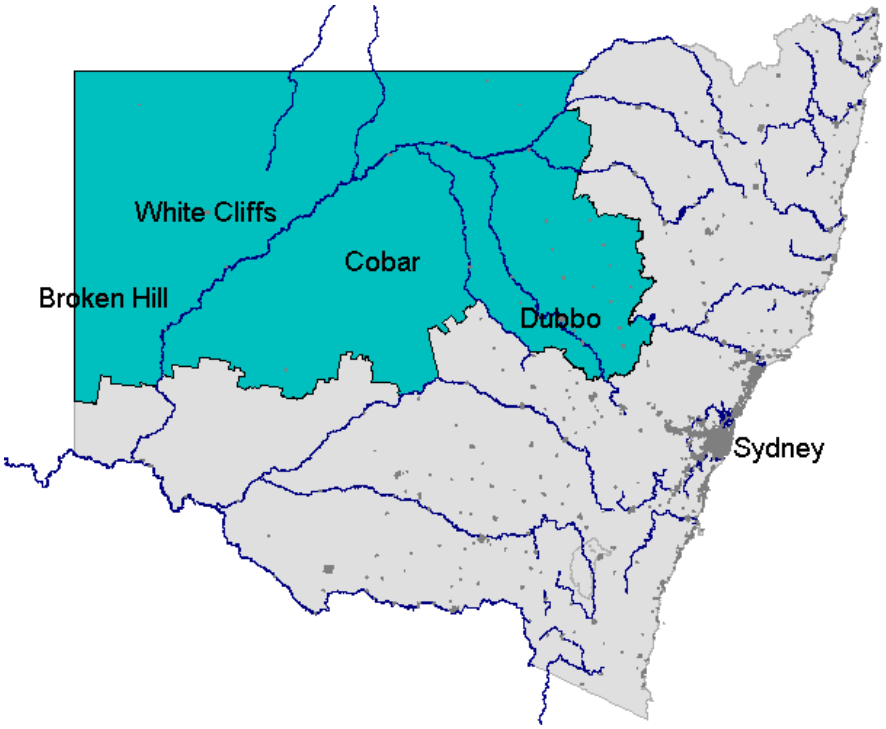



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 10.9 | 43 | 39.2 |
| Average p.a. per capita | 6.3 | 44 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.4 | 44 | 9.8 |
| Hi Tech p.a. per capita | 0.8 | 45 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.3 | 44 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 49 | 0.9 |
| Average per capita (1994-2000) | 5.3 | 49 | 9.6 |
| Average per capita (2001-2003) | 8.6 | 41 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.63 | 16 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Far and North West




The Far and North West puts together two NSW planning regions, including the sparsely-populated Far West. The result is a large and diverse region, with the following sub-regions.

- In the east of the region the country is hilly and in many ways resembles the Central West. The centre for this part of the region is Mudgee, which is well known for its wineries.
- Dubbo lies just beyond the hills, and is the centre for the plains beyond. The plains north and west of Dubbo produce cotton and a variety of cereal crops integrated with livestock production.
- Beyond Nyngan the country becomes pastoral, with small areas under intensive irrigation from the Darling. This is classic sheep country, though low wool prices have forced some diversification. There are two historic mining centres, Cobar and Broken Hill.

**Major centres:**

Dubbo, Broken Hill

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 142,137 | | 143,185 | | 141,839 | | -0.3 |
| No. households | 53,627 | | 54,487 | | 55,640 | | 0.7 |
| Workforce | 68,328 | 48.1 | 66,561 | 46.6 | 69,393 | 48.9 | 1.4 |
| Employment | 58,812 | – | 57,353 | – | 60,452 | – | 1.8 |
| Unemployment | 9,515 | 13.9 | 9,208 | 13.8 | 8,941 | 12.9 | -1.0 |
| DEET U/E | 4,844 | 7.3 | 3,940 | 6.1 | 4,304 | 6.5 | 3.0 |
| Structural U/E, % population[1] | 12,673 | 15.4 | 13,562 | 16.7 | 13,482 | 15.9 | -0.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,450 | 10,157 | 1,660 | 11,593 | 1,934 | 13,637 | 6.1 |
| Taxes paid | 376 | 2,633 | 408 | 2,850 | 523 | 3,685 | 7.0 |
| GST paid | 128 | 894 | 174 | 1,212 | 239 | 1,686 | – |
| Benefits | 427 | 2,992 | 490 | 3,422 | 624 | 4,397 | 8.0 |
| Business income | 227 | 1,592 | 225 | 1,574 | 293 | 2,063 | 5.3 |
| Interest/dividends | 60 | 421 | 78 | 547 | 71 | 499 | 3.5 |
| Interest paid | 143 | 999 | 200 | 1,394 | 248 | 1,747 | 11.8 |
| Net property income | 23 | 164 | 18 | 127 | 7 | 46 | -$117 |
| Net flow of funds | 1,542 | 10,799 | 1,691 | 11,807 | 1,918 | 13,525 | 4.6 |
| Rank | | 59 | | 57 | | 45 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 65 | 59 |
| Skills corrected factor (out of 1,000) | 65 | 60 |
| Industry corrected factor (out of 1,000) | 70 | 59 |
| Global knowledge factor (out of 1,000) | 46 | 59 |
| Resident skills matching | 17 | 52 |
| Resident industry matching | -159 | 37 |
| Catchment jobs/workers | 521 | 22 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 68 | 58 |
| Industry corrected factor (out of 1,000) | 74 | 60 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 71 | 58 |
| Industry corrected factor (out of 1,000) | 78 | 60 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 7,047 | 7,072 |
| 60 minutes, door to door | 8,443 | 8,533 |
| 100 minutes, door to door | 12,544 | 12,095 |
| *"Congestion exposure risk factor, rank"* | 6 | 51 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 18 | 54 |
| Highest performing LGA – Dubbo (C) | 39 | 200 |
| Lowest performing LGA –Unincorporated NSW | 1 | 612 |
| Distance to significant retail diversity (km) | 140.8 | 58 |
| Missing local retail types (out of 44) | 39 | 55 |
| Highest performing LGA –Dubbo (C) | 28 | 185 |
| Lowest performing LGA –Bogan (A) | 44 | 317 |
| Percentage of retail missing (%) | 70.8% | 56 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 420 | 58 |
| 2001 | 838 | 53 |
| 2003 | 270 | 59 |
| 2004 | 406 | 56 |

YourPlace
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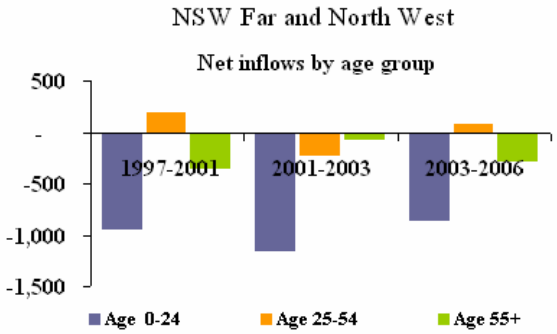
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 37.9 | 59.6% | 59.4% | 29 |
| High LGA – Unincorporated NSW | 99.4 | 106.3% | | |
| Low LGA – Broken Hill (C) | 5.1 | 45.3% | | |
| Infrastructure | 39.2 | 0.46 | 1.53 | 58 |
| High LGA – Warren (A) | 89.6 | 2.18 | | |
| Low LGA – Bogan (A) | 4.2 | 0.01 | | |
| Household prosperity potential | 54.0 | 114% | 100% | 33 |
| High LGA – Mudgee (A) | 80.7 | 167% | | |
| Low LGA – Brewarrina (A) | 1.5 | -41% | | |
| Global knowledge flows | 40.3 | 4.9% | 12.9% | 62 |
| High LGA – Dubbo (C) | 67.1 | 7.5% | | |
| Low LGA – Coolah (A) | 5.1 | 1.4% | | |
| Knowledge driven growth potential | 44.4 | 0.54 | 0.67 | 27 |
| High LGA – Wellington (A) | 88.6 | 0.90 | | |
| Low LGA – Unincorporated NSW | 11.6 | 0.32 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

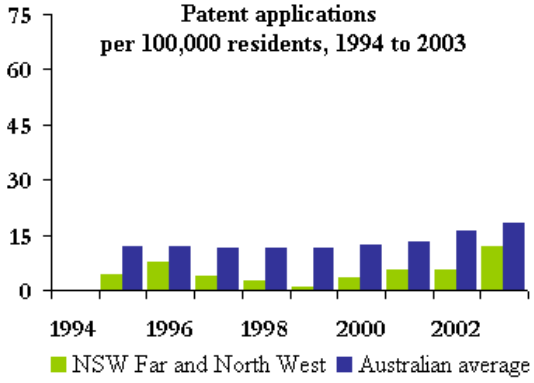
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.36 | 0.35 | 0.34 |
| 25 – 54 | 0.42 | 0.41 | 0.40 | 0.40 |
| 55+ | 0.22 | 0.23 | 0.25 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -937 | -1,141 | -845 |
| 25 – 54 | | 184 | -223 | 83 |
| 55+ | | -350 | -69 | -273 |
| Average age | 34.9 | 36.0 | 36.8 | 37.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.134%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 27.7 | 60 |
| 2001 | 29.0 | 60 |
| 2003 | 34.6 | 62 |
| 2004 | 32.2 | 60 |
| Income supported households (%) | 25.0 | 11 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 7.6 | 51 | 39.2 |
| Average p.a. per capita | 5.3 | 53 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.0 | 49 | 9.8 |
| Hi Tech p.a. per capita | 0.7 | 48 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.2 | 45 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 46 | 0.9 |
| Average per capita (1994-2000) | 4.0 | 58 | 9.6 |
| Average per capita (2001-2003) | 8.2 | 45 | 14.3 |
| 2001-03 avg./1994-00 avg. | 2.04 | 2 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Hunter


The Hunter region centres on the City of Newcastle, which, despite its picturesque location, was always overshadowed by Sydney as a financial and administrative centre. The Port of Newcastle handles a wide variety of bulk freight, particularly coal mined within the region but also rural exports from the northern half of NSW. The region was also known for heavy industry, but this has shared in the general decline of Australian manufacturing. Parts of the region like Port Stephens and Scone are perhaps best thought of as extensions of the North Coast; hobby farm and retirement areas related directly to Sydney. The Hunter Valley vineyards have also been expanding.

**Major centres:**

Newcastle, Maitland, Singleton

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 565,950 | | 588,981 | | 605,634 | | 0.9 |
| No. households | 213,412 | | 225,877 | | 236,262 | | 1.5 |
| Workforce | 265,843 | 46.9 | 288,185 | 48.9 | 291,280 | 48.1 | 0.4 |
| Employment | 231,861 | – | 248,762 | – | 256,533 | – | 1.0 |
| Unemployment | 33,981 | 12.8 | 39,423 | 13.7 | 34,748 | 11.9 | -4.1 |
| DEET U/E | 24,485 | 9.4 | 24,496 | 8.8 | 19,236 | 6.9 | -7.7 |
| Structural U/E, % population[1] | 43,866 | 13.0 | 51,558 | 14.9 | 51,082 | 13.7 | -0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 7,217 | 12,570 | 8,016 | 13,611 | 8,360 | 13,804 | 1.9 |
| Taxes paid | 2,016 | 3,512 | 2,094 | 3,555 | 2,487 | 4,107 | 3.2 |
| GST paid | 516 | 899 | 796 | 1,352 | 909 | 1,500 | – |
| Benefits | 1,702 | 2,965 | 1,918 | 3,257 | 2,217 | 3,660 | 4.3 |
| Business income | 891 | 1,552 | 896 | 1,521 | 980 | 1,618 | 0.8 |
| Interest/dividends | 284 | 494 | 370 | 629 | 353 | 583 | 3.4 |
| Interest paid | 562 | 978 | 760 | 1,290 | 951 | 1,570 | 9.9 |
| Net property income | 122 | 212 | 90 | 152 | 55 | 92 | -$120 |
| Net flow of funds | 7,121 | 12,403 | 7,641 | 12,973 | 7,619 | 12,580 | 0.3 |
| Rank | | 25 | | 29 | | 56 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 211 | 33 |
| Skills corrected factor (out of 1,000) | 210 | 34 |
| Industry corrected factor (out of 1,000) | 216 | 33 |
| Global knowledge factor (out of 1,000) | 176 | 34 |
| Resident skills matching | 229 | 28 |
| Resident industry matching | -134 | 32 |
| Catchment jobs/workers | 501 | 36 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 210 | 33 |
| Industry corrected factor (out of 1,000) | 218 | 33 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 208 | 32 |
| Industry corrected factor (out of 1,000) | 216 | 32 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 33,085 | 37,294 |
| 60 minutes, door to door | 37,437 | 38,510 |
| 100 minutes, door to door | 115,657 | 127,209 |
| *"Congestion exposure risk factor, rank"* | 30 | 36 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 216 | 18 |
| Highest performing LGA – Newcastle (C) | 429 | 28 |
| Lowest performing LGA –Merriwa (A) | 9 | 441 |
| Distance to significant retail diversity (km) | 21.0 | 28 |
| Missing local retail types (out of 44) | 19 | 28 |
| Highest performing LGA –Lake Macquarie (C) | 7 | 122 |
| Lowest performing LGA –Gloucester (A) | 44 | 317 |
| Percentage of retail missing (%) | 21.9% | 29 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 784 | 32 |
| 2001 | 1,370 | 19 |
| 2003 | 655 | 25 |
| 2004 | 704 | 23 |

YourPlace
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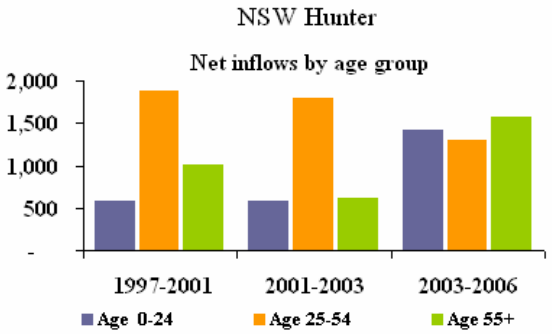
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 17.4 | 52.6% | 59.4% | 53 |
| High LGA – Scone (A) | 57.6 | 65.5% | | |
| Low LGA – Great Lakes (A) | 4.2 | 44.2% | | |
| Infrastructure | 70.0 | 0.99 | 1.53 | 16 |
| High LGA – Murrurundi (A) | 89.8 | 2.25 | | |
| Low LGA – Dungog (A) | 12.8 | 0.12 | | |
| Household prosperity potential | 31.1 | 62% | 100% | 38 |
| High LGA – Singleton (A) | 77.9 | 160% | | |
| Low LGA – Maitland (C) | 1.0 | -54% | | |
| Global knowledge flows | 63.7 | 7.9% | 12.9% | 36 |
| High LGA – Newcastle (C) | 88.2 | 11.9% | | |
| Low LGA – Gloucester (A) | 17.5 | 2.9% | | |
| Knowledge driven growth potential | 35.8 | 0.47 | 0.67 | 47 |
| High LGA – Dungog (A) | 70.3 | 0.70 | | |
| Low LGA – Singleton (A) | 15.0 | 0.35 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

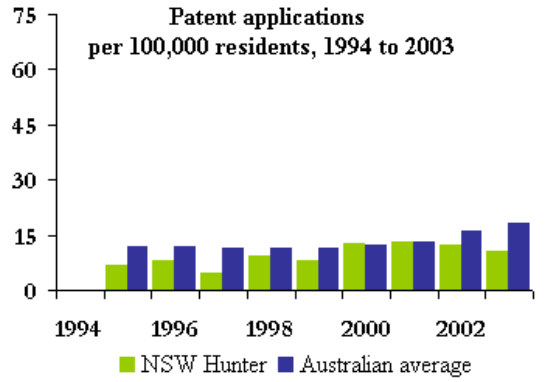
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.35 | 0.34 | 0.33 | 0.33 |
| 25 – 54 | 0.41 | 0.41 | 0.41 | 0.39 |
| 55+ | 0.23 | 0.25 | 0.26 | 0.28 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 579 | 578 | 1,427 |
| 25 – 54 | | 1,888 | 1,790 | 1,307 |
| 55+ | | 1,014 | 618 | 1,580 |
| Average age | 36.2 | 37.5 | 38.0 | 38.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.102%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 23.9 | 45 |
| 2001 | 25.1 | 51 |
| 2003 | 29.6 | 58 |
| 2004 | 28.8 | 54 |
| Income supported households (%) | 20.5 | 37 |

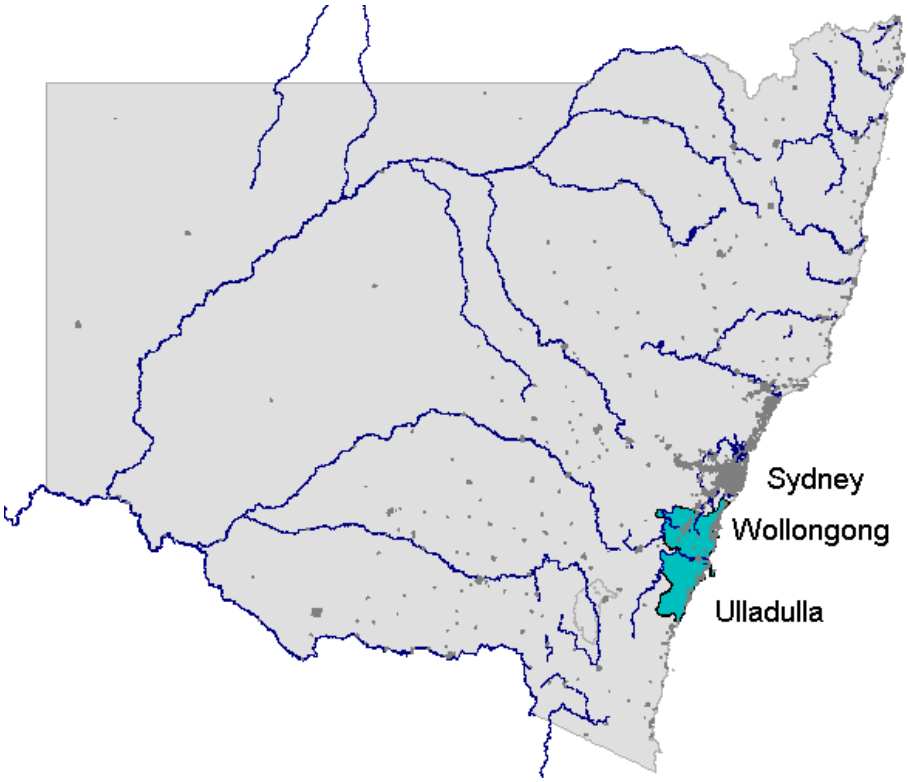



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 56.1 | 15 | 39.2 |
| Average p.a. per capita | 10.0 | 21 | 13.7 |
| Hi Tech p.a. (1994-2003) | 8.1 | 17 | 9.8 |
| Hi Tech p.a. per capita | 1.4 | 29 | 2.5 |
| Info. Tech p.a. (1994-2003) | 2.3 | 18 | 3.5 |
| Info. Tech p.a. per capita | 0.4 | 32 | 0.9 |
| Average per capita (1994-2000) | 9.0 | 22 | 9.6 |
| Average per capita (2001-2003) | 12.6 | 23 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.40 | 38 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Illawarra




During the last century, the Illawarra developed as a coal-based manufacturing area. Coal is still mined, though the deposits are now a long way back from the mine adits in the Illawarra range, and there is still heavy manufacturing industry, but it no longer employs as many people. There is an important bulk port, but its trade is hampered by the lack of a natural corridor inland. The region is relatively close to Sydney, and commuter traffic has developed. The part of the region over the top of the Illawarra escarpment comprises water reserves and hobby farms. South of Kiama there are dairy farms, hobby farms and retirement villages. Nowra has factories which process rural products.

**Major centres:**

Wollongong, Nowra

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 380,626 | | 399,987 | | 413,090 | | 1.1 |
| No. households | 140,741 | | 149,909 | | 157,619 | | 1.7 |
| Workforce | 181,584 | 47.7 | 191,923 | 48.0 | 183,618 | 44.4 | -1.5 |
| Employment | 160,490 | – | 168,456 | – | 164,039 | – | -0.9 |
| Unemployment | 21,095 | 11.6 | 23,468 | 12.2 | 19,578 | 10.7 | -5.9 |
| DEET U/E | 19,558 | 11.6 | 13,003 | 6.9 | 14,444 | 8.1 | 3.6 |
| Structural U/E, % population[1] | 28,946 | 13.0 | 31,312 | 13.6 | 30,301 | 12.1 | -1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 4,781 | 12,335 | 5,502 | 13,756 | 5,508 | 13,333 | 1.6 |
| Taxes paid | 1,328 | 3,427 | 1,433 | 3,583 | 1,560 | 3,777 | 2.0 |
| GST paid | 343 | 885 | 521 | 1,302 | 615 | 1,488 | – |
| Benefits | 1,089 | 2,810 | 1,204 | 3,011 | 1,441 | 3,489 | 4.4 |
| Business income | 603 | 1,555 | 605 | 1,512 | 647 | 1,566 | 0.1 |
| Interest/dividends | 209 | 540 | 258 | 646 | 239 | 579 | 1.4 |
| Interest paid | 380 | 980 | 504 | 1,260 | 637 | 1,542 | 9.5 |
| Net property income | 78 | 202 | 65 | 164 | 33 | 79 | -$122 |
| Net flow of funds | 4,709 | 12,150 | 5,178 | 12,945 | 5,056 | 12,239 | 0.1 |
| Rank | | 29 | | 32 | | 59 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 229 | 30 |
| Skills corrected factor (out of 1,000) | 226 | 31 |
| Industry corrected factor (out of 1,000) | 235 | 31 |
| Global knowledge factor (out of 1,000) | 195 | 32 |
| Resident skills matching | 161 | 34 |
| Resident industry matching | -120 | 30 |
| Catchment jobs/workers | 413 | 55 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 229 | 31 |
| Industry corrected factor (out of 1,000) | 240 | 30 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 214 | 30 |
| Industry corrected factor (out of 1,000) | 228 | 31 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 35,971 | 41,909 |
| 60 minutes, door to door | 38,237 | 45,370 |
| 100 minutes, door to door | 88,186 | 127,317 |
| *"Congestion exposure risk factor, rank"* | 22 | 38 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 216 | 17 |
| Highest performing LGA – Wollongong (C) | 372 | 38 |
| Lowest performing LGA –Wingecarribee (A) | 48 | 184 |
| Distance to significant retail diversity (km) | 17.2 | 26 |
| Missing local retail types (out of 44) | 20 | 29 |
| Highest performing LGA –Shellharbour (C) | 12 | 132 |
| Lowest performing LGA –Shoalhaven (C) | 34 | 215 |
| Percentage of retail missing (%) | 15.4% | 26 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,552 | 5 |
| 2001 | 1,379 | 18 |
| 2003 | 916 | 11 |
| 2004 | 770 | 15 |

YourPlace
*The place to go for the performance of Australia's local economies*

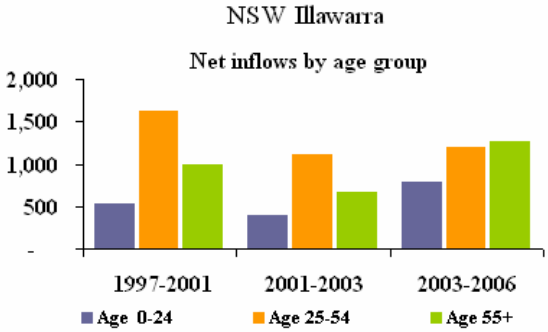
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 16.6 | 52.4% | 59.4% | 60 |
| High LGA – Wingecarribee (A) | 32.6 | 58.9% | | |
| Low LGA – Shoalhaven (C) | 6.6 | 47.2% | | |
| Infrastructure | 37.3 | 0.40 | 1.53 | 59 |
| High LGA – Shellharbour (C) | 39.9 | 0.43 | | |
| Low LGA – Kiama (A) | 23.4 | 0.24 | | |
| Household prosperity potential | 43.6 | 73% | 100% | 39 |
| High LGA – Wollongong (C) | 72.7 | 149% | | |
| Low LGA – Shoalhaven (C) | 0.7 | -67% | | |
| Global knowledge flows | 68.7 | 8.2% | 12.9% | 25 |
| High LGA – Wollongong (C) | 82.0 | 10.1% | | |
| Low LGA – Shellharbour (C) | 39.9 | 4.8% | | |
| Knowledge driven growth potential | 36.2 | 0.47 | 0.67 | 46 |
| High LGA – Wingecarribee (A) | 49.3 | 0.55 | | |
| Low LGA – Shellharbour (C) | 16.9 | 0.36 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

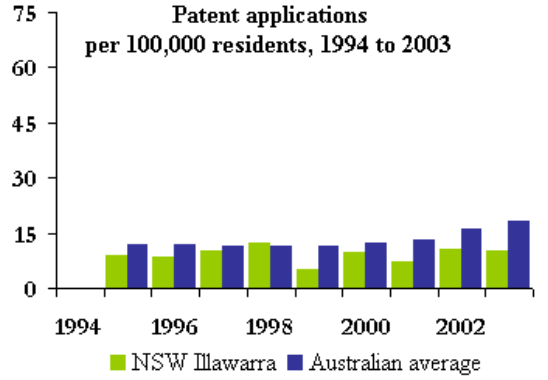
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.33 | 0.33 |
| 25 – 54 | 0.41 | 0.41 | 0.40 | 0.39 |
| 55+ | 0.23 | 0.26 | 0.27 | 0.28 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 530 | 397 | 784 |
| 25 – 54 | | 1,617 | 1,111 | 1,188 |
| 55+ | | 990 | 668 | 1,270 |
| Average age | 35.9 | 37.4 | 37.9 | 38.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.010%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 23.1 | 42 |
| 2001 | 23.3 | 44 |
| 2003 | 24.3 | 43 |
| 2004 | 28.2 | 53 |
| Income supported households (%) | 19.3 | 47 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 34.6 | 21 | 39.2 |
| Average p.a. per capita | 9.3 | 25 | 13.7 |
| Hi Tech p.a. (1994-2003) | 6.0 | 21 | 9.8 |
| Hi Tech p.a. per capita | 1.5 | 24 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.6 | 24 | 3.5 |
| Info. Tech p.a. per capita | 0.4 | 31 | 0.9 |
| Average per capita (1994-2000) | 8.9 | 23 | 9.6 |
| Average per capita (2001-2003) | 10.3 | 33 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.16 | 50 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Mid North Coast


The Mid North Coast comprises:

- a coastal belt of retirement and tourist developments including Port Macquarie and Coffs Harbour, and
- a series of well-watered valleys most of which have an important but flood-prone town located somewhat up-river from the coast (Taree, Kempsey, Grafton). Each of these towns is the supply centre for its valley, which includes areas of intensive river-flat agriculture.

With the retirement exodus from Sydney, the coastal belt is gradually coming to dominate the region.

**Major centres:**

Coffs Harbour, Port Macquarie, Grafton

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 267,548 | | 280,226 | | 291,648 | | 1.3 |
| No. households | 105,747 | | 112,264 | | 118,004 | | 1.7 |
| Workforce | 114,431 | 42,6 | 113,689 | 40.6 | 130,695 | 44.8 | 4.8 |
| Employment | 92,963 | – | 89,524 | – | 108,987 | – | 6.8 |
| Unemployment | 21,468 | 18.8 | 24,167 | 21.3 | 21,708 | 16.6 | -3.5 |
| DEET U/E | 13,594 | 12.2 | 11,788 | 10.8 | 9,430 | 7.6 | -7.2 |
| Structural U/E, % population[1] | 26,016 | 17.6 | 30,289 | 20.0 | 30,421 | 18.2 | 0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,268 | 8,311 | 2,643 | 9,431 | 3,590 | 12,308 | 8.2 |
| Taxes paid | 553 | 2,027 | 609 | 2,174 | 780 | 2,675 | 5.7 |
| GST paid | 252 | 924 | 336 | 1,198 | 476 | 1,632 | – |
| Benefits | 958 | 3,510 | 1,075 | 3,836 | 1,314 | 4,506 | 5.1 |
| Business income | 330 | 1,209 | 324 | 1,158 | 423 | 1,451 | 3.7 |
| Interest/dividends | 118 | 433 | 146 | 520 | 150 | 514 | 3.5 |
| Interest paid | 209 | 764 | 305 | 1,088 | 368 | 1,262 | 10.5 |
| Net property income | 61 | 223 | 43 | 153 | 11 | 37 | -$186 |
| Net flow of funds | 2,721 | 9,970 | 2,981 | 10,638 | 3,864 | 13,249 | 5.9 |
| Rank | | 64 | | 63 | | 51 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 130 | 46 |
| Skills corrected factor (out of 1,000) | 131 | 48 |
| Industry corrected factor (out of 1,000) | 140 | 46 |
| Global knowledge factor (out of 1,000) | 100 | 47 |
| Resident skills matching | 107 | 40 |
| Resident industry matching | 10 | 16 |
| Catchment jobs/workers | 494 | 39 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 131 | 48 |
| Industry corrected factor (out of 1,000) | 141 | 48 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 122 | 50 |
| Industry corrected factor (out of 1,000) | 129 | 52 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 11,505 | 11,486 |
| 60 minutes, door to door | 15,602 | 15,886 |
| 100 minutes, door to door | 34,624 | 34,155 |
| *"Congestion exposure risk factor, rank"* | 60 | 30 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 44 | 39 |
| Highest performing LGA – Coffs Harbour (C) | 78 | 145 |
| Lowest performing LGA –Pristine Waters (A) | 16 | 331 |
| Distance to significant retail diversity (km) | 42.3 | 35 |
| Missing local retail types (out of 44) | 33 | 40 |
| Highest performing LGA –Coffs Harbour (C) | 25 | 164 |
| Lowest performing LGA –Bellingen (A) | 43 | 284 |
| Percentage of retail missing (%) | 43.7% | 36 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 933 | 19 |
| 2001 | 1,922 | 4 |
| 2003 | 955 | 9 |
| 2004 | 893 | 9 |

YourPlace
The place to go for the performance of Australia's local economies

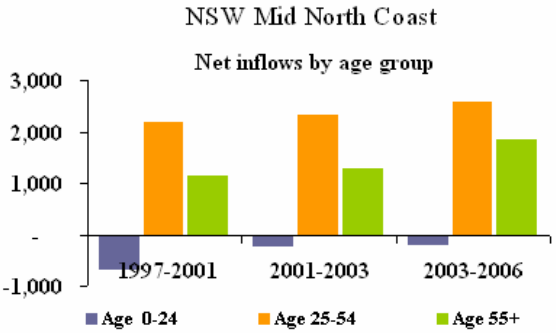
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 7.3 | 47.2% | 59.4% | 64 |
| High LGA – Grafton (C) | 11.9 | 50.5% | | |
| Low LGA – Nambucca (A) | 2.2 | 41.7% | | |
| Infrastructure | 34.7 | 0.37 | 1.53 | 60 |
| High LGA – Copmanhurst (A) | 59.5 | 0.69 | | |
| Low LGA – Pristine Waters (A) | 11.8 | 0.11 | | |
| Household prosperity potential | 22.6 | 41% | 100% | 55 |
| High LGA – Grafton (C) | 83.5 | 175% | | |
| Low LGA – Coffs Harbour (C) | 2.5 | -26% | | |
| Global knowledge flows | 47.1 | 5.4% | 12.9% | 43 |
| High LGA – Hastings (A) | 58.2 | 6.5% | | |
| Low LGA – Pristine Waters (A) | 16.8 | 2.8% | | |
| Knowledge driven growth potential | 37.2 | 0.48 | 0.67 | 40 |
| High LGA – Bellingen (A) | 57.4 | 0.60 | | |
| Low LGA – Grafton (C) | 20.9 | 0.39 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

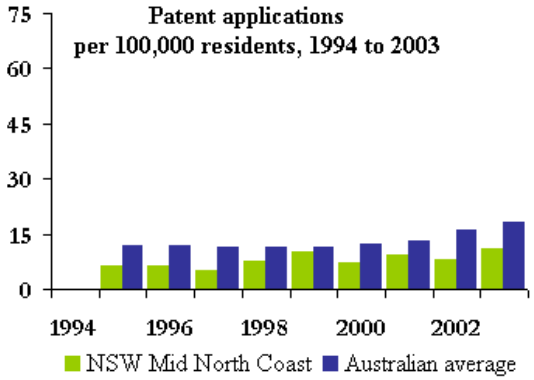
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.32 | 0.32 | 0.31 |
| 25 – 54 | 0.39 | 0.38 | 0.38 | 0.37 |
| 55+ | 0.27 | 0.30 | 0.30 | 0.33 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -650 | -221 | -196 |
| 25 – 54 | | 2,172 | 2,317 | 2,566 |
| 55+ | | 1,155 | 1,269 | 1,835 |
| Average age | 37.8 | 39.4 | 39.8 | 41.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.312%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 35.2 | 64 |
| 2001 | 36.1 | 63 |
| 2003 | 35.8 | 63 |
| 2004 | 33.7 | 62 |
| Income supported households (%) | 27.9 | 3 |

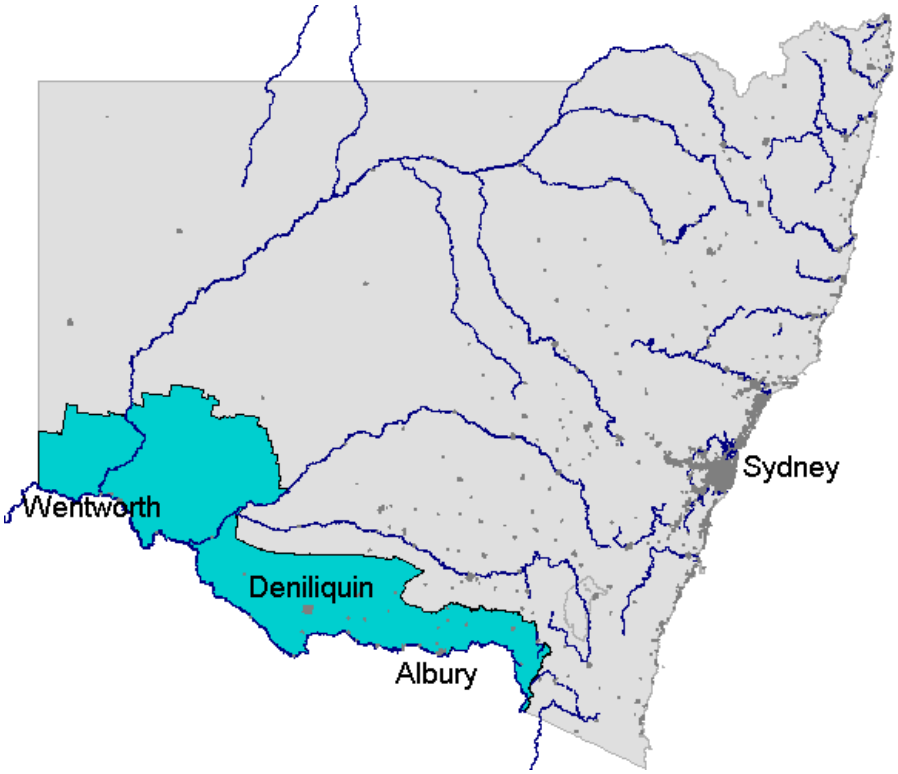



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 20.7 | 30 | 39.2 |
| Average p.a. per capita | 7.9 | 35 | 13.7 |
| Hi Tech p.a. (1994-2003) | 4.0 | 27 | 9.8 |
| Hi Tech p.a. per capita | 1.5 | 27 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.9 | 31 | 3.5 |
| Info. Tech p.a. per capita | 0.3 | 34 | 0.9 |
| Average per capita (1994-2000) | 7.5 | 32 | 9.6 |
| Average per capita (2001-2003) | 8.9 | 38 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.19 | 49 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Murray




The Murray planning region of NSW comprises a strip running from the edge of the Snowy Mountains to the SA border. The region is within the economic hinterland of Melbourne rather than Sydney, and were it not for the state boundary would be divided into three parts and added to the adjacent Victorian regions. The hilly country east of Albury concentrates on livestock with gradually expanding timber plantations. Between Albury and Deniliquin the strip comprises classic wheat/sheep country, now diversifying. West of this lies dry pastoral country apart from irrigation areas, some of which are known their rice, while those across the Murray from Mildura are more involved with intensive vine and fruit cultivation. Albury has several resource-processing industries.

**Major centres:**

Albury, Deniliquin

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 110,596 | | 113,397 | | 114,748 | | 0.4 |
| No. households | 42,130 | | 43,857 | | 45,500 | | 1.2 |
| Workforce | 57,042 | 51.2 | 58,822 | 51.9 | 61,383 | 53.5 | 1.4 |
| Employment | 51,038 | – | 53,069 | – | 56,102 | – | 1.9 |
| Unemployment | 6,005 | 10.5 | 5,752 | 9.8 | 5,282 | 8.6 | -2.8 |
| DEET U/E | 4,214 | 7.4 | 3,567 | 6.2 | 3,147 | 5.3 | -4.1 |
| Structural U/E, % population[1] | 6,888 | 10.6 | 7,665 | 11.9 | 7,456 | 10.8 | -0.9 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,249 | 11,148 | 1,496 | 13,194 | 1,767 | 15,397 | 6.7 |
| Taxes paid | 316 | 2,822 | 364 | 3,206 | 455 | 3,969 | 7.1 |
| GST paid | 96 | 853 | 140 | 1,230 | 200 | 1,740 | – |
| Benefits | 291 | 2,597 | 326 | 2,872 | 397 | 3,463 | 5.9 |
| Business income | 187 | 1,672 | 185 | 1,632 | 189 | 1,650 | -0.3 |
| Interest/dividends | 57 | 507 | 74 | 654 | 80 | 699 | 6.6 |
| Interest paid | 122 | 1,087 | 173 | 1,523 | 214 | 1,869 | 11.4 |
| Net property income | 27 | 240 | 21 | 187 | 13 | 109 | -$131 |
| Net flow of funds | 1,277 | 11,402 | 1,427 | 12,580 | 1,577 | 13,739 | 3.8 |
| Rank | | 48 | | 39 | | 40 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 110 | 50 |
| Skills corrected factor (out of 1,000) | 119 | 50 |
| Industry corrected factor (out of 1,000) | 121 | 51 |
| Global knowledge factor (out of 1,000) | 99 | 49 |
| Resident skills matching | 14 | 53 |
| Resident industry matching | 51 | 13 |
| Catchment jobs/workers | 491 | 40 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 123 | 49 |
| Industry corrected factor (out of 1,000) | 134 | 50 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 123 | 49 |
| Industry corrected factor (out of 1,000) | 135 | 51 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 15,017 | 14,004 |
| 60 minutes, door to door | 17,060 | 16,725 |
| 100 minutes, door to door | 42,636 | 41,361 |
| *"Congestion exposure risk factor, rank"* | 6 | 50 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 54 | 33 |
| Highest performing LGA – Albury (C) | 111 | 129 |
| Lowest performing LGA –Balranald (A) | 8 | 459 |
| Distance to significant retail diversity (km) | 58.7 | 44 |
| Missing local retail types (out of 44) | 35 | 47 |
| Highest performing LGA –Corowa (A) | 42 | 266 |
| Lowest performing LGA –Balranald (A) | 44 | 317 |
| Percentage of retail missing (%) | 64.2% | 48 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 428 | 57 |
| 2001 | 770 | 56 |
| 2003 | 231 | 64 |
| 2004 | 412 | 54 |

YourPlace
*The place to go for the performance of Australia's local economies*

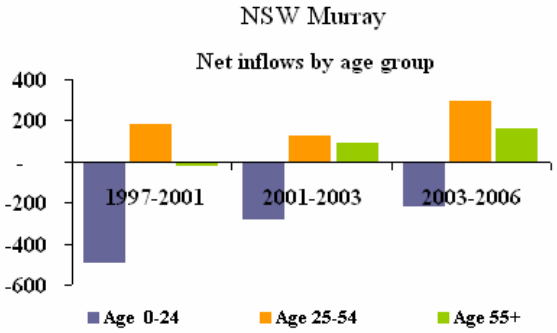
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 50.1 | 64.4% | 59.4% | 4 |
| High LGA – Conargo (A) | 98.1 | 97.2% | | |
| Low LGA – Albury (C) | 30.9 | 58.4% | | |
| Infrastructure | 62.0 | 0.83 | 1.53 | 30 |
| High LGA – Holbrook (A) | 87.7 | 1.84 | | |
| Low LGA – Windouran (A) | 3.9 | 0.00 | | |
| Household prosperity potential | 57.5 | 121% | 100% | 19 |
| High LGA – Conargo (A) | 94.1 | 223% | | |
| Low LGA – Wentworth (A) | 34.3 | 78% | | |
| Global knowledge flows | 49.2 | 6.1% | 12.9% | 64 |
| High LGA – Albury (C) | 76.8 | 9.1% | | |
| Low LGA – Balranald (A) | 4.1 | 1.2% | | |
| Knowledge driven growth potential | 50.0 | 0.57 | 0.67 | 25 |
| High LGA – Culcairn (A) | 83.8 | 0.84 | | |
| Low LGA – Windouran (A) | 3.4 | 0.17 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

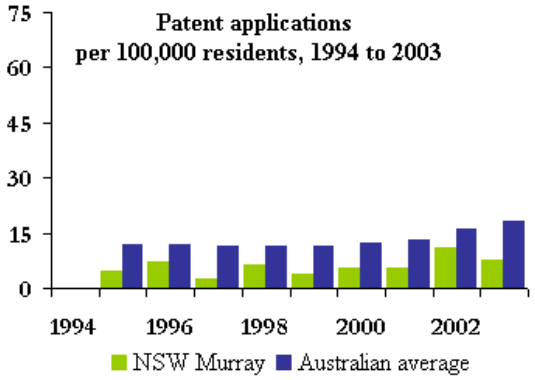
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.41 | 0.41 | 0.40 | 0.39 |
| 55+ | 0.23 | 0.25 | 0.26 | 0.28 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -488 | -276 | -214 |
| 25 – 54 | | 180 | 124 | 292 |
| 55+ | | -14 | 93 | 164 |
| Average age | 35.7 | 37.2 | 37.8 | 38.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.026$




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 22.8 | 40 |
| 2001 | 22.8 | 42 |
| 2003 | 23.4 | 41 |
| 2004 | 25.0 | 45 |
| Income supported households (%) | 19.5 | 44 |

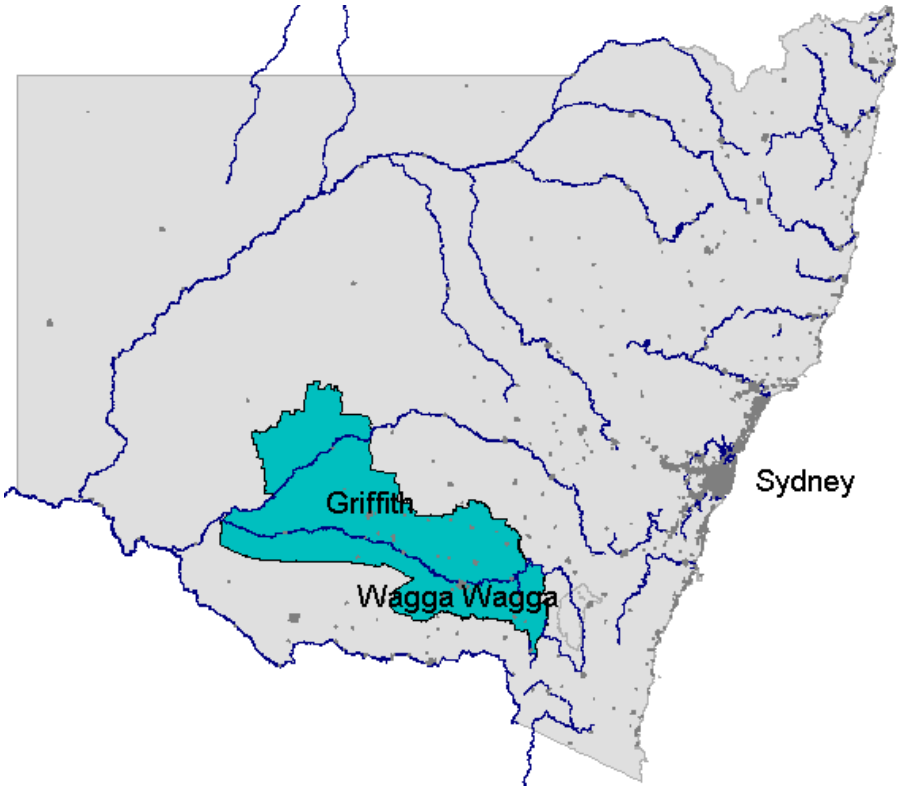



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 6.6 | 54 | 39.2 |
| Average p.a. per capita | 6.0 | 51 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.6 | 54 | 9.8 |
| Hi Tech p.a. per capita | 0.5 | 54 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.2 | 46 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 43 | 0.9 |
| Average per capita (1994-2000) | 5.1 | 50 | 9.6 |
| Average per capita (2001-2003) | 8.1 | 47 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.58 | 18 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Murrumbidgee




The Murrumbidgee planning region of NSW is similar to the Murray region in that it comprises a strip of LGAs running east-west more from the ACT border to Hay; however, it is generally within the hinterland of Sydney. The largest city is Wagga Wagga, which has defence and educational facilities in addition to its role in regional servicing, but there are several other large towns. The pastoral hills east of Wagga are gaining pine plantations, while west of Wagga lies wheat/sheep country and the Murrumbidgee Irrigation Area, with its rice and vines. The outermost part of the region merges with the pastoral Far West. Towns like Wagga, Leeton and Griffith have significant agricultural processing industries.

**Major centres:**

Wagga Wagga, Griffith

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 148,784 | | 152,466 | | 153,456 | | 0.2 |
| No. households | 53,747 | | 55,712 | | 57,482 | | 1.0 |
| Workforce | 74,350 | 49.9 | 77,644 | 50.9 | 82,691 | 53.9 | 2.1 |
| Employment | 68,297 | – | 70,922 | – | 76,575 | – | 2.6 |
| Unemployment | 6,053 | 8.1 | 6,723 | 8.7 | 6,115 | 7.4 | -3.1 |
| DEET U/E | 4,950 | 6.7 | 4,377 | 5.8 | 3,791 | 4.7 | -4.7 |
| Structural U/E, % population[1] | 8,782 | 10.0 | 9,479 | 10.8 | 9,530 | 10.3 | 0.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,769 | 11,759 | 2,068 | 13,563 | 2,406 | 15,681 | 5.9 |
| Taxes paid | 454 | 3,018 | 504 | 3,309 | 617 | 4,021 | 5.9 |
| GST paid | 126 | 838 | 185 | 1,211 | 255 | 1,661 | – |
| Benefits | 364 | 2,418 | 394 | 2,581 | 483 | 3,148 | 5.4 |
| Business income | 239 | 1,587 | 237 | 1,551 | 242 | 1,577 | -0.1 |
| Interest/dividends | 79 | 528 | 98 | 645 | 96 | 626 | 3.4 |
| Interest paid | 154 | 1,024 | 219 | 1,438 | 284 | 1,851 | 12.6 |
| Net property income | 35 | 232 | 23 | 154 | 6 | 39 | -$193 |
| Net flow of funds | 1,751 | 11,644 | 1,911 | 12,537 | 2,077 | 13,536 | 3.1 |
| Rank | | 40 | | 40 | | 44 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 105 | 53 |
| Skills corrected factor (out of 1,000) | 107 | 52 |
| Industry corrected factor (out of 1,000) | 114 | 53 |
| Global knowledge factor (out of 1,000) | 92 | 51 |
| Resident skills matching | 91 | 42 |
| Resident industry matching | -26 | 20 |
| Catchment jobs/workers | 506 | 32 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 111 | 51 |
| Industry corrected factor (out of 1,000) | 120 | 53 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 107 | 54 |
| Industry corrected factor (out of 1,000) | 115 | 54 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 11,074 | 10,334 |
| 60 minutes, door to door | 12,715 | 12,430 |
| 100 minutes, door to door | 23,138 | 21,992 |
| *"Congestion exposure risk factor, rank"* | 6 | 52 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 44 | 38 |
| Highest performing LGA – Wagga Wagga (C) | 92 | 140 |
| Lowest performing LGA –Carrathool (A) | 6 | 515 |
| Distance to significant retail diversity (km) | 61.7 | 45 |
| Missing local retail types (out of 44) | 35 | 48 |
| Highest performing LGA –Wagga Wagga (C) | 25 | 164 |
| Lowest performing LGA –Carrathool (A) | 44 | 317 |
| Percentage of retail missing (%) | 59.0% | 47 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 462 | 55 |
| 2001 | 807 | 54 |
| 2003 | 255 | 61 |
| 2004 | 404 | 57 |

YourPlace
*The place to go for the performance of Australia's local economies*

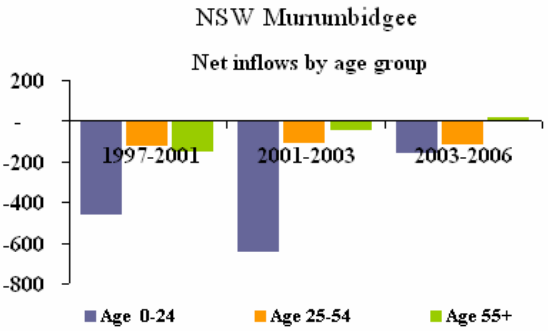
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 50.7 | 64.2% | 59.4% | 13 |
| High LGA – Carrathool (A) | 91.5 | 84.2% | | |
| Low LGA – Cootamundra (A) | 29.0 | 57.8% | | |
| Infrastructure | 59.2 | 0.79 | 1.53 | 29 |
| High LGA – Murrumbidgee (A) | 87.0 | 1.72 | | |
| Low LGA – Junee (A) | 21.1 | 0.20 | | |
| Household prosperity potential | 42.7 | 93% | 100% | 29 |
| High LGA – Lockhart (A) | 77.2 | 159% | | |
| Low LGA – Leeton (A) | 12.9 | 33% | | |
| Global knowledge flows | 53.4 | 6.3% | 12.9% | 54 |
| High LGA – Wagga Wagga (C) | 73.9 | 8.6% | | |
| Low LGA – Carrathool (A) | 4.2 | 1.2% | | |
| Knowledge driven growth potential | 49.0 | 0.56 | 0.67 | 18 |
| High LGA – Coolamon (A) | 94.9 | 1.06 | | |
| Low LGA – Tumut (A) | 20.1 | 0.39 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

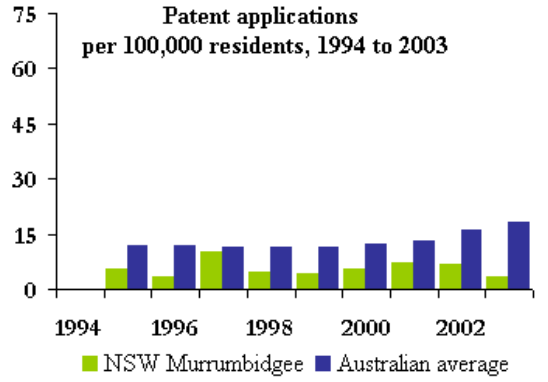
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.37 | 0.36 | 0.36 |
| 25 – 54 | 0.41 | 0.41 | 0.40 | 0.39 |
| 55+ | 0.21 | 0.22 | 0.23 | 0.25 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -456 | -641 | -150 |
| 25 – 54 | | -115 | -106 | -112 |
| 55+ | | -145 | -41 | 19 |
| Average age | 34.3 | 35.4 | 36.0 | 36.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.131%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 20.8 | 31 |
| 2001 | 20.6 | 28 |
| 2003 | 21.7 | 37 |
| 2004 | 23.0 | 37 |
| Income supported households (%) | 18.9 | 48 |

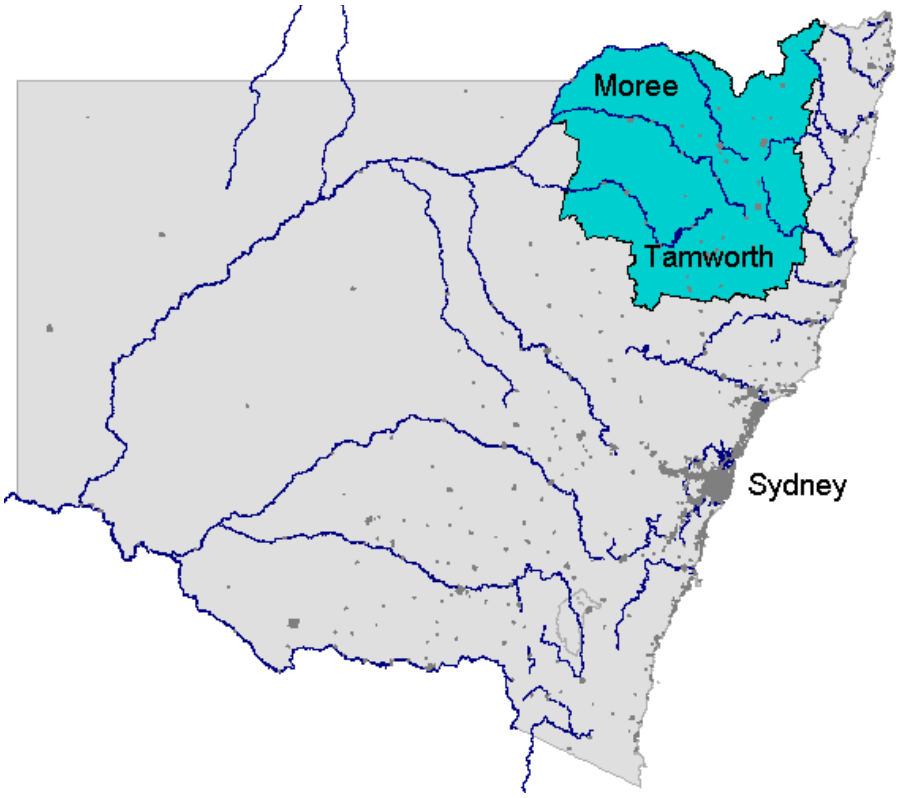



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 9.0 | 47 | 39.2 |
| Average p.a. per capita | 6.0 | 50 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.6 | 41 | 9.8 |
| Hi Tech p.a. per capita | 1.1 | 41 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.2 | 46 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 50 | 0.9 |
| Average per capita (1994-2000) | 5.8 | 43 | 9.6 |
| Average per capita (2001-2003) | 6.7 | 53 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.16 | 51 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW North




The NSW North comprises three distinct sub-regions.

- Around Tamworth is a mixed-farming region, and Tamworth itself has significant commercial and resource-processing activity.
- The New England sub-region is a high plateau, devoted mainly to pasture for beef and wool. Armidale stands out as an academic centre.
- The North-West plains comprise black-soil country which is farmed quite intensively. Crops include wheat, sorghum and cotton. Much of this agriculture depends on pumping from the local rivers. Sadly, flow is unreliable: the rivers sometimes flood, and in other years run dry.

**Major centres:**

Tamworth, Armidale, Moree

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 175,873 | | 180,427 | | 179,778 | | -0.1 |
| No. households | 66,166 | | 67,697 | | 69,629 | | 0.9 |
| Workforce | 87,962 | 50.0 | 86,109 | 47.7 | 90,076 | 50.1 | 1.5 |
| Employment | 78,478 | – | 72,709 | – | 79,159 | – | 1.9 |
| Unemployment | 11,471 | 13.0 | 11,337 | 13.2 | 10,917 | 12.1 | -1.3 |
| DEET U/E | 5,720 | 6.7 | 4,775 | 5.9 | 5,445 | 6.3 | 4.5 |
| Structural U/E, % population[1] | 13,132 | 12.7 | 14,371 | 14.2 | 14,621 | 13.5 | 0.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,846 | 10,317 | 2,128 | 11,792 | 2,555 | 14,213 | 6.6 |
| Taxes paid | 473 | 2,643 | 519 | 2,875 | 674 | 3,747 | 7.2 |
| GST paid | 161 | 899 | 215 | 1,191 | 300 | 1,666 | – |
| Benefits | 490 | 2,736 | 539 | 2,986 | 665 | 3,699 | 6.2 |
| Business income | 274 | 1,533 | 271 | 1,504 | 432 | 2,402 | 9.4 |
| Interest/dividends | 95 | 532 | 118 | 652 | 117 | 649 | 4.0 |
| Interest paid | 150 | 839 | 251 | 1,392 | 310 | 1,722 | 15.5 |
| Net property income | 39 | 220 | 31 | 171 | 13 | 73 | -$147 |
| Net flow of funds | 1,961 | 10,957 | 2,102 | 11,647 | 2,499 | 13,901 | 4.9 |
| Rank | | 56 | | 58 | | 37 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 84 | 56 |
| Skills corrected factor (out of 1,000) | 80 | 56 |
| Industry corrected factor (out of 1,000) | 93 | 56 |
| Global knowledge factor (out of 1,000) | 72 | 54 |
| Resident skills matching | -88 | 61 |
| Resident industry matching | -19 | 19 |
| Catchment jobs/workers | 515 | 26 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 88 | 56 |
| Industry corrected factor (out of 1,000) | 98 | 56 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 63 | 60 |
| Industry corrected factor (out of 1,000) | 72 | 61 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 7,825 | 7,520 |
| 60 minutes, door to door | 9,016 | 8,749 |
| 100 minutes, door to door | 14,734 | 13,985 |
| *"Congestion exposure risk factor, rank"* | 4 | 56 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 23 | 52 |
| Highest performing LGA – Tamworth (C) | 52 | 177 |
| Lowest performing LGA –Moree Plains (A) | 7 | 491 |
| Distance to significant retail diversity (km) | 85.2 | 53 |
| Missing local retail types (out of 44) | 38 | 50 |
| Highest performing LGA –Parry (A) | 25 | 164 |
| Lowest performing LGA –Barraba (A) | 44 | 317 |
| Percentage of retail missing (%) | 68.1% | 53 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 758 | 34 |
| 2001 | 1,368 | 20 |
| 2003 | 553 | 34 |
| 2004 | 706 | 22 |

YourPlace
*The place to go for the performance of Australia's local economies*

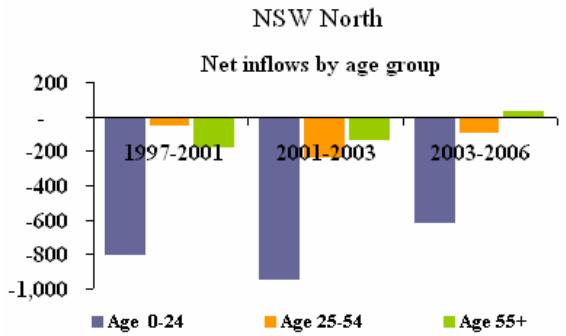
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 36.2 | 59.5% | 59.4% | 37 |
| High LGA – Walcha (A) | 80.7 | 75.1% | | |
| Low LGA – Manilla (A) | 13.9 | 51.6% | | |
| Infrastructure | 48.1 | 0.61 | 1.53 | 54 |
| High LGA – Moree Plains (A) | 81.5 | 1.33 | | |
| Low LGA – Walcha (A) | 5.7 | 0.04 | | |
| Household prosperity potential | 47.3 | 102% | 100% | 26 |
| High LGA – Armidale Dumaresq (A) | 84.1 | 177% | | |
| Low LGA – Inverell (A) | 13.3 | 35% | | |
| Global knowledge flows | 51.1 | 6.2% | 12.9% | 56 |
| High LGA – Armidale Dumaresq (A) | 84.6 | 10.8% | | |
| Low LGA – Yallaroi (A) | 7.0 | 1.8% | | |
| Knowledge driven growth potential | 59.0 | 0.64 | 0.67 | 13 |
| High LGA – Guyra (A) | 93.5 | 1.02 | | |
| Low LGA – Barraba (A) | 29.2 | 0.44 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

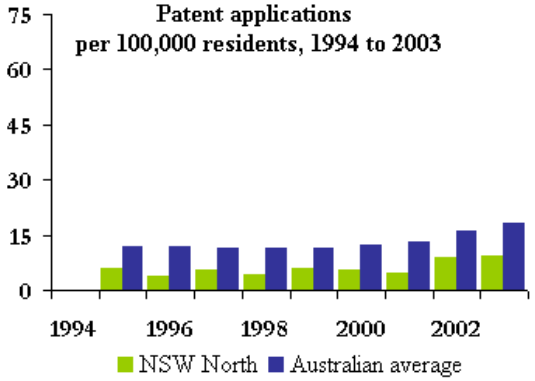
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.36 | 0.35 | 0.34 |
| 25 – 54 | 0.41 | 0.40 | 0.39 | 0.38 |
| 55+ | 0.22 | 0.24 | 0.26 | 0.28 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -794 | -937 | -610 |
| 25 – 54 | | -45 | -231 | 88 |
| 55+ | | -175 | -131 | 34 |
| Average age | 35.2 | 36.6 | 37.2 | 38.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.627%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 25.0 | 51 |
| 2001 | 25.6 | 53 |
| 2003 | 28.7 | 57 |
| 2004 | 26.4 | 50 |
| Income supported households (%) | 25.7 | 8 |

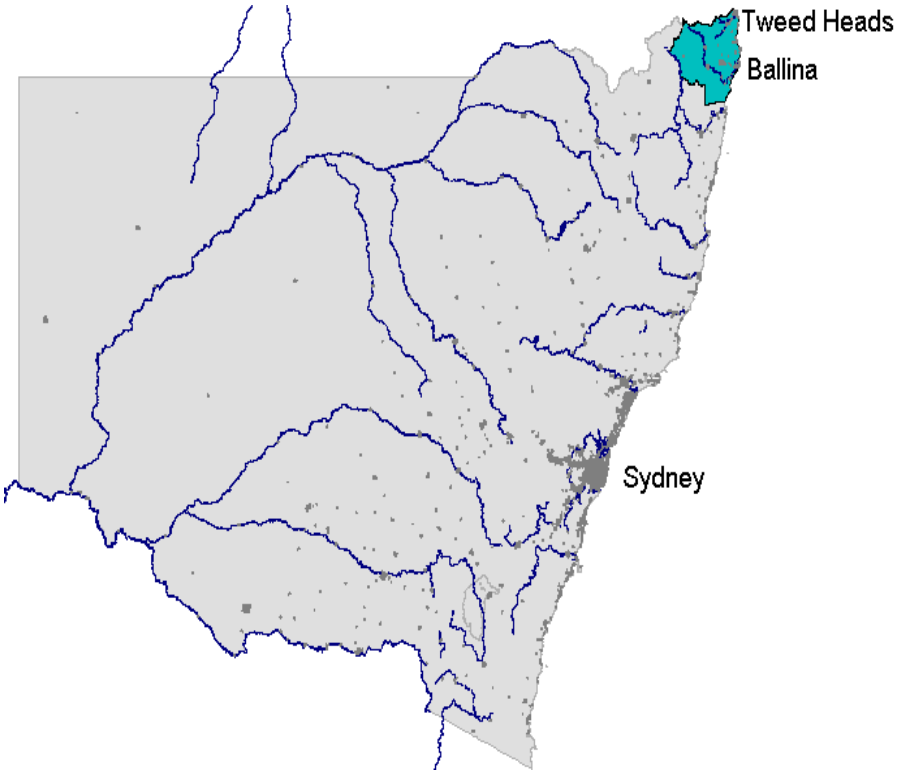



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 11.3 | 40 | 39.2 |
| Average p.a. per capita | 6.2 | 45 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.5 | 42 | 9.8 |
| Hi Tech p.a. per capita | 0.8 | 43 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.5 | 38 | 3.5 |
| Info. Tech p.a. per capita | 0.3 | 36 | 0.9 |
| Average per capita (1994-2000) | 5.1 | 51 | 9.6 |
| Average per capita (2001-2003) | 8.9 | 37 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.76 | 12 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW Richmond-Tweed




Richmond/Tweed is much closer to Brisbane than Sydney, and has increasingly become and extension of the Gold Coast. Its chief centre was and remains Lismore, which is located inland, but most recent development has been along the coast and in the nearby high-rainfall hills. Its economic base remains a mixture of retirement and agriculture, and there are signs of employment diversification as the economy of the Gold Coast extends southwards.

**Major centres:**

Lismore, Tweed Heads

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 205,974 | | 216,334 | | 223,902 | | 1.2 |
| No. households | 83,134 | | 87,580 | | 90,959 | | 1.3 |
| Workforce | 91,750 | 44.4 | 91,161 | 42.1 | 106,259 | 47.5 | 5.2 |
| Employment | 72,795 | – | 71,727 | – | 88,949 | – | 7.4 |
| Unemployment | 18,954 | 20.7 | 19,432 | 21.3 | 17,309 | 16.3 | -3.8 |
| DEET U/E | 12,484 | 14.0 | 10,536 | 12.1 | 7,998 | 8.0 | -8.8 |
| Structural U/E, % population[1] | 21,086 | 18.2 | 23,267 | 19.5 | 23,433 | 17.7 | 0.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,765 | 8,391 | 2,086 | 9,644 | 2,831 | 12,645 | 8.5 |
| Taxes paid | 436 | 2,072 | 487 | 2,253 | 616 | 2,749 | 5.8 |
| GST paid | 196 | 930 | 267 | 1,232 | 376 | 1,681 | – |
| Benefits | 711 | 3,381 | 780 | 3,606 | 957 | 4,273 | 4.8 |
| Business income | 264 | 1,256 | 260 | 1,201 | 351 | 1,569 | 4.5 |
| Interest/dividends | 100 | 478 | 124 | 574 | 114 | 509 | 1.3 |
| Interest paid | 158 | 750 | 244 | 1,126 | 285 | 1,274 | 11.2 |
| Net property income | 49 | 233 | 40 | 186 | 27 | 119 | -$114 |
| Net flow of funds | 2,101 | 9,987 | 2,293 | 10,600 | 3,002 | 13,409 | 6.1 |
| Rank | | 63 | | 64 | | 47 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 234 | 29 |
| Skills corrected factor (out of 1,000) | 232 | 30 |
| Industry corrected factor (out of 1,000) | 238 | 29 |
| Global knowledge factor (out of 1,000) | 188 | 33 |
| Resident skills matching | 203 | 30 |
| Resident industry matching | -164 | 38 |
| Catchment jobs/workers | 582 | 12 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 235 | 30 |
| Industry corrected factor (out of 1,000) | 239 | 31 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 194 | 35 |
| Industry corrected factor (out of 1,000) | 203 | 35 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 15,263 | 14,620 |
| 60 minutes, door to door | 56,795 | 51,156 |
| 100 minutes, door to door | 139,503 | 136,683 |
| *"Congestion exposure risk factor, rank"* | 175 | 16 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 52 | 34 |
| Highest performing LGA – Lismore (C) | 62 | 161 |
| Lowest performing LGA –Kyogle (A) | 19 | 298 |
| Distance to significant retail diversity (km) | 29.5 | 30 |
| Missing local retail types (out of 44) | 28 | 33 |
| Highest performing LGA –Richmond Valley (A) | 24 | 161 |
| Lowest performing LGA –Kyogle (A) | 44 | 317 |
| Percentage of retail missing (%) | 34.5% | 33 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,055 | 11 |
| 2001 | 1,693 | 6 |
| 2003 | 1,298 | 3 |
| 2004 | 1,013 | 6 |

YourPlace
*The place to go for the performance of Australia's local economies*

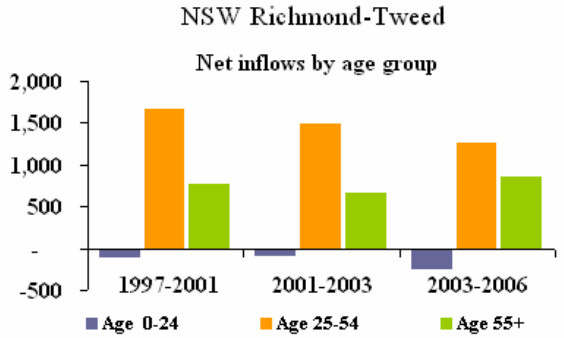
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 9.5 | 48.8% | 59.4% | 63 |
| High LGA – Ballina (A) | 17.8 | 53.3% | | |
| Low LGA – Byron (A) | 3.9 | 44.1% | | |
| Infrastructure | 45.6 | 0.51 | 1.53 | 49 |
| High LGA – Lismore (C) | 67.5 | 0.85 | | |
| Low LGA – Kyogle (A) | 14.0 | 0.14 | | |
| Household prosperity potential | 34.6 | 77% | 100% | 52 |
| High LGA – Tweed (A) | 46.8 | 102% | | |
| Low LGA – Richmond Valley (A) | 9.5 | 22% | | |
| Global knowledge flows | 54.5 | 6.3% | 12.9% | 28 |
| High LGA – Lismore (C) | 72.2 | 8.3% | | |
| Low LGA – Richmond Valley (A) | 24.7 | 3.5% | | |
| Knowledge driven growth potential | 46.8 | 0.54 | 0.67 | 30 |
| High LGA – Byron (A) | 59.7 | 0.62 | | |
| Low LGA – Richmond Valley (A) | 20.0 | 0.39 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

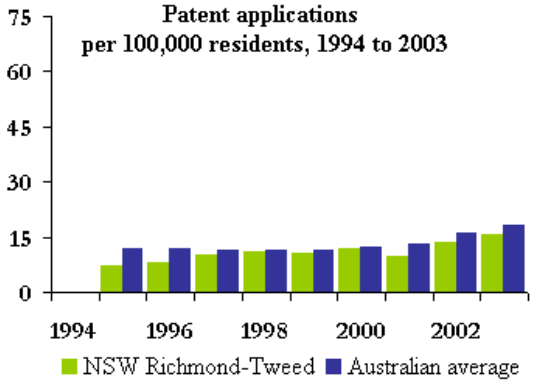
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.32 | 0.32 | 0.31 |
| 25 – 54 | 0.40 | 0.40 | 0.40 | 0.38 |
| 55+ | 0.26 | 0.27 | 0.28 | 0.31 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -95 | -70 | -228 |
| 25 – 54 | | 1,671 | 1,498 | 1,259 |
| 55+ | | 776 | 669 | 859 |
| Average age | 37.2 | 38.8 | 39.3 | 40.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.800%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 33.9 | 63 |
| 2001 | 34.0 | 62 |
| 2003 | 33.5 | 61 |
| 2004 | 31.6 | 58 |
| Income supported households (%) | 27.1 | 4 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 22.8 | 24 | 39.2 |
| Average p.a. per capita | 11.4 | 14 | 13.7 |
| Hi Tech p.a. (1994-2003) | 2.4 | 35 | 9.8 |
| Hi Tech p.a. per capita | 1.1 | 39 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.8 | 33 | 3.5 |
| Info. Tech p.a. per capita | 0.4 | 33 | 0.9 |
| Average per capita (1994-2000) | 9.8 | 16 | 9.6 |
| Average per capita (2001-2003) | 15.2 | 13 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.55 | 22 | 1.48 |

*Note:* Per capita = 100,000 people.

# NSW South-East


The South East of NSW is a complex region, with the following major component parts.

- The South Coast, a strip of retirement and tourist developments populated not only from Sydney but from Canberra and to some extent from Melbourne. Behind the beaches country originally cleared for dairy farming is reverting to plantation forestry.
- A belt of high plains stretching from Goulburn to the Victorian Border. Until recently this was fine-wool merino country. It now includes the Canberra suburb of Queanbeyan, the Canberra hobby-farm belt and Sydney's winter playground in the Snowy Mountains.
- An area of 'slopes' country reaching as far as Young. This has much in common with the Central West, but accesses Sydney via Goulburn rather than via the Blue Mountains.

**Major centres:**

Goulburn, Queanbeyan, Bega

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 180,412 | | 193,062 | | 202,236 | | 1.6 |
| No. households | 72,213 | | 76,719 | | 82,239 | | 2.3 |
| Workforce | 96,934 | 53.7 | 88,097 | 45.6 | 103,804 | 51.3 | 5.6 |
| Employment | 89,381 | – | 76,793 | – | 93,994 | – | 7.0 |
| Unemployment | 7,553 | 7.8 | 11,303 | 12.8 | 9,810 | 9.5 | -4.6 |
| DEET U/E | 7,937 | 8.4 | 6,364 | 7.5 | 4,943 | 4.9 | -8.1 |
| Structural U/E, % population[1] | 10,580 | 10.0 | 14,491 | 13.4 | 14,052 | 11.4 | -1.0 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,049 | 11,023 | 2,577 | 13,347 | 3,653 | 18,065 | 10.4 |
| Taxes paid | 533 | 2,865 | 640 | 3,316 | 794 | 3,928 | 6.5 |
| GST paid | 205 | 1,104 | 248 | 1,287 | 404 | 1,999 | – |
| Benefits | 471 | 2,534 | 548 | 2,838 | 672 | 3,321 | 5.6 |
| Business income | 293 | 1,575 | 291 | 1,506 | 374 | 1,847 | 3.2 |
| Interest/dividends | 100 | 540 | 134 | 693 | 144 | 712 | 5.7 |
| Interest paid | 202 | 1,086 | 280 | 1,451 | 335 | 1,656 | 8.8 |
| Net property income | 44 | 235 | 33 | 172 | 23 | 112 | -$123 |
| Net flow of funds | 2,017 | 10,851 | 2,414 | 12,502 | 3,332 | 16,474 | 8.7 |
| Rank | | 58 | | 42 | | 16 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 140 | 44 |
| Skills corrected factor (out of 1,000) | 147 | 43 |
| Industry corrected factor (out of 1,000) | 142 | 45 |
| Global knowledge factor (out of 1,000) | 149 | 39 |
| Resident skills matching | -54 | 60 |
| Resident industry matching | -265 | 48 |
| Catchment jobs/workers | 637 | 5 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 144 | 44 |
| Industry corrected factor (out of 1,000) | 153 | 45 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 153 | 43 |
| Industry corrected factor (out of 1,000) | 158 | 44 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 25,573 | 13,904 |
| 60 minutes, door to door | 34,455 | 25,055 |
| 100 minutes, door to door | 57,300 | 44,892 |
| *"Congestion exposure risk factor, rank"* | 4 | 58 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 33 | 47 |
| Highest performing LGA – Queanbeyan (C) | 106 | 132 |
| Lowest performing LGA –Boorowa (A) | 8 | 459 |
| Distance to significant retail diversity (km) | 67.2 | 49 |
| Missing local retail types (out of 44) | 35 | 45 |
| Highest performing LGA –Queanbeyan (C) | 5 | 115 |
| Lowest performing LGA –Bega Valley (A) | 44 | 317 |
| Percentage of retail missing (%) | 65.3% | 50 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 735 | 37 |
| 2001 | 1,082 | 41 |
| 2003 | 426 | 45 |
| 2004 | 495 | 48 |

YourPlace
*The place to go for the performance of Australia's local economies*

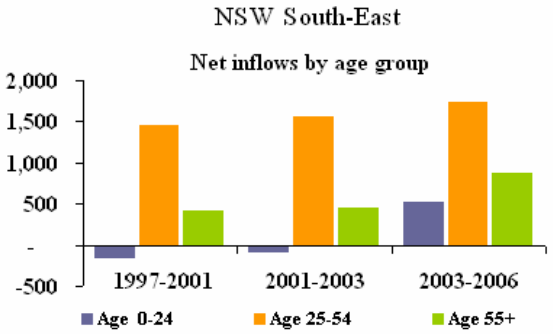
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 37.0 | 58.6% | 59.4% | 21 |
| High LGA – Gunning (A) | 82.3 | 76.4% | | |
| Low LGA – Eurobadalla (A) | 3.0 | 43.1% | | |
| Infrastructure | 41.8 | 0.50 | 1.53 | 47 |
| High LGA – Snowy River (A) | 85.6 | 1.60 | | |
| Low LGA – Crookwell (A) | 7.2 | 0.07 | | |
| Household prosperity potential | 41.7 | 92% | 100% | 21 |
| High LGA – Yarrowlumla (A) | 95.1 | 233% | | |
| Low LGA – Eurobodalla (A) | 11.0 | 28% | | |
| Global knowledge flows | 43.7 | 5.2% | 12.9% | 45 |
| High LGA – Yarrowlumla (A) | 79.3 | 9.5% | | |
| Low LGA – Boorowa (A) | 11.6 | 2.3% | | |
| Knowledge driven growth potential | 41.4 | 0.51 | 0.67 | 23 |
| High LGA – Crookwell (A) | 88.2 | 0.90 | | |
| Low LGA – Goulburn (C) | 11.3 | 0.31 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

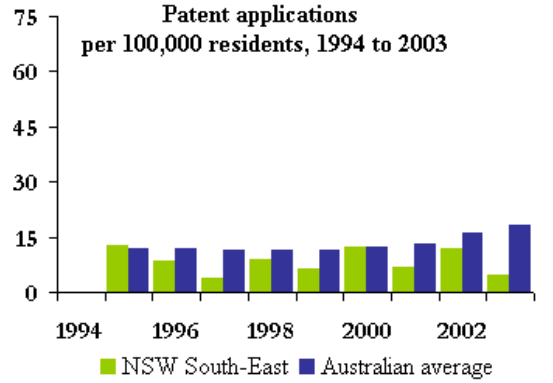
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.32 | 0.32 | 0.31 |
| 25 – 54 | 0.42 | 0.41 | 0.41 | 0.39 |
| 55+ | 0.24 | 0.26 | 0.27 | 0.29 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -154 | -71 | 518 |
| 25 – 54 | | 1,455 | 1,561 | 1,728 |
| 55+ | | 417 | 458 | 868 |
| Average age | 36.4 | 37.9 | 38.5 | 39.5 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.414%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 23.3 | 43 |
| 2001 | 22.7 | 41 |
| 2003 | 19.9 | 24 |
| 2004 | 20.0 | 18 |
| Income supported households (%) | 17.5 | 50 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 15.3 | 36 | 39.2 |
| Average p.a. per capita | 8.6 | 29 | 13.7 |
| Hi Tech p.a. (1994-2003) | 3.2 | 30 | 9.8 |
| Hi Tech p.a. per capita | 1.7 | 20 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.0 | 29 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 23 | 0.9 |
| Average per capita (1994-2000) | 8.5 | 25 | 9.6 |
| Average per capita (2001-2003) | 8.7 | 40 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.03 | 57 | 1.48 |

*Note:* Per capita = 100,000 people.

# Melbourne Inner


Since the second world war, central city functions in Melbourne have spilled into adjacent LGAs, which have gentrified considerably in the process. Inner Melbourne thus comprises the CBD, the formerly industrial but now largely gentrified inner northern and eastern suburbs, and the formerly residential but now office-invaded inner southern suburbs. Its economic base is mainly city centre functions (administration, finance, cultural and educational services, tourism). However, Inner Melbourne still houses the Port of Melbourne and there is some remaining manufacturing.

**Major centres:**

Melbourne, St Kilda

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 281,873 | | 290,150 | | 307,043 | | 1.9 |
| No. households | 125,868 | | 139,475 | | 158,308 | | 4.3 |
| Workforce | 169,206 | 59.9 | 163,474 | 56.3 | 183,578 | 59.8 | 3.9 |
| Employment | 147,051 | – | 151,600 | – | 173,945 | – | 4.7 |
| Unemployment | 22,156 | 13.1 | 11,874 | 7.3 | 9,632 | 5.2 | -6.7 |
| DEET U/E | 10,927 | 6.5 | 8,808 | 5.3 | 8,579 | 4.6 | -0.9 |
| Structural U/E, % population[1] | 24,790 | 12.2 | 19,129 | 8.6 | 18,785 | 8.0 | -0.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 5,330 | 19,103 | 7,421 | 25,576 | 9,611 | 31,303 | 10.4 |
| Taxes paid | 1,815 | 6,504 | 2,650 | 9,133 | 3,026 | 9,855 | 8.7 |
| GST paid | 330 | 1,181 | 545 | 1,878 | 773 | 2,516 | – |
| Benefits | 596 | 2,137 | 572 | 1,970 | 662 | 2,155 | 0.2 |
| Business income | 1,014 | 3,634 | 1,100 | 3,792 | 1,349 | 4,392 | 3.9 |
| Interest/dividends | 515 | 1,845 | 789 | 2,718 | 729 | 2,375 | 5.2 |
| Interest paid | 251 | 901 | 270 | 930 | 390 | 1,270 | 7.1 |
| Net property income | 266 | 954 | 331 | 1,140 | 301 | 981 | $27 |
| Net flow of funds | 5,326 | 19,087 | 6,747 | 23,255 | 8,464 | 27,566 | 7.6 |
| Rank | | 2 | | 1 | | 1 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 1,000 | 1 |
| Skills corrected factor (out of 1,000) | 1,000 | 1 |
| Industry corrected factor (out of 1,000) | 1,000 | 1 |
| Global knowledge factor (out of 1,000) | 1,000 | 1 |
| Resident skills matching | -19 | 57 |
| Resident industry matching | -266 | 49 |
| Catchment jobs/workers | 956 | 3 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 1,000 | 1 |
| Industry corrected factor (out of 1,000) | 1,000 | 1 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 1,000 | 1 |
| Industry corrected factor (out of 1,000) | 1,000 | 1 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 239,619 | 122,164 |
| 60 minutes, door to door | 1,182,634 | 952,547 |
| 100 minutes, door to door | 1,484,825 | 1,431028 |
| *"Congestion exposure risk factor, rank"* | 61 | 28 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 1,000 | 1 |
| Highest performing LGA – Melbourne (C) | 1,967 | 2 |
| Lowest performing LGA –Port Phillip (C) | 717 | 9 |
| Distance to significant retail diversity (km) | 3.1 | 1 |
| Missing local retail types (out of 44) | 0 | 1 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.0% | 1 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 727 | 38 |
| 2001 | 1,066 | 42 |
| 2003 | 384 | 50 |
| 2004 | 493 | 49 |

YourPlace
*The place to go for the performance of Australia's local economies*

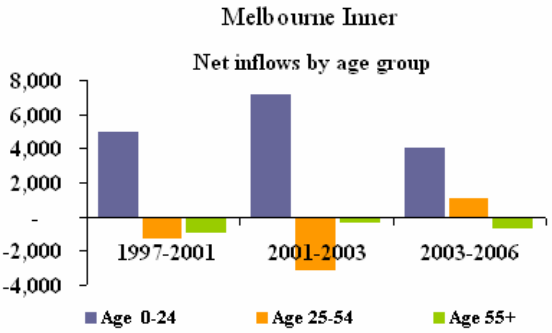
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 53.7 | 64.4% | 59.4% | 24 |
| High LGA – Port Phillip (C) | 66.2 | 68.6% | | |
| Low LGA – Melbourne (C) | 14.9 | 52.2% | | |
| Infrastructure | 89.1 | 4.64 | 1.53 | 1 |
| High LGA – Melbourne (C) | 97.7 | 17.91 | | |
| Low LGA – Yarra (C) | 83.5 | 1.49 | | |
| Household prosperity potential | 98.8 | 290% | 100% | 1 |
| High LGA – Melbourne (C) | 99.8 | 330% | | |
| Low LGA – Stonnington (C) | 98.1 | 274% | | |
| Global knowledge flows | 99.3 | 30.3% | 12.9% | 2 |
| High LGA – Melbourne (C) | 99.8 | 34.2% | | |
| Low LGA – Stonnington (C) | 96.5 | 17.0% | | |
| Knowledge driven growth potential | 98.9 | 1.46 | 0.67 | 2 |
| High LGA – Port Phillip (C) | 99.7 | 1.57 | | |
| Low LGA – Yarra (C) | 95.8 | 1.10 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

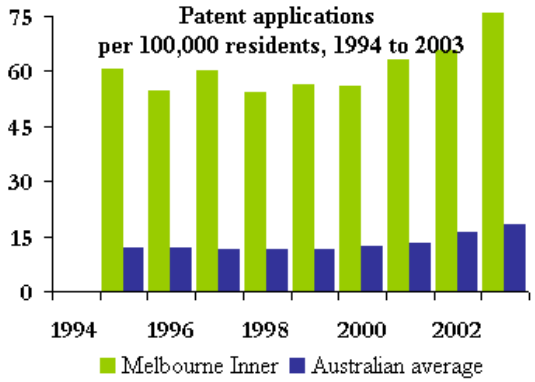
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.29 | 0.28 | 0.29 | 0.26 |
| 25 – 54 | 0.51 | 0.53 | 0.52 | 0.54 |
| 55+ | 0.20 | 0.19 | 0.20 | 0.20 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 4,983 | 7,123 | 4,057 |
| 25 – 54 | | -1,174 | -3,111 | 1,040 |
| 55+ | | -834 | -288 | -601 |
| Average age | 36.7 | 36.5 | 36.5 | 36.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.659%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 11.2 | 4 |
| 2001 | 8.5 | 3 |
| 2003 | 8.2 | 3 |
| 2004 | 7.7 | 3 |
| Income supported households (%) | 13.4 | 59 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 170.6 | 3 | 39.2 |
| Average p.a. per capita | 63.3 | 1 | 13.7 |
| Hi Tech p.a. (1994-2003) | 56.2 | 2 | 9.8 |
| Hi Tech p.a. per capita | 19.8 | 1 | 2.5 |
| Info. Tech p.a. (1994-2003) | 24.3 | 2 | 3.5 |
| Info. Tech p.a. per capita | 8.5 | 2 | 0.9 |
| Average per capita (1994-2000) | 58.0 | 1 | 9.6 |
| Average per capita (2001-2003) | 75.9 | 1 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.31 | 45 | 1.48 |

*Note:* Per capita = 100,000 people.

# Melbourne East


The Melbourne East region is solidly suburban. The parts nearest the City date from the nineteenth century land boom, while the parts furthest away were not built up till the 1970s, but most of the region comprises garden suburbs of middle to high socio-economic status. Its economic base is largely commuting, though there has been some infusion of city centre functions, and the region has a major university and a belt of manufacturing.

**Major centres:**

Camberwell, Box Hill, Glen Waverley

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 815,485 | | 829,045 | | 830,923 | | 0.1 |
| No. households | 289,099 | | 304,391 | | 321,317 | | 1.8 |
| Workforce | 439,859 | 53.9 | 465,525 | 56.2 | 454,092 | 54.6 | -0.8 |
| Employment | 414,201 | – | 442,321 | – | 432,698 | – | -0.7 |
| Unemployment | 25,658 | 5.8 | 23,204 | 5.0 | 21,393 | 4.7 | -2.7 |
| DEET U/E | 28,901 | 6.7 | 21,915 | 4.8 | 21,105 | 4.7 | -1.2 |
| Structural U/E, % population[1] | 32,522 | 6.3 | 31,652 | 6.0 | 31,474 | 5.8 | -0.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 13,157 | 16,120 | 15,917 | 19,199 | 16,091 | 19,365 | 3.7 |
| Taxes paid | 3,937 | 4,823 | 4,700 | 5,669 | 4,975 | 5,987 | 4.4 |
| GST paid | 764 | 937 | 1,231 | 1,484 | 1,391 | 1,675 | – |
| Benefits | 1,485 | 1,819 | 1,615 | 1,948 | 1,931 | 2,324 | 5.0 |
| Business income | 2,209 | 2,706 | 2,317 | 2,795 | 2,416 | 2,908 | 1.4 |
| Interest/dividends | 858 | 1,051 | 1,125 | 1,357 | 990 | 1,192 | 2.5 |
| Interest paid | 869 | 1,065 | 1,157 | 1,395 | 1,595 | 1,919 | 12.5 |
| Net property income | 471 | 577 | 391 | 471 | 110 | 132 | -$445 |
| Net flow of funds | 12,609 | 15,449 | 14,278 | 17,222 | 13,577 | 16,339 | 1.1 |
| Rank | | 7 | | 7 | | 18 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 866 | 3 |
| Skills corrected factor (out of 1,000) | 879 | 3 |
| Industry corrected factor (out of 1,000) | 886 | 2 |
| Global knowledge factor (out of 1,000) | 819 | 5 |
| Resident skills matching | 762 | 8 |
| Resident industry matching | 414 | 4 |
| Catchment jobs/workers | 219 | 63 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 864 | 3 |
| Industry corrected factor (out of 1,000) | 899 | 2 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 862 | 3 |
| Industry corrected factor (out of 1,000) | 901 | 2 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 132,734 | 140,645 |
| 60 minutes, door to door | 914,032 | 839,853 |
| 100 minutes, door to door | 1,435,078 | 1,393,053 |
| *"Congestion exposure risk factor, rank"* | 131 | 19 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 395 | 4 |
| Highest performing LGA – Monash (C) | 452 | 25 |
| Lowest performing LGA –Whitehorse (C) | 350 | 44 |
| Distance to significant retail diversity (km) | 4.5 | 4 |
| Missing local retail types (out of 44) | 0 | 1 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.0% | 1 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 884 | 21 |
| 2001 | 1,205 | 30 |
| 2003 | 480 | 40 |
| 2004 | 690 | 24 |

YourPlace
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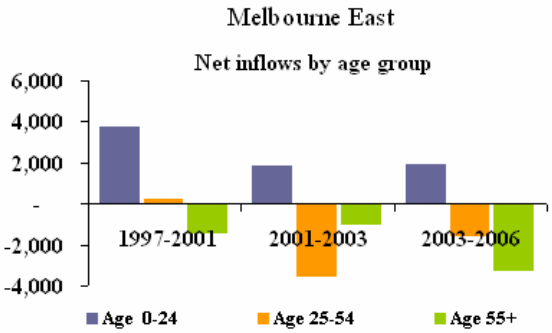
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 49.7 | 63.4% | 59.4% | 23 |
| High LGA – Maroondah (C) | 58.1 | 65.6% | | |
| Low LGA – Monash (C) | 35.3 | 59.8% | | |
| Infrastructure | 62.4 | 0.89 | 1.53 | 13 |
| High LGA – Knox (C) | 85.0 | 1.57 | | |
| Low LGA – Manningham (C) | 28.0 | 0.31 | | |
| Household prosperity potential | 65.9 | 147% | 100% | 14 |
| High LGA – Boroondara (C) | 96.4 | 245% | | |
| Low LGA – Knox (C) | 29.6 | 70% | | |
| Global knowledge flows | 92.4 | 15.8% | 12.9% | 8 |
| High LGA – Boroondara (C) | 99.0 | 21.1% | | |
| Low LGA – Maroondah (C) | 76.3 | 9.0% | | |
| Knowledge driven growth potential | 71.8 | 0.83 | 0.67 | 12 |
| High LGA – Boroondara (C) | 99.1 | 1.45 | | |
| Low LGA – Maroondah (C) | 36.6 | 0.48 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

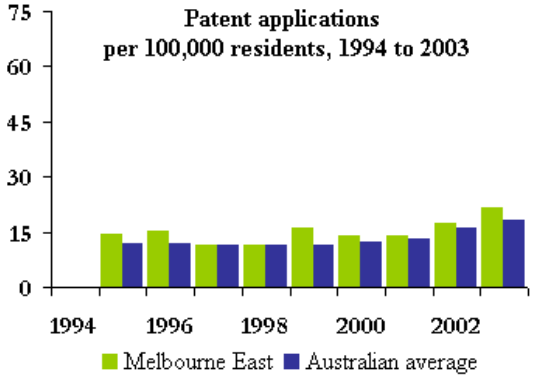
## POPULATION AND MIGRATION

| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.33 | 0.33 | 0.32 |
| 25 – 54 | 0.44 | 0.44 | 0.43 | 0.43 |
| 55+ | 0.22 | 0.24 | 0.25 | 0.25 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 3,725 | 1,841 | 1,903 |
| 25 – 54 | | 192 | -3,504 | -1,537 |
| 55+ | | -1,416 | -949 | -3,190 |
| Average age | 36.5 | 37.3 | 37.5 | 38.0 |
| Average pop. growth change 1998-2004 versus 1991-1998 (%) | | | | 0.204% |




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 11.8 | 5 |
| 2001 | 11.3 | 6 |
| 2003 | 12.2 | 6 |
| 2004 | 14.1 | 8 |
| Income supported households (%) | 15.7 | 55 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 128.6 | 5 | 39.2 |
| Average p.a. per capita | 16.0 | 12 | 13.7 |
| Hi Tech p.a. (1994-2003) | 36.0 | 5 | 9.8 |
| Hi Tech p.a. per capita | 4.4 | 8 | 2.5 |
| Info. Tech p.a. (1994-2003) | 14.0 | 4 | 3.5 |
| Info. Tech p.a. per capita | 1.7 | 8 | 0.9 |
| Average per capita (1994-2000) | 13.9 | 11 | 9.6 |
| Average per capita (2001-2003) | 20.8 | 10 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.50 | 25 | 1.48 |

*Note:* Per capita = 100,000 people.

# Melbourne North


Like Melbourne West, this region begins with suburbs developed during the nineteenth century land boom and extends to the urban fringe. Melbourne airport is located within the region but on the boundary of Melbourne West, and is becoming a nucleus for transport-related industries. The older parts of the region were established manufacturing areas, but with the decline of manufacturing the region is becoming a commuter zone for Central Melbourne. By and large socio-economic status is low to middling with high ethnic mix, but there has been some gentrification, and in Heidelburg-Eltham the region also includes hilly commuter suburbs which, in socio-economic composition, resemble Melbourne East. They are, however, cut off from the Eastern suburbs by a string of nature reserves along the Yarra river.

**Major centres:**

Preston, Broadmeadows, Heidelberg

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 680,960 | | 697,854 | | 715,490 | | 0.8 |
| No. households | 236,033 | | 250,526 | | 270,064 | | 2.5 |
| Workforce | 343,454 | 50.4 | 348,668 | 50.0 | 363,297 | 50.8 | 1.4 |
| Employment | 306,237 | – | 311,970 | – | 329,542 | – | 1.8 |
| Unemployment | 37,218 | 10.8 | 36,700 | 10.5 | 33,755 | 9.3 | -2.7 |
| DEET U/E | 28,392 | 8.4 | 26,213 | 7.7 | 22,695 | 6.4 | -4.7 |
| Structural U/E, % population[1] | 50,074 | 11.6 | 51,619 | 11.6 | 52,557 | 11.3 | 0.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 8,789 | 12,862 | 10,332 | 14,806 | 11,737 | 16,404 | 5.0 |
| Taxes paid | 2,394 | 3,504 | 2,624 | 3,760 | 3,011 | 4,209 | 3.7 |
| GST paid | 579 | 847 | 854 | 1,223 | 1,041 | 1,455 | – |
| Benefits | 1,718 | 2,515 | 1,873 | 2,684 | 2,268 | 3,170 | 4.7 |
| Business income | 1,311 | 1,918 | 1,341 | 1,922 | 1,508 | 2,108 | 1.9 |
| Interest/dividends | 258 | 377 | 336 | 482 | 302 | 422 | 2.3 |
| Interest paid | 736 | 1,076 | 953 | 1,366 | 1,239 | 1,731 | 10.0 |
| Net property income | 160 | 234 | 121 | 174 | -8 | -11 | -$244 |
| Net flow of funds | 8,527 | 12,479 | 9,574 | 13,719 | 10,517 | 14,699 | 3.3 |
| Rank | | 24 | | 18 | | 29 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 739 | 6 |
| Skills corrected factor (out of 1,000) | 745 | 6 |
| Industry corrected factor (out of 1,000) | 748 | 6 |
| Global knowledge factor (out of 1,000) | 735 | 6 |
| Resident skills matching | 649 | 12 |
| Resident industry matching | 33 | 15 |
| Catchment jobs/workers | 456 | 49 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 739 | 6 |
| Industry corrected factor (out of 1,000) | 770 | 6 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 743 | 6 |
| Industry corrected factor (out of 1,000) | 795 | 6 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 60,453 | 56,008 |
| 60 minutes, door to door | 653,407 | 557,672 |
| 100 minutes, door to door | 1,345,615 | 1,246,130 |
| *"Congestion exposure risk factor, rank"* | 421 | 6 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 253 | 11 |
| Highest performing LGA – Darebin (C) | 394 | 34 |
| Lowest performing LGA –Nillumbik (S) | 136 | 117 |
| Distance to significant retail diversity (km) | 6.9 | 12 |
| Missing local retail types (out of 44) | 1 | 9 |
| Highest performing LGA –Banyule (C) | 0 | 1 |
| Lowest performing LGA –Whittlesea (C) | 3 | 92 |
| Percentage of retail missing (%) | 0.1% | 9 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 708 | 41 |
| 2001 | 1,163 | 35 |
| 2003 | 401 | 48 |
| 2004 | 560 | 41 |

YourPlace
*The place to go for the performance of Australia's local economies*

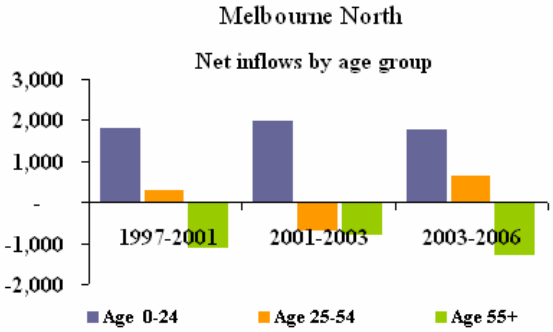
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 29.6 | 57.5% | 59.4% | 45 |
| High LGA – Nillumbik (S) | 64.9 | 68.1% | | |
| Low LGA – Darebin (C) | 19.3 | 54.3% | | |
| Infrastructure | 65.3 | 1.04 | 1.53 | 14 |
| High LGA – Hume (C) | 88.5 | 1.91 | | |
| Low LGA – Nillumbik (S) | 15.4 | 0.15 | | |
| Household prosperity potential | 57.0 | 121% | 100% | 20 |
| High LGA – Moreland (C) | 81.3 | 169% | | |
| Low LGA – Hume (C) | 22.3 | 54% | | |
| Global knowledge flows | 76.0 | 9.1% | 12.9% | 13 |
| High LGA – Banyule (C) | 84.5 | 10.8% | | |
| Low LGA – Whittlesea (C) | 59.0 | 6.6% | | |
| Knowledge driven growth potential | 35.9 | 0.48 | 0.67 | 36 |
| High LGA – Nillumbik (S) | 64.6 | 0.66 | | |
| Low LGA – Whittlesea (C) | 15.6 | 0.35 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

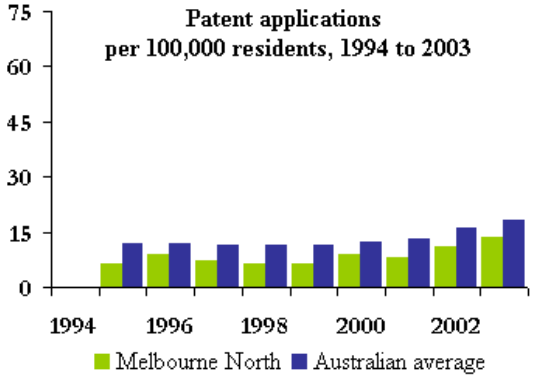
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.45 | 0.45 | 0.45 | 0.45 |
| 55+ | 0.19 | 0.20 | 0.21 | 0.22 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,793 | 1,964 | 1,762 |
| 25 – 54 | | 280 | -670 | 652 |
| 55+ | | -1,090 | -785 | -1,275 |
| Average age | 34.5 | 35.2 | 35.6 | 36.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.211%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 20.2 | 29 |
| 2001 | 19.6 | 26 |
| 2003 | 20.5 | 29 |
| 2004 | 21.3 | 27 |
| Income supported households (%) | 24.2 | 14 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 62.8 | 12 | 39.2 |
| Average p.a. per capita | 9.4 | 24 | 13.7 |
| Hi Tech p.a. (1994-2003) | 15.4 | 12 | 9.8 |
| Hi Tech p.a. per capita | 2.2 | 12 | 2.5 |
| Info. Tech p.a. (1994-2003) | 5.2 | 13 | 3.5 |
| Info. Tech p.a. per capita | 0.8 | 12 | 0.9 |
| Average per capita (1994-2000) | 7.5 | 31 | 9.6 |
| Average per capita (2001-2003) | 13.8 | 18 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.83 | 7 | 1.48 |

*Note:* Per capita = 100,000 people.

# Melbourne South


Melbourne South is very similar to Melbourne East. Its older parts date from the nineteenth century, and its newest were developed a mere 20 or 30 years ago. The parts nearer the city are high status commuter suburbs, but further away the status gradient declines and there are manufacturing areas as well as golf courses.

**Major centres:**

Brighton, Cheltenham

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 343,346 | | 345,800 | | 348,904 | | 0.3 |
| No. households | 131,497 | | 138,524 | | 146,161 | | 1.8 |
| Workforce | 177,353 | 51.6 | 175,578 | 50.8 | 185,941 | 53.3 | 1.9 |
| Employment | 164,452 | – | 164,712 | – | 176,260 | – | 2.3 |
| Unemployment | 12,900 | 7.3 | 10.865 | 6.2 | 9,681 | 5.2 | -3.8 |
| DEET U/E | 10,651 | 6.1 | 7,902 | 4.6 | 8,255 | 4.5 | 1.5 |
| Structural U/E, % population[1] | 16,618 | 7.8 | 15,900 | 7.3 | 15,316 | 6.9 | -1.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 5,400 | 15,814 | 6,790 | 19,637 | 7,971 | 22,846 | 7.6 |
| Taxes paid | 1,647 | 4,825 | 2,120 | 6,132 | 2,346 | 6,725 | 6.9 |
| GST paid | 351 | 1,029 | 535 | 1,547 | 653 | 1,872 | – |
| Benefits | 705 | 2,065 | 751 | 2,173 | 864 | 2,476 | 3.7 |
| Business income | 932 | 2,729 | 978 | 2,827 | 1,124 | 3,223 | 3.4 |
| Interest/dividends | 392 | 1,148 | 563 | 1,629 | 492 | 1,409 | 4.2 |
| Interest paid | 353 | 1,034 | 410 | 1,185 | 617 | 1,769 | 11.3 |
| Net property income | 215 | 630 | 245 | 709 | 126 | 361 | -$270 |
| Net flow of funds | 5,292 | 15,499 | 6,262 | 18,110 | 6,960 | 19,948 | 5.2 |
| Rank | | 6 | | 5 | | 4 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 857 | 4 |
| Skills corrected factor (out of 1,000) | 869 | 4 |
| Industry corrected factor (out of 1,000) | 873 | 4 |
| Global knowledge factor (out of 1,000) | 844 | 4 |
| Resident skills matching | 665 | 10 |
| Resident industry matching | 276 | 6 |
| Catchment jobs/workers | 561 | 14 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 855 | 4 |
| Industry corrected factor (out of 1,000) | 887 | 4 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 852 | 4 |
| Industry corrected factor (out of 1,000) | 894 | 3 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 98,326 | 89,577 |
| 60 minutes, door to door | 851,903 | 680,356 |
| 100 minutes, door to door | 1,418,048 | 1,323,020 |
| *"Congestion exposure risk factor, rank"* | 153 | 18 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 393 | 5 |
| Highest performing LGA – Kingston (C) | 487 | 20 |
| Lowest performing LGA –Bayside (C) | 318 | 53 |
| Distance to significant retail diversity (km) | 4.9 | 5 |
| Missing local retail types (out of 44) | 0 | 4 |
| Highest performing LGA –Glen Eira (C) | 0 | 1 |
| Lowest performing LGA –Bayside (C) | 1 | 19 |
| Percentage of retail missing (%) | 0.0% | 3 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 787 | 31 |
| 2001 | 1,101 | 36 |
| 2003 | 408 | 47 |
| 2004 | 681 | 27 |

YourPlace
*The place to go for the performance of Australia's local economies*

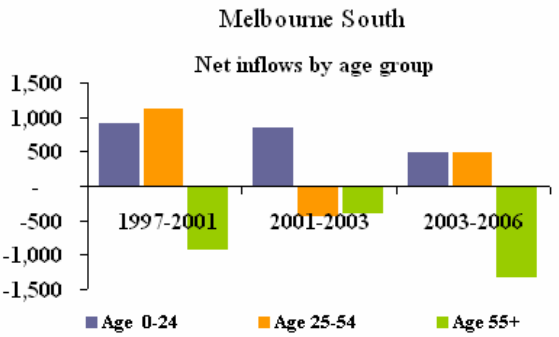
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 53.8 | 64.5% | 59.4% | 18 |
| High LGA – Bayside (C) | 60.3 | 66.4% | | |
| Low LGA – Kingston (C) | 49.1 | 63.3% | | |
| Infrastructure | 53.6 | 0.84 | 1.53 | 27 |
| High LGA – Kingston (C) | 85.7 | 1.61 | | |
| Low LGA – Glen Eira (C) | 28.6 | 0.31 | | |
| Household prosperity potential | 82.0 | 184% | 100% | 7 |
| High LGA – Bayside (C) | 93.5 | 220% | | |
| Low LGA – Kingston (C) | 64.3 | 132% | | |
| Global knowledge flows | 89.3 | 12.6% | 12.9% | 7 |
| High LGA – Glen Eira (C) | 94.2 | 14.7% | | |
| Low LGA – Kingston (C) | 85.7 | 11.1% | | |
| Knowledge driven growth potential | 59.2 | 0.67 | 0.67 | 11 |
| High LGA – Bayside (C) | 90.3 | 0.94 | | |
| Low LGA – Kingston (C) | 35.9 | 0.48 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

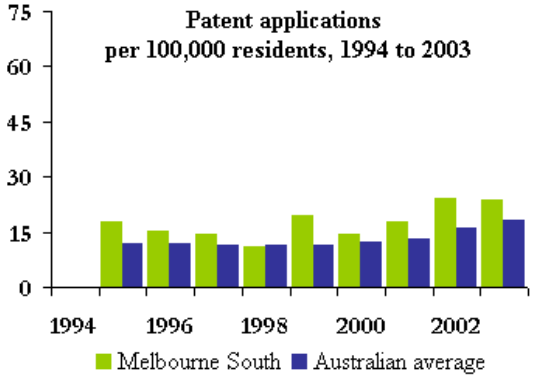
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.31 | 0.30 | 0.30 | 0.30 |
| 25 – 54 | 0.44 | 0.44 | 0.44 | 0.44 |
| 55+ | 0.26 | 0.26 | 0.26 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 900 | 846 | 488 |
| 25 – 54 | | 1,121 | -420 | 481 |
| 55+ | | -901 | -389 | -1,310 |
| Average age | 38.7 | 38.7 | 38.9 | 39.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.029%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 13.3 | 9 |
| 2001 | 12.0 | 8 |
| 2003 | 12.3 | 7 |
| 2004 | 12.3 | 5 |
| Income supported households (%) | 13.6 | 57 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 62.1 | 14 | 39.2 |
| Average p.a. per capita | 18.5 | 8 | 13.7 |
| Hi Tech p.a. (1994-2003) | 11.8 | 14 | 9.8 |
| Hi Tech p.a. per capita | 3.5 | 10 | 2.5 |
| Info. Tech p.a. (1994-2003) | 5.9 | 12 | 3.5 |
| Info. Tech p.a. per capita | 1.7 | 7 | 0.9 |
| Average per capita (1994-2000) | 15.7 | 9 | 9.6 |
| Average per capita (2001-2003) | 24.8 | 8 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.58 | 19 | 1.48 |

*Note:* Per capita = 100,000 people.

# Melbourne West


Melbourne West starts the other side of the Port from the CBD, and extends to the edge of the metropolitan area. Its economic base emphasises manufacturing industries (particularly chemicals and engineering) and it is also known for transport depots. In the twentieth century many of its residents worked locally, and in the post-war period the region became decidedly multicultural, a tradition which is maintained. Some parts have gentrified, partly by the social mobility of post-war immigrants. The decline of manufacturing as an employer has led to an increase in commuting to Inner Melbourne, which is conveniently close.

**Major centres:**

Footscray, Werribee, Sunshine

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 538,892 | | 563,322 | | 608,783 | | 2.6 |
| No. households | 185,033 | | 202,581 | | 224,697 | | 3.5 |
| Workforce | 266,748 | 49.4 | 283,629 | 50.3 | 301,366 | 49.5 | 2.0 |
| Employment | 234,653 | – | 250,543 | – | 271,468 | – | 2.7 |
| Unemployment | 32,095 | 12.0 | 33,086 | 11.7 | 29,898 | 9.9 | -3.3 |
| DEET U/E | 25,260 | 9.6 | 22,182 | 8.0 | 21,453 | 7.3 | -1.1 |
| Structural U/E, % population[1] | 42,565 | 12.3 | 45,878 | 12.6 | 46,599 | 11.6 | 0.5 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 7,156 | 13,156 | 8,335 | 14,796 | 10,072 | 16,544 | 4.7 |
| Taxes paid | 1,939 | 3,565 | 2,089 | 3,708 | 2,468 | 4,055 | 2.6 |
| GST paid | 443 | 814 | 685 | 1,216 | 939 | 1,542 | – |
| Benefits | 1,392 | 2,559 | 1,537 | 2,729 | 1,894 | 3,111 | 4.0 |
| Business income | 1,009 | 1,854 | 1,032 | 1,831 | 1,198 | 1,968 | 1.2 |
| Interest/dividends | 161 | 295 | 217 | 385 | 224 | 367 | 4.5 |
| Interest paid | 573 | 1,053 | 747 | 1,327 | 943 | 1,549 | 8.0 |
| Net property income | 97 | 178 | 56 | 99 | -49 | -80 | -$258 |
| Net flow of funds | 6,859 | 12,610 | 7,656 | 13,591 | 8,988 | 14,764 | 3.2 |
| Rank | | 20 | | 19 | | 28 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 719 | 7 |
| Skills corrected factor (out of 1,000) | 724 | 7 |
| Industry corrected factor (out of 1,000) | 722 | 7 |
| Global knowledge factor (out of 1,000) | 727 | 7 |
| Resident skills matching | 651 | 11 |
| Resident industry matching | -168 | 39 |
| Catchment jobs/workers | 601 | 10 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 714 | 7 |
| Industry corrected factor (out of 1,000) | 736 | 7 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 718 | 7 |
| Industry corrected factor (out of 1,000) | 760 | 7 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 37,172 | 45,544 |
| 60 minutes, door to door | 597,302 | 503,651 |
| 100 minutes, door to door | 1,391,713 | 1,307,096 |
| *"Congestion exposure risk factor, rank"* | 1,000 | 1 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 237 | 13 |
| Highest performing LGA – Maribyrnong (C) | 455 | 23 |
| Lowest performing LGA –Melton (S) | 66 | 158 |
| Distance to significant retail diversity (km) | 8.0 | 13 |
| Missing local retail types (out of 44) | 2 | 11 |
| Highest performing LGA –Moonee Valley (C) | 0 | 17 |
| Lowest performing LGA –Melton (S) | 5 | 120 |
| Percentage of retail missing (%) | 0.2% | 13 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 607 | 47 |
| 2001 | 938 | 50 |
| 2003 | 300 | 57 |
| 2004 | 374 | 59 |

YourPlace
*The place to go for the performance of Australia's local economies*

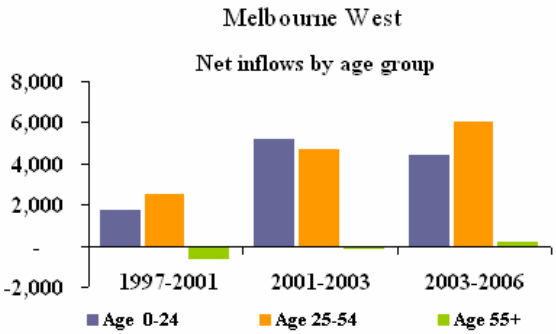
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 28.4 | 56.9% | 59.4% | 51 |
| High LGA – Wyndham (C) | 42.9 | 62.0% | | |
| Low LGA – Brimbank (C) | 13.1 | 51.1% | | |
| Infrastructure | 80.3 | 1.41 | 1.53 | 3 |
| High LGA – Wyndham (C) | 90.1 | 2.32 | | |
| Low LGA – Melton (S) | 71.6 | 0.96 | | |
| Household prosperity potential | 44.0 | 97% | 100% | 27 |
| High LGA – Moonee Valley (C) | 86.0 | 183% | | |
| Low LGA – Melton (S) | 16.5 | 43% | | |
| Global knowledge flows | 74.6 | 8.9% | 12.9% | 14 |
| High LGA – Moonee Valley (C) | 85.3 | 11.0% | | |
| Low LGA – Melton (S) | 44.5 | 5.2% | | |
| Knowledge driven growth potential | 29.3 | 0.44 | 0.67 | 58 |
| High LGA – Moonee Valley (C) | 53.9 | 0.58 | | |
| Low LGA – Brimbank (C) | 17.2 | 0.37 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

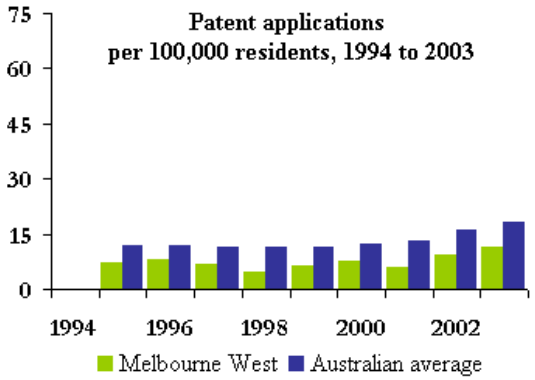
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.35 | 0.35 | 0.34 |
| 25 – 54 | 0.45 | 0.46 | 0.46 | 0.46 |
| 55+ | 0.18 | 0.19 | 0.19 | 0.20 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,728 | 5,215 | 4,439 |
| 25 – 54 | | 2,477 | 4,696 | 6,009 |
| 55+ | | -601 | -89 | 168 |
| Average age | 33.7 | 34.5 | 34.7 | 35.3 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.841%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 20.3 | 30 |
| 2001 | 20.1 | 27 |
| 2003 | 19.5 | 21 |
| 2004 | 20.8 | 24 |
| Income supported households (%) | 25.4 | 9 |

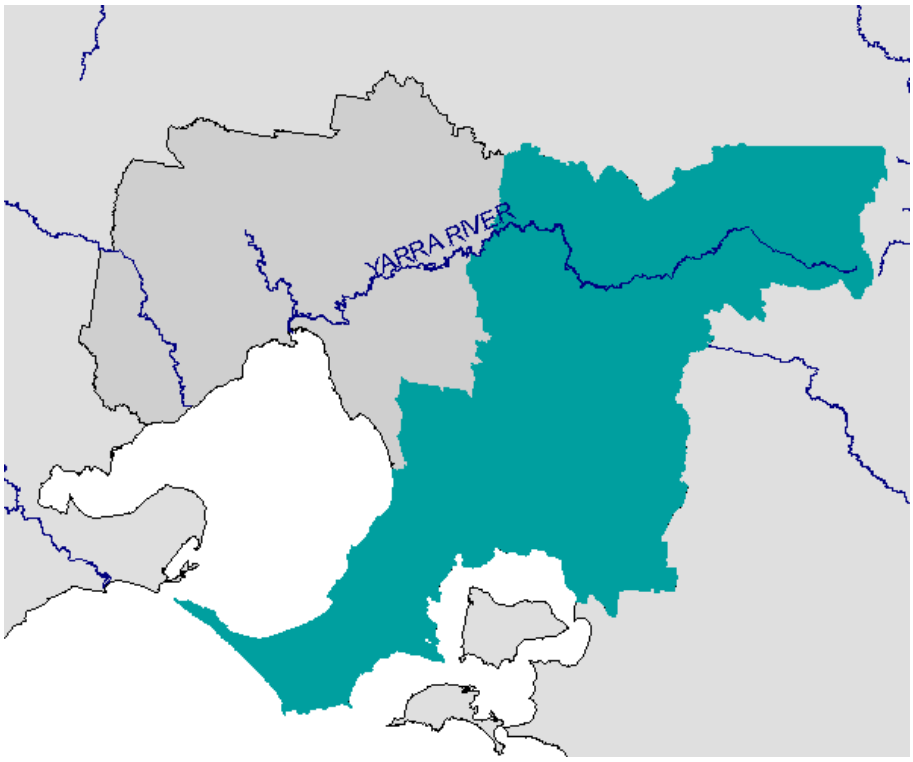



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 40.4 | 19 | 39.2 |
| Average p.a. per capita | 7.7 | 37 | 13.7 |
| Hi Tech p.a. (1994-2003) | 6.8 | 19 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 33 | 2.5 |
| Info. Tech p.a. (1994-2003) | 2.5 | 17 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 27 | 0.9 |
| Average per capita (1994-2000) | 6.6 | 36 | 9.6 |
| Average per capita (2001-2003) | 10.3 | 32 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.56 | 20 | 1.48 |

*Note:* Per capita = 100,000 people.

# Melbourne Westernport




The Westernport region lies more than 25 km from Melbourne CBD, and includes three distinct segments:

- the ranges east of Melbourne, with their conservation areas, water reserves, hobby farms and wine industry,
- the industrial area centred on Dandenong and extending to the Western shore of Westernport Bay, with its attendant new industrial suburbs and considerable ethnic mix, and
- the Mornington Peninsula, with its regional centre at Frankston, its commuters and large retired population.

**Major centres:**

Dandenong, Frankston

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 709,562 | | 746,036 | | 795,692 | | 2.2 |
| No. households | 245,973 | | 268,035 | | 295,975 | | 3.4 |
| Workforce | 353,038 | 49.8 | 386,563 | 51.8 | 391,901 | 49.3 | 0.5 |
| Employment | 321,294 | – | 349,302 | – | 357,588 | – | 0.8 |
| Unemployment | 31,744 | 9.0 | 37,260 | 9.6 | 34,313 | 8.8 | -2.7 |
| DEET U/E | 30,599 | 8.8 | 24,889 | 6.6 | 23,131 | 6.1 | -2.4 |
| Structural U/E, % population[1] | 41,238 | 9.5 | 48,000 | 10.4 | 48,746 | 9.7 | 0.5 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 8,974 | 12,526 | 10,705 | 14,349 | 12,066 | 15,164 | 3.9 |
| Taxes paid | 2,386 | 3,330 | 2,656 | 3,560 | 3,120 | 3,922 | 3.3 |
| GST paid | 595 | 830 | 927 | 1,242 | 1,215 | 1,527 | – |
| Benefits | 1,694 | 2,364 | 1,883 | 2,524 | 2,377 | 2,987 | 4.8 |
| Business income | 1,279 | 1,786 | 1,303 | 1,747 | 1,469 | 1,846 | 0.7 |
| Interest/dividends | 326 | 456 | 447 | 599 | 429 | 539 | 3.4 |
| Interest paid | 886 | 1,236 | 1,164 | 1,560 | 1,385 | 1,741 | 7.1 |
| Net property income | 166 | 232 | 110 | 148 | -6 | -7 | -$239 |
| Net flow of funds | 8,574 | 11,967 | 9,702 | 13,005 | 10,615 | 13,341 | 2.2 |
| Rank | | 32 | | 27 | | 49 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 535 | 14 |
| Skills corrected factor (out of 1,000) | 536 | 14 |
| Industry corrected factor (out of 1,000) | 573 | 12 |
| Global knowledge factor (out of 1,000) | 469 | 14 |
| Resident skills matching | 784 | 7 |
| Resident industry matching | 981 | 2 |
| Catchment jobs/workers | 0 | 64 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 527 | 14 |
| Industry corrected factor (out of 1,000) | 576 | 13 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 522 | 14 |
| Industry corrected factor (out of 1,000) | 578 | 13 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 37,356 | 55,027 |
| 60 minutes, door to door | 343,483 | 438,329 |
| 100 minutes, door to door | 1,038,770 | 1,046,815 |
| *"Congestion exposure risk factor, rank"* | 259 | 11 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 215 | 19 |
| Highest performing LGA – Greater Dandenong (C) | 391 | 35 |
| Lowest performing LGA –Cardinia (S) | 54 | 172 |
| Distance to significant retail diversity (km) | 10.7 | 19 |
| Missing local retail types (out of 44) | 6 | 19 |
| Highest performing LGA –Greater Dandenong (C) | 0 | 1 |
| Lowest performing LGA –Cardinia (S) | 21 | 154 |
| Percentage of retail missing (%) | 4.3% | 20 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 975 | 16 |
| 2001 | 1,349 | 21 |
| 2003 | 598 | 31 |
| 2004 | 829 | 13 |

YourPlace
*The place to go for the performance of Australia's local economies*

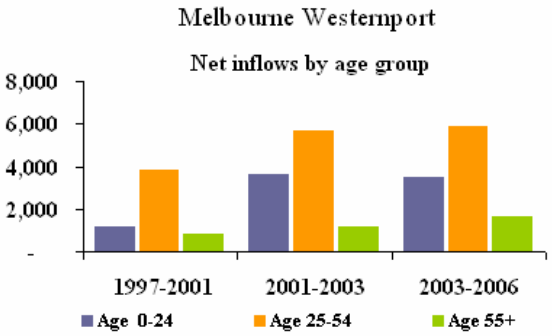
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 38.1 | 59.9% | 59.4% | 39 |
| High LGA–Cardinia (S) | 58.3 | 65.7% | | |
| Low LGA–Greater Dandenong (C) | 11.1 | 50.1% | | |
| Infrastructure | 67.4 | 1.09 | 1.53 | 9 |
| High LGA–Greater Dandenong (C) | 91.1 | 2.66 | | |
| Low LGA–Mornington Peninsula (S) | 54.7 | 0.60 | | |
| Household prosperity potential | 29.2 | 68% | 100% | 50 |
| High LGA–Cardinia (S) | 52.7 | 112% | | |
| Low LGA–Frankston (C) | 15.3 | 40% | | |
| Global knowledge flows | 64.9 | 7.6% | 12.9% | 24 |
| High LGA–Greater Dandenong (C) | 81.2 | 10.0% | | |
| Low LGA–Cardinia (S) | 44.7 | 5.2% | | |
| Knowledge driven growth potential | 32.9 | 0.46 | 0.67 | 43 |
| High LGA–Cardinia (S) | 47.4 | 0.54 | | |
| Low LGA–Casey (C) | 23.2 | 0.40 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

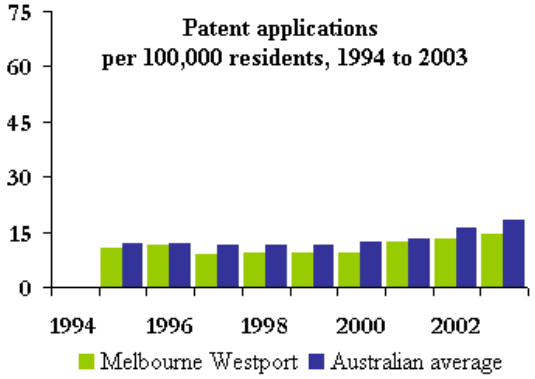
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.38 | 0.36 | 0.35 | 0.34 |
| 25 – 54 | 0.44 | 0.44 | 0.43 | 0.43 |
| 55+ | 0.18 | 0.20 | 0.21 | 0.23 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,156 | 3,638 | 3,500 |
| 25 – 54 | | 3,836 | 5,681 | 5,884 |
| 55+ | | 841 | 1,167 | 1,671 |
| Average age | 33.8 | 34.9 | 35.3 | 36.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.682%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 19.8 | 28 |
| 2001 | 19.4 | 24 |
| 2003 | 20.7 | 30 |
| 2004 | 22.1 | 31 |
| Income supported households (%) | 22.2 | 25 |

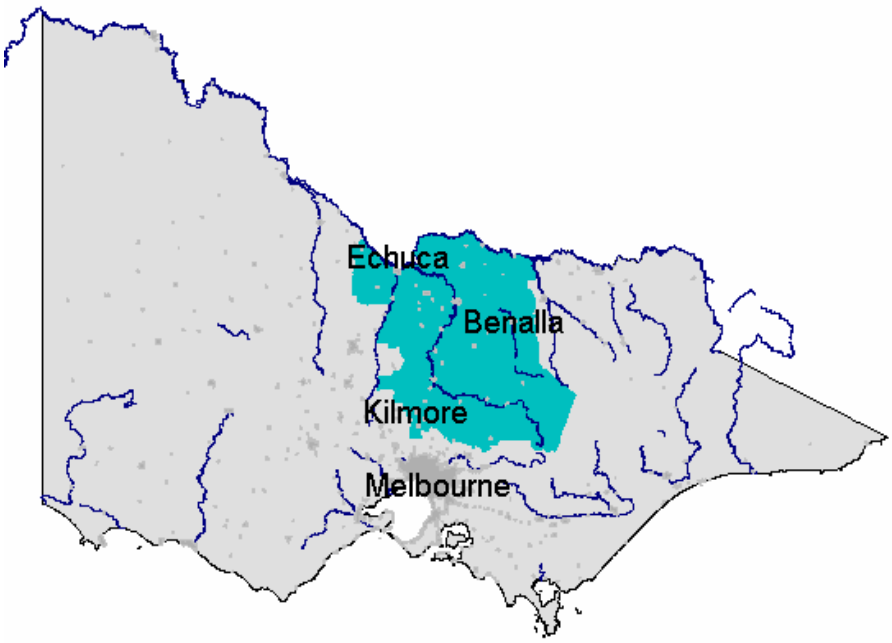



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 78.3 | 10 | 39.2 |
| Average p.a. per capita | 11.4 | 15 | 13.7 |
| Hi Tech p.a. (1994-2003) | 14.4 | 13 | 9.8 |
| Hi Tech p.a. per capita | 2.0 | 17 | 2.5 |
| Info. Tech p.a. (1994-2003) | 4.7 | 14 | 3.5 |
| Info. Tech p.a. per capita | 0.6 | 17 | 0.9 |
| Average per capita (1994-2000) | 10.2 | 14 | 9.6 |
| Average per capita (2001-2003) | 14.3 | 14 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.41 | 37 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Goulburn




The Goulburn region has two main parts.

- The hill country 'north of the divide' includes the headwaters of the Goulburn. Economic activity is a mixture between high-rainfall grazing and forest reserves, with some tourism. The area is within the Melbourne hobby-farm belt, and indeed some of it is within commuter range.
- The Goulburn Valley proper is the plain north of Seymour. The important agricultural areas are irrigated, with intensive dairy and orchard production. The chief city of the Valley, Shepparton, is noted for its food processing industries. Food processing also takes place in other towns in the region, and Echuca adds tourism based on its old river port.

**Major centres:**

Shepparton, Benalla, Echuca

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 185,207 | | 193,999 | | 201,451 | | 1.3 |
| No. households | 68,789 | | 72,869 | | 78,815 | | 2.6 |
| Workforce | 93,237 | 50.2 | 96,761 | 49.9 | 100,046 | 49.7 | 1.1 |
| Employment | 82,997 | – | 86,402 | – | 90,039 | – | 1.4 |
| Unemployment | 10,238 | 11.0 | 10,358 | 10.7 | 10,007 | 10.0 | -1.1 |
| DEET U/E | 6,584 | 7.3 | 6,455 | 6.9 | 4,109 | 4.3 | -14.0 |
| Structural U/E, % population[1] | 12,341 | 11.5 | 13,217 | 12.0 | 13,820 | 11.5 | 1.5 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,972 | 10,451 | 2,374 | 12,236 | 2,966 | 14,723 | 7.1 |
| Taxes paid | 482 | 2,557 | 554 | 2,856 | 736 | 3,653 | 7.4 |
| GST paid | 152 | 804 | 221 | 1,140 | 352 | 1,746 | – |
| Benefits | 493 | 2,613 | 537 | 2,767 | 680 | 3,375 | 5.3 |
| Business income | 385 | 2,042 | 388 | 2,003 | 591 | 2,934 | 7.5 |
| Interest/dividends | 90 | 478 | 115 | 595 | 105 | 523 | 1.8 |
| Interest paid | 198 | 1,050 | 271 | 1,396 | 331 | 1,641 | 9.3 |
| Net property income | 42 | 225 | 27 | 139 | 13 | 64 | -$161 |
| Net flow of funds | 2,150 | 11,398 | 2,395 | 12,347 | 2,937 | 14,579 | 5.0 |
| Rank | | 49 | | 45 | | 30 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 182 | 38 |
| Skills corrected factor (out of 1,000) | 178 | 38 |
| Industry corrected factor (out of 1,000) | 196 | 36 |
| Global knowledge factor (out of 1,000) | 154 | 36 |
| Resident skills matching | 29 | 51 |
| Resident industry matching | 177 | 9 |
| Catchment jobs/workers | 497 | 38 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 179 | 38 |
| Industry corrected factor (out of 1,000) | 194 | 36 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 183 | 36 |
| Industry corrected factor (out of 1,000) | 201 | 36 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 7,695 | 7,514 |
| 60 minutes, door to door | 21,088 | 21,576 |
| 100 minutes, door to door | 125,103 | 113,602 |
| *"Congestion exposure risk factor, rank"* | 12 | 42 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 35 | 46 |
| Highest performing LGA – Greater Shepparton (C) | 64 | 159 |
| Lowest performing LGA –Strathbogie (S) | 18 | 313 |
| Distance to significant retail diversity (km) | 49.6 | 37 |
| Missing local retail types (out of 44) | 40 | 57 |
| Highest performing LGA –Greater Shepparton (C) | 32 | 208 |
| Lowest performing LGA –Moira (S) | 44 | 317 |
| Percentage of retail missing (%) | 76.4% | 57 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 637 | 45 |
| 2001 | 1,091 | 38 |
| 2003 | 438 | 44 |
| 2004 | 553 | 43 |

YourPlace
*The place to go for the performance of Australia's local economies*

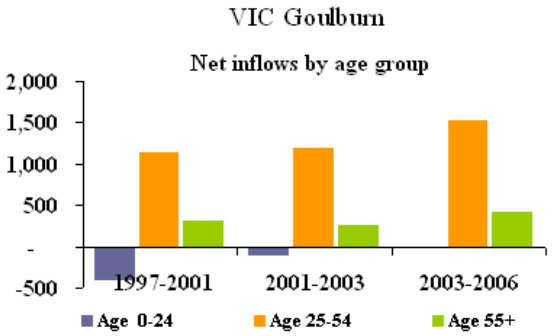
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 46.6 | 62.8% | 59.4% | 31 |
| High LGA – Moira (S) | 62.9 | 67.2% | | |
| Low LGA – Mitchell (S) | 35.6 | 59.9% | | |
| Infrastructure | 65.3 | 0.89 | 1.53 | 12 |
| High LGA – Greater Shepparton (C) | 82.4 | 1.40 | | |
| Low LGA – Mitchell (S) | 49.1 | 0.52 | | |
| Household prosperity potential | 23.8 | 50% | 100% | 61 |
| High LGA – Greater Shepparton (C) | 43.2 | 95% | | |
| Low LGA – Mitchell (S) | 3.1 | -18% | | |
| Global knowledge flows | 48.5 | 5.6% | 12.9% | 37 |
| High LGA – Greater Shepparton (C) | 62.9 | 7.0% | | |
| Low LGA – Strathbogie (S) | 24.6 | 3.5% | | |
| Knowledge driven growth potential | 61.8 | 0.64 | 0.67 | 16 |
| High LGA – Moira (S) | 81.8 | 0.81 | | |
| Low LGA – Mitchell (S) | 28.6 | 0.44 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

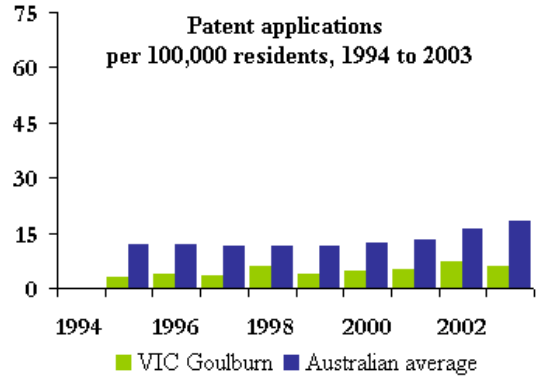
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.42 | 0.41 | 0.41 | 0.40 |
| 55+ | 0.23 | 0.25 | 0.26 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -390 | -95 | -7 |
| 25 – 54 | | 1,133 | 1,193 | 1,530 |
| 55+ | | 315 | 256 | 411 |
| Average age | 35.7 | 36.7 | 37.2 | 38.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.644%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 22.9 | 41 |
| 2001 | 22.4 | 40 |
| 2003 | 23.3 | 40 |
| 2004 | 22.9 | 36 |
| Income supported households (%) | 24.0 | 16 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 9.5 | 46 | 39.2 |
| Average p.a. per capita | 5.2 | 55 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.0 | 48 | 9.8 |
| Hi Tech p.a. per capita | 0.5 | 55 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.5 | 36 | 3.5 |
| Info. Tech p.a. per capita | 0.3 | 37 | 0.9 |
| Average per capita (1994-2000) | 4.2 | 57 | 9.6 |
| Average per capita (2001-2003) | 7.4 | 50 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.76 | 11 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Barwon


Much of the Barwon region, including its urban centre in Geelong, is within commuting range of Melbourne, and the commuter traffic has increased considerably over the past several decades. Even so, Geelong is a manufacturing centre in its own right, though it has suffered from the decline of manufacturing. Along the coast, around the Belarine Peninsula and extending along the Great Ocean Road there are resort and retirement communities, while inland there are agricultural areas. The region includes the Otway forests in its south-west corner.

**Major centres:**

Geelong

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 243,376 | | 254,732 | | 266,750 | | 1.5 |
| No. households | 90,588 | | 97,707 | | 106,673 | | 3.0 |
| Workforce | 117,308 | 48.3 | 118,682 | 46.6 | 125,594 | 47.1 | 1.9 |
| Employment | 102,953 | – | 103,608 | – | 113,550 | – | 3.1 |
| Unemployment | 14,355 | 12.2 | 15,074 | 12.7 | 12,044 | 9.6 | -7.2 |
| DEET U/E | 11,540 | 10.0 | 9,126 | 7.9 | 7,417 | 6.1 | -6.7 |
| Structural U/E, % population[1] | 16,617 | 11.5 | 18,416 | 12.2 | 17,404 | 10.6 | -1.9 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,927 | 11,885 | 3,454 | 13,560 | 4,365 | 16,365 | 6.6 |
| Taxes paid | 780 | 3,165 | 868 | 3,407 | 1,035 | 3,880 | 4.2 |
| GST paid | 217 | 882 | 314 | 1,234 | 453 | 1,699 | – |
| Benefits | 665 | 2,700 | 728 | 2,856 | 882 | 3,306 | 4.1 |
| Business income | 416 | 1,688 | 424 | 1,663 | 526 | 1,973 | 3.2 |
| Interest/dividends | 140 | 567 | 174 | 682 | 159 | 597 | 1.0 |
| Interest paid | 231 | 937 | 310 | 1,218 | 386 | 1,448 | 9.1 |
| Net property income | 64 | 259 | 44 | 173 | 4 | 16 | -$244 |
| Net flow of funds | 2,983 | 12,114 | 3,331 | 13,075 | 4,062 | 15,230 | 4.7 |
| Rank | | 31 | | 25 | | 24 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 357 | 21 |
| Skills corrected factor (out of 1,000) | 337 | 23 |
| Industry corrected factor (out of 1,000) | 361 | 22 |
| Global knowledge factor (out of 1,000) | 305 | 22 |
| Resident skills matching | 9 | 54 |
| Resident industry matching | -176 | 41 |
| Catchment jobs/workers | 451 | 51 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 349 | 21 |
| Industry corrected factor (out of 1,000) | 361 | 22 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 349 | 22 |
| Industry corrected factor (out of 1,000) | 366 | 22 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 44,120 | 44,825 |
| 60 minutes, door to door | 75,832 | 86,501 |
| 100 minutes, door to door | 729,114 | 594,617 |
| *"Congestion exposure risk factor, rank"* | 61 | 29 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 120 | 25 |
| Highest performing LGA – Greater Geelong (C) | 164 | 103 |
| Lowest performing LGA –Ararat (RC) | 14 | 346 |
| Distance to significant retail diversity (km) | 21.1 | 29 |
| Missing local retail types (out of 44) | 21 | 31 |
| Highest performing LGA –Greater Geelong (C) | 14 | 138 |
| Lowest performing LGA –Colac-Otway (S) | 43 | 306 |
| Percentage of retail missing (%) | 19.0% | 28 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 737 | 36 |
| 2001 | 1,174 | 33 |
| 2003 | 500 | 38 |
| 2004 | 671 | 28 |

YourPlace
*The place to go for the performance of Australia's local economies*

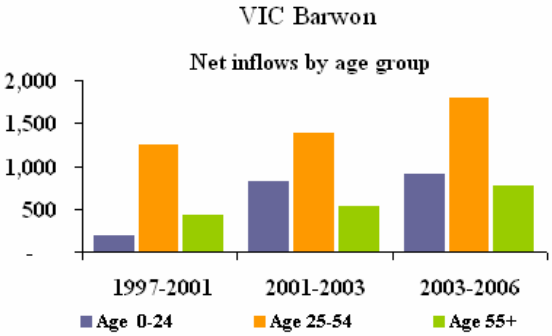
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 26.3 | 56.7% | 59.4% | 47 |
| High LGA – Colac-Otway (S) | 57.2 | 65.4% | | |
| Low LGA – Greater Geelong (C) | 22.2 | 55.5% | | |
| Infrastructure | 83.2 | 2.48 | 1.53 | 24 |
| High LGA – Greater Geelong (C) | 91.5 | 3.04 | | |
| Low LGA – Queenscliffe (B) | 13.1 | 0.13 | | |
| Household prosperity potential | 33.8 | 77% | 100% | 34 |
| High LGA – Queenscliffe (B) | 70.6 | 145% | | |
| Low LGA – Colac-Otway (S) | 22.7 | 56% | | |
| Global knowledge flows | 69.1 | 8.1% | 12.9% | 26 |
| High LGA – Greater Geelong (C) | 75.3 | 8.8% | | |
| Low LGA – Golden Plains (S) | 31.1 | 4.0% | | |
| Knowledge driven growth potential | 41.4 | 0.51 | 0.67 | 17 |
| High LGA – Golden Plains (S) | 86.1 | 0.87 | | |
| Low LGA – Greater Geelong (C) | 35.3 | 0.47 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

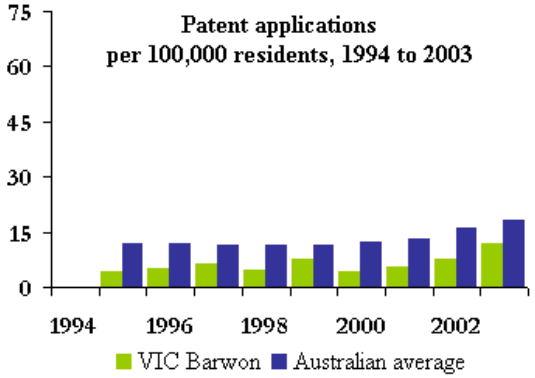
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.33 | 0.33 | 0.32 |
| 25 – 54 | 0.41 | 0.42 | 0.41 | 0.41 |
| 55+ | 0.23 | 0.25 | 0.26 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 191 | 823 | 911 |
| 25 – 54 | | 1,253 | 1,391 | 1,798 |
| 55+ | | 430 | 537 | 773 |
| Average age | 36.3 | 37.3 | 37.7 | 38.6 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 1.048%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 22.3 | 39 |
| 2001 | 21.8 | 38 |
| 2003 | 20.4 | 28 |
| 2004 | 21.5 | 28 |
| Income supported households (%) | 21.2 | 31 |

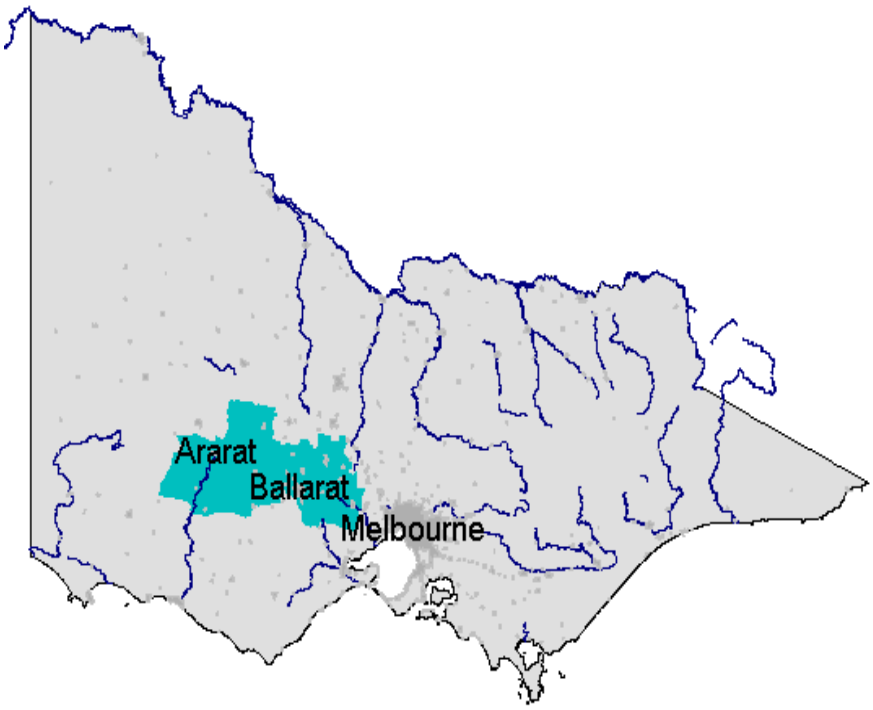



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 15.9 | 35 | 39.2 |
| Average p.a. per capita | 6.6 | 42 | 13.7 |
| Hi Tech p.a. (1994-2003) | 3.0 | 31 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 34 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.3 | 43 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 51 | 0.9 |
| Average per capita (1994-2000) | 5.4 | 48 | 9.6 |
| Average per capita (2001-2003) | 9.4 | 34 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.74 | 13 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Central Highlands




The Central Highlands are centred on Ballarat. The urban structure of the region dates from the gold rushes 150 years ago; Ballarat itself and many of the smaller towns were kept going by industries and institutions (such as psychiatric hospitals) founded in the nineteenth century, and now in a state of gradual decay. The region includes areas of intensive farming, and its nineteenth century heritage has become the basis of a tourism, hobby farm and retirement revival.

**Major centres:**

Ballarat, Ararat

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 136,458 | | 141,536 | | 146,195 | | 1.1 |
| No. households | 51,026 | | 53,648 | | 57,306 | | 2.2 |
| Workforce | 67,411 | 49.4 | 77,507 | 54.8 | 71,951 | 49.2 | -2.4 |
| Employment | 58,489 | – | 68,849 | – | 64,610 | – | -2.1 |
| Unemployment | 8,923 | 13.2 | 8,658 | 11.2 | 7,341 | 10.2 | -5.4 |
| DEET U/E | 8,117 | 12.8 | 6,028 | 7.9 | 4,754 | 6.8 | -7.6 |
| Structural U/E, % population[1] | 10,595 | 13.0 | 11,191 | 13.5 | 11,088 | 12.4 | -0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,497 | 10,817 | 1,786 | 12,621 | 1,865 | 12,758 | 3.4 |
| Taxes paid | 384 | 2,776 | 429 | 3,033 | 524 | 3,585 | 5.3 |
| GST paid | 100 | 724 | 167 | 1,182 | 202 | 1,381 | – |
| Benefits | 390 | 2,820 | 421 | 2,974 | 516 | 3,526 | 4.6 |
| Business income | 216 | 1,558 | 219 | 1,544 | 248 | 1,695 | 1.7 |
| Interest/dividends | 66 | 477 | 79 | 556 | 72 | 491 | 0.6 |
| Interest paid | 126 | 912 | 179 | 1,267 | 216 | 1,479 | 10.1 |
| Net property income | 40 | 288 | 17 | 123 | 1 | 4 | -$284 |
| Net flow of funds | 1,598 | 11,549 | 1,746 | 12,337 | 1,759 | 12,029 | 0.8 |
| Rank | | 43 | | 47 | | 60 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 274 | 28 |
| Skills corrected factor (out of 1,000) | 259 | 28 |
| Industry corrected factor (out of 1,000) | 277 | 28 |
| Global knowledge factor (out of 1,000) | 242 | 27 |
| Resident skills matching | -98 | 62 |
| Resident industry matching | -189 | 42 |
| Catchment jobs/workers | 525 | 21 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 261 | 29 |
| Industry corrected factor (out of 1,000) | 272 | 29 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 265 | 28 |
| Industry corrected factor (out of 1,000) | 279 | 28 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 22,952 | 24,486 |
| 60 minutes, door to door | 42,716 | 47,441 |
| 100 minutes, door to door | 317,342 | 306,075 |
| *"Congestion exposure risk factor, rank"* | 11 | 45 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 42 | 42 |
| Highest performing LGA – Moorabool (S) | 45 | 188 |
| Lowest performing LGA –Pyrenees (S) | 28 | 242 |
| Distance to significant retail diversity (km) | 36.3 | 33 |
| Missing local retail types (out of 44) | 35 | 46 |
| Highest performing LGA –Moorabool (S) | 32 | 206 |
| Lowest performing LGA –Pyrenees (S) | 44 | 317 |
| Percentage of retail missing (%) | 53.3% | 44 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 661 | 44 |
| 2001 | 1,089 | 39 |
| 2003 | 475 | 41 |
| 2004 | 592 | 38 |

YourPlace
*The place to go for the performance of Australia's local economies*

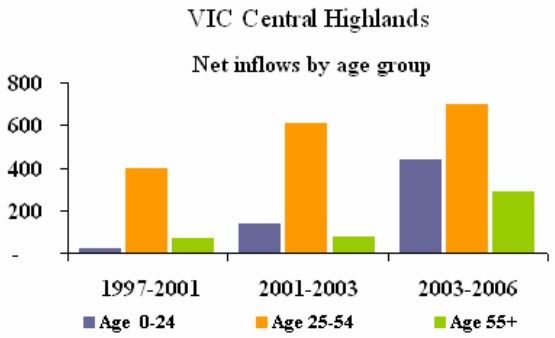
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 25.6 | 56.6% | 59.4% | 52 |
| High LGA – Ararat (RC) | 38.9 | 61.0% | | |
| Low LGA – Hepburn (S) | 17.7 | 53.3% | | |
| Infrastructure | 64.1 | 0.85 | 1.53 | 25 |
| High LGA – Moorabool (S) | 81.2 | 1.31 | | |
| Low LGA – Hepburn (S) | 27.9 | 0.31 | | |
| Household prosperity potential | 30.4 | 70% | 100% | 45 |
| High LGA – Pyrenees (S) | 59.0 | 123% | | |
| Low LGA – Moorabool (S) | 12.5 | 32% | | |
| Global knowledge flows | 61.6 | 7.2% | 12.9% | 42 |
| High LGA – Ballarat (C) | 73.4 | 8.5% | | |
| Low LGA – Pyrenees (S) | 18.2 | 3.0% | | |
| Knowledge driven growth potential | 46.8 | 0.54 | 0.67 | 20 |
| High LGA – Ararat (RC) | 69.2 | 0.69 | | |
| Low LGA – Ballarat (C) | 39.4 | 0.49 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

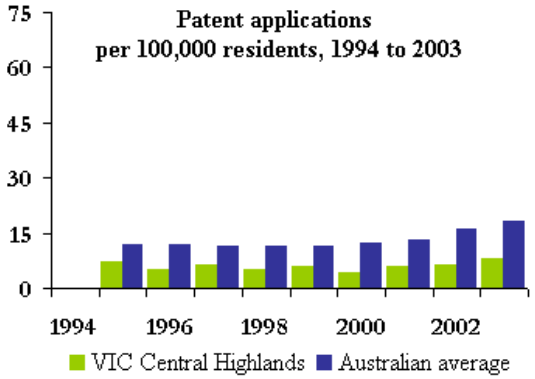
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.35 | 0.35 | 0.34 |
| 25 – 54 | 0.41 | 0.41 | 0.41 | 0.40 |
| 55+ | 0.22 | 0.23 | 0.24 | 0.26 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 21 | 138 | 438 |
| 25 – 54 | | 395 | 612 | 695 |
| 55+ | | 71 | 72 | 284 |
| Average age | 35.4 | 36.3 | 36.8 | 37.7 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.728%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 24.4 | 46 |
| 2001 | 24.1 | 47 |
| 2003 | 27.5 | 54 |
| 2004 | 29.0 | 55 |
| Income supported households (%) | 24.2 | 13 |

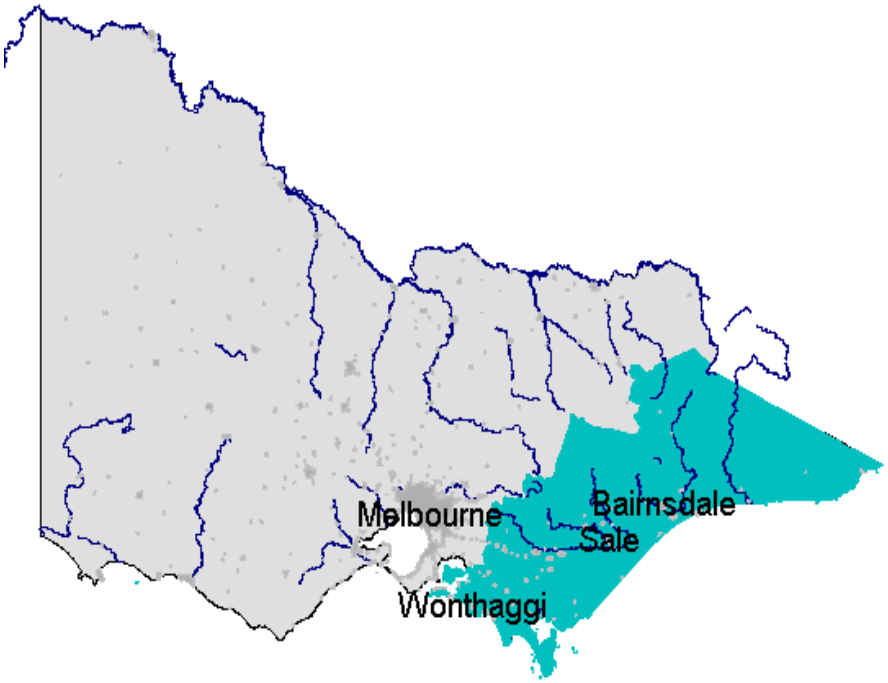



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 8.7 | 48 | 39.2 |
| Average p.a. per capita | 6.4 | 43 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.7 | 40 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 38 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 58 | 0.9 |
| Average per capita (1994-2000) | 5.6 | 44 | 9.6 |
| Average per capita (2001-2003) | 8.2 | 46 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.46 | 29 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Gippsland




Gippsland is a clearly-defined region east of Melbourne and south of the ranges. Its production statistics are dominated by oil and gas from Bass Strait, but these yield little in the way of local employment or income. It has four sub-regions.

- West Gippsland – intensive dairy farming, some timber milling and commuting to Melbourne. Its main centre is Warragul.
- South Gippsland – intensive dairy farming, timber plantations, coastal retirement areas and resorts.
- The Latrobe Valley – centre of Victorian power and an important plantation based paper industry. The Valley has suffered a difficult transition following the cessation of construction of new power plants.
- East Gippsland – patches of intensive agriculture with retirement areas around the Lakes and along the coast. The forested hills support a timber industry with an uncertain future.

**Major centres:**

Warragul, Traralgon, Bairnsdale

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 233,546 | | 239,829 | | 244,905 | | 0.7 |
| No. households | 89,219 | | 93,830 | | 100,597 | | 2.3 |
| Workforce | 109,994 | 46.9 | 100,576 | 41.9 | 124,034 | 50.6 | 7.2 |
| Employment | 96,442 | – | 84,799 | – | 110,325 | – | 9.2 |
| Unemployment | 13,582 | 12.3 | 15,776 | 15.7 | 13,708 | 11.1 | -4.6 |
| DEET U/E | 11,009 | 10.2 | 9,041 | 9.4 | 7,828 | 6.6 | -4.7 |
| Structural U/E, % population[1] | 16,703 | 17.9 | 19,309 | 20.6 | 18,846 | 12.9 | -0.8 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,464 | 10,389 | 2,821 | 11,767 | 4,484 | 18,335 | 12.0 |
| Taxes paid | 630 | 2,655 | 675 | 2,815 | 961 | 3,930 | 8.2 |
| GST paid | 222 | 935 | 276 | 1,153 | 479 | 1,959 | – |
| Benefits | 672 | 2,833 | 739 | 3,082 | 902 | 3,687 | 5.4 |
| Business income | 405 | 1,708 | 411 | 1,713 | 606 | 2,477 | 7.7 |
| Interest/dividends | 101 | 424 | 132 | 550 | 130 | 531 | 4.6 |
| Interest paid | 222 | 934 | 302 | 1,262 | 384 | 1,571 | 10.9 |
| Net property income | 46 | 194 | 33 | 139 | 7 | 27 | -$167 |
| Net flow of funds | 2,615 | 11,024 | 2,882 | 12,022 | 4,304 | 17,596 | 9.8 |
| Rank | | 55 | | 52 | | 10 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 160 | 41 |
| Skills corrected factor (out of 1,000) | 152 | 41 |
| Industry corrected factor (out of 1,000) | 162 | 41 |
| Global knowledge factor (out of 1,000) | 135 | 42 |
| Resident skills matching | -33 | 58 |
| Resident industry matching | -256 | 47 |
| Catchment jobs/workers | 513 | 27 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 155 | 41 |
| Industry corrected factor (out of 1,000) | 160 | 43 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 161 | 41 |
| Industry corrected factor (out of 1,000) | 167 | 41 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 8,497 | 8,427 |
| 60 minutes, door to door | 18,394 | 19,048 |
| 100 minutes, door to door | 62,237 | 73,491 |
| *"Congestion exposure risk factor, rank"* | 85 | 27 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 25 | 49 |
| Highest performing LGA – Latrobe (C) | 39 | 200 |
| Lowest performing LGA –Bass Coast (S) | 16 | 331 |
| Distance to significant retail diversity (km) | 54.0 | 42 |
| Missing local retail types (out of 44) | 36 | 49 |
| Highest performing LGA –Latrobe (C) | 26 | 176 |
| Lowest performing LGA –South Gippsland (S) | 43 | 309 |
| Percentage of retail missing (%) | 57.7% | 46 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 930 | 20 |
| 2001 | 1,263 | 28 |
| 2003 | 583 | 32 |
| 2004 | 815 | 14 |

YourPlace
*The place to go for the performance of Australia's local economies*

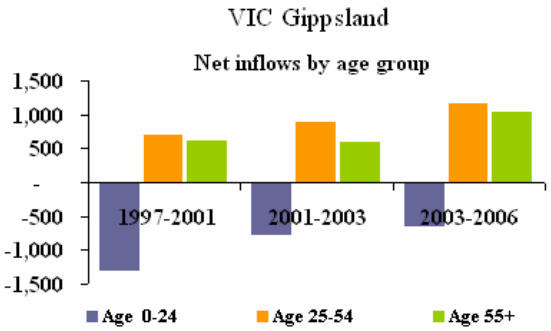
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 28.0 | 56.3% | 59.4% | 38 |
| High LGA – Unincorporated VIC | 100.0 | 182.9% | | |
| Low LGA – Bass Coast (S) | 10.0 | 49.5% | | |
| Infrastructure | 64.9 | 1.96 | 1.53 | 22 |
| High LGA – Bass Coast (S) | 95.9 | 11.11 | | |
| Low LGA – Unincorporated VIC | 3.8 | 0.00 | | |
| Household prosperity potential | 27.7 | 59% | 100% | 60 |
| High LGA – Wellington (S) | 70.0 | 143% | | |
| Low LGA – East Gippsland (S) | 4.6 | -6% | | |
| Global knowledge flows | 49.9 | 5.8% | 12.9% | 44 |
| High LGA – La Trobe (S) | 70.4 | 8.0% | | |
| Low LGA – Unincorporated VIC | 3.1 | 1.0% | | |
| Knowledge driven growth potential | 59.2 | 0.65 | 0.67 | 21 |
| High LGA – South Gippsland (S) | 92.7 | 1.00 | | |
| Low LGA – Unincorporated VIC | 3.0 | 0.16 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

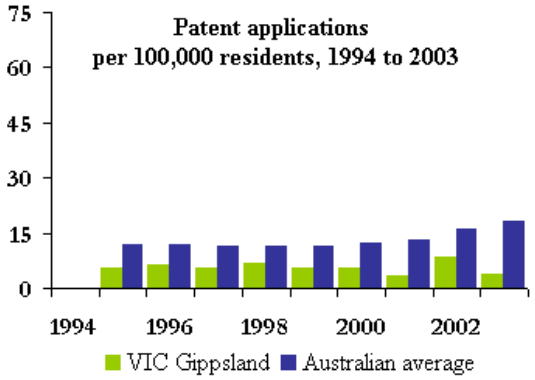
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.33 | 0.31 |
| 25 – 54 | 0.41 | 0.40 | 0.40 | 0.38 |
| 55+ | 0.23 | 0.26 | 0.28 | 0.30 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -1,286 | -750 | -628 |
| 25 – 54 | | 707 | 882 | 1,165 |
| 55+ | | 603 | 588 | 1,029 |
| Average age | 35.9 | 37.6 | 38.3 | 39.7 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.513%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 25.7 | 55 |
| 2001 | 25.6 | 52 |
| 2003 | 25.4 | 50 |
| 2004 | 20.7 | 23 |
| Income supported households (%) | 23.8 | 18 |

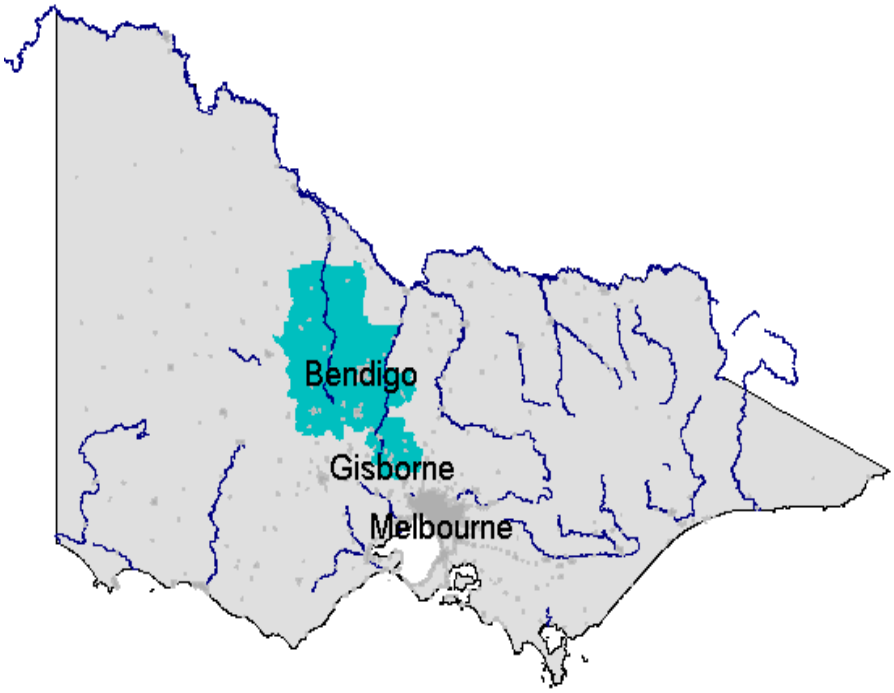



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 14.3 | 37 | 39.2 |
| Average p.a. per capita | 6.1 | 49 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.3 | 45 | 9.8 |
| Hi Tech p.a. per capita | 0.5 | 53 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.4 | 41 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 45 | 0.9 |
| Average per capita (1994-2000) | 5.5 | 45 | 9.6 |
| Average per capita (2001-2003) | 7.3 | 51 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.32 | 44 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Loddon




The Loddon region has much in common with the Central Highlands, but is centred on Bendigo. In Bendigo itself and in many other towns the region has a heritage of nineteenth century architecture. Its engineering industries were originally started to serve the mining industry, the railways and latterly defence; recent times have not been kind to them. However, the heritage buildings underpin tourism, and proximity to Melbourne keeps land values up for hobby farms. North of Bendigo the plains are devoted to mixed farming similar to that carried out in the Mallee-Wimmera.

**Major centres:**

Bendigo, Castlemaine

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 159,933 | | 166,954 | | 173,106 | | 1.2 |
| No. households | 60,251 | | 63,480 | | 68,233 | | 2.4 |
| Workforce | 74,778 | 46.7 | 73,155 | 43.8 | 86,347 | 49.9 | 5.7 |
| Employment | 65,306 | – | 63,503 | – | 77,988 | – | 7.1 |
| Unemployment | 9,471 | 12.7 | 9,653 | 13.2 | 8,359 | 9.7 | -4.7 |
| DEET U/E | 6,785 | 9.2 | 5,818 | 8.2 | 4,828 | 5.8 | -6.0 |
| Structural U/E, % population[1] | 11,514 | 12.2 | 12,574 | 13.0 | 12,578 | 11.9 | 0.0 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,687 | 10,349 | 2,037 | 12,201 | 2,981 | 17,223 | 10.7 |
| Taxes paid | 428 | 2,624 | 493 | 2,951 | 616 | 3,559 | 6.3 |
| GST paid | 143 | 876 | 196 | 1,177 | 337 | 1,945 | – |
| Benefits | 448 | 2,748 | 485 | 2,906 | 601 | 3,471 | 4.8 |
| Business income | 258 | 1,583 | 262 | 1,567 | 377 | 2,180 | 6.6 |
| Interest/dividends | 70 | 432 | 97 | 582 | 87 | 501 | 3.0 |
| Interest paid | 160 | 981 | 215 | 1,289 | 262 | 1,513 | 9.1 |
| Net property income | 37 | 225 | 24 | 144 | 12 | 70 | -$154 |
| Net flow of funds | 1,769 | 10,856 | 2,001 | 11,983 | 2,844 | 16,427 | 8.6 |
| Rank | | 57 | | 55 | | 17 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 227 | 31 |
| Skills corrected factor (out of 1,000) | 213 | 33 |
| Industry corrected factor (out of 1,000) | 237 | 30 |
| Global knowledge factor (out of 1,000) | 196 | 31 |
| Resident skills matching | 5 | 56 |
| Resident industry matching | 44 | 14 |
| Catchment jobs/workers | 490 | 41 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 211 | 32 |
| Industry corrected factor (out of 1,000) | 228 | 32 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 214 | 31 |
| Industry corrected factor (out of 1,000) | 230 | 30 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 16,442 | 17,541 |
| 60 minutes, door to door | 29,458 | 31,998 |
| 100 minutes, door to door | 160,050 | 141,831 |
| *"Congestion exposure risk factor, rank"* | 11 | 44 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 62 | 31 |
| Highest performing LGA – Greater Bendigo (C) | 93 | 138 |
| Lowest performing LGA –Central Goldfields (S) | 17 | 323 |
| Distance to significant retail diversity (km) | 32.1 | 31 |
| Missing local retail types (out of 44) | 31 | 36 |
| Highest performing LGA –Greater Bendigo (C) | 25 | 163 |
| Lowest performing LGA –Central Goldfields (S) | 44 | 317 |
| Percentage of retail missing (%) | 41.3% | 34 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 525 | 52 |
| 2001 | 957 | 49 |
| 2003 | 349 | 53 |
| 2004 | 446 | 52 |

YourPlace
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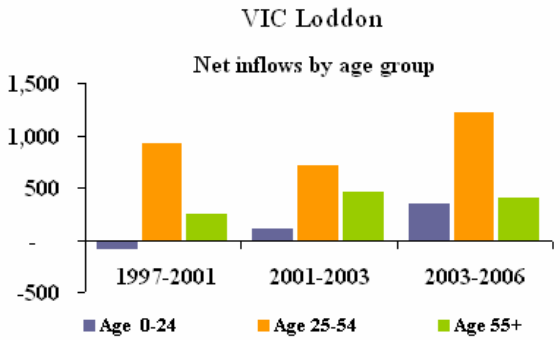
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 26.5 | 56.5% | 59.4% | 50 |
| High LGA – Loddon (S) | 61.9 | 66.9% | | |
| Low LGA – Central Goldfields (S) | 10.1 | 49.6% | | |
| Infrastructure | 52.3 | 0.60 | 1.53 | 33 |
| High LGA – Loddon (S) | 72.2 | 0.97 | | |
| Low LGA – Mount Alexander (S) | 27.7 | 0.30 | | |
| Household prosperity potential | 22.9 | 54% | 100% | 57 |
| High LGA – Loddon (S) | 75.5 | 155% | | |
| Low LGA – Central Goldfields (S) | 9.3 | 21% | | |
| Global knowledge flows | 59.3 | 6.9% | 12.9% | 38 |
| High LGA – Greater Bendigo (C) | 71.4 | 8.2% | | |
| Low LGA – Loddon (S) | 11.1 | 2.2% | | |
| Knowledge driven growth potential | 43.4 | 0.53 | 0.67 | 33 |
| High LGA – Loddon (S) | 97.3 | 1.19 | | |
| Low LGA – Central Goldfields (S) | 11.0 | 0.31 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

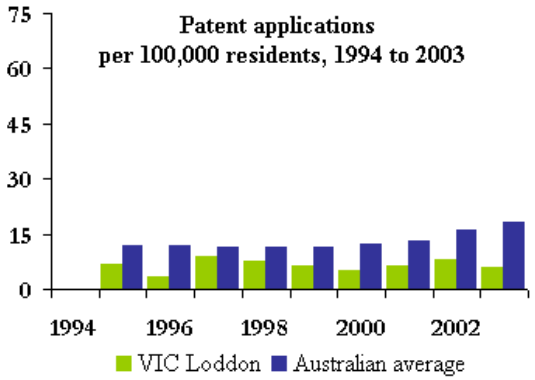
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.35 | 0.33 | 0.32 |
| 25 – 54 | 0.41 | 0.41 | 0.41 | 0.39 |
| 55+ | 0.22 | 0.24 | 0.26 | 0.29 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -70 | 105 | 345 |
| 25 – 54 | | 926 | 716 | 1,222 |
| 55+ | | 248 | 458 | 406 |
| Average age | 35.8 | 36.9 | 37.9 | 39.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.357%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 25.3 | 53 |
| 2001 | 24.2 | 49 |
| 2003 | 21.3 | 32 |
| 2004 | 20.9 | 25 |
| Income supported households (%) | 23.9 | 17 |

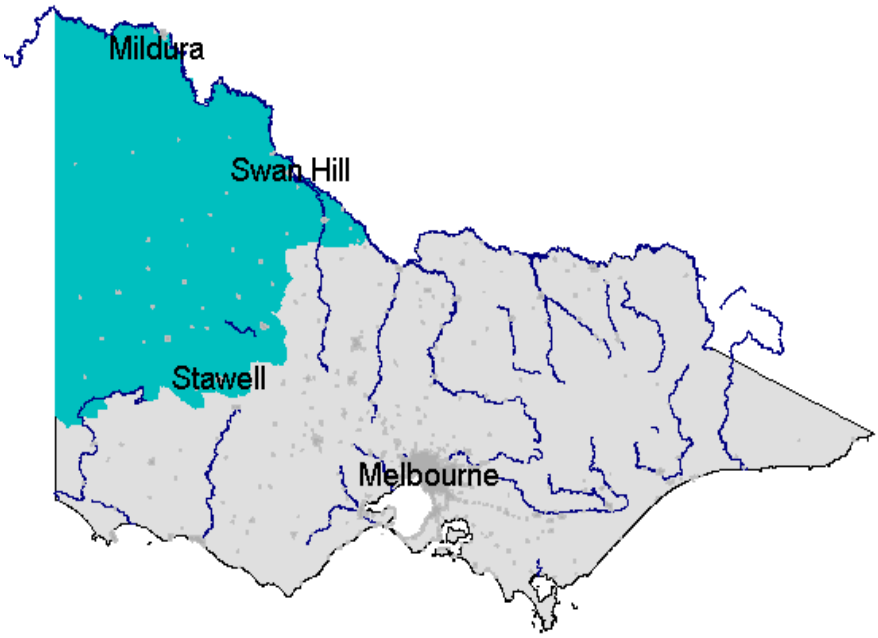



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 11.2 | 41 | 39.2 |
| Average p.a. per capita | 7.1 | 39 | 13.7 |
| Hi Tech p.a. (1994-2003) | 2.0 | 38 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 32 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.9 | 32 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 21 | 0.9 |
| Average per capita (1994-2000) | 6.3 | 38 | 9.6 |
| Average per capita (2001-2003) | 8.9 | 39 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.41 | 36 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Mallee-Wimmera




The Mallee-Wimmera comprises the plains north of the Grampians and the Dundas hills. The region is classic wheat/sheep country. Rainfall diminishes northward, as does the reliability of the harvest. The region includes several dry-country national parks. The region's rain-fed agriculture, originally concentrating on wheat, has diversified considerably. Intensive viticulture is practised in several irrigation areas which pump water from the Murray. Horsham is the chief town in the Wimmera, and Swan Hill and Mildura serve irrigation areas along the Murray, including adjacent parts of NSW.

**Major centres:**

Mildura, Swan Hill, Horsham

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 139,486 | | 141,781 | | 142,226 | | 0.1 |
| No. households | 53,264 | | 55,357 | | 58,113 | | 1.6 |
| Workforce | 69,862 | 50.0 | 73,915 | 52.1 | 74,114 | 52.1 | 0.1 |
| Employment | 62,786 | – | 66,910 | – | 67,373 | – | 0.2 |
| Unemployment | 7,076 | 10.1 | 7,006 | 9.5 | 6,741 | 9.1 | -1.3 |
| DEET U/E | 4,996 | 7.3 | 3,969 | 5.5 | 3,966 | 5.5 | 0.0 |
| Structural U/E, % population[1] | 9,364 | 11.8 | 9,688 | 12.2 | 10,050 | 12.1 | 1.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,306 | 9,276 | 1,597 | 11,263 | 2,020 | 14,202 | 8.9 |
| Taxes paid | 309 | 2,196 | 369 | 2,599 | 489 | 3,439 | 9.4 |
| GST paid | 108 | 767 | 157 | 1,110 | 260 | 1,829 | – |
| Benefits | 376 | 2,674 | 404 | 2,847 | 500 | 3,518 | 5.6 |
| Business income | 294 | 2,085 | 295 | 2,078 | 438 | 3,080 | 8.1 |
| Interest/dividends | 65 | 463 | 89 | 629 | 84 | 590 | 4.9 |
| Interest paid | 140 | 991 | 194 | 1,370 | 252 | 1,769 | 12.3 |
| Net property income | 32 | 226 | 22 | 156 | 9 | 64 | -$162 |
| Net flow of funds | 1,516 | 10,770 | 1,686 | 11,894 | 2,050 | 14,416 | 6.0 |
| Rank | | 60 | | 56 | | 34 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 87 | 55 |
| Skills corrected factor (out of 1,000) | 89 | 55 |
| Industry corrected factor (out of 1,000) | 101 | 55 |
| Global knowledge factor (out of 1,000) | 70 | 55 |
| Resident skills matching | 85 | 46 |
| Resident industry matching | 158 | 10 |
| Catchment jobs/workers | 503 | 35 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 89 | 55 |
| Industry corrected factor (out of 1,000) | 106 | 55 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 94 | 55 |
| Industry corrected factor (out of 1,000) | 108 | 55 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 8,050 | 7,581 |
| 60 minutes, door to door | 9,236 | 8,819 |
| 100 minutes, door to door | 18,108 | 17,225 |
| *"Congestion exposure risk factor, rank"* | 5 | 53 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 16 | 56 |
| Highest performing LGA – Mildura (RC) | 26 | 250 |
| Lowest performing LGA –West Wimmera (S) | 8 | 459 |
| Distance to significant retail diversity (km) | 89.8 | 54 |
| Missing local retail types (out of 44) | 38 | 54 |
| Highest performing LGA –Mildura (RC) | 29 | 197 |
| Lowest performing LGA –Buloke (S) | 44 | 317 |
| Percentage of retail missing (%) | 67.5% | 52 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 385 | 60 |
| 2001 | 638 | 60 |
| 2003 | 315 | 56 |
| 2004 | 318 | 61 |

YourPlace
*The place to go for the performance of Australia's local economies*

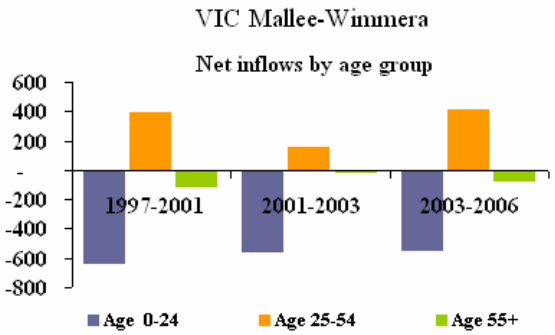
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 56.4 | 65.9% | 59.4% | 8 |
| High LGA – West Wimmera (S) | 87.8 | 79.9% | | |
| Low LGA – Northern Grampians (S) | 45.4 | 62.5% | | |
| Infrastructure | 71.3 | 1.03 | 1.53 | 10 |
| High LGA – Gannawarra (S) | 82.1 | 1.39 | | |
| Low LGA – West Wimmera (S) | 35.7 | 0.38 | | |
| Household prosperity potential | 73.3 | 153% | 100% | 10 |
| High LGA – Horsham (RC) | 87.8 | 191% | | |
| Low LGA – Northern Grampians (S) | 32.0 | 74% | | |
| Global knowledge flows | 45.2 | 5.4% | 12.9% | 55 |
| High LGA – Horsham (RC) | 68.2 | 7.7% | | |
| Low LGA – West Wimmera (S) | 9.8 | 2.1% | | |
| Knowledge driven growth potential | 76.3 | 0.81 | 0.67 | 5 |
| High LGA – West Wimmera (S) | 98.7 | 1.36 | | |
| Low LGA – Northern Grampians (S) | 51.9 | 0.57 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

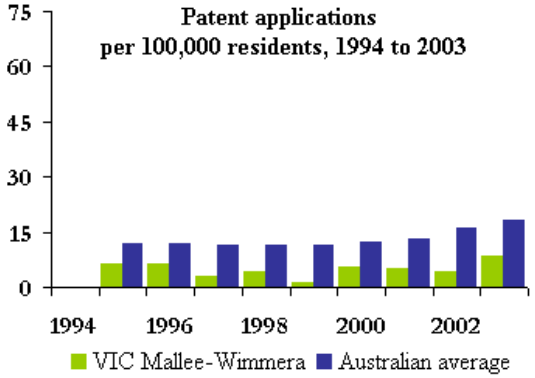
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.35 | 0.34 | 0.33 | 0.32 |
| 25 – 54 | 0.40 | 0.40 | 0.40 | 0.39 |
| 55+ | 0.25 | 0.26 | 0.27 | 0.29 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -632 | -557 | -546 |
| 25 – 54 | | 391 | 160 | 408 |
| 55+ | | -110 | -7 | -70 |
| Average age | 36.9 | 37.5 | 38.0 | 38.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.428%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 24.8 | 50 |
| 2001 | 23.9 | 46 |
| 2003 | 23.5 | 42 |
| 2004 | 24.1 | 40 |
| Income supported households (%) | 23.7 | 19 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 7.4 | 53 | 39.2 |
| Average p.a. per capita | 5.3 | 54 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.0 | 50 | 9.8 |
| Hi Tech p.a. per capita | 0.7 | 47 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 57 | 0.9 |
| Average per capita (1994-2000) | 4.5 | 54 | 9.6 |
| Average per capita (2001-2003) | 7.0 | 52 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.56 | 21 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC Ovens-Hume


The Ovens-Hume region lies on the other side of the ranges from Gippsland, and includes high country with winter snowfields, hills with plantation forestry, intensively-cultivated valleys and Victoria's share of the upper part of the Murray River plains. The major towns, Wangaratta and Wodonga (Victoria's counterpart to Albury) have resource-processing manufacturing. Though the region is beyond commuting range from Melbourne, its natural attractions, in addition to old towns like Beechworth, form the basis of a growing tourist industry.

**Major centres:**

Wodonga, Wangaratta

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 89,993 | | 93,214 | | 95,633 | | 0.9 |
| No. households | 34,031 | | 35,778 | | 38,147 | | 2.2 |
| Workforce | 50,816 | 56.4 | 53,392 | 57.3 | 49,541 | 51.8 | -2.5 |
| Employment | 46,759 | – | 48,569 | – | 45,233 | – | -2.3 |
| Unemployment | 4,058 | 8.0 | 4,823 | 9.0 | 4,308 | 8.7 | -3.7 |
| DEET U/E | 3,241 | 6.4 | 3,080 | 5.9 | 1,738 | 3.6 | -17.4 |
| Structural U/E, % population[1] | 5,381 | 10.1 | 5,885 | 10.8 | 5,869 | 10.1 | -0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,039 | 11,370 | 1,225 | 13,139 | 1,387 | 14,504 | 5.0 |
| Taxes paid | 258 | 2,819 | 287 | 3,075 | 362 | 3,782 | 6.1 |
| GST paid | 75 | 816 | 109 | 1,173 | 153 | 1,600 | – |
| Benefits | 233 | 2,547 | 256 | 2,742 | 313 | 3,273 | 5.1 |
| Business income | 160 | 1,747 | 161 | 1,732 | 198 | 2,065 | 3.4 |
| Interest/dividends | 40 | 433 | 50 | 533 | 47 | 486 | 2.4 |
| Interest paid | 90 | 984 | 125 | 1,337 | 152 | 1,589 | 10.1 |
| Net property income | 20 | 219 | 13 | 136 | 3 | 35 | -$184 |
| Net flow of funds | 1,069 | 11,696 | 1,184 | 12,697 | 1,281 | 13,393 | 2.7 |
| Rank | | 38 | | 38 | | 48 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 164 | 40 |
| Skills corrected factor (out of 1,000) | 172 | 40 |
| Industry corrected factor (out of 1,000) | 178 | 40 |
| Global knowledge factor (out of 1,000) | 146 | 40 |
| Resident skills matching | 6 | 55 |
| Resident industry matching | 144 | 11 |
| Catchment jobs/workers | 504 | 34 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 177 | 39 |
| Industry corrected factor (out of 1,000) | 192 | 38 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 177 | 37 |
| Industry corrected factor (out of 1,000) | 192 | 37 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 14,813 | 12,721 |
| 60 minutes, door to door | 30,199 | 26,477 |
| 100 minutes, door to door | 66,698 | 63,068 |
| 63,068 | 9 | 47 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 42 | 41 |
| Highest performing LGA – Wodonga (RC) | 69 | 157 |
| Lowest performing LGA –Alpine (S) | 21 | 277 |
| Distance to significant retail diversity (km) | 40.1 | 34 |
| Missing local retail types (out of 44) | 33 | 41 |
| Highest performing LGA –Wodonga (RC) | 21 | 155 |
| Lowest performing LGA –Indigo (S) | 43 | 307 |
| Percentage of retail missing (%) | 51.7% | 43 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 840 | 25 |
| 2001 | 1,411 | 14 |
| 2003 | 451 | 43 |
| 2004 | 750 | 18 |

YourPlace
*The place to go for the performance of Australia's local economies*

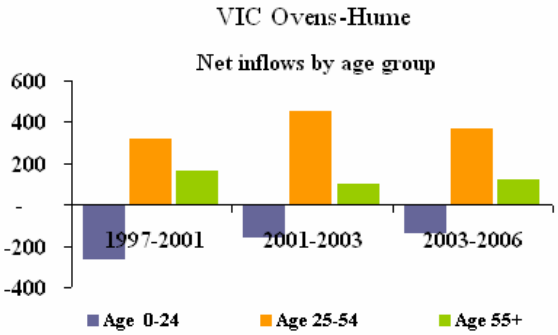
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 46.2 | 62.6% | 59.4% | 20 |
| High LGA – Towong (S) | 74.8 | 72.0% | | |
| Low LGA – Wodonga (RC) | 32.7 | 59.0% | | |
| Infrastructure | 53.1 | 0.61 | 1.53 | 40 |
| High LGA – Wodonga (RC) | 64.8 | 0.79 | | |
| Low LGA – Towong (S) | 24.6 | 0.25 | | |
| Household prosperity potential | 72.8 | 152% | 100% | 11 |
| High LGA – Wodonga (RC) | 82.8 | 173% | | |
| Low LGA – Indigo (S) | 35.7 | 81% | | |
| Global knowledge flows | 55.7 | 6.5% | 12.9% | 34 |
| High LGA – Wodonga (RC) | 75.7 | 8.9% | | |
| Low LGA – Towong (S) | 7.7 | 1.8% | | |
| Knowledge driven growth potential | 44.6 | 0.53 | 0.67 | 24 |
| High LGA – Towong (S) | 88.5 | 0.90 | | |
| Low LGA – Wodonga (RC) | 31.9 | 0.46 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

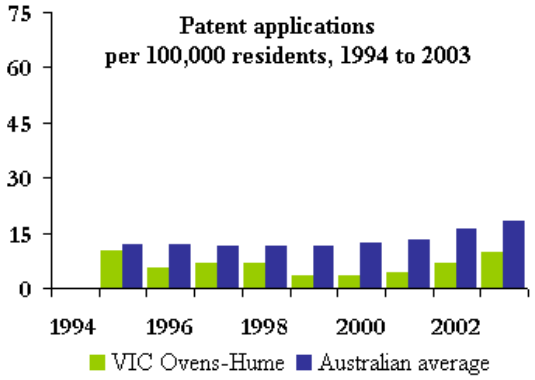
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.35 | 0.34 | 0.33 |
| 25 – 54 | 0.43 | 0.42 | 0.41 | 0.40 |
| 55+ | 0.21 | 0.24 | 0.25 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -260 | -156 | -132 |
| 25 – 54 | | 318 | 452 | 369 |
| 55+ | | 161 | 103 | 120 |
| Average age | 35.1 | 36.5 | 37.1 | 38.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.309%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 21.8 | 36 |
| 2001 | 21.6 | 37 |
| 2003 | 24.5 | 46 |
| 2004 | 24.1 | 41 |
| Income supported households (%) | 20.8 | 34 |

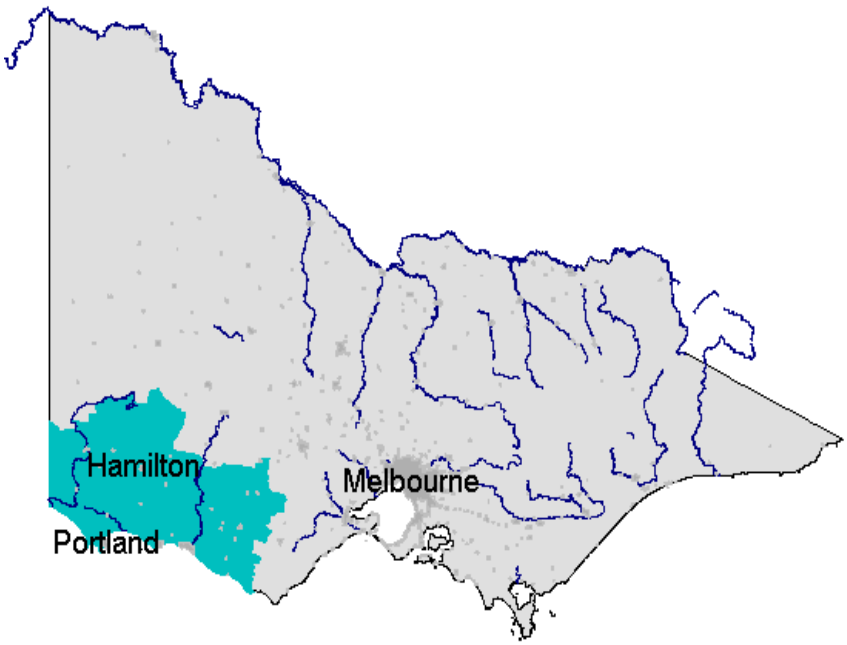



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 5.9 | 56 | 39.2 |
| Average p.a. per capita | 6.6 | 41 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.4 | 57 | 9.8 |
| Hi Tech p.a. per capita | 0.4 | 58 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 54 | 0.9 |
| Average per capita (1994-2000) | 5.8 | 42 | 9.6 |
| Average per capita (2001-2003) | 8.4 | 43 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.44 | 33 | 1.48 |

*Note:* Per capita = 100,000 people.

# VIC West




The Western District in Victoria is beyond commuter range from Melbourne, and is hence primarily an agricultural region. The plains were renowned as fine wool country, but with falling wool prices there has been pressure to diversify. The southern part of the region, in Colac, Corangamite and Moyne Shires, has long engaged in more intensive agriculture, including dairying. The region has three main centres, Warrnambool, which following the decline of the textile and clothing industry is mainly a commercial centre, Portland, which combines a bulk port, heavy industry and tourism, and Hamilton, a gracious town founded on old wealth.

**Major centres:**

Warrnambool, Hamilton, Portland

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 99,246 | | 100,474 | | 100,835 | | 0.1 |
| No. households | 37,593 | | 38,728 | | 40,411 | | 1.4 |
| Workforce | 50,489 | 50.8 | 51,474 | 51.2 | 50,790 | 50.4 | -0.4 |
| Employment | 45,915 | – | 46,368 | – | 46,360 | – | 0.0 |
| Unemployment | 4,574 | 9.1 | 5,106 | 9.9 | 4,430 | 8.7 | -4.6 |
| DEET U/E | 3,832 | 7.7 | 3,127 | 6.2 | 2,574 | 5.2 | -6.3 |
| Structural U/E, % population[1] | 6,136 | 10.7 | 6,549 | 11.6 | 6,220 | 10.5 | -1.7 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,045 | 10,417 | 1,277 | 12,705 | 1,572 | 15,594 | 8.4 |
| Taxes paid | 259 | 2,578 | 306 | 3,048 | 389 | 3,858 | 8.4 |
| GST paid | 82 | 815 | 116 | 1,154 | 181 | 1,793 | – |
| Benefits | 256 | 2,550 | 279 | 2,772 | 334 | 3,312 | 5.4 |
| Business income | 214 | 2,133 | 216 | 2,149 | 322 | 3,189 | 8.4 |
| Interest/dividends | 55 | 550 | 75 | 746 | 75 | 747 | 6.3 |
| Interest paid | 102 | 1,019 | 140 | 1,392 | 177 | 1,753 | 11.5 |
| Net property income | 25 | 249 | 21 | 207 | 8 | 75 | -$175 |
| Net flow of funds | 1,152 | 11,487 | 1,305 | 12,984 | 1,564 | 15,512 | 6.2 |
| Rank | | 44 | | 28 | | 22 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 109 | 51 |
| Skills corrected factor (out of 1,000) | 109 | 51 |
| Industry corrected factor (out of 1,000) | 127 | 50 |
| Global knowledge factor (out of 1,000) | 83 | 53 |
| Resident skills matching | 86 | 45 |
| Resident industry matching | 282 | 5 |
| Catchment jobs/workers | 466 | 47 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 110 | 52 |
| Industry corrected factor (out of 1,000) | 133 | 51 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 116 | 51 |
| Industry corrected factor (out of 1,000) | 138 | 47 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 5,214 | 4,864 |
| 60 minutes, door to door | 10,021 | 9,725 |
| 100 minutes, door to door | 28,759 | 28,623 |
| *"Congestion exposure risk factor, rank"* | 51 | 35 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 25 | 51 |
| Highest performing LGA – Warrnambool (C) | 43 | 191 |
| Lowest performing LGA –Glenelg (S) | 12 | 379 |
| Distance to significant retail diversity (km) | 65.5 | 48 |
| Missing local retail types (out of 44) | 38 | 52 |
| Highest performing LGA –Warrnambool (C) | 28 | 185 |
| Lowest performing LGA –Corangamite (S) | 44 | 317 |
| Percentage of retail missing (%) | 68.3% | 54 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 839 | 26 |
| 2001 | 1,087 | 40 |
| 2003 | 653 | 26 |
| 2004 | 753 | 16 |

YourPlace
*The place to go for the performance of Australia's local economies*

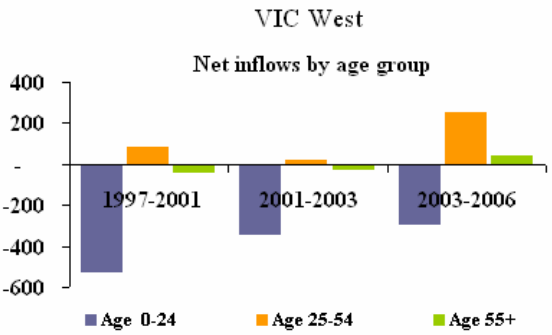
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 54.7 | 66.2% | 59.4% | 11 |
| High LGA – Corangamite (S) | 82.0 | 76.2% | | |
| Low LGA – Warrnambool (C) | 31.7 | 58.6% | | |
| Infrastructure | 52.7 | 0.67 | 1.53 | 37 |
| High LGA – Warrnambool (C) | 79.2 | 1.19 | | |
| Low LGA – Southern Grampians (S) | 32.2 | 0.36 | | |
| Household prosperity potential | 55.5 | 119% | 100% | 22 |
| High LGA – Warrnambool (C) | 84.7 | 179% | | |
| Low LGA – Glenelg (S) | 15.8 | 42% | | |
| Global knowledge flows | 39.5 | 4.9% | 12.9% | 52 |
| High LGA – Warrnambool (C) | 64.4 | 7.2% | | |
| Low LGA – Moyne (S) | 15.5 | 2.7% | | |
| Knowledge driven growth potential | 64.9 | 0.80 | 0.67 | 10 |
| High LGA – Moyne (S) | 98.7 | 1.37 | | |
| Low LGA – Warrnambool (C) | 30.4 | 0.45 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

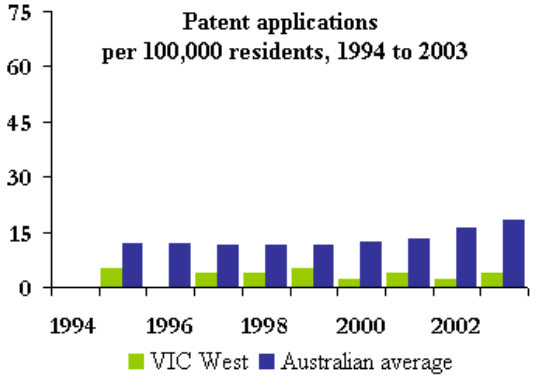
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.41 | 0.40 | 0.40 | 0.39 |
| 55+ | 0.24 | 0.25 | 0.26 | 0.28 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -524 | -341 | -288 |
| 25 – 54 | | 84 | 18 | 253 |
| 55+ | | -35 | -23 | 40 |
| Average age | 36.2 | 37.2 | 37.7 | 38.6 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.400%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 22.2 | 38 |
| 2001 | 21.4 | 33 |
| 2003 | 19.7 | 23 |
| 2004 | 21.1 | 26 |
| Income supported households (%) | 21.9 | 27 |

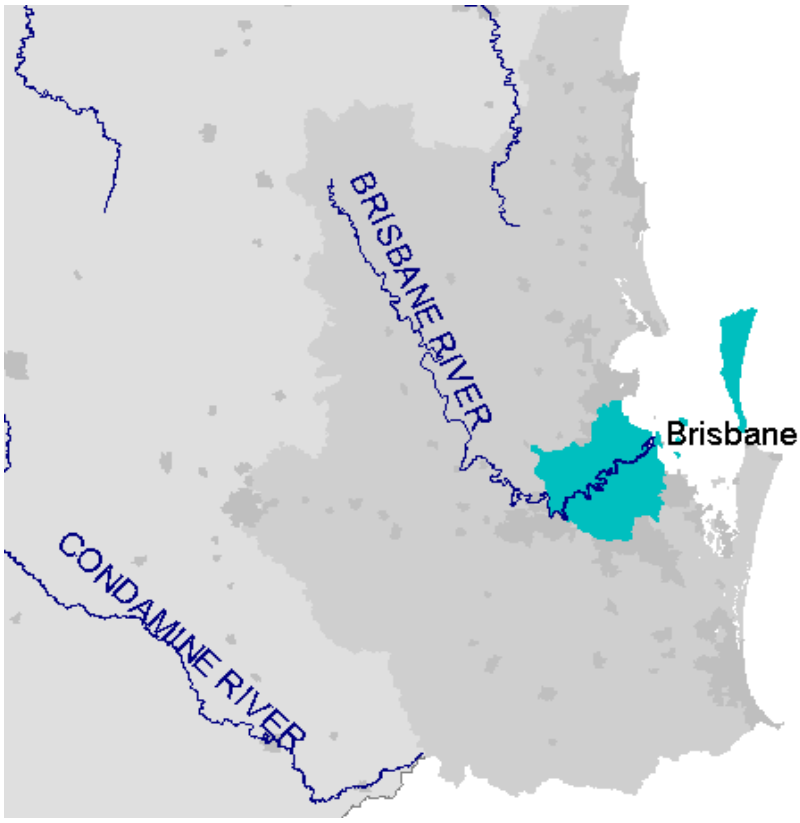



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 3.8 | 58 | 39.2 |
| Average p.a. per capita | 3.4 | 62 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.4 | 56 | 9.8 |
| Hi Tech p.a. per capita | 0.4 | 59 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.0 | 60 | 3.5 |
| Info. Tech p.a. per capita | 0.0 | 60 | 0.9 |
| Average per capita (1994-2000) | 3.4 | 60 | 9.6 |
| Average per capita (2001-2003) | 3.3 | 62 | 14.3 |
| 2001-03 avg./1994-00 avg. | 0.97 | 61 | 1.48 |

*Note:* Per capita = 100,000 people.

# Brisbane City




Given the choice not to split LGAs in defining regions, it is inevitable that Brisbane will form a region of its own. Had Brisbane been divided among LGAs in the same way as the other state capitals, it is inevitable that it would have yielded different regions, with a smaller CBD region. Even so, the geography of Brisbane, with its alternation of hills and marshy flats, would have created different patterns of development from all other Australian capitals: Brisbane is unique, even without its metropolitan local government. In comparing the City of Brisbane with other central city regions, it should be remembered that the region is more diverse than most, with rather more manufacturing activity and low-status suburbs than the others. Even so, central city functions are an important part of its economic base.

**Major centres:**

Brisbane

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 852,967 | | 896,649 | | 960,059 | | 2.3 |
| No. households | 329,094 | | 353,630 | | 376,513 | | 2.1 |
| Workforce | 463,017 | 54.6 | 482,935 | 53.9 | 541,153 | 56.4 | 3.9 |
| Employment | 424,465 | – | 442,329 | – | 511,767 | – | 5.0 |
| Unemployment | 38,552 | 8.3 | 40,606 | 8.4 | 29,386 | 5.4 | -10.2 |
| DEET U/E | 31,138 | 6.8 | 31,556 | 6.6 | 29,987 | 5.6 | -1.7 |
| Structural U/E, % population[1] | 45,133 | 8.2 | 49,266 | 8.5 | 47,209 | 7.3 | -1.4 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 12,832 | 14,516 | 15,516 | 17,305 | 18,895 | 19,682 | 6.3 |
| Taxes paid | 3,691 | 4,176 | 4,268 | 4,760 | 5,386 | 5,610 | 6.1 |
| GST paid | 809 | 916 | 1,226 | 1,367 | 1,597 | 1,664 | – |
| Benefits | 1,814 | 2,052 | 1,952 | 2,177 | 2,311 | 2,407 | 3.2 |
| Business income | 2,020 | 2,285 | 2,094 | 2,335 | 2,438 | 2,540 | 2.1 |
| Interest/dividends | 689 | 779 | 873 | 974 | 771 | 803 | 0.6 |
| Interest paid | 743 | 841 | 995 | 1,110 | 1,313 | 1,368 | 10.2 |
| Net property income | 252 | 285 | 177 | 197 | 143 | 149 | -$136 |
| Net flow of funds | 12,363 | 13,985 | 14,123 | 15,751 | 16,262 | 16,939 | 3.9 |
| Rank | | 14 | | 13 | | 14 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 628 | 10 |
| Skills corrected factor (out of 1,000) | 721 | 8 |
| Industry corrected factor (out of 1,000) | 618 | 10 |
| Global knowledge factor (out of 1,000) | 591 | 11 |
| Resident skills matching | 892 | 4 |
| Resident industry matching | -629 | 57 |
| Catchment jobs/workers | 550 | 17 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 633 | 10 |
| Industry corrected factor (out of 1,000) | 631 | 9 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 622 | 9 |
| Industry corrected factor (out of 1,000) | 625 | 9 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 95,092 | 83,083 |
| 60 minutes, door to door | 503,944 | 453,929 |
| 100 minutes, door to door | 790,074 | 805,041 |
| *"Congestion exposure risk factor, rank"* | 101 | 24 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 221 | 16 |
| Highest performing LGA – Brisbane (C) | 221 | 78 |
| Lowest performing LGA –Brisbane (C) | 221 | 78 |
| Distance to significant retail diversity (km) | 6.1 | 7 |
| Missing local retail types (out of 44) | 0 | 3 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.0% | 4 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 686 | 43 |
| 2001 | 1,066 | 43 |
| 2003 | 798 | 16 |
| 2004 | 833 | 11 |

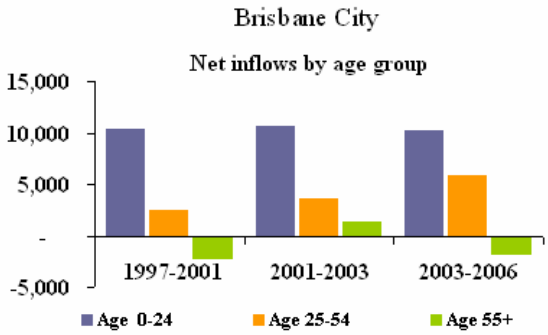
YourPlace
*The place to go for the performance of Australia's local economies*

| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 48.4 | 63.0% | 59.4% | 28 |
| High LGA – Brisbane (C) | 48.4 | 63.0% | | |
| Low LGA – Brisbane (C) | 48.4 | 63.0% | | |
| Infrastructure | 86.8 | 1.69 | 1.53 | 2 |
| High LGA – Brisbane (C) | 86.8 | 1.69 | | |
| Low LGA – Brisbane (C) | 86.8 | 1.69 | | |
| Household prosperity potential | 68.2 | 139% | 100% | 13 |
| High LGA – Brisbane (C) | 68.2 | 139% | | |
| Low LGA – Brisbane (C) | 68.2 | 139% | | |
| Global knowledge flows | 96.9 | 17.5% | 12.9% | 3 |
| High LGA – Brisbane (C) | 96.9 | 17.5% | | |
| Low LGA – Brisbane (C) | 96.9 | 17.5% | | |
| Knowledge driven growth potential | 81.5 | 0.80 | 0.67 | 6 |
| High LGA – Brisbane (C) | 81.5 | 0.80 | | |
| Low LGA – Brisbane (C) | 81.5 | 0.80 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

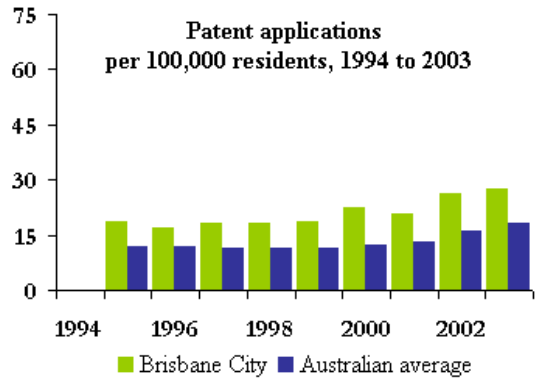
## POPULATION AND MIGRATION

| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.35 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.44 | 0.45 | 0.45 | 0.45 |
| 55+ | 0.21 | 0.21 | 0.22 | 0.22 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 10,334 | 10,653 | 10,222 |
| 25 – 54 | | 2,439 | 3,533 | 5,819 |
| 55+ | | -2,244 | 1,361 | -1,813 |
| Average age | 35.8 | 36.5 | 36.8 | 36.9 |
| Average pop. growth change 1998-2004 versus 1991-1998 (%) | | | | 0.591% |




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 14.7 | 13 |
| 2001 | 13.8 | 10 |
| 2003 | 14.3 | 9 |
| 2004 | 14.1 | 9 |
| Income supported households (%) | 16.2 | 53 |

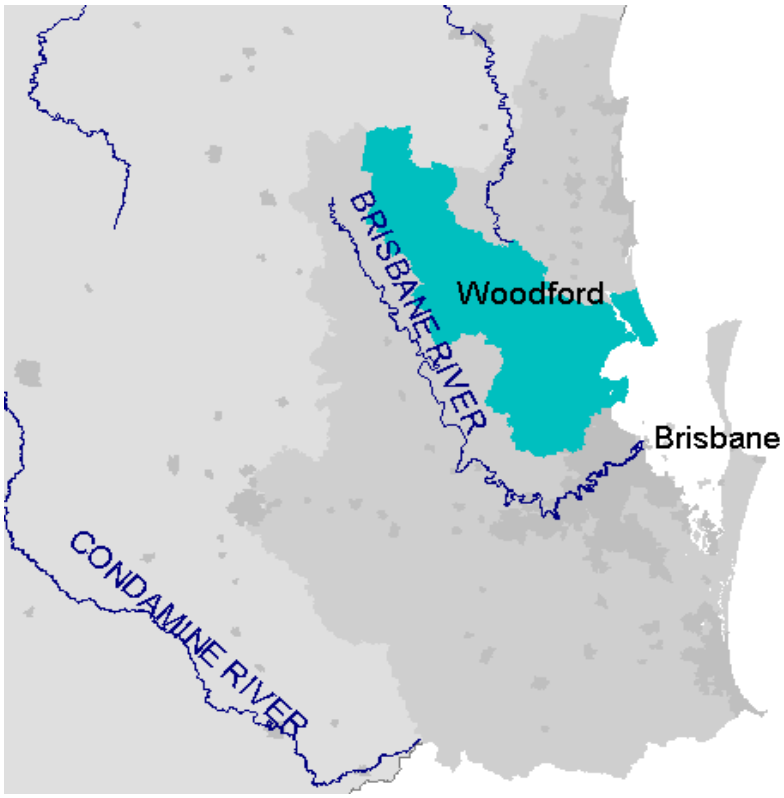



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 178.4 | 2 | 39.2 |
| Average p.a. per capita | 21.6 | 6 | 13.7 |
| Hi Tech p.a. (1994-2003) | 42.2 | 4 | 9.8 |
| Hi Tech p.a. per capita | 4.8 | 7 | 2.5 |
| Info. Tech p.a. (1994-2003) | 13.4 | 5 | 3.5 |
| Info. Tech p.a. per capita | 1.5 | 10 | 0.9 |
| Average per capita (1994-2000) | 19.1 | 6 | 9.6 |
| Average per capita (2001-2003) | 27.5 | 6 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.44 | 32 | 1.48 |

*Note:* Per capita = 100,000 people.

# Brisbane North




Over the past few decades the population of Brisbane has spilled beyond the City boundaries. The spill to the north is now large enough to generate two regions: North Brisbane proper, and the Sunshine Coast. North Brisbane is largely a commuter area, with a few surviving rural industries and some manufacturing. Redcliffe, on the coast, was originally a seaside retirement area somewhat like the Central Coast in NSW, but has become incorporated into suburban Brisbane.

**Major centres:**

Caboolture, Redcliffe

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 271,372 | | 289,844 | | 319,651 | | 3.3 |
| No. households | 99,561 | | 105,674 | | 113,166 | | 2.3 |
| Workforce | 132,706 | 48.7 | 141,280 | 48.7 | 154,450 | 48.3 | 3.0 |
| Employment | 118,523 | – | 124,457 | – | 140,496 | – | 4.1 |
| Unemployment | 14,184 | 10.7 | 16,823 | 11.9 | 13,954 | 9.0 | -6.0 |
| DEET U/E | 7,180 | 6.9 | 10,795 | 7.9 | 8,646 | 5.8 | -7.1 |
| Structural U/E, % population[1] | 17,286 | 10.6 | 20,675 | 12.0 | 20,671 | 10.4 | 0.0 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 3,295 | 11,838 | 3,911 | 13,492 | 4,813 | 15,058 | 4.9 |
| Taxes paid | 853 | 3,063 | 943 | 3,253 | 1,128 | 3,530 | 2.9 |
| GST paid | 227 | 817 | 336 | 1,158 | 499 | 1,561 | – |
| Benefits | 700 | 2,515 | 785 | 2,708 | 1,009 | 3,156 | 4.7 |
| Business income | 486 | 1,747 | 496 | 1,712 | 589 | 1,841 | 1.1 |
| Interest/dividends | 101 | 364 | 149 | 512 | 127 | 397 | 1.8 |
| Interest paid | 286 | 1,029 | 382 | 1,320 | 497 | 1,556 | 8.6 |
| Net property income | 26 | 94 | 5 | 17 | -11 | -34 | -$129 |
| Net flow of funds | 3,242 | 11,648 | 3,684 | 12,711 | 4,402 | 13,772 | 3.4 |
| Rank | | 39 | | 37 | | 38 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 399 | 19 |
| Skills corrected factor (out of 1,000) | 436 | 19 |
| Industry corrected factor (out of 1,000) | 391 | 20 |
| Global knowledge factor (out of 1,000) | 330 | 20 |
| Resident skills matching | 821 | 6 |
| Resident industry matching | -622 | 56 |
| Catchment jobs/workers | 389 | 58 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 397 | 19 |
| Industry corrected factor (out of 1,000) | 384 | 21 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 385 | 20 |
| Industry corrected factor (out of 1,000) | 382 | 21 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 18,234 | 31,041 |
| 60 minutes, door to door | 175,804 | 205,499 |
| 100 minutes, door to door | 619,217 | 606,356 |
| *"Congestion exposure risk factor, rank"* | 206 | 14 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 105 | 28 |
| Highest performing LGA – Redcliffe (C) | 149 | 109 |
| Lowest performing LGA –Kilcoy (S) | 12 | 379 |
| Distance to significant retail diversity (km) | 13.9 | 22 |
| Missing local retail types (out of 44) | 7 | 20 |
| Highest performing LGA –Pine Rivers (S) | 1 | 61 |
| Lowest performing LGA –Kilcoy (S) | 44 | 317 |
| Percentage of retail missing (%) | 4.2% | 19 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 713 | 39 |
| 2001 | 1,282 | 25 |
| 2003 | 891 | 13 |
| 2004 | 913 | 8 |

YourPlace
*The place to go for the performance of Australia's local economies*

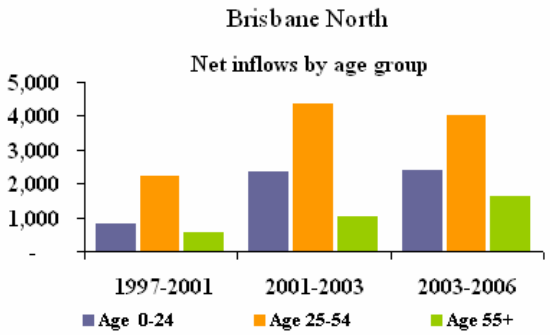
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 34.6 | 58.5% | 59.4% | 49 |
| High LGA – Pine Rivers (S) | 57.8 | 65.5% | | |
| Low LGA – Caboolture (S) | 17.4 | 53.2% | | |
| Infrastructure | 34.5 | 0.38 | 1.53 | 62 |
| High LGA – Redcliffe (C) | 52.6 | 0.56 | | |
| Low LGA – Kilcoy (S) | 4.4 | 0.01 | | |
| Household prosperity potential | 21.9 | 51% | 100% | 62 |
| High LGA – Redcliffe (C) | 37.9 | 85% | | |
| Low LGA – Caboolture (S) | 10.3 | 25% | | |
| Global knowledge flows | 49.9 | 5.7% | 12.9% | 33 |
| High LGA – Pine Rivers (S) | 60.3 | 6.7% | | |
| Low LGA – Kilcoy (S) | 28.1 | 3.8% | | |
| Knowledge driven growth potential | 24.0 | 0.41 | 0.67 | 62 |
| High LGA – Redcliffe (C) | 26.6 | 0.42 | | |
| Low LGA – Kilcoy (S) | 13.2 | 0.33 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

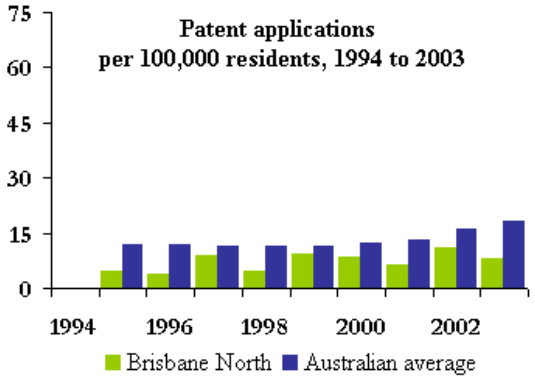
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.36 | 0.36 | 0.35 |
| 25 – 54 | 0.44 | 0.43 | 0.42 | 0.41 |
| 55+ | 0.18 | 0.20 | 0.22 | 0.24 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 791 | 2,335 | 2,380 |
| 25 – 54 | | 2,229 | 4,364 | 4,028 |
| 55+ | | 568 | 1,036 | 1,643 |
| Average age | 33.4 | 35.4 | 35.8 | 36.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.884%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 21.6 | 33 |
| 2001 | 21.3 | 32 |
| 2003 | 19.2 | 18 |
| 2004 | 22.7 | 35 |
| Income supported households (%) | 22.2 | 24 |

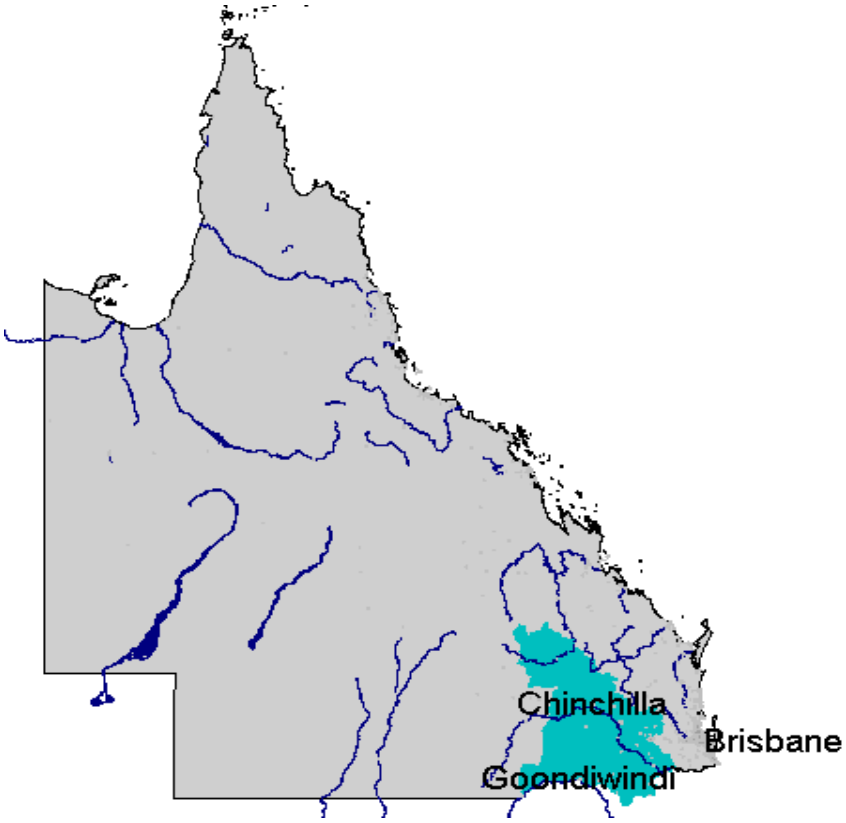



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 21.1 | 28 | 39.2 |
| Average p.a. per capita | 8.1 | 34 | 13.7 |
| Hi Tech p.a. (1994-2003) | 3.9 | 28 | 9.8 |
| Hi Tech p.a. per capita | 1.4 | 30 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.9 | 21 | 3.5 |
| Info. Tech p.a. per capita | 0.7 | 15 | 0.9 |
| Average per capita (1994-2000) | 6.6 | 37 | 9.6 |
| Average per capita (2001-2003) | 11.7 | 26 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.78 | 10 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Agricultural SW




The Agricultural South West of Queensland is centred on the Darling Downs, but the cropping frontier now extends well beyond the Downs into former Brigalow country. Toowoomba is still the main regional centre, but Warwick and Dalby are also important. The Darling Downs is one of Australia's premier agricultural regions, with a wide variety of crops grown. The New England massif extends across the Queensland border into the region, and the resulting granite belt is known for its orchards. The main towns of the region have agricultural processing industries. Export coal mining has commenced, and the region hosts several new coal-fired power stations.

**Major centres:**

Toowoomba, Warwick, Dalby

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 200,713 | | 210,344 | | 219,188 | | 1.4 |
| No. households | 74,499 | | 77,806 | | 81,927 | | 1.7 |
| Workforce | 100,548 | 50.1 | 108,677 | 51.7 | 116,603 | 53.2 | 2.4 |
| Employment | 91,267 | – | 98,346 | – | 107,053 | – | 2.9 |
| Unemployment | 9,281 | 9.2 | 10,332 | 9.5 | 9,550 | 8.2 | -2.6 |
| DEET U/E | 5,918 | 6.1 | 4,762 | 4.5 | 5,672 | 5.0 | 6.0 |
| Structural U/E, % population[1] | 12,223 | 10.4 | 13,483 | 11.3 | 14,265 | 10.7 | 1.9 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,240 | 10,938 | 2,563 | 12,183 | 2,926 | 13,349 | 4.1 |
| Taxes paid | 554 | 2,705 | 600 | 2,851 | 773 | 3,528 | 5.5 |
| GST paid | 151 | 738 | 226 | 1.075 | 306 | 1,398 | – |
| Benefits | 525 | 2,561 | 577 | 2,745 | 724 | 3,303 | 5.2 |
| Business income | 384 | 1,873 | 389 | 1,848 | 511 | 2,332 | 4.5 |
| Interest/dividends | 84 | 412 | 108 | 513 | 104 | 473 | 2.8 |
| Interest paid | 165 | 803 | 223 | 1,058 | 316 | 1,442 | 12.4 |
| Net property income | 43 | 211 | 28 | 131 | -1 | -3 | -$215 |
| Net flow of funds | 2,406 | 11,749 | 2,616 | 12,436 | 2,868 | 13,086 | 2.2 |
| Rank | | 35 | | 44 | | 53 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 185 | 36 |
| Skills corrected factor (out of 1,000) | 184 | 36 |
| Industry corrected factor (out of 1,000) | 193 | 37 |
| Global knowledge factor (out of 1,000) | 153 | 37 |
| Resident skills matching | 90 | 43 |
| Resident industry matching | -33 | 22 |
| Catchment jobs/workers | 519 | 23 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 180 | 37 |
| Industry corrected factor (out of 1,000) | 192 | 37 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 177 | 38 |
| Industry corrected factor (out of 1,000) | 191 | 38 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 23,050 | 22,845 |
| 60 minutes, door to door | 35,159 | 35,034 |
| 100 minutes, door to door | 82,690 | 91,758 |
| *"Congestion exposure risk factor, rank"* | 14 | 41 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 66 | 30 |
| Highest performing LGA – Toowoomba (C) | 121 | 123 |
| Lowest performing LGA –Taroom (S) | 4 | 553 |
| Distance to significant retail diversity (km) | 50.1 | 38 |
| Missing local retail types (out of 44) | 29 | 34 |
| Highest performing LGA –Toowoomba (C) | 18 | 152 |
| Lowest performing LGA –Chinchilla (S) | 44 | 317 |
| Percentage of retail missing (%) | 43.6% | 35 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 481 | 54 |
| 2001 | 738 | 58 |
| 2003 | 514 | 37 |
| 2004 | 624 | 32 |

YourPlace
*The place to go for the performance of Australia's local economies*

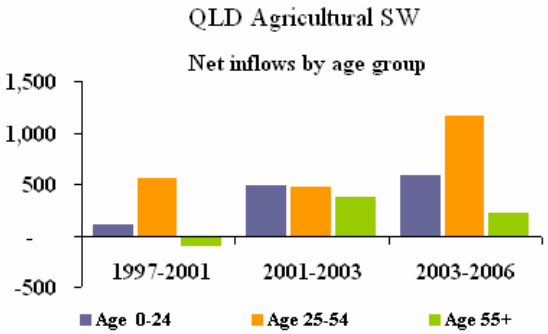
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 46.2 | 63.5% | 59.4% | 6 |
| High LGA – Taroom (S) | 99.1 | 102.7% | | |
| Low LGA – Toowoomba (C) | 27.2 | 57.3% | | |
| Infrastructure | 62.3 | 1.00 | 1.53 | 43 |
| High LGA – Millmerran (S) | 90.6 | 2.40 | | |
| Low LGA – Tara (S) | 5.6 | 0.04 | | |
| Household prosperity potential | 44.6 | 98% | 100% | 23 |
| High LGA – Crow's Nest (S) | 96.8 | 250% | | |
| Low LGA – Warwick (S) | 8.0 | 13% | | |
| Global knowledge flows | 53.7 | 6.4% | 12.9% | 58 |
| High LGA – Toowoomba (C) | 74.6 | 8.7% | | |
| Low LGA – Wambo (S) | 2.2 | 0.7% | | |
| Knowledge driven growth potential | 45.8 | 0.55 | 0.67 | 15 |
| High LGA – Wambo (S) | 95.6 | 1.09 | | |
| Low LGA – Millmerran (S) | 8.9 | 0.28 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

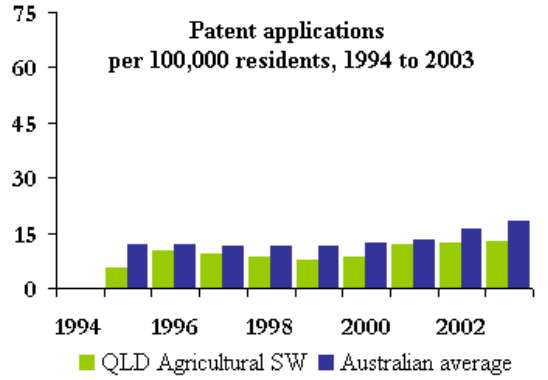
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.38 | 0.37 | 0.36 | 0.36 |
| 25 – 54 | 0.41 | 0.41 | 0.40 | 0.39 |
| 55+ | 0.21 | 0.23 | 0.24 | 0.25 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 106 | 483 | 589 |
| 25 – 54 | | 563 | 468 | 1,162 |
| 55+ | | -88 | 367 | 224 |
| Average age | 34.9 | 36.2 | 36.7 | 37.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.659%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 21.8 | 37 |
| 2001 | 22.1 | 39 |
| 2003 | 24.4 | 44 |
| 2004 | 25.0 | 46 |
| Income supported households (%) | 24.4 | 12 |

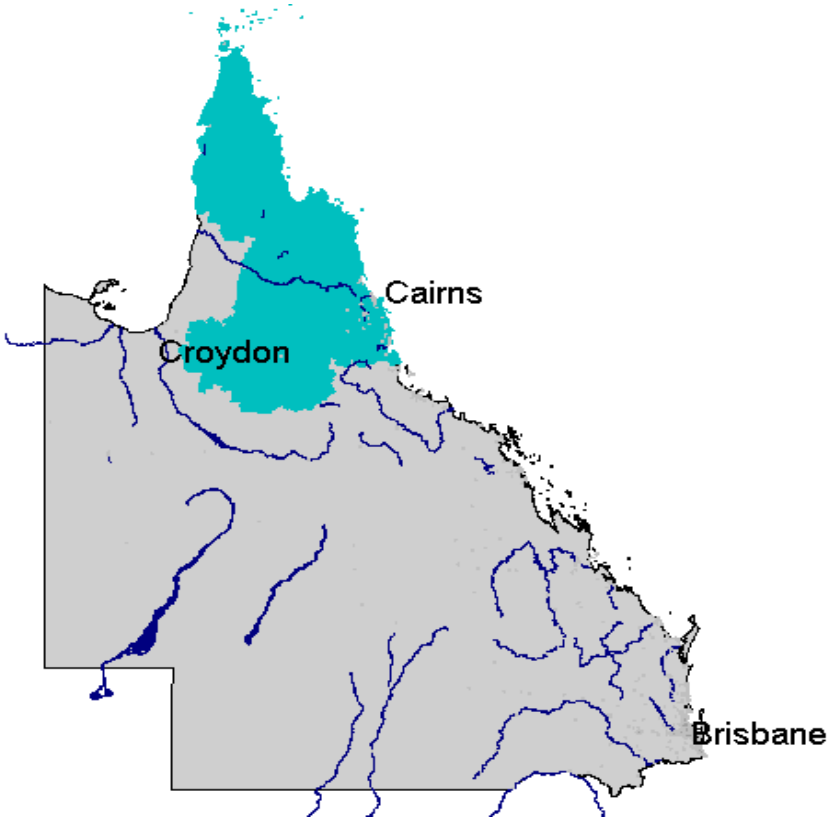



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 20.0 | 31 | 39.2 |
| Average p.a. per capita | 9.9 | 23 | 13.7 |
| Hi Tech p.a. (1994-2003) | 3.0 | 32 | 9.8 |
| Hi Tech p.a. per capita | 1.5 | 26 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.5 | 40 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 40 | 0.9 |
| Average per capita (1994-2000) | 8.8 | 24 | 9.6 |
| Average per capita (2001-2003) | 12.6 | 22 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.44 | 31 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Far North




The Far North of Queensland comprises Cairns and its hinterland. Around Cairns retirement and resort developments are crowding out the established sugar industry, but further south around Innisfail and Tully the industry remains the dominant land use. Intensive agriculture is pursued on the Atherton Tableland above Cairns, but beyond this the pastoral zone extends west to the Gulf of Carpentaria and north to the tip of Cape York. With its high indigenous population this sparsely-populated area has affinities with NW Queensland, but is included here in deference to the Queensland planning regions and because it is serviced from Cairns rather than Mt Isa.

**Major centres:**

Cairns

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 218,254 | | 222,514 | | 232,166 | | 1.4 |
| No. households | 84,938 | | 89,167 | | 91,698 | | 0.9 |
| Workforce | 122,552 | 55.9 | 112,377 | 50.5 | 123,688 | 53.3 | 3.2 |
| Employment | 108,518 | – | 97,094 | – | 109,342 | – | 4.0 |
| Unemployment | 14,034 | 11.5 | 15,283 | 13.6 | 14,345 | 11.6 | -2.1 |
| DEET U/E | 9,820 | 8.1 | 7,982 | 7.3 | 6,440 | 5.3 | -6.9 |
| Structural U/E, % population[1] | 15,420 | 12.1 | 17,475 | 13.1 | 18,049 | 12.1 | 1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,455 | 11,247 | 2,785 | 12,516 | 3,724 | 16,038 | 7.4 |
| Taxes paid | 618 | 2,831 | 641 | 2,879 | 868 | 3,740 | 5.7 |
| GST paid | 226 | 1,034 | 282 | 1,269 | 448 | 1,930 | – |
| Benefits | 539 | 2,468 | 597 | 2,684 | 751 | 3,233 | 5.6 |
| Business income | 482 | 2,210 | 491 | 2,207 | 738 | 3,177 | 7.5 |
| Interest/dividends | 81 | 371 | 98 | 441 | 89 | 385 | 0.8 |
| Interest paid | 212 | 969 | 289 | 1,301 | 375 | 1,617 | 10.8 |
| Net property income | 35 | 162 | 24 | 107 | -2 | -8 | -$170 |
| Net flow of funds | 2,537 | 11,624 | 2,783 | 12,505 | 3,608 | 15,540 | 6.0 |
| Rank | | 41 | | 41 | | 21 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 183 | 37 |
| Skills corrected factor (out of 1,000) | 183 | 37 |
| Industry corrected factor (out of 1,000) | 187 | 38 |
| Global knowledge factor (out of 1,000) | 142 | 41 |
| Resident skills matching | 327 | 24 |
| Resident industry matching | -196 | 44 |
| Catchment jobs/workers | 509 | 29 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 183 | 36 |
| Industry corrected factor (out of 1,000) | 189 | 39 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 169 | 39 |
| Industry corrected factor (out of 1,000) | 176 | 39 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 25,954 | 24,129 |
| 60 minutes, door to door | 36,230 | 36,018 |
| 100 minutes, door to door | 63,332 | 61,792 |
| *"Congestion exposure risk factor, rank"* | 11 | 46 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 55 | 32 |
| Highest performing LGA – Torres (S) | 116 | 127 |
| Lowest performing LGA –Aurukun (S) | 1 | 612 |
| Distance to significant retail diversity (km) | 73.1 | 50 |
| Missing local retail types (out of 44) | 30 | 35 |
| Highest performing LGA –Torres (S) | 18 | 150 |
| Lowest performing LGA –Atherton (S) | 44 | 317 |
| Percentage of retail missing (%) | 45.6% | 39 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 2,041 | 2 |
| 2001 | 3,023 | 1 |
| 2003 | 1,186 | 5 |
| 2004 | 1,946 | 1 |

YourPlace
*The place to go for the performance of Australia's local economies*

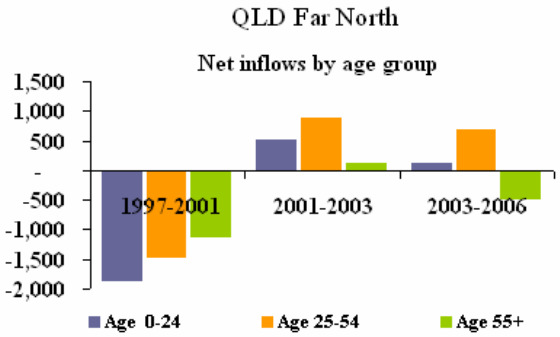
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 46.1 | 62.2% | 59.4% | 35 |
| High LGA – Etheridge (S) | 97.3 | 94.1% | | |
| Low LGA – Aurukun (S) | 0.4 | 35.3% | | |
| Infrastructure | 53.4 | 1.18 | 1.53 | 57 |
| High LGA – Torres (S) | 96.4 | 12.92 | | |
| Low LGA – Croydon (S) | 0.0 | 0.00 | | |
| Household prosperity potential | 48.6 | 101% | 100% | 37 |
| High LGA – Douglas (S) | 70.3 | 144% | | |
| Low LGA – Johnstone (S) | 3.3 | -17% | | |
| Global knowledge flows | 56.9 | 6.6% | 12.9% | 41 |
| High LGA – Cairns (C) | 71.6 | 8.2% | | |
| Low LGA – Aurukun (S) | 0.4 | 0.0% | | |
| Knowledge driven growth potential | 45.4 | 0.53 | 0.67 | 55 |
| High LGA – Mareeba (S) | 69.0 | 0.69 | | |
| Low LGA – Aurukun (S) | 1.8 | 0.13 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

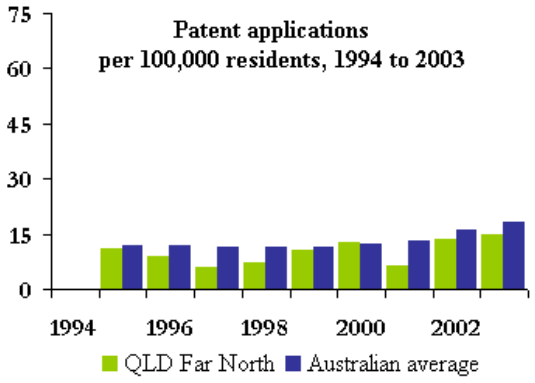
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.36 | 0.36 | 0.35 |
| 25 – 54 | 0.45 | 0.46 | 0.45 | 0.44 |
| 55+ | 0.16 | 0.18 | 0.19 | 0.21 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -1,841 | 509 | 114 |
| 25 – 54 | | -1,447 | 879 | 690 |
| 55+ | | -1,105 | 115 | -481 |
| Average age | 32.7 | 34.7 | 35.3 | 36.0 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -1.379%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 21.2 | 32 |
| 2001 | 21.5 | 35 |
| 2003 | 21.5 | 35 |
| 2004 | 20.6 | 20 |
| Income supported households (%) | 23.1 | 20 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 21.2 | 27 | 39.2 |
| Average p.a. per capita | 10.3 | 20 | 13.7 |
| Hi Tech p.a. (1994-2003) | 2.6 | 34 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 37 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.0 | 30 | 3.5 |
| Info. Tech p.a. per capita | 0.4 | 28 | 0.9 |
| Average per capita (1994-2000) | 9.0 | 21 | 9.6 |
| Average per capita (2001-2003) | 13.4 | 20 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.50 | 26 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Fitzroy


The Fitzroy region comprises the Eastern part of Central Queensland. In the nineteenth century much of the Fitzroy region was regarded as unproductive scrub, but it is now more intensively developed. The region includes two belts of productive downs (Peak Downs and much of Banana Shire) and much of the rest of it has been cleared for extensive grazing. Production statistics are, however, dominated by black coal mining and power production, for the region includes the southern part of the Bowen Basin. Rockhampton is its oldest town and administrative and commercial capital, but Gladstone, with its natural harbour, continues to develop as a coal export port and heavy industrial centre.

**Major centres:**

Rockhampton, Gladstone

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 179,918 | | 181,747 | | 186,931 | | 0.9 |
| No. households | 66,054 | | 68,392 | | 70,325 | | 0.9 |
| Workforce | 94,871 | 52.6 | 97,863 | 53.8 | 98,450 | 52.7 | 0.2 |
| Employment | 84,340 | – | 97,957 | – | 89,349 | – | 0.5 |
| Unemployment | 10,532 | 11.1 | 9,905 | 10.1 | 9,101 | 9.2 | -2.8 |
| DEET U/E | 8,934 | 9.6 | 8,684 | 9.0 | 6,397 | 6.7 | -9.7 |
| Structural U/E, % population[1] | 11,620 | 10.7 | 12,177 | 11.1 | 12,163 | 10.4 | 0.0 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,333 | 12,945 | 2,646 | 14,558 | 2,776 | 14,848 | 2.8 |
| Taxes paid | 642 | 3,564 | 674 | 3,706 | 832 | 4,450 | 4.5 |
| GST paid | 151 | 837 | 227 | 1,248 | 274 | 1,468 | – |
| Benefits | 419 | 2,327 | 457 | 2,514 | 566 | 3,026 | 5.4 |
| Business income | 396 | 2,196 | 410 | 2,256 | 401 | 2,144 | -0.5 |
| Interest/dividends | 57 | 315 | 72 | 397 | 68 | 362 | 2.8 |
| Interest paid | 172 | 952 | 236 | 1,297 | 306 | 1,640 | 11.5 |
| Net property income | 15 | 82 | -1 | -8 | -12 | -63 | -$145 |
| Net flow of funds | 2,255 | 12,511 | 2,447 | 13,465 | 2,385 | 12,758 | 0.4 |
| Rank | | 23 | | 21 | | 54 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 130 | 48 |
| Skills corrected factor (out of 1,000) | 135 | 46 |
| Industry corrected factor (out of 1,000) | 134 | 49 |
| Global knowledge factor (out of 1,000) | 110 | 45 |
| Resident skills matching | 283 | 26 |
| Resident industry matching | -175 | 40 |
| Catchment jobs/workers | 556 | 16 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 136 | 46 |
| Industry corrected factor (out of 1,000) | 146 | 46 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 130 | 46 |
| Industry corrected factor (out of 1,000) | 137 | 49 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 14,215 | 13,330 |
| 60 minutes, door to door | 17,407 | 16,191 |
| 100 minutes, door to door | 36,104 | 33,586 |
| *"Congestion exposure risk factor, rank"* | 3 | 63 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 38 | 43 |
| Highest performing LGA – Rockhampton (C) | 71 | 155 |
| Lowest performing LGA –Jericho (S) | 5 | 531 |
| Distance to significant retail diversity (km) | 74.8 | 51 |
| Missing local retail types (out of 44) | 34 | 44 |
| Highest performing LGA –Rockhampton (C) | 25 | 164 |
| Lowest performing LGA –Banana (S) | 44 | 317 |
| Percentage of retail missing (%) | 54.7% | 45 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 788 | 30 |
| 2001 | 1,097 | 37 |
| 2003 | 471 | 42 |
| 2004 | 554 | 42 |

YourPlace
*The place to go for the performance of Australia's local economies*

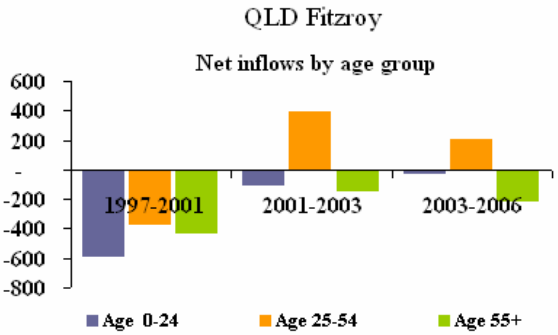
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 42.8 | 62.3% | 59.4% | 14 |
| High LGA – Bauhinia (S) | 98.8 | 101.7% | | |
| Low LGA – Mount Morgan (S) | 0.0 | 32.4% | | |
| Infrastructure | 37.7 | 0.44 | 1.53 | 63 |
| High LGA – Emerald (S) | 75.8 | 1.09 | | |
| Low LGA – Duaringa (S) | 7.8 | 0.08 | | |
| Household prosperity potential | 31.9 | 72% | 100% | 41 |
| High LGA – Bauhinia (S) | 83.3 | 175% | | |
| Low LGA – Mount Morgan (S) | 1.9 | -35% | | |
| Global knowledge flows | 58.3 | 6.9% | 12.9% | 40 |
| High LGA – Calliope (S) | 78.7 | 9.4% | | |
| Low LGA – Bauhinia (S) | 7.8 | 1.8% | | |
| Knowledge driven growth potential | 31.9 | 0.45 | 0.67 | 44 |
| High LGA – Bauhinia (S) | 75.5 | 0.74 | | |
| Low LGA – Mount Morgan (S) | 2.0 | 0.14 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

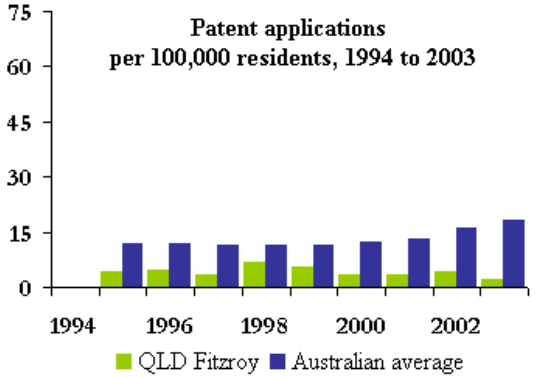
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.40 | 0.38 | 0.38 | 0.37 |
| 25 – 54 | 0.43 | 0.43 | 0.42 | 0.42 |
| 55+ | 0.17 | 0.19 | 0.20 | 0.22 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -587 | -102 | -23 |
| 25 – 54 | | -364 | 396 | 202 |
| 55+ | | -423 | -141 | -205 |
| Average age | 32.7 | 34.5 | 35.0 | 35.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.284%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 18.6 | 23 |
| 2001 | 18.7 | 20 |
| 2003 | 21.1 | 31 |
| 2004 | 23.5 | 39 |
| Income supported households (%) | 21.1 | 32 |

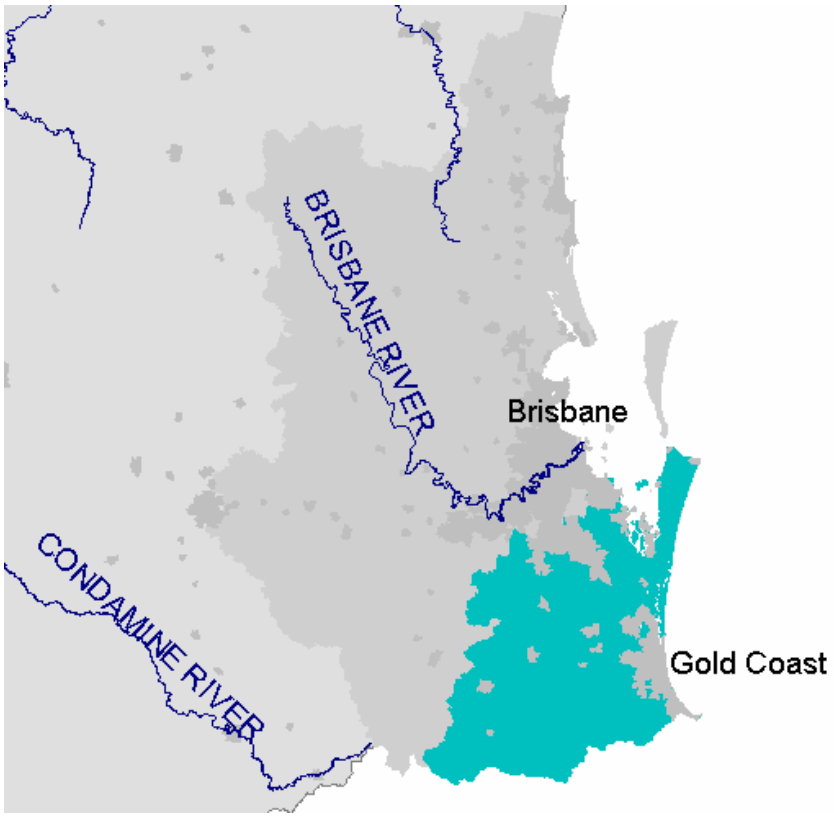



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 7.9 | 50 | 39.2 |
| Average p.a. per capita | 4.5 | 57 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.1 | 47 | 9.8 |
| Hi Tech p.a. per capita | 0.6 | 51 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.2 | 46 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 53 | 0.9 |
| Average per capita (1994-2000) | 4.5 | 55 | 9.6 |
| Average per capita (2001-2003) | 4.4 | 60 | 14.3 |
| 2001-03 avg./1994-00 avg. | 0.98 | 59 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Gold Coast




The Gold Coast region comprises two main sub-regions.

- The Gold Coast proper began as a tourist and retirement strip, but has diversified its economic base and has a fairly youthful population. The urban area now extends across the backwaters into the rain-forested ranges which complement the beaches as a tourist attraction.
- Between Brisbane City and the Gold Coast proper lies a belt of outer suburbs, fading into hobby farms in the valleys round Beaudesert. In this area manufacturing contributes to the economic base, but commuting to Brisbane is also very important.

**Major centres:**

Surfers Paradise, Coolangatta, Beenleigh

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 703,662 | | 762,455 | | 834,315 | | 3.0 |
| No. households | 271,933 | | 296,665 | | 322,398 | | 2.8 |
| Workforce | 345,733 | 49.1 | 390,303 | 51.6 | 430,277 | 51.6 | 3.3 |
| Employment | 301,526 | – | 341,181 | – | 392,811 | – | 4.8 |
| Unemployment | 44,207 | 12.8 | 49,121 | 12.6 | 37,466 | 8.7 | -8.6 |
| DEET U/E | 35,396 | 10.4 | 33,805 | 8.9 | 30,678 | 7.3 | -3.2 |
| Structural U/E, % population[1] | 46,965 | 11.0 | 55,690 | 12.1 | 53,410 | 10.0 | -1.4 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 8,216 | 11,354 | 10,019 | 13,140 | 12,118 | 14,524 | 5.0 |
| Taxes paid | 2,162 | 2,988 | 2,500 | 3,278 | 3,175 | 3,806 | 5.0 |
| GST paid | 585 | 809 | 931 | 1,221 | 1,254 | 1,503 | – |
| Benefits | 1,839 | 2,542 | 2,054 | 2,694 | 2,536 | 3,040 | 3.6 |
| Business income | 1,365 | 1,886 | 1,390 | 1,823 | 1,609 | 1,929 | 0.4 |
| Interest/dividends | 391 | 541 | 525 | 689 | 505 | 606 | 2.3 |
| Interest paid | 723 | 999 | 918 | 1,204 | 1,211 | 1,451 | 7.8 |
| Net property income | 139 | 192 | 157 | 206 | 129 | 155 | -$37 |
| Net flow of funds | 8,480 | 11,719 | 9,796 | 12,848 | 11,257 | 13,493 | 2.9 |
| Rank | | 36 | | 34 | | 46 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 462 | 18 |
| Skills corrected factor (out of 1,000) | 509 | 17 |
| Industry corrected factor (out of 1,000) | 467 | 18 |
| Global knowledge factor (out of 1,000) | 360 | 19 |
| Resident skills matching | 1,000 | 1 |
| Resident industry matching | -112 | 29 |
| Catchment jobs/workers | 341 | 60 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 467 | 18 |
| Industry corrected factor (out of 1,000) | 471 | 18 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 444 | 18 |
| Industry corrected factor (out of 1,000) | 451 | 18 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 78,658 | 100,659 |
| 60 minutes, door to door | 265,767 | 294,584 |
| 100 minutes, door to door | 701,654 | 697,100 |
| *"Congestion exposure risk factor, rank"* | 158 | 17 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 176 | 21 |
| Highest performing LGA –Gold Coast (C) | 205 | 85 |
| Lowest performing LGA –Beaudesert (S) | 44 | 190 |
| Distance to significant retail diversity (km) | 9.6 | 16 |
| Missing local retail types (out of 44) | 5 | 16 |
| Highest performing LGA –Logan (C) | 1 | 22 |
| Lowest performing LGA –Beaudesert (S) | 22 | 160 |
| Percentage of retail missing (%) | 3.1% | 17 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 800 | 29 |
| 2001 | 1,334 | 22 |
| 2003 | 1,111 | 6 |
| 2004 | 1,030 | 5 |

YourPlace
*The place to go for the performance of Australia's local economies*

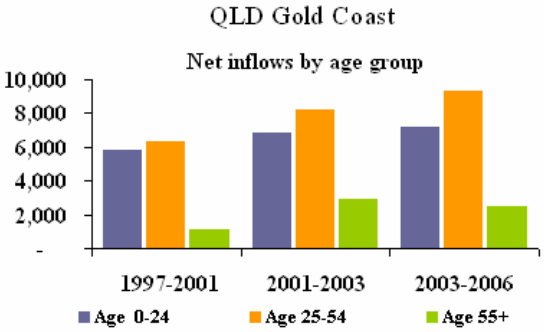
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 29.7 | 57.9% | 59.4% | 42 |
| High LGA – Beaudesert (S) | 46.8 | 62.8% | | |
| Low LGA – Gold Coast (C) | 23.5 | 56.1% | | |
| Infrastructure | 59.9 | 0.81 | 1.53 | 28 |
| High LGA – Gold Coast (C) | 76.8 | 1.12 | | |
| Low LGA – Logan (C) | 32.1 | 0.35 | | |
| Household prosperity potential | 43.8 | 94% | 100% | 48 |
| High LGA – Gold Coast (C) | 63.1 | 130% | | |
| Low LGA – Logan (C) | 12.4 | 32% | | |
| Global knowledge flows | 72.4 | 8.4% | 12.9% | 19 |
| High LGA – Gold Coast (C) | 77.4 | 9.2% | | |
| Low LGA – Beaudesert (S) | 47.7 | 5.5% | | |
| Knowledge driven growth potential | 50.3 | 0.56 | 0.67 | 31 |
| High LGA – Gold Coast (C) | 57.8 | 0.60 | | |
| Low LGA – Logan (C) | 29.5 | 0.44 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

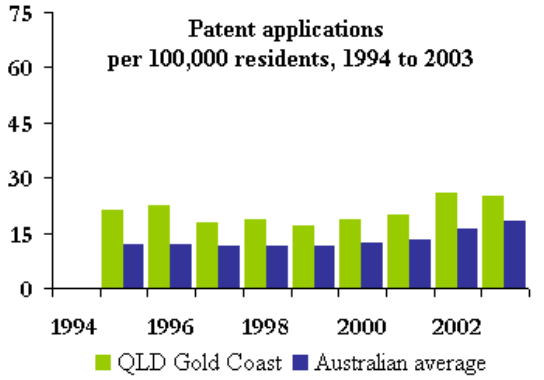
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.35 | 0.35 | 0.34 |
| 25 – 54 | 0.44 | 0.44 | 0.43 | 0.42 |
| 55+ | 0.19 | 0.21 | 0.22 | 0.24 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 5,782 | 6,832 | 7,222 |
| 25 – 54 | | 6,315 | 8,234 | 9,312 |
| 55+ | | 1,085 | 2,917 | 2,452 |
| Average age | 34.2 | 35.9 | 36.4 | 37.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.803%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 21.7 | 34 |
| 2001 | 21.0 | 30 |
| 2003 | 21.7 | 36 |
| 2004 | 22.3 | 32 |
| Income supported households (%) | 20.5 | 39 |

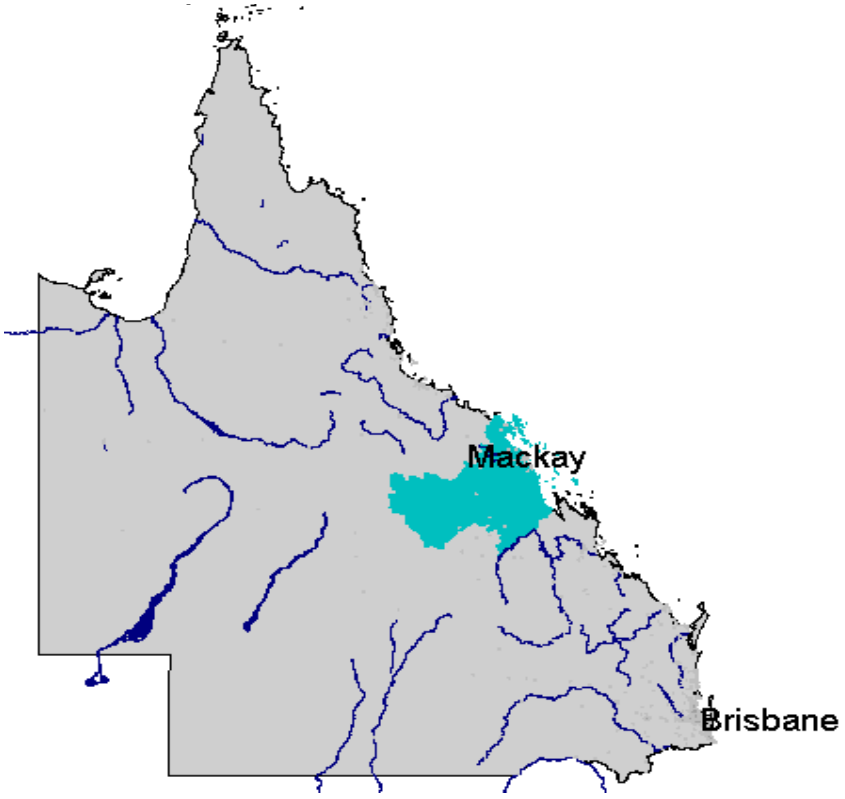



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 139.8 | 4 | 39.2 |
| Average p.a. per capita | 21.3 | 7 | 13.7 |
| Hi Tech p.a. (1994-2003) | 23.3 | 10 | 9.8 |
| Hi Tech p.a. per capita | 3.2 | 11 | 2.5 |
| Info. Tech p.a. (1994-2003) | 10.2 | 7 | 3.5 |
| Info. Tech p.a. per capita | 1.4 | 11 | 0.9 |
| Average per capita (1994-2000) | 19.4 | 5 | 9.6 |
| Average per capita (2001-2003) | 25.8 | 7 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.33 | 43 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Mackay




Production statistics for the Mackay region are dominated by coal mines in the Bowen Basin, but even after allowing for rail transport and the export port (Hay Point) these generate relatively little employment and income. The immediate hinterland of Mackay is high-rainfall sugar country, while Whitsunday Shire adds tourism to the basic sugar of its economic base. Given the uncertain future of the sugar industry, there is pressure to diversify, with the high-rainfall fields capable of growing a variety of alternative crops.

**Major centres:**

Mackay

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 123,918 | | 125,130 | | 130,418 | | 1.4 |
| No. households | 45,027 | | 47,803 | | 49,637 | | 1.3 |
| Workforce | 68,760 | 55.3 | 70,708 | 56.5 | 69,785 | 53.5 | -0.4 |
| Employment | 61,674 | – | 64,022 | – | 63,414 | – | -0.3 |
| Unemployment | 7,087 | 10.3 | 6,686 | 9.5 | 6,371 | 9.1 | -1.6 |
| DEET U/E | 5,747 | 8.5 | 5,729 | 8.3 | 4,544 | 6.7 | -7.4 |
| Structural U/E, % population[1] | 6,995 | 9.2 | 7,792 | 9.8 | 7,868 | 9.4 | 0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,839 | 14,959 | 1,904 | 15,213 | 2,001 | 15,342 | 0.5 |
| Taxes paid | 508 | 4,131 | 483 | 3,864 | 626 | 4,800 | 3.0 |
| GST paid | 110 | 897 | 167 | 1,334 | 205 | 1,572 | – |
| Benefits | 260 | 2,114 | 290 | 2,316 | 362 | 2,777 | 5.6 |
| Business income | 317 | 2,574 | 332 | 2,656 | 373 | 2,858 | 2.1 |
| Interest/dividends | 57 | 461 | 67 | 537 | 67 | 517 | 2.3 |
| Interest paid | 121 | 987 | 162 | 1,293 | 223 | 1,713 | 11.7 |
| Net property income | 13 | 106 | 0 | 3 | -10 | -80 | -$187 |
| Net flow of funds | 1,746 | 14,200 | 1,781 | 14,233 | 1,738 | 13,329 | -1.3 |
| Rank | | 12 | | 14 | | 50 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 143 | 43 |
| Skills corrected factor (out of 1,000) | 146 | 44 |
| Industry corrected factor (out of 1,000) | 149 | 43 |
| Global knowledge factor (out of 1,000) | 114 | 44 |
| Resident skills matching | 185 | 32 |
| Resident industry matching | -130 | 31 |
| Catchment jobs/workers | 558 | 15 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 147 | 43 |
| Industry corrected factor (out of 1,000) | 161 | 42 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 141 | 45 |
| Industry corrected factor (out of 1,000) | 155 | 45 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 16,101 | 14,554 |
| 60 minutes, door to door | 25,687 | 24,259 |
| 100 minutes, door to door | 27,706 | 26,284 |
| *"Congestion exposure risk factor, rank"* | 12 | 43 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 37 | 44 |
| Highest performing LGA – Mackay (C) | 48 | 184 |
| Lowest performing LGA –Broadsound (S) | 6 | 515 |
| Distance to significant retail diversity (km) | 80.0 | 52 |
| Missing local retail types (out of 44) | 33 | 39 |
| Highest performing LGA –Mackay (C) | 27 | 182 |
| Lowest performing LGA –Belyando (S) | 44 | 317 |
| Percentage of retail missing (%) | 50.6% | 41 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 2,397 | 1 |
| 2001 | 1,884 | 5 |
| 2003 | 634 | 29 |
| 2004 | 665 | 29 |

YourPlace
*The place to go for the performance of Australia's local economies*

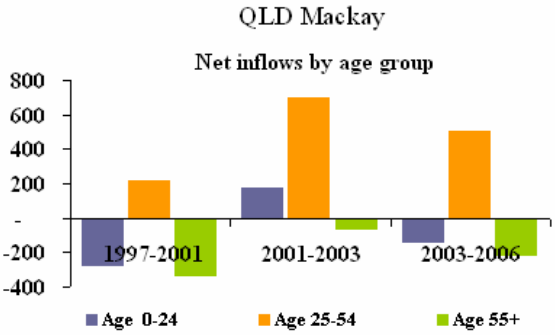
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 52.5 | 65.0% | 59.4% | 7 |
| High LGA – Nebo (S) | 84.8 | 77.8% | | |
| Low LGA – Sarina (S) | 32.0 | 58.6% | | |
| Infrastructure | 55.3 | 0.70 | 1.53 | 45 |
| High LGA – Nebo (S) | 81.6 | 1.36 | | |
| Low LGA – Mirani (S) | 19.7 | 0.19 | | |
| Household prosperity potential | 48.7 | 105% | 100% | 35 |
| High LGA – Whitsunday (S) | 56.8 | 120% | | |
| Low LGA – Nebo (S) | 17.6 | 45% | | |
| Global knowledge flows | 51.2 | 5.8% | 12.9% | 50 |
| High LGA – Mackay (C) | 61.5 | 6.8% | | |
| Low LGA – Sarina (S) | 22.1 | 3.3% | | |
| Knowledge driven growth potential | 33.3 | 0.46 | 0.67 | 56 |
| High LGA – Mirani (S) | 56.5 | 0.59 | | |
| Low LGA – Nebo (S) | 8.2 | 0.27 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

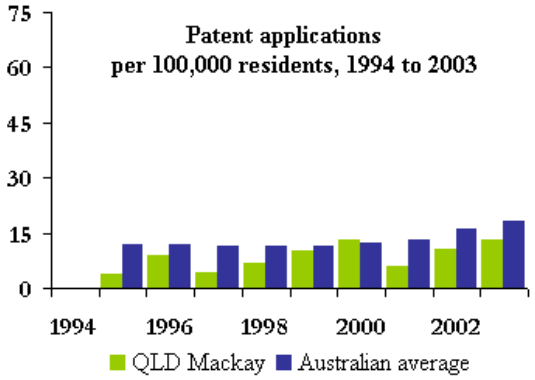
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.37 | 0.36 | 0.35 |
| 25 – 54 | 0.46 | 0.46 | 0.45 | 0.44 |
| 55+ | 0.16 | 0.18 | 0.19 | 0.21 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -272 | 172 | -140 |
| 25 – 54 | | 213 | 695 | 508 |
| 55+ | | -334 | -63 | -210 |
| Average age | 32.5 | 34.3 | 34.9 | 35.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.400%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 14.9 | 14 |
| 2001 | 16.3 | 13 |
| 2003 | 18.1 | 16 |
| 2004 | 20.6 | 21 |
| Income supported households (%) | 21.3 | 30 |

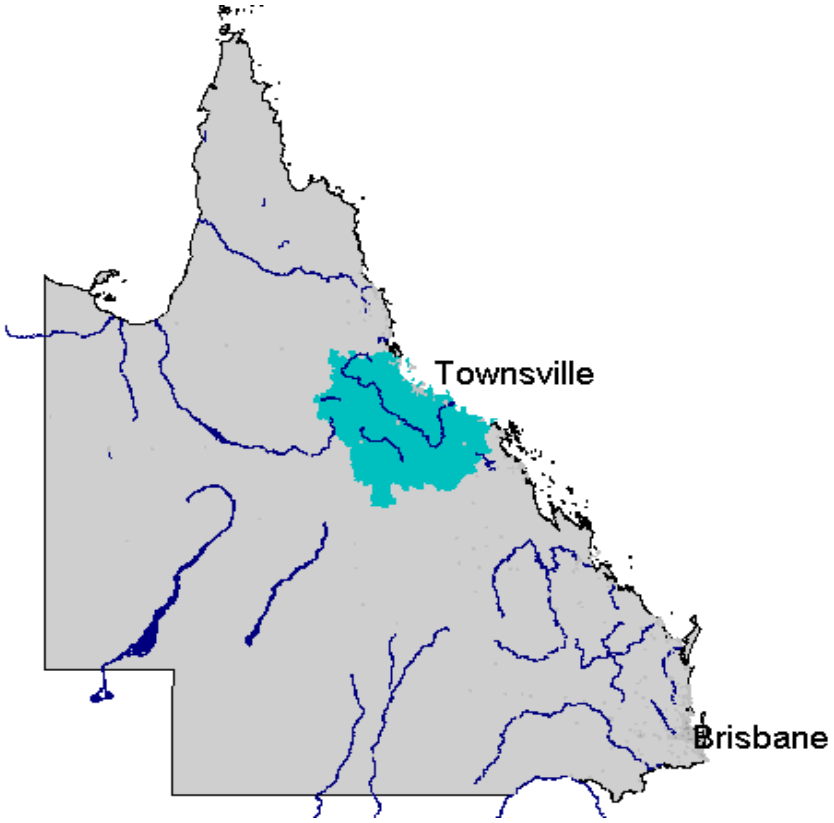



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 11.0 | 42 | 39.2 |
| Average p.a. per capita | 9.2 | 26 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.5 | 43 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 35 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 55 | 0.9 |
| Average per capita (1994-2000) | 7.6 | 30 | 9.6 |
| Average per capita (2001-2003) | 13.0 | 21 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.71 | 14 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD North




North Queensland is centred on Townsville. The region has two intensive agricultural areas, both originally developed for sugar: the Burdekin Delta (Home Hill, Ayr) and the Herbert River Valley (Ingham). Much of the rest of the region has recently been cleared to provide low-quality pasture. The region produces coal from the north end of the Bowen Basin, and has its own coal export port at Abbot Point. The economic base of Townsville includes education, defence and the processing of minerals originating in NW Queensland. Despite the existence of Magnetic Island, the region is less involved in tourism than the other Queensland east coast regions.

**Major centres:**

Townsville, Bowen

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 195,349 | | 202,675 | | 213,852 | | 1.8 |
| No. households | 71,837 | | 75,926 | | 80,294 | | 1.9 |
| Workforce | 108,228 | 55.5 | 92,571 | 45.7 | 109,934 | 51.4 | 5.9 |
| Employment | 96,854 | – | 81,227 | – | 99,817 | – | 7.1 |
| Unemployment | 11,374 | 10.5 | 11,343 | 12.3 | 10,117 | 9.2 | -3.7 |
| DEET U/E | 8,648 | 8.1 | 7,481 | 8.2 | 7,166 | 6.7 | -1.4 |
| Structural U/E, % population[1] | 12,149 | 10.1 | 12,986 | 10.4 | 13,097 | 9.6 | 0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,678 | 13,205 | 2,920 | 14,409 | 4,092 | 19,136 | 7.7 |
| Taxes paid | 701 | 3,455 | 694 | 3,423 | 935 | 4,371 | 4.8 |
| GST paid | 209 | 1,029 | 249 | 1,228 | 386 | 1,807 | – |
| Benefits | 456 | 2,247 | 493 | 2,433 | 615 | 2,875 | 5.0 |
| Business income | 400 | 1,972 | 410 | 2,025 | 512 | 2,393 | 3.9 |
| Interest/dividends | 85 | 419 | 96 | 475 | 91 | 423 | 0.2 |
| Interest paid | 177 | 873 | 236 | 1,163 | 329 | 1,539 | 12.0 |
| Net property income | 24 | 117 | 12 | 61 | -18 | -86 | -$203 |
| Net flow of funds | 2,556 | 12,604 | 2,754 | 13,588 | 3,641 | 17,025 | 6.2 |
| Rank | | 21 | | 20 | | 13 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 198 | 35 |
| Skills corrected factor (out of 1,000) | 224 | 32 |
| Industry corrected factor (out of 1,000) | 202 | 35 |
| Global knowledge factor (out of 1,000) | 164 | 35 |
| Resident skills matching | 422 | 22 |
| Resident industry matching | -195 | 43 |
| Catchment jobs/workers | 507 | 31 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 192 | 35 |
| Industry corrected factor (out of 1,000) | 200 | 35 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 198 | 34 |
| Industry corrected factor (out of 1,000) | 209 | 33 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 33,157 | 33,525 |
| 60 minutes, door to door | 50,386 | 54,802 |
| 100 minutes, door to door | 69,929 | 77,947 |
| *"Congestion exposure risk factor, rank"* | 4 | 57 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 47 | 37 |
| Highest performing LGA –Townsville (C) | 74 | 150 |
| Lowest performing LGA –Dalrymple (S) | 7 | 491 |
| Distance to significant retail diversity (km) | 51.4 | 41 |
| Missing local retail types (out of 44) | 24 | 32 |
| Highest performing LGA –Thuringowa (C) | 16 | 146 |
| Lowest performing LGA –Bowen (S) | 44 | 317 |
| Percentage of retail missing (%) | 34.5% | 32 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,629 | 4 |
| 2001 | 1,691 | 7 |
| 2003 | 496 | 39 |
| 2004 | 735 | 21 |

YourPlace
*The place to go for the performance of Australia's local economies*

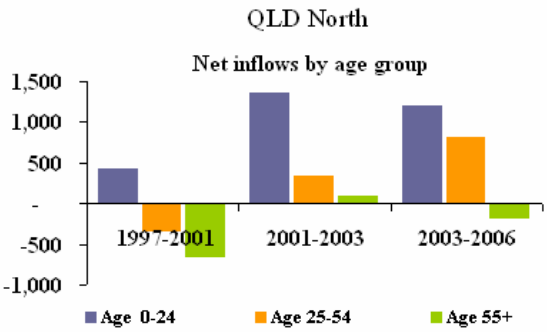
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 49.3 | 63.7% | 59.4% | 17 |
| High LGA – Dairymple (S) | 85.0 | 77.9% | | |
| Low LGA – Charters Towers (C) | 36.9 | 60.5% | | |
| Infrastructure | 58.1 | 1.06 | 1.53 | 51 |
| High LGA – Townsville (C) | 88.4 | 190 | | |
| Low LGA – Hinchinbrook (S) | 20.8 | 0.20 | | |
| Household prosperity potential | 36.9 | 80% | 100% | 63 |
| High LGA – Townsville (C) | 61.3 | 127% | | |
| Low LGA – Bowen (S) | 10.1 | 24% | | |
| Global knowledge flows | 63.1 | 7.5% | 12.9% | 32 |
| High LGA – Townsville (C) | 77.6 | 9.2% | | |
| Low LGA – Bowen (S) | 19.4 | 3.1% | | |
| Knowledge driven growth potential | 37.0 | 0.48 | 0.67 | 50 |
| High LGA – Hinchinbrook (S) | 53.1 | 0.57 | | |
| Low LGA – Bowen (S) | 10.0 | 0.30 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

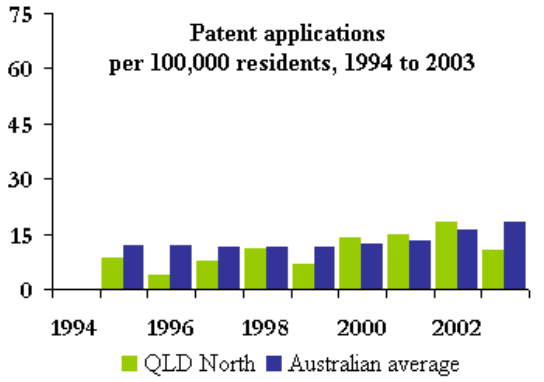
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.40 | 0.38 | 0.38 | 0.37 |
| 25 – 54 | 0.43 | 0.44 | 0.43 | 0.43 |
| 55+ | 0.17 | 0.19 | 0.20 | 0.21 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 419 | 1,353 | 1,204 |
| 25 – 54 | | -324 | 344 | 810 |
| 55+ | | -650 | 94 | -176 |
| Average age | 32.9 | 34.2 | 34.6 | 35.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.697%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 17.8 | 20 |
| 2001 | 17.9 | 18 |
| 2003 | 17.9 | 15 |
| 2004 | 16.7 | 12 |
| Income supported households (%) | 20.9 | 33 |

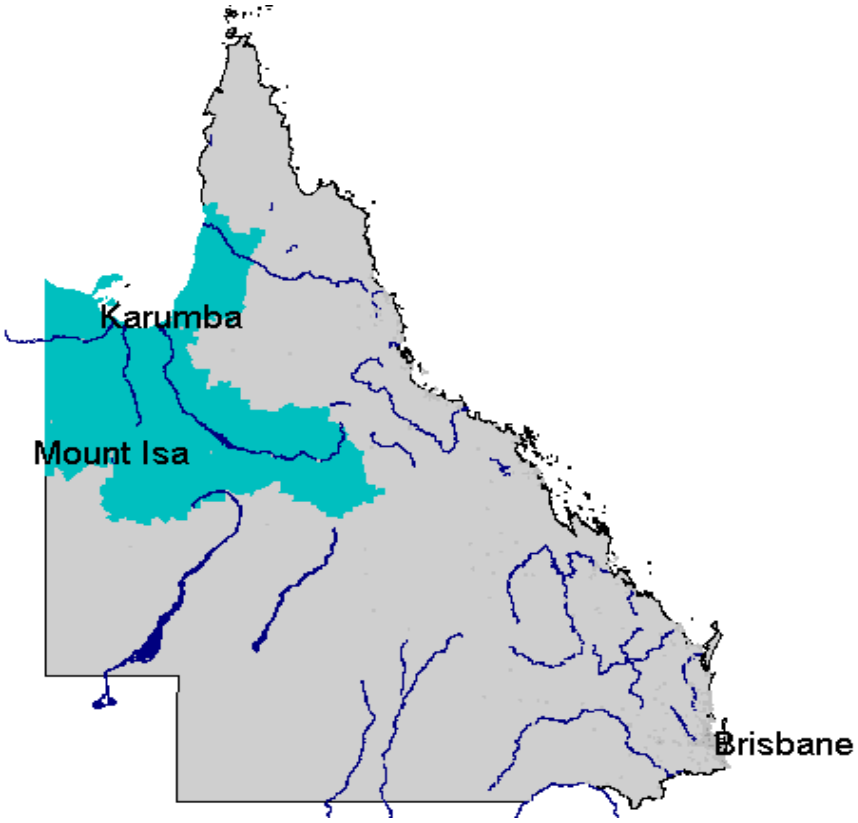



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 21.0 | 29 | 39.2 |
| Average p.a. per capita | 10.9 | 16 | 13.7 |
| Hi Tech p.a. (1994-2003) | 4.1 | 25 | 9.8 |
| Hi Tech p.a. per capita | 2.1 | 15 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.3 | 26 | 3.5 |
| Info. Tech p.a. per capita | 0.6 | 18 | 0.9 |
| Average per capita (1994-2000) | 9.5 | 17 | 9.6 |
| Average per capita (2001-2003) | 14.2 | 15 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.49 | 27 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD North West




North West Queensland is a belt of tropical savannah divided into hard country and soft. The hard country, with rock underfoot, has proved to be a major mineral province. Mt Isa is the main city and supply centre. There are few other towns since the newer mines are mostly fly-in fly-out, and mining now generates few jobs in relation to the value of output. The soft country supports extensive grazing, but has sufficient rainfall to give potential for intensification in some places. There is a significant Aboriginal population.

N.B Unemployment figures in remote regions can display excess variation.

**Major centres:**

Mt Isa

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 35,727 | | 35,932 | | 35,792 | | -0.1 |
| No. households | 12,744 | | 12,918 | | 13,036 | | 0.3 |
| Workforce | 21,410 | 59.8 | 19,314 | 53.8 | 20,043 | 56.0 | 1.2 |
| Employment | 20,991 | – | 17,420 | – | 18,092 | – | 1.3 |
| Unemployment | 419 | 2.0 | 1,895 | 9.8 | 1,951 | 9.7 | 1.0 |
| DEET U/E | 1,391 | 6.4 | 1,424 | 7.4 | 1,401 | 7.1 | -0.6 |
| Structural U/E, % population[1] | 1,069 | 4.7 | 2,443 | 10.6 | 2,535 | 11.0 | 1.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 544 | 15,298 | 561 | 15,603 | 627 | 17,510 | 2.7 |
| Taxes paid | 150 | 4,203 | 137 | 3,807 | 177 | 4,941 | 3.3 |
| GST paid | 38 | 1,063 | 46 | 1,285 | 66 | 1,856 | – |
| Benefits | 74 | 2,080 | 121 | 3,381 | 170 | 4,740 | 17.9 |
| Business income | 110 | 3,093 | 115 | 3,208 | 175 | 4,893 | 9.6 |
| Interest/dividends | 9 | 246 | 9 | 260 | 8 | 214 | -2.7 |
| Interest paid | 39 | 1,092 | 53 | 1,471 | 70 | 1,952 | 12.3 |
| Net property income | 0 | -13 | -3 | -90 | -4 | -100 | -$86 |
| Net flow of funds | 510 | 14,345 | 568 | 15,799 | 662 | 18,509 | 5.2 |
| Rank | | 11 | | 12 | | 7 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 50 | 61 |
| Skills corrected factor (out of 1,000) | 69 | 59 |
| Industry corrected factor (out of 1,000) | 61 | 61 |
| Global knowledge factor (out of 1,000) | 44 | 61 |
| Resident skills matching | 459 | 19 |
| Resident industry matching | 76 | 12 |
| Catchment jobs/workers | 609 | 9 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 56 | 61 |
| Industry corrected factor (out of 1,000) | 86 | 57 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 61 | 61 |
| Industry corrected factor (out of 1,000) | 104 | 56 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 7,970 | 5,384 |
| 60 minutes, door to door | 8,173 | 5,495 |
| 100 minutes, door to door | 8,604 | 5,729 |
| *"Congestion exposure risk factor, rank"* | 3 | 64 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 6 | 61 |
| Highest performing LGA –Mornington (S) | 116 | 127 |
| Lowest performing LGA –Carpentaria (S) | 1 | 612 |
| Distance to significant retail diversity (km) | 420.4 | 62 |
| Missing local retail types (out of 44) | 41 | 58 |
| Highest performing LGA –Mornington (S) | 18 | 150 |
| Lowest performing LGA –Burke (S) | 44 | 317 |
| Percentage of retail missing (%) | 79.1% | 58 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 810 | 28 |
| 2001 | 1,402 | 15 |
| 2003 | 410 | 46 |
| 2004 | 524 | 46 |

YourPlace
*The place to go for the performance of Australia's local economies*

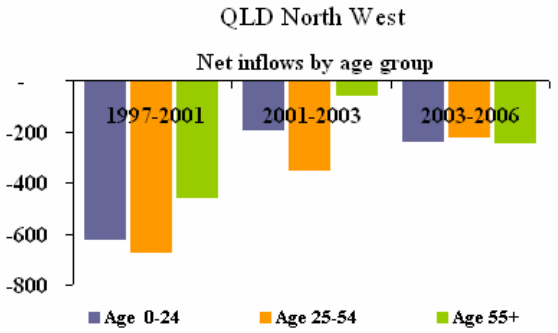
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 67.9 | 71.3% | 59.4% | 9 |
| High LGA – McKinlay (S) | 99.5 | 106.6% | | |
| Low LGA – Mornington (S) | 1.6 | 40.4% | | |
| Infrastructure | 41.8 | 0.50 | 1.53 | 50 |
| High LGA – Richmond (S) | 83.8 | 1.49 | | |
| Low LGA – McKinlay (S) | 7.4 | 0.07 | | |
| Household prosperity potential | 45.6 | 88% | 100% | 59 |
| High LGA – Mount Isa (C) | 64.5 | 132% | | |
| Low LGA – Mornington (S) | 0.0 | -102% | | |
| Global knowledge flows | 49.9 | 5.7% | 12.9% | 49 |
| High LGA – Burke (S) | 58.1 | 6.5% | | |
| Low LGA – Mornington (S) | 3.2 | 1.0% | | |
| Knowledge driven growth potential | 16.7 | 0.34 | 0.67 | 64 |
| High LGA – Cloncurry (S) | 31.7 | 0.45 | | |
| Low LGA – Mornington (S) | 0.0 | 0.04 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

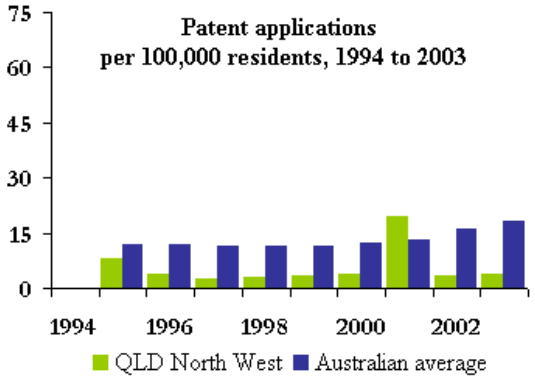
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.43 | 0.41 | 0.40 | 0.40 |
| 25 – 54 | 0.45 | 0.46 | 0.45 | 0.46 |
| 55+ | 0.13 | 0.13 | 0.14 | 0.15 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -620 | -190 | -236 |
| 25 – 54 | | -670 | -347 | -217 |
| 55+ | | -458 | -57 | -241 |
| Average age | 29.7 | 30.7 | 31.4 | 31.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 1.015%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 14.5 | 12 |
| 2001 | 21.4 | 34 |
| 2003 | 25.3 | 49 |
| 2004 | 25.4 | 49 |
| Income supported households (%) | 22.0 | 26 |

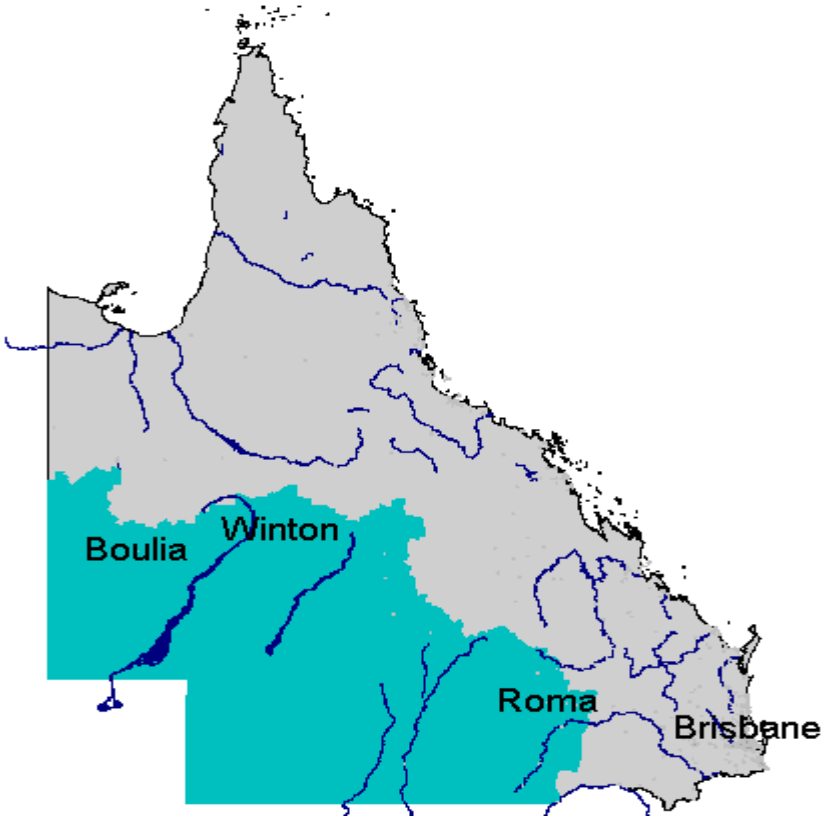



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 2.3 | 61 | 39.2 |
| Average p.a. per capita | 6.2 | 47 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.3 | 59 | 9.8 |
| Hi Tech p.a. per capita | 0.9 | 42 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 52 | 3.5 |
| Info. Tech p.a. per capita | 0.3 | 35 | 0.9 |
| Average per capita (1994-2000) | 6.3 | 39 | 9.6 |
| Average per capita (2001-2003) | 6.0 | 56 | 14.3 |
| 2001-03 avg./1994-00 avg. | 0.95 | 62 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Pastoral




Pastoral Queensland comprises two state planning zones, grouped together because of low population and similarity of economic base. The region has no large towns, though it is gradually developing an 'outback' tourist trade. Much of the region is alluvial Channel country or low-rainfall black-soil downs, divided into extensive pastoral stations. Unlike the region to the north, this pastoral zone is not known for hard-rock mining, but has natural gas fields. North of Roma, extending into the Fitzroy region, coal seam methane fields are rising in importance.

**Major centres:**

Roma, Longreach, Charleville

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 38,272 | | 39,499 | | 39,625 | | 0.1 |
| No. households | 15,238 | | 15,480 | | 16,063 | | 1.2 |
| Workforce | 23,292 | 60.9 | 24,291 | 61.5 | 24,480 | 61.8 | 0.3 |
| Employment | 21,229 | – | 22,798 | – | 23,274 | – | 0.7 |
| Unemployment | 2,063 | 8.9 | 1,491 | 6.1 | 1,206 | 4.9 | -6.8 |
| DEET U/E | 917 | 4.1 | 891 | 3.7 | 771 | 3.2 | -4.7 |
| Structural U/E, % population[1] | 2,366 | 10.0 | 2,199 | 9.5 | 2,003 | 8.1 | -3.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 423 | 10,857 | 508 | 12,859 | 526 | 13,265 | 4.1 |
| Taxes paid | 105 | 2,690 | 117 | 2,962 | 170 | 4,291 | 9.8 |
| GST paid | 28 | 712 | 42 | 1,057 | 74 | 1,876 | – |
| Benefits | 86 | 2,209 | 98 | 2,471 | 138 | 3,485 | 9.6 |
| Business income | 95 | 2,428 | 96 | 2,436 | 168 | 4,233 | 11.8 |
| Interest/dividends | 15 | 378 | 17 | 443 | 21 | 518 | 6.5 |
| Interest paid | 36 | 929 | 51 | 1,288 | 68 | 1,724 | 13.2 |
| Net property income | 7 | 171 | 3 | 65 | 1 | 25 | -$146 |
| Net flow of funds | 457 | 11,710 | 512 | 12,967 | 540 | 13,635 | 3.1 |
| Rank | | 37 | | 30 | | 42 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | ` | |
| Accessibility factor (out of 1,000) | 0 | 64 |
| Skills corrected factor (out of 1,000) | 0 | 64 |
| Industry corrected factor (out of 1,000) | 0 | 64 |
| Global knowledge factor (out of 1,000) | 0 | 64 |
| Resident skills matching | -200 | 64 |
| Resident industry matching | -344 | 52 |
| Catchment jobs/workers | 617 | 8 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 0 | 64 |
| Industry corrected factor (out of 1,000) | 0 | 64 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 0 | 64 |
| Industry corrected factor (out of 1,000) | 0 | 64 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 1,774 | 1,242 |
| 60 minutes, door to door | 1,964 | 1,425 |
| 100 minutes, door to door | 2,739 | 1,986 |
| *"Congestion exposure risk factor, rank"* | 3 | 61 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 3 | 62 |
| Highest performing LGA – Roma (T) | 5 | 531 |
| Lowest performing LGA –Diamantina (S) | 1 | 612 |
| Distance to significant retail diversity (km) | 355.6 | 61 |
| Missing local retail types (out of 44) | 44 | 64 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 100.0% | 64 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 356 | 62 |
| 2001 | 767 | 57 |
| 2003 | 252 | 63 |
| 2004 | 410 | 55 |

YourPlace
*The place to go for the performance of Australia's local economies*

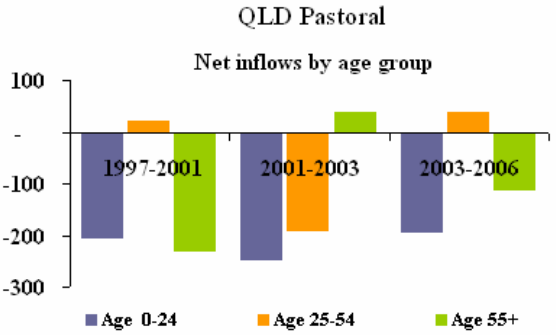
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 86.2 | 81.9% | 59.4% | 1 |
| High LGA – Bulloo (S) | 99.7 | 108.7% | | |
| Low LGA – Paroo (S) | 68.1 | 69.1% | | |
| Infrastructure | 37.0 | 0.44 | 1.53 | 64 |
| High LGA – Barcaldine (S) | 77.5 | 1.14 | | |
| Low LGA – Barcoo (S) | 0.5 | 0.00 | | |
| Household prosperity potential | 38.8 | 93% | 100% | 36 |
| High LGA – Longreach (S) | 98.3 | 275% | | |
| Low LGA – Paroo (S) | 8.6 | 17% | | |
| Global knowledge flows | 39.7 | 4.8% | 12.9% | 53 |
| High LGA – Bulloo (S) | 75.1 | 8.8% | | |
| Low LGA – Barcoo (S) | 4.9 | 1.4% | | |
| Knowledge driven growth potential | 43.1 | 0.51 | 0.67 | 59 |
| High LGA – Bendemere (S) | 79.2 | 0.78 | | |
| Low LGA – Ilfracombe (S) | 1.0 | 0.10 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

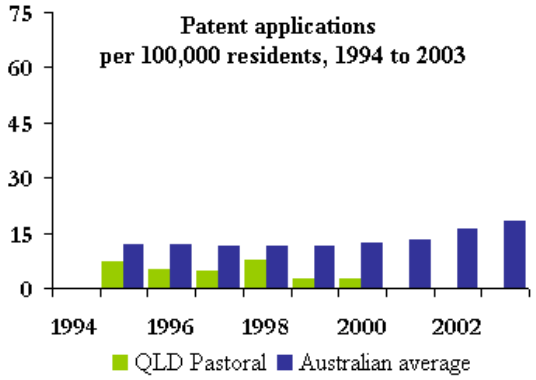
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.38 | 0.37 | 0.36 | 0.35 |
| 25 – 54 | 0.44 | 0.44 | 0.43 | 0.43 |
| 55+ | 0.20 | 0.20 | 0.21 | 0.22 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -203 | -245 | -192 |
| 25 – 54 | | 21 | -190 | 39 |
| 55+ | | -229 | 37 | -112 |
| Average age | 33.6 | 34.4 | 35.3 | 35.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 1.550%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 18.9 | 24 |
| 2001 | 19.1 | 23 |
| 2003 | 26.1 | 51 |
| 2004 | 25.2 | 48 |
| Income supported households (%) | 20.7 | 35 |

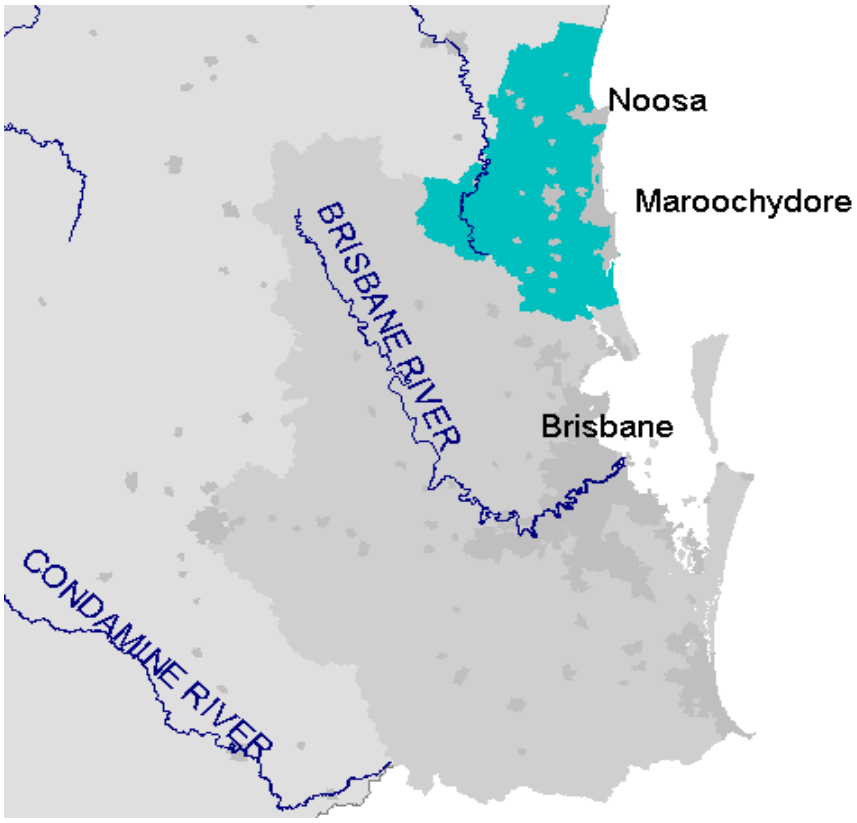



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 1.4 | 64 | 39.2 |
| Average p.a. per capita | 3.5 | 61 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.1 | 64 | 9.8 |
| Hi Tech p.a. per capita | 0.3 | 61 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.0 | 60 | 3.5 |
| Info. Tech p.a. per capita | 0.0 | 60 | 0.9 |
| Average per capita (1994-2000) | 4.3 | 56 | 9.6 |
| Average per capita (2001-2003) | 1.6 | 63 | 14.3 |
| 2001-03 avg./1994-00 avg. | 0.38 | 64 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Sunshine Coast




The Sunshine Coast is a resort and retirement strip, newer than the Gold Coast and with more room; hence not so intensively developed, but growing much more rapidly. Back from the strip is a row of older towns, the chief of which is Nambour. Some intensive farming survives (including pineapples), but the region's sugar industry has recently collapsed. This has increased the supply of land available for urban conversion.

**Major centres:**

Caloundra, Nambour, Noosa

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 223,868 | | 247,167 | | 275,175 | | 3.6 |
| No. households | 93,819 | | 103,491 | | 112,222 | | 2.7 |
| Workforce | 105,285 | 46.8 | 122,430 | 49.5 | 127,621 | 46.4 | 1.4 |
| Employment | 87,871 | – | 102,889 | – | 113,607 | – | 3.4 |
| Unemployment | 17,413 | 16.5 | 19,541 | 16.0 | 14,014 | 11.0 | -10.5 |
| DEET U/E | 11,664 | 13.4 | 13,735 | 11.5 | 10,372 | 8.3 | -8.9 |
| Structural U/E, % population[1] | 17,826 | 14.0 | 21,073 | 15.2 | 18,901 | 11.2 | -3.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,248 | 9,665 | 2,766 | 11,192 | 3,428 | 12,456 | 5.2 |
| Taxes paid | 568 | 2,443 | 656 | 2,654 | 810 | 2,944 | 3.8 |
| GST paid | 187 | 805 | 303 | 1,227 | 490 | 1,782 | – |
| Benefits | 704 | 3,028 | 788 | 3,187 | 975 | 3,544 | 3.2 |
| Business income | 401 | 1,726 | 407 | 1,645 | 547 | 1,989 | 2.9 |
| Interest/dividends | 146 | 628 | 180 | 730 | 178 | 648 | 0.6 |
| Interest paid | 169 | 726 | 230 | 930 | 256 | 930 | 5.1 |
| Net property income | 73 | 314 | 45 | 181 | 64 | 233 | -$81 |
| Net flow of funds | 2,648 | 11,387 | 2,997 | 12,124 | 3,636 | 13,213 | 3.0 |
| Rank | | 50 | | 49 | | 52 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 286 | 27 |
| Skills corrected factor (out of 1,000) | 284 | 27 |
| Industry corrected factor (out of 1,000) | 293 | 27 |
| Global knowledge factor (out of 1,000) | 229 | 28 |
| Resident skills matching | 186 | 31 |
| Resident industry matching | -42 | 25 |
| Catchment jobs/workers | 477 | 44 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 274 | 28 |
| Industry corrected factor (out of 1,000) | 284 | 28 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 258 | 29 |
| Industry corrected factor (out of 1,000) | 270 | 29 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 23,815 | 25,446 |
| 60 minutes, door to door | 81,348 | 88,549 |
| 100 minutes, door to door | 188,616 | 223,992 |
| *"Congestion exposure risk factor, rank"* | 98 | 25 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 94 | 29 |
| Highest performing LGA – Noosa (S) | 103 | 134 |
| Lowest performing LGA –Caloundra (C) | 87 | 141 |
| Distance to significant retail diversity (km) | 16.7 | 24 |
| Missing local retail types (out of 44) | 15 | 24 |
| Highest performing LGA –Maroochy (S) | 11 | 131 |
| Lowest performing LGA –Noosa (S) | 26 | 174 |
| Percentage of retail missing (%) | 7.0% | 22 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 987 | 14 |
| 2001 | 1,690 | 8 |
| 2003 | 1,311 | 2 |
| 2004 | 1,352 | 3 |

YourPlace
*The place to go for the performance of Australia's local economies*

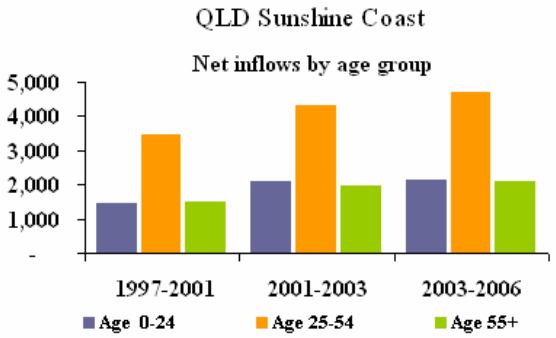
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 15.0 | 52.0% | 59.4% | 62 |
| High LGA – Maroochy (S) | 17.3 | 53.2% | | |
| Low LGA – Noosa (S) | 12.0 | 50.5% | | |
| Infrastructure | 71.4 | 0.97 | 1.53 | 6 |
| High LGA – Noosa (S) | 75.7 | 1.08 | | |
| Low LGA – Caloundra (C) | 63.1 | 0.75 | | |
| Household prosperity potential | 45.1 | 91% | 100% | 25 |
| High LGA – Noosa (S) | 79.8 | 165% | | |
| Low LGA – Caloundra (C) | 5.6 | -1% | | |
| Global knowledge flows | 63.3 | 7.2% | 12.9% | 22 |
| High LGA – Maroochy (S) | 71.0 | 8.1% | | |
| Low LGA – Caloundra (C) | 47.2 | 5.4% | | |
| Knowledge driven growth potential | 52.7 | 0.57 | 0.67 | 28 |
| High LGA – Noosa (S) | 60.3 | 0.62 | | |
| Low LGA – Caloundra (C) | 40.7 | 0.50 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

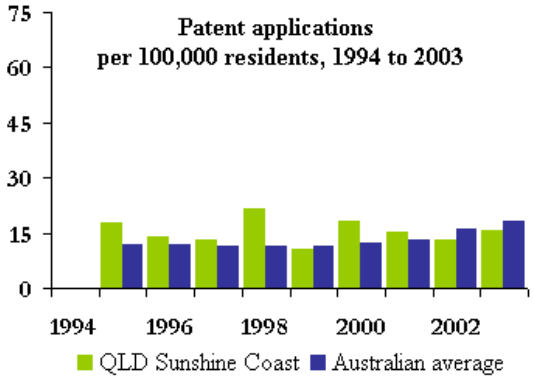
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.33 | 0.32 | 0.31 | 0.31 |
| 25 – 54 | 0.42 | 0.41 | 0.41 | 0.40 |
| 55+ | 0.25 | 0.27 | 0.28 | 0.30 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,434 | 2,098 | 2,157 |
| 25 – 54 | | 3,468 | 4,313 | 4,686 |
| 55+ | | 1,478 | 1,954 | 2,113 |
| Average age | 37.1 | 39.1 | 39.5 | 40.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -1.543%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 26.6 | 57 |
| 2001 | 26.3 | 56 |
| 2003 | 21.4 | 33 |
| 2004 | 26.5 | 51 |
| Income supported households (%) | 22.3 | 23 |

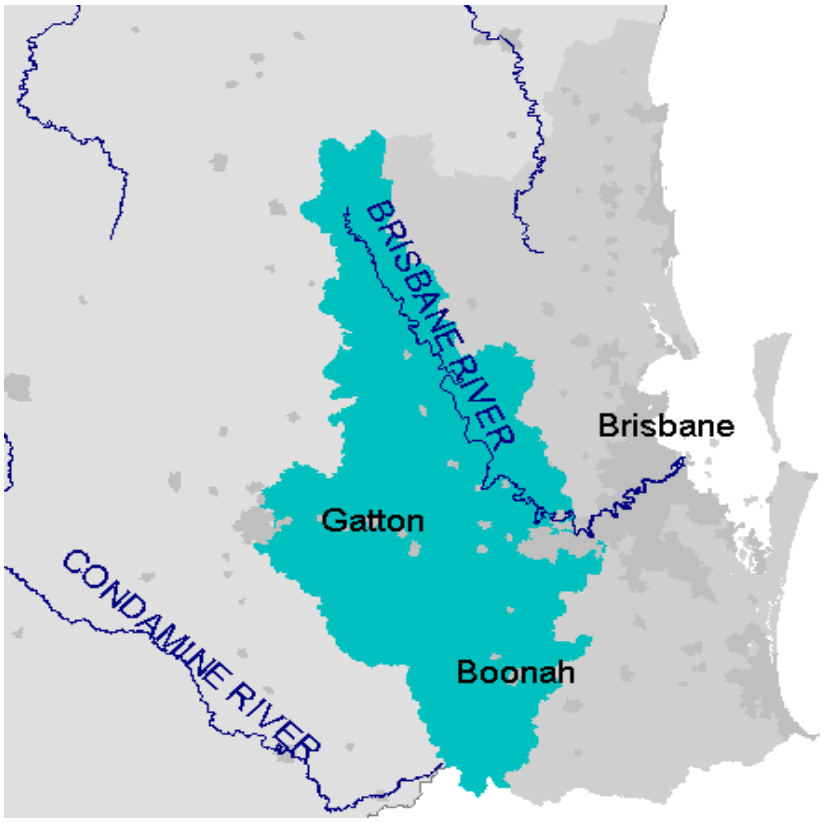



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 33.5 | 22 | 39.2 |
| Average p.a. per capita | 16.4 | 11 | 13.7 |
| Hi Tech p.a. (1994-2003) | 4.8 | 23 | 9.8 |
| Hi Tech p.a. per capita | 2.1 | 16 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.7 | 23 | 3.5 |
| Info. Tech p.a. per capita | 0.7 | 14 | 0.9 |
| Average per capita (1994-2000) | 15.8 | 8 | 9.6 |
| Average per capita (2001-2003) | 17.8 | 12 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.13 | 54 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD West Moreton




The West Moreton region centres on Ipswich, which has long regarded itself as independent of Brisbane 40 km to the east. Manufacturing industry and power production were originally based on local coal mines, and the region also attracted defence facilities. In more recent times commuting has increased, but the hills are hot in summer and have not proved attractive to hobby farmers. Intensive agriculture is practised in the several fertile valleys of tributaries of the Brisbane river, though drought has threatened their groundwater supply.

**Major centres:**

Ipswich

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 175,610 | | 178,498 | | 186,313 | | 1.4 |
| No. households | 61,370 | | 63,743 | | 65,070 | | 0.7 |
| Workforce | 90,470 | 49.9 | 98,935 | 55.4 | 94,927 | 51.0 | -1.4 |
| Employment | 79,848 | – | 87,011 | – | 83,906 | – | -1.2 |
| Unemployment | 10,621 | 11.7 | 11,924 | 12.1 | 11,021 | 11.6 | -2.6 |
| DEET U/E | 8,422 | 9.6 | 7,472 | 7.9 | 5,975 | 6.7 | -7.2 |
| Structural U/E, % population[1] | 13,661 | 12.9 | 15,942 | 14.7 | 16,311 | 14.0 | 0.8 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,953 | 11,123 | 2,210 | 12,382 | 2,175 | 11,677 | 1.0 |
| Taxes paid | 485 | 2,764 | 497 | 2,783 | 573 | 3,076 | 2.2 |
| GST paid | 134 | 765 | 204 | 1,140 | 263 | 1,413 | – |
| Benefits | 484 | 2,758 | 530 | 2,968 | 669 | 3,590 | 5.4 |
| Business income | 305 | 1,735 | 310 | 1,736 | 357 | 1,915 | 2.0 |
| Interest/dividends | 37 | 210 | 46 | 259 | 43 | 231 | 1.9 |
| Interest paid | 188 | 1,069 | 252 | 1,413 | 321 | 1,724 | 10.0 |
| Net property income | 6 | 33 | -2 | -12 | -13 | -69 | -$102 |
| Net flow of funds | 1,978 | 11,261 | 2,141 | 11,996 | 2,074 | 11,132 | -0.2 |
| Rank | | 51 | | 54 | | 64 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 332 | 22 |
| Skills corrected factor (out of 1,000) | 353 | 22 |
| Industry corrected factor (out of 1,000) | 325 | 23 |
| Global knowledge factor (out of 1,000) | 286 | 24 |
| Resident skills matching | 550 | 16 |
| Resident industry matching | -553 | 55 |
| Catchment jobs/workers | 510 | 28 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 332 | 23 |
| Industry corrected factor (out of 1,000) | 334 | 23 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 323 | 23 |
| Industry corrected factor (out of 1,000) | 331 | 23 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 19,935 | 22,556 |
| 60 minutes, door to door | 109,216 | 128,953 |
| 100 minutes, door to door | 539,792 | 524,468 |
| *"Congestion exposure risk factor, rank"* | 578 | 4 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 108 | 27 |
| Highest performing LGA – Ipswich (C) | 138 | 116 |
| Lowest performing LGA –Gatton (S) | 24 | 264 |
| Distance to significant retail diversity (km) | 20.6 | 27 |
| Missing local retail types (out of 44) | 18 | 27 |
| Highest performing LGA –Ipswich (C) | 7 | 125 |
| Lowest performing LGA –Boonah (S) | 44 | 317 |
| Percentage of retail missing (%) | 29.9% | 31 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 548 | 50 |
| 2001 | 926 | 51 |
| 2003 | 581 | 33 |
| 2004 | 751 | 17 |

YourPlace
*The place to go for the performance of Australia's local economies*

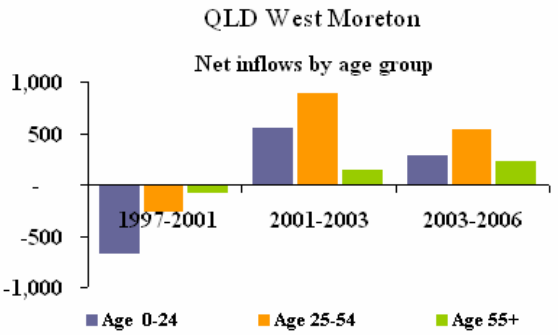
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 28.4 | 57.5% | 59.4% | 46 |
| High LGA – Boonah (S) | 66.0 | 68.5% | | |
| Low LGA – Laidley (S) | 15.0 | 52.2% | | |
| Infrastructure | 65.8 | 1.18 | 1.53 | 61 |
| High LGA – Ipswich (C) | 85.3 | 1.59 | | |
| Low LGA – Laidley (S) | 5.9 | 0.04 | | |
| Household prosperity potential | 17.0 | 37% | 100% | 53 |
| High LGA – Esk (S) | 78.1 | 160% | | |
| Low LGA – Gatton (S) | 6.1 | 1% | | |
| Global knowledge flows | 54.0 | 6.1% | 12.9% | 48 |
| High LGA – Ipswich (C) | 59.9 | 6.7% | | |
| Low LGA – Laidley (S) | 16.4 | 2.8% | | |
| Knowledge driven growth potential | 23.5 | 0.40 | 0.67 | 35 |
| High LGA – Boonah (S) | 65.1 | 0.66 | | |
| Low LGA – Ipswich (C) | 16.0 | 0.35 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

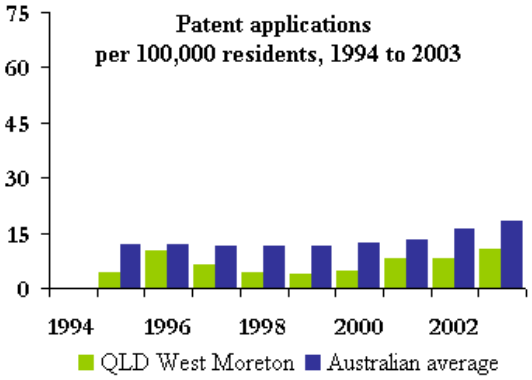
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.40 | 0.38 | 0.38 | 0.37 |
| 25 – 54 | 0.43 | 0.43 | 0.42 | 0.41 |
| 55+ | 0.17 | 0.19 | 0.20 | 0.22 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -656 | 544 | 277 |
| 25 – 54 | | -247 | 886 | 534 |
| 55+ | | -67 | 138 | 226 |
| Average age | 32.4 | 34.4 | 34.9 | 35.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.518%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 24.5 | 48 |
| 2001 | 24.7 | 50 |
| 2003 | 24.9 | 47 |
| 2004 | 31.9 | 59 |
| Income supported households (%) | 25.4 | 10 |

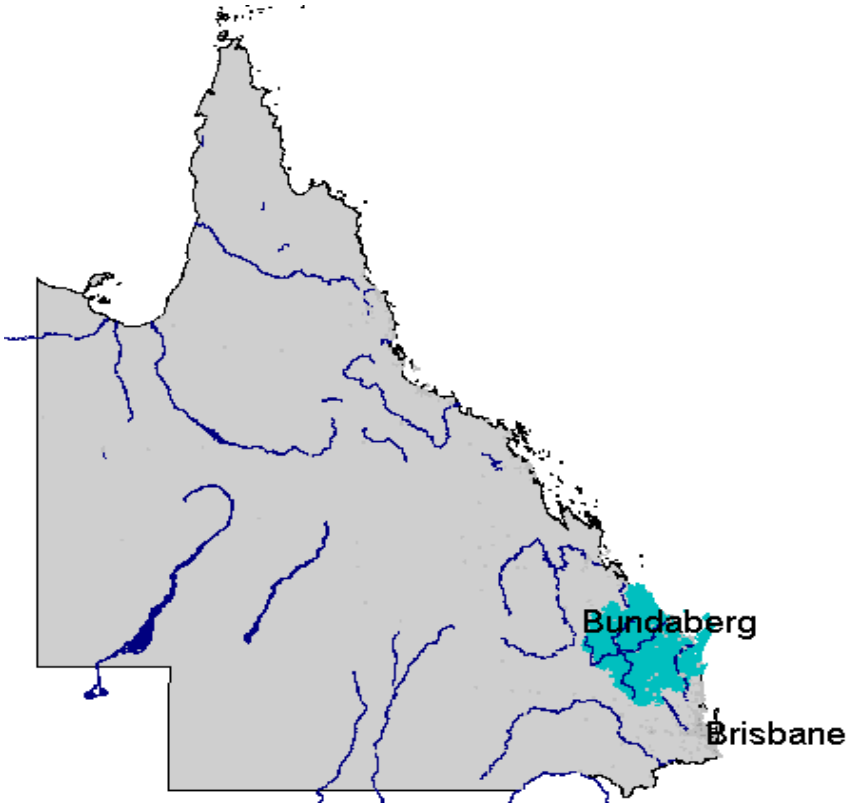



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 11.4 | 39 | 39.2 |
| Average p.a. per capita | 6.7 | 40 | 13.7 |
| Hi Tech p.a. (1994-2003) | 2.2 | 37 | 9.8 |
| Hi Tech p.a. per capita | 1.2 | 31 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.4 | 42 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 41 | 0.9 |
| Average per capita (1994-2000) | 5.9 | 41 | 9.6 |
| Average per capita (2001-2003) | 8.4 | 42 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.41 | 35 | 1.48 |

*Note:* Per capita = 100,000 people.

# QLD Wide Bay-Burnett




Wide Bay-Burnett comprises several sub-regions.

- The retirement and resort developments around Hervey Bay are the northerly outposts of a settlement type familiar on the NSW coast. The old industrial town of Maryborough provides a commercial centre.
- Around and behind Bundaberg is a region of intensive agriculture, growing mainly sugar cane. Bundaberg has developed as a regional centre and has manufacturing industries based on agricultural processing.
- The rural hinterland, beyond reach of the sea breeze, has missed out on retirement migration. Round Kingaroy and in several other places intensive agriculture is practised.

**Major centres:**

Bundaberg, Maryborough, Gympie

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 229,769 | | 236,492 | | 248,693 | | 1.7 |
| No. households | 90,969 | | 95,378 | | 99,628 | | 1.5 |
| Workforce | 108,488 | 47.0 | 104,777 | 44.3 | 107,445 | 43.2 | 0.8 |
| Employment | 88,720 | – | 82,977 | – | 87,587 | – | 1.8 |
| Unemployment | 19,768 | 18.2 | 21,800 | 20.8 | 19,858 | 18.5 | -3.1 |
| DEET U/E | 14,974 | 12.8 | 11,674 | 10.6 | 10,390 | 10.4 | -3.8 |
| Structural U/E, % population[1] | 22,491 | 17.1 | 26,109 | 19.2 | 26,179 | 17.6 | 0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,956 | 8,454 | 2,223 | 9,401 | 2,693 | 10,827 | 5.1 |
| Taxes paid | 467 | 2,018 | 494 | 2,089 | 619 | 2,490 | 4.3 |
| GST paid | 206 | 889 | 264 | 1,116 | 404 | 1,626 | – |
| Benefits | 768 | 3,321 | 861 | 3,640 | 1,114 | 4,480 | 6.2 |
| Business income | 371 | 1,604 | 375 | 1,584 | 530 | 2,133 | 5.9 |
| Interest/dividends | 71 | 309 | 84 | 356 | 85 | 343 | 2.1 |
| Interest paid | 179 | 773 | 247 | 1,045 | 321 | 1,293 | 10.8 |
| Net property income | 32 | 140 | 14 | 58 | -5 | -21 | -$161 |
| Net flow of funds | 2,348 | 10,147 | 2,551 | 10,788 | 3,072 | 12,354 | 4.0 |
| Rank | | 62 | | 61 | | 58 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 130 | 47 |
| Skills corrected factor (out of 1,000) | 132 | 47 |
| Industry corrected factor (out of 1,000) | 138 | 47 |
| Global knowledge factor (out of 1,000) | 99 | 50 |
| Resident skills matching | 141 | 37 |
| Resident industry matching | -43 | 26 |
| Catchment jobs/workers | 501 | 37 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 134 | 47 |
| Industry corrected factor (out of 1,000) | 143 | 47 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 126 | 47 |
| Industry corrected factor (out of 1,000) | 137 | 48 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 9,882 | 9,611 |
| 60 minutes, door to door | 17,953 | 17,864 |
| 100 minutes, door to door | 40,494 | 41,404 |
| *"Congestion exposure risk factor, rank"* | 88 | 26 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 35 | 45 |
| Highest performing LGA – Bundaberg (C) | 61 | 163 |
| Lowest performing LGA –Mundubbera (S) | 7 | 491 |
| Distance to significant retail diversity (km) | 50.2 | 39 |
| Missing local retail types (out of 44) | 33 | 38 |
| Highest performing LGA –Bundaberg (C) | 25 | 164 |
| Lowest performing LGA –Biggenden (S) | 44 | 317 |
| Percentage of retail missing (%) | 47.5% | 40 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 557 | 49 |
| 2001 | 1,042 | 47 |
| 2003 | 719 | 22 |
| 2004 | 831 | 12 |

YourPlace
*The place to go for the performance of Australia's local economies*

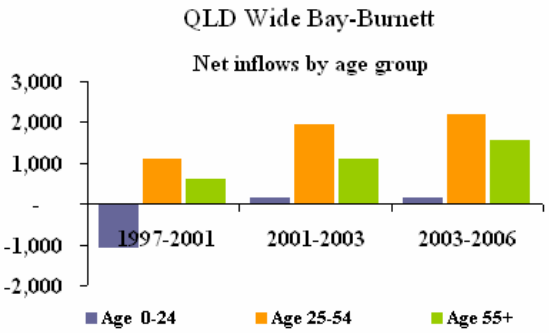
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 17.3 | 51.3% | 59.4% | 43 |
| High LGA – Monto (S) | 93.8 | 86.4% | | |
| Low LGA – Hervey Bay (C) | 2.3 | 41.8% | | |
| Infrastructure | 48.7 | 0.65 | 1.53 | 53 |
| High LGA – Maryborough (C) | 87.9 | 1.86 | | |
| Low LGA – Kolan (S) | 5.3 | 0.03 | | |
| Household prosperity potential | 25.8 | 50% | 100% | 49 |
| High LGA – Isis (S) | 63.7 | 131% | | |
| Low LGA – Cooloola (S) | 2.4 | -27% | | |
| Global knowledge flows | 41.8 | 5.0% | 12.9% | 63 |
| High LGA – Maryborough (C) | 60.1 | 6.7% | | |
| Low LGA – Eidsvold (S) | 4.6 | 1.3% | | |
| Knowledge driven growth potential | 31.3 | 0.45 | 0.67 | 45 |
| High LGA – Wondai (S) | 78.4 | 0.77 | | |
| Low LGA – Perry (S) | 5.3 | 0.22 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

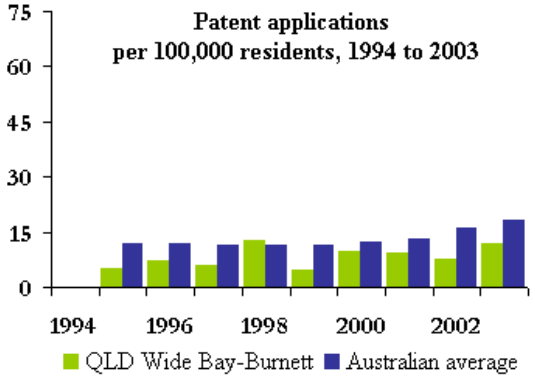
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.35 | 0.33 | 0.32 | 0.31 |
| 25 – 54 | 0.41 | 0.39 | 0.38 | 0.37 |
| 55+ | 0.25 | 0.28 | 0.29 | 0.32 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -1,036 | 162 | 136 |
| 25 – 54 | | 1,110 | 1,942 | 2,200 |
| 55+ | | 593 | 1,095 | 1,557 |
| Average age | 36.3 | 38.8 | 39.4 | 40.7 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.963%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 32.7 | 62 |
| 2001 | 33.7 | 61 |
| 2003 | 31.2 | 59 |
| 2004 | 35.8 | 63 |
| Income supported households (%) | 29.5 | 2 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 17.1 | 33 | 39.2 |
| Average p.a. per capita | 7.8 | 36 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.9 | 39 | 9.8 |
| Hi Tech p.a. per capita | 0.8 | 44 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.6 | 35 | 3.5 |
| Info. Tech p.a. per capita | 0.3 | 38 | 0.9 |
| Average per capita (1994-2000) | 7.8 | 29 | 9.6 |
| Average per capita (2001-2003) | 7.8 | 48 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.01 | 58 | 1.48 |

*Note:* Per capita = 100,000 people.

# Adelaide Central


The founding fathers of Adelaide picked a site where the Adelaide plain began to slope upwards towards Mt Lofty, though still well short of the main escarpment. This choice resulted in the City having essentially industrial suburbs to the immediate west, while leafy garden suburbs developed to the east and south, between the City and the escarpment. The Adelaide Central region groups the City with these garden suburbs. The economic base of the region lies in its City; the rest of the region consists of suburbs into which a few city centre functions are slowly infusing, plus the gracious resorts of the Holdfast Bay coastline.

**Major centres:**

Adelaide, Glenelg

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 370,144 | | 374,504 | | 378,681 | | 0.4 |
| No. households | 153,804 | | 160,668 | | 169,404 | | 1.8 |
| Workforce | 186,855 | 50.7 | 189,653 | 50.6 | 202,156 | 53.4 | 2.2 |
| Employment | 168,964 | – | 172,830 | – | 188,279 | – | 2.9 |
| Unemployment | 17,891 | 9.6 | 16,822 | 8.9 | 13,877 | 6.9 | -6.2 |
| DEET U/E | 13,963 | 7.6 | 11,455 | 6.2 | 9,345 | 4.7 | -6.6 |
| Structural U/E, % population[1] | 21,636 | 9.5 | 21,764 | 9.4 | 21,071 | 8.7 | -1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 5,466 | 14,735 | 6,573 | 17,550 | 7,247 | 19,136 | 5.4 |
| Taxes paid | 1,588 | 4,280 | 1,917 | 5,120 | 2,139 | 5,648 | 5.7 |
| GST paid | 374 | 1,008 | 544 | 1,454 | 633 | 1,672 | – |
| Benefits | 896 | 2,415 | 956 | 2,554 | 1,106 | 2,920 | 3.9 |
| Business income | 750 | 2,022 | 803 | 2,143 | 855 | 2,257 | 2.2 |
| Interest/dividends | 446 | 1,201 | 594 | 1,586 | 523 | 1,381 | 2.8 |
| Interest paid | 283 | 763 | 386 | 1,030 | 504 | 1,332 | 11.8 |
| Net property income | 157 | 423 | 128 | 341 | 79 | 208 | -$215 |
| Net flow of funds | 5,470 | 14,746 | 6,206 | 16,571 | 6,533 | 17,252 | 3.2 |
| Rank | | 10 | | 9 | | 11 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 568 | 12 |
| Skills corrected factor (out of 1,000) | 551 | 12 |
| Industry corrected factor (out of 1,000) | 567 | 13 |
| Global knowledge factor (out of 1,000) | 487 | 13 |
| Resident skills matching | 46 | 50 |
| Resident industry matching | -320 | 51 |
| Catchment jobs/workers | 477 | 45 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 570 | 12 |
| Industry corrected factor (out of 1,000) | 579 | 12 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 589 | 12 |
| Industry corrected factor (out of 1,000) | 598 | 11 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 97,695 | 116,530 |
| 60 minutes, door to door | 400,777 | 384,229 |
| 100 minutes, door to door | 467,808 | 465,834 |
| *"Congestion exposure risk factor, rank"* | 56 | 32 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 274 | 10 |
| Highest performing LGA – Adelaide (C) | 1,947 | 3 |
| Lowest performing LGA –Campbelltown (C) SA | 135 | 118 |
| Distance to significant retail diversity (km) | 6.9 | 11 |
| Missing local retail types (out of 44) | 3 | 14 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.3% | 14 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 536 | 51 |
| 2001 | 891 | 52 |
| 2003 | 526 | 36 |
| 2004 | 481 | 51 |

YourPlace
*The place to go for the performance of Australia's local economies*

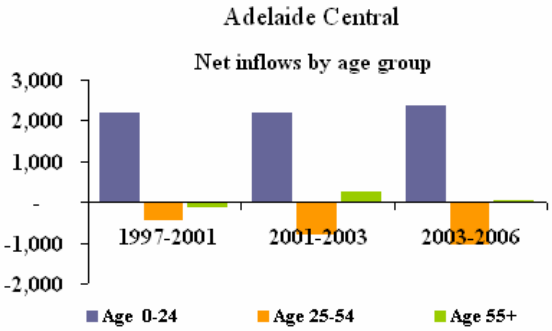
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 41.8 | 61.3% | 59.4% | 36 |
| High LGA – Unley (C) | 58.9 | 65.9% | | |
| Low LGA – Adelaide (C) | 22.6 | 55.6% | | |
| Infrastructure | 34.6 | 1.07 | 1.53 | 55 |
| High LGA – Adelaide (C) | 98.3 | 20.91 | | |
| Low LGA – Campbelltown (C) SA | 11.2 | 0.11 | | |
| Household prosperity potential | 75.9 | 170% | 100% | 8 |
| High LGA – Walkerville (M) | 98.8 | 289% | | |
| Low LGA – Unley (C) | 38.9 | 87% | | |
| Global knowledge flows | 93.8 | 20.4% | 12.9% | 10 |
| High LGA – Adelaide (C) | 99.2 | 24.9% | | |
| Low LGA – Holdfast Bay (C) | 62.4 | 6.9% | | |
| Knowledge driven growth potential | 86.6 | 1.04 | 0.67 | 8 |
| High LGA – Burnside (C) | 98.2 | 1.27 | | |
| Low LGA – Marion (C) | 22.6 | 0.40 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

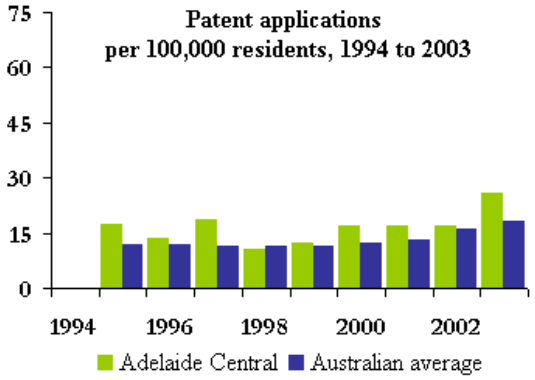
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.35 | 0.33 | 0.33 | 0.33 |
| 25 – 54 | 0.43 | 0.43 | 0.42 | 0.42 |
| 55+ | 0.23 | 0.23 | 0.24 | 0.25 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 2,181 | 2,180 | 2,362 |
| 25 – 54 | | -424 | -761 | -1,005 |
| 55+ | | -98 | 260 | 49 |
| Average age | 39.4 | 40.2 | 40.6 | 41.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.355%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 16.4 | 17 |
| 2001 | 15.4 | 12 |
| 2003 | 15.9 | 12 |
| 2004 | 16.8 | 13 |
| Income supported households (%) | 13.6 | 58 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 63.4 | 11 | 39.2 |
| Average p.a. per capita | 17.2 | 10 | 13.7 |
| Hi Tech p.a. (1994-2003) | 20.2 | 11 | 9.8 |
| Hi Tech p.a. per capita | 5.3 | 6 | 2.5 |
| Info. Tech p.a. (1994-2003) | 8.2 | 10 | 3.5 |
| Info. Tech p.a. per capita | 2.2 | 5 | 0.9 |
| Average per capita (1994-2000) | 15.2 | 10 | 9.6 |
| Average per capita (2001-2003) | 21.9 | 9 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.44 | 34 | 1.48 |

*Note:* Per capita = 100,000 people.

# Adelaide Outer


The Outer Adelaide region comprises the Mt Lofty Ranges and the Fleurieu Peninsula. It is separated from Central Adelaide and the Adelaide Plains by a scarp which angles across from behind Gawler to the sea at Marino. To the east the rainfall drops off and the Mallee begins. The region includes a number of national parks and conservation areas, but there are also extensive post-1960s suburbs. Beyond these suburbs, to the south and north, are the established wine areas (the Barossa Valley and Southern Vales), and beyond again to the south are the resorts and retirement areas of Encounter Bay. The wine industry combines agriculture, manufacturing and tourism but the region is mainly a commuter zone.

**Major centres:**

Angaston, Mt Barker, Noarlunga Centre

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 352,106 | | 365,920 | | 375,540 | | 0.9 |
| No. households | 132,305 | | 139,181 | | 149,349 | | 2.4 |
| Workforce | 179,268 | 50.7 | 186,982 | 51.1 | 202,035 | 53.8 | 2.6 |
| Employment | 161,465 | – | 167,687 | – | 185,257 | – | 3.4 |
| Unemployment | 17,803 | 9.9 | 19,295 | 10.3 | 16,778 | 8.3 | -4.6 |
| DEET U/E | 14,327 | 8.1 | 11,445 | 6.3 | 9,499 | 4.9 | -6.0 |
| Structural U/E, % population[1] | 20,739 | 9.5 | 23,642 | 10.6 | 23,259 | 9.7 | -0.5 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 4,573 | 12,746 | 5,299 | 14,480 | 6,061 | 16,138 | 4.8 |
| Taxes paid | 1,180 | 3,289 | 1,277 | 3,491 | 1,510 | 4,022 | 4.1 |
| GST paid | 310 | 864 | 443 | 1,210 | 552 | 1,470 | – |
| Benefits | 852 | 2,376 | 944 | 2,579 | 1,179 | 3,138 | 5.7 |
| Business income | 588 | 1,639 | 616 | 1,683 | 701 | 1,866 | 2.6 |
| Interest/dividends | 153 | 426 | 196 | 536 | 175 | 465 | 1.8 |
| Interest paid | 395 | 1,100 | 520 | 1,420 | 640 | 1,703 | 9.1 |
| Net property income | 68 | 190 | 43 | 119 | 19 | 49 | -$141 |
| Net flow of funds | 4,350 | 12,125 | 4,858 | 13,276 | 5,431 | 14,463 | 3.6 |
| Rank | | 30 | | 24 | | 32 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 395 | 20 |
| Skills corrected factor (out of 1,000) | 393 | 20 |
| Industry corrected factor (out of 1,000) | 403 | 19 |
| Global knowledge factor (out of 1,000) | 323 | 21 |
| Resident skills matching | 430 | 21 |
| Resident industry matching | -32 | 21 |
| Catchment jobs/workers | 509 | 30 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 391 | 20 |
| Industry corrected factor (out of 1,000) | 402 | 20 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 398 | 19 |
| Industry corrected factor (out of 1,000) | 408 | 20 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 22,140 | 38,757 |
| 60 minutes, door to door | 231,218 | 201,644 |
| 100 minutes, door to door | 427,662 | 408,546 |
| *"Congestion exposure risk factor, rank"* | 291 | 9 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 116 | 26 |
| Highest performing LGA – Holdfast Bay (C) | 215 | 81 |
| Lowest performing LGA –Yankalilla (DC) | 15 | 338 |
| Distance to significant retail diversity (km) | 17.1 | 25 |
| Missing local retail types (out of 44) | 10 | 21 |
| Highest performing LGA –Holdfast Bay (C) | 3 | 94 |
| Lowest performing LGA –Victor Habor (C) | 44 | 317 |
| Percentage of retail missing (%) | 11.9% | 25 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 711 | 40 |
| 2001 | 1,166 | 34 |
| 2003 | 645 | 28 |
| 2004 | 662 | 30 |

YourPlace
*The place to go for the performance of Australia's local economies*

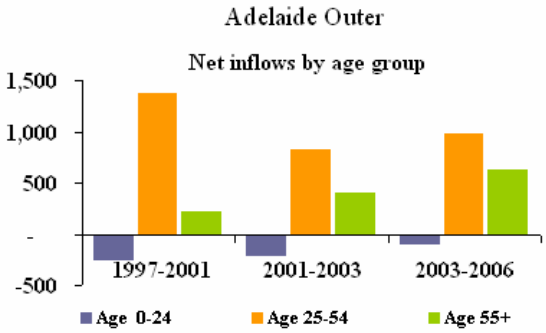
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 36.6 | 59.9% | 59.4% | 41 |
| High LGA – Barossa (DC) | 65.2 | 68.2% | | |
| Low LGA – Victor Harbor (DC) | 10.7 | 49.8% | | |
| Infrastructure | 45.2 | 0.53 | 1.53 | 39 |
| High LGA – Mount Barker (DC) | 82.2 | 1.40 | | |
| Low LGA – Adelaide Hills (DC) | 16.0 | 0.16 | | |
| Household prosperity potential | 31.5 | 73% | 100% | 43 |
| High LGA – Adelaide Hills (DC) | 84.2 | 177% | | |
| Low LGA – Mount Barker (DC) | 11.8 | 31% | | |
| Global knowledge flows | 51.5 | 5.9% | 12.9% | 31 |
| High LGA – Adelaide Hills (DC) | 63.7 | 7.1% | | |
| Low LGA – Yankalilla (DC) | 14.0 | 2.5% | | |
| Knowledge driven growth potential | 38.1 | 0.49 | 0.67 | 32 |
| High LGA – Yankalilla (DC) | 76.0 | 0.75 | | |
| Low LGA – Tea Tree Gully (C) | 21.8 | 0.40 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

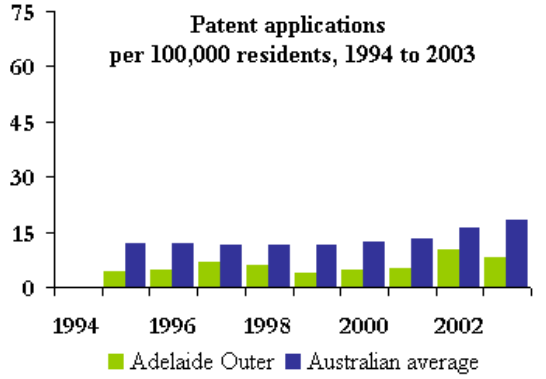
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.45 | 0.44 | 0.43 | 0.41 |
| 55+ | 0.18 | 0.21 | 0.23 | 0.26 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -246 | -209 | -97 |
| 25 – 54 | | 1,378 | 830 | 981 |
| 55+ | | 221 | 404 | 626 |
| Average age | 34.3 | 36.0 | 36.7 | 37.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.653%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 19.6 | 27 |
| 2001 | 19.4 | 25 |
| 2003 | 20.1 | 26 |
| 2004 | 21.5 | 29 |
| Income supported households (%) | 18.8 | 49 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 21.6 | 26 | 39.2 |
| Average p.a. per capita | 6.2 | 46 | 13.7 |
| Hi Tech p.a. (1994-2003) | 2.3 | 36 | 9.8 |
| Hi Tech p.a. per capita | 0.6 | 50 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.7 | 34 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 42 | 0.9 |
| Average per capita (1994-2000) | 5.0 | 52 | 9.6 |
| Average per capita (2001-2003) | 9.0 | 36 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.80 | 9 | 1.48 |

*Note:* Per capita = 100,000 people.

# Adelaide Plains


The Adelaide Plains region includes the southern or urbanised part of the plain which begins with Adelaide airport and extends north. The region includes old-established inner suburbs, old-established independent settlements now incorporated into the metropolitan area (particularly Port Adelaide and Gawler), and an extensive area of post-war planned development in which public housing was provided to accommodate workers in new manufacturing industries. The region has suffered severely from the decline of manufacturing over the past several decades, and the rate of generation of office jobs in Central Adelaide has not been sufficient to provide opportunities for commuting. The region now pins its hopes on port-related developments and on high technology investments, particularly at Mawson Lakes.

**Major centres:**

Port Adelaide, Salisbury, Elizabeth

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 468,524 | | 477,297 | | 488,982 | | 0.8 |
| No. households | 187,627 | | 194,615 | | 206,512 | | 2.0 |
| Workforce | 222,546 | 47.4 | 232,029 | 48.6 | 236,729 | 48.4 | 0.7 |
| Employment | 187,332 | – | 195,270 | – | 206,138 | – | 1.8 |
| Unemployment | 35,214 | 15.8 | 36,760 | 15.8 | 30,591 | 12.9 | -5.9 |
| DEET U/E | 27,314 | 12.8 | 23,580 | 10.6 | 20,953 | 9.3 | -3.9 |
| Structural U/E, % population[1] | 46,147 | 16.0 | 49,721 | 17.1 | 47,345 | 15.3 | -1.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 5,142 | 10,874 | 5,813 | 12,178 | 6,293 | 12,870 | 3.4 |
| Taxes paid | 1,295 | 2,738 | 1,349 | 2,826 | 1,551 | 3,172 | 3.0 |
| GST paid | 391 | 827 | 558 | 1,169 | 670 | 1,370 | – |
| Benefits | 1,519 | 3,212 | 1,655 | 3,468 | 1,958 | 4,005 | 4.5 |
| Business income | 622 | 1,316 | 649 | 1,360 | 708 | 1,447 | 1.9 |
| Interest/dividends | 156 | 330 | 177 | 371 | 153 | 312 | -1.1 |
| Interest paid | 405 | 857 | 534 | 1,118 | 678 | 1,386 | 10.1 |
| Net property income | 61 | 129 | 38 | 80 | 12 | 24 | -$105 |
| Net flow of funds | 5,409 | 11,439 | 5,891 | 12,343 | 6,225 | 12,730 | 2.2 |
| Rank | | 46 | | 46 | | 55 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 503 | 17 |
| Skills corrected factor (out of 1,000) | 512 | 16 |
| Industry corrected factor (out of 1,000) | 517 | 15 |
| Global knowledge factor (out of 1,000) | 420 | 17 |
| Resident skills matching | 944 | 2 |
| Resident industry matching | 182 | 8 |
| Catchment jobs/workers | 397 | 57 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 504 | 16 |
| Industry corrected factor (out of 1,000) | 527 | 15 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 517 | 15 |
| Industry corrected factor (out of 1,000) | 552 | 14 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 65,366 | 63,144 |
| 60 minutes, door to door | 332,785 | 320,986 |
| 100 minutes, door to door | 452,347 | 449,193 |
| *"Congestion exposure risk factor, rank"* | 116 | 21 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 156 | 24 |
| Highest performing LGA – West Torrens (C) | 317 | 54 |
| Lowest performing LGA –Mallala (DC) | 21 | 277 |
| Distance to significant retail diversity (km) | 10.3 | 18 |
| Missing local retail types (out of 44) | 5 | 17 |
| Highest performing LGA –Charles Sturt (C) | 3 | 94 |
| Lowest performing LGA –Mallala (DC) | 44 | 317 |
| Percentage of retail missing (%) | 3.7% | 18 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 458 | 56 |
| 2001 | 642 | 59 |
| 2003 | 385 | 49 |
| 2004 | 343 | 60 |

YourPlace
*The place to go for the performance of Australia's local economies*

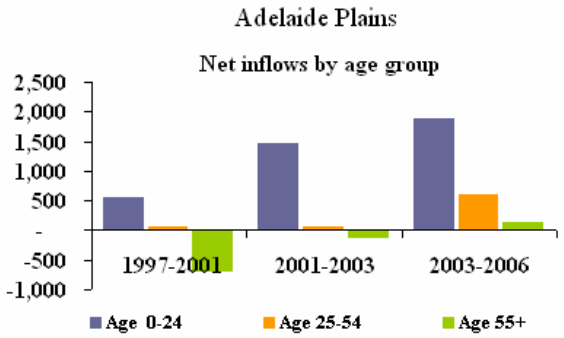
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 16.8 | 52.4% | 59.4% | 57 |
| High LGA – Light (DC) | 47.2 | 62.8% | | |
| Low LGA – Playford (C) | 4.9 | 45.2% | | |
| Infrastructure | 48.0 | 0.54 | 1.53 | 32 |
| High LGA – Light (DC) | 75.4 | 1.07 | | |
| Low LGA – Gawler (M) | 22.0 | 0.21 | | |
| Household prosperity potential | 43.1 | 92% | 100% | 24 |
| High LGA – Gawler (M) | 91.6 | 207% | | |
| Low LGA – Salisbury (C) | 8.4 | 16% | | |
| Global knowledge flows | 75.2 | 9.2% | 12.9% | 18 |
| High LGA – West Torrens (C) | 89.3 | 12.2% | | |
| Low LGA – Mallala (DC) | 16.9 | 2.8% | | |
| Knowledge driven growth potential | 28.9 | 0.43 | 0.67 | 41 |
| High LGA – Light (DC) | 58.1 | 0.60 | | |
| Low LGA – Port Adelaide Enfield (C) | 15.4 | 0.35 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

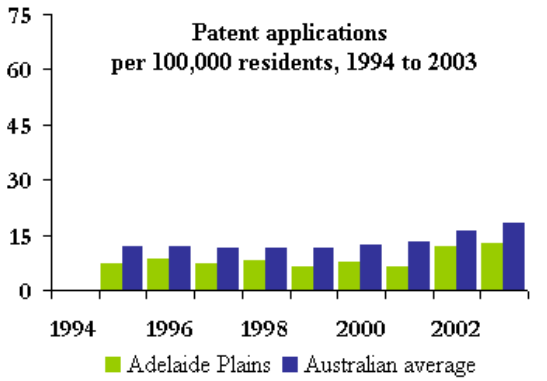
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.33 | 0.33 | 0.32 |
| 25 – 54 | 0.43 | 0.43 | 0.43 | 0.42 |
| 55+ | 0.23 | 0.24 | 0.25 | 0.26 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 563 | 1,458 | 1,881 |
| 25 – 54 | | 71 | 66 | 611 |
| 55+ | | -671 | -110 | 127 |
| Average age | 36.3 | 37.2 | 37.5 | 38.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.349%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 28.1 | 61 |
| 2001 | 28.1 | 59 |
| 2003 | 28.5 | 56 |
| 2004 | 31.2 | 57 |
| Income supported households (%) | 22.8 | 22 |

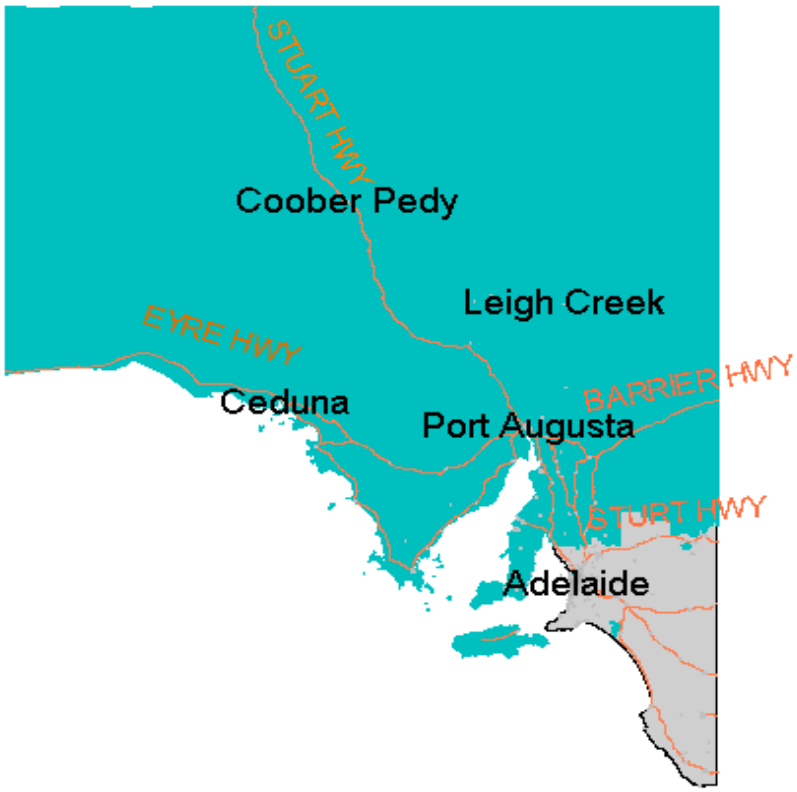



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 40.7 | 18 | 39.2 |
| Average p.a. per capita | 8.7 | 27 | 13.7 |
| Hi Tech p.a. (1994-2003) | 8.5 | 16 | 9.8 |
| Hi Tech p.a. per capita | 1.8 | 19 | 2.5 |
| Info. Tech p.a. (1994-2003) | 2.3 | 19 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 24 | 0.9 |
| Average per capita (1994-2000) | 7.2 | 34 | 9.6 |
| Average per capita (2001-2003) | 12.2 | 25 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.70 | 15 | 1.48 |

*Note:* Per capita = 100,000 people.

# SA Eyre and Yorke




Eyre and Yorke comprise five distinct sub-regions.

- Kangaroo Island – an agricultural shire increasingly involved in tourism.
- Eyre Peninsula and the SA West Coast is wheat/sheep country. Port Lincoln is the major centre, known for its fishing and grain export port.
- The Upper Spencer Gulf comprises the three industrial cities of Whyalla, Port Augusta and Port Pirie. All are involved in the processing of minerals railed from the interior, with steel production at Whyalla, base metals smelting at Port Pirie, and electric power at Port Augusta.
- The SA Outback comprises the northern two-thirds of the state. It has scattered pastoral stations, mines, Aboriginal communities and tourist attractions including the Flinders Ranges.
- The Mid and Upper North is again wheat/sheep country. The Clare Valley is slightly higher than the rest and is wet enough to support viticulture.

**Major centres:**

Port Pirie, Port Augusta, Whyalla

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 164,463 | | 163,007 | | 161,172 | | -0.4 |
| No. households | 64,294 | | 66,485 | | 69,040 | | 1.3 |
| Workforce | 76,636 | 46.6 | 73,544 | 45.1 | 81,374 | 50.5 | 3.4 |
| Employment | 66,057 | – | 61,297 | – | 70,370 | – | 4.7 |
| Unemployment | 10,577 | 13.8 | 12,248 | 16.7 | 11,005 | 13.5 | -3.5 |
| DEET U/E | 7,268 | 9.6 | 6,323 | 9.0 | 6,466 | 8.3 | 0.7 |
| Structural U/E, % population[1] | 14,229 | 15.6 | 15,948 | 17.6 | 14,942 | 15.3 | -2.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,562 | 9,519 | 1,753 | 10,754 | 2,656 | 16,476 | 11.6 |
| Taxes paid | 419 | 2,552 | 441 | 2,702 | 644 | 3,997 | 9.4 |
| GST paid | 147 | 895 | 187 | 1,148 | 326 | 2,025 | – |
| Benefits | 463 | 2,819 | 508 | 3,113 | 620 | 3,846 | 6.4 |
| Business income | 262 | 1,596 | 274 | 1,680 | 404 | 2,506 | 9.4 |
| Interest/dividends | 60 | 368 | 76 | 469 | 108 | 671 | 12.7 |
| Interest paid | 119 | 728 | 148 | 905 | 215 | 1,337 | 12.9 |
| Net property income | 26 | 161 | 44 | 270 | 21 | 129 | -$33 |
| Net flow of funds | 1,689 | 10,289 | 1,880 | 11,531 | 2,622 | 16,270 | 9.6 |
| Rank | | 61 | | 59 | | 19 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 61 | 60 |
| Skills corrected factor (out of 1,000) | 62 | 61 |
| Industry corrected factor (out of 1,000) | 69 | 60 |
| Global knowledge factor (out of 1,000) | 45 | 60 |
| Resident skills matching | 75 | 49 |
| Resident industry matching | -40 | 23 |
| Catchment jobs/workers | 518 | 24 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 62 | 60 |
| Industry corrected factor (out of 1,000) | 74 | 61 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 76 | 56 |
| Industry corrected factor (out of 1,000) | 88 | 57 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 3,605 | 3,368 |
| 60 minutes, door to door | 5,369 | 5,187 |
| 100 minutes, door to door | 14,368 | 15,036 |
| *"Congestion exposure risk factor, rank"* | 3 | 60 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 7 | 59 |
| Highest performing LGA – Wakefield (DC) | 13 | 364 |
| Lowest performing LGA –Coober Pedy (DC) | 2 | 594 |
| Distance to significant retail diversity (km) | 205.5 | 59 |
| Missing local retail types (out of 44) | 43 | 63 |
| Highest performing LGA –Port Augusta (C) | 42 | 266 |
| Lowest performing LGA –Barunga West (DC) | 44 | 317 |
| Percentage of retail missing (%) | 94.5% | 63 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 363 | 61 |
| 2001 | 596 | 61 |
| 2003 | 289 | 58 |
| 2004 | 282 | 64 |

YourPlace
*The place to go for the performance of Australia's local economies*

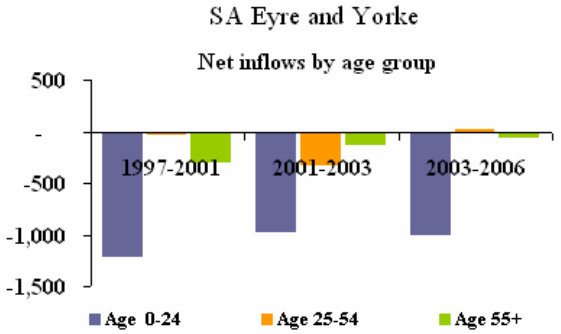
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 32.6 | 57.8% | 59.4% | 22 |
| High LGA – Roxby Downs (M) | 95.3 | 89.0% | | |
| Low LGA – Coober Pedy (DC) | 2.0 | 41.2% | | |
| Infrastructure | 38.7 | 0.61 | 1.53 | 52 |
| High LGA – Wakefield (DC) | 92.1 | 3.66 | | |
| Low LGA – Streaky Bay (DC) | 1.2 | 0.00 | | |
| Household prosperity potential | 67.1 | 148% | 100% | 16 |
| High LGA – Whyalla (C) | 95.5 | 235% | | |
| Low LGA – Unincorporated SA | 2.9 | -21% | | |
| Global knowledge flows | 31.4 | 4.0% | 12.9% | 61 |
| High LGA – Roxby Downs (M) | 65.4 | 7.3% | | |
| Low LGA – Tumby Bay (DC) | 2.5 | 0.8% | | |
| Knowledge driven growth potential | 47.1 | 0.58 | 0.67 | 22 |
| High LGA– Lower Eyre Penins. (DC) | 97.1 | 1.17 | | |
| Low LGA – Coober Pedy (DC) | 3.5 | 0.18 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

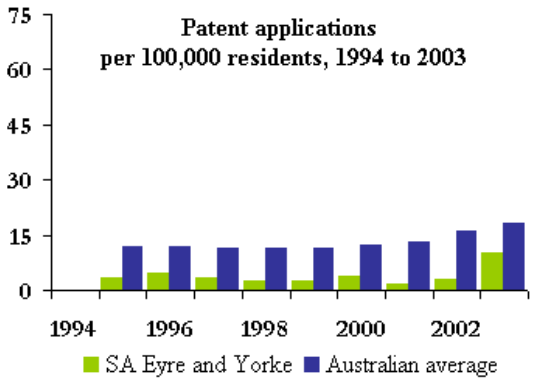
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.35 | 0.33 | 0.33 | 0.31 |
| 25 – 54 | 0.42 | 0.41 | 0.41 | 0.40 |
| 55+ | 0.23 | 0.26 | 0.27 | 0.29 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -1,198 | -959 | -992 |
| 25 – 54 | | -27 | -316 | -22 |
| 55+ | | -285 | -119 | -43 |
| Average age | 35.9 | 37.3 | 37.9 | 39.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.157%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 27.4 | 58 |
| 2001 | 27.0 | 57 |
| 2003 | 24.4 | 45 |
| 2004 | 23.4 | 38 |
| Income supported households (%) | 22.8 | 21 |

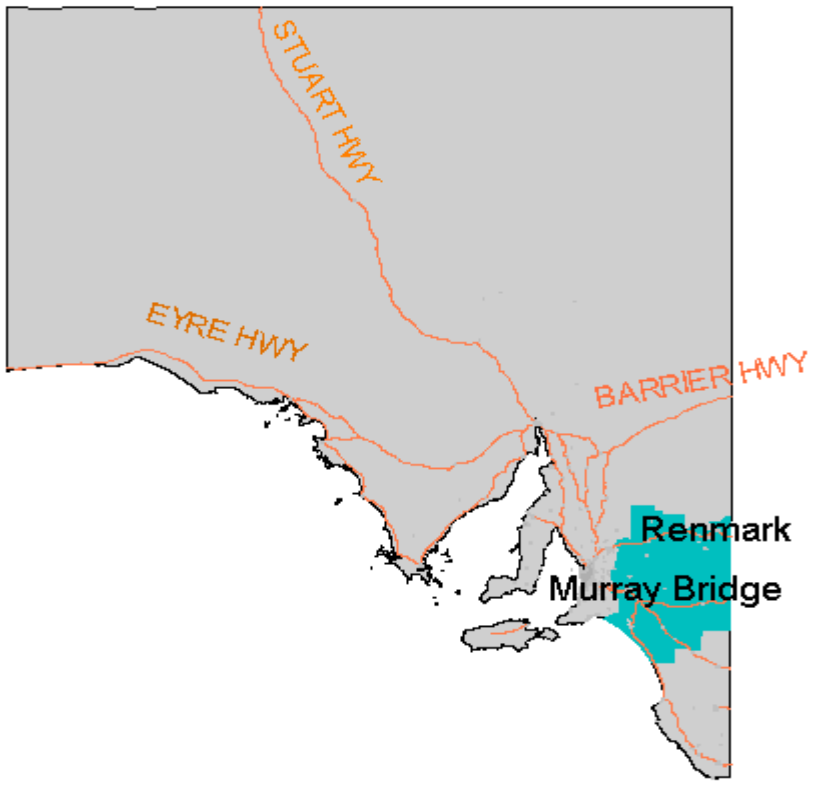



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 6.6 | 55 | 39.2 |
| Average p.a. per capita | 4.0 | 59 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.8 | 53 | 9.8 |
| Hi Tech p.a. per capita | 0.5 | 57 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 59 | 0.9 |
| Average per capita (1994-2000) | 3.2 | 62 | 9.6 |
| Average per capita (2001-2003) | 5.9 | 57 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.86 | 6 | 1.48 |

*Note:* Per capita = 100,000 people.

# SA Murraylands




The Murray Mallee of SA adjoins the Mallee of Victoria, and has a similar pattern of development: intensive irrigated agriculture along the river, and extensive wheat/sheep farming away from it. The Riverland has a number of industries processing farm products.

**Major centres:**

Renmark, Murray Bridge

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 68,164 | | 68,412 | | 68,328 | | 0.0 |
| No. households | 26,825 | | 27,750 | | 28,782 | | 1.2 |
| Workforce | 33,059 | 48.4 | 37.790 | 55.2 | 36,010 | 52.7 | -1.6 |
| Employment | 29,301 | – | 33,744 | – | 32,185 | – | -1.6 |
| Unemployment | 3,759 | 11.4 | 4,046 | 10.7 | 3,824 | 10.6 | -1.9 |
| DEET U/E | 3,733 | 11.5 | 2,859 | 7.7 | 1,540 | 4.4 | -18.6 |
| Structural U/E, % population[1] | 5,119 | 12.7 | 5,660 | 14.0 | 5,639 | 13.6 | -0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 695 | 10,175 | 778 | 11,369 | 828 | 12,115 | 3.6 |
| Taxes paid | 166 | 2,434 | 176 | 2,575 | 259 | 3,790 | 9.3 |
| GST paid | 49 | 712 | 75 | 1,104 | 129 | 1,882 | – |
| Benefits | 197 | 2,879 | 212 | 3,095 | 259 | 3,794 | 5.7 |
| Business income | 116 | 1,693 | 120 | 1,752 | 146 | 2,135 | 4.7 |
| Interest/dividends | 25 | 362 | 35 | 514 | 37 | 536 | 8.2 |
| Interest paid | 53 | 779 | 80 | 1,165 | 106 | 1,554 | 14.8 |
| Net property income | 19 | 272 | 9 | 131 | 2 | 22 | -$250 |
| Net flow of funds | 782 | 11,456 | 822 | 12,017 | 777 | 11,377 | -0.1 |
| Rank | | 45 | | 53 | | 63 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 121 | 49 |
| Skills corrected factor (out of 1,000) | 123 | 49 |
| Industry corrected factor (out of 1,000) | 138 | 48 |
| Global knowledge factor (out of 1,000) | 99 | 48 |
| Resident skills matching | 304 | 25 |
| Resident industry matching | 265 | 7 |
| Catchment jobs/workers | 439 | 53 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 117 | 50 |
| Industry corrected factor (out of 1,000) | 138 | 49 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 125 | 48 |
| Industry corrected factor (out of 1,000) | 145 | 46 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 4,826 | 4,587 |
| 60 minutes, door to door | 10,676 | 11,823 |
| 100 minutes, door to door | 113,857 | 106,562 |
| *"Congestion exposure risk factor, rank"* | 7 | 48 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 13 | 58 |
| Highest performing LGA – Murray Bridge (RC) | 22 | 272 |
| Lowest performing LGA –Southern Mallee (DC) | 7 | 491 |
| Distance to significant retail diversity (km) | 92.9 | 56 |
| Missing local retail types (out of 44) | 43 | 62 |
| Highest performing LGA –Berri and Barmera (DC) | 41 | 262 |
| Lowest performing LGA –Karoonda E. Murray (DC) | 44 | 317 |
| Percentage of retail missing (%) | 92.2% | 62 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 292 | 63 |
| 2001 | 474 | 63 |
| 2003 | 264 | 60 |
| 2004 | 301 | 62 |

YourPlace
*The place to go for the performance of Australia's local economies*

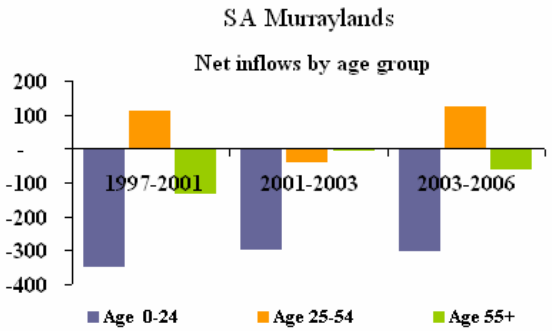
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 47.6 | 63.5% | 59.4% | 12 |
| High LGA–Southern Mallee (DC) | 92.3 | 85.2% | | |
| Low LGA–Murray Bridge (RC) | 24.5 | 56.4% | | |
| Infrastructure | 57.5 | 0.92 | 1.53 | 20 |
| High LGA–Murray Bridge (RC) | 88.2 | 1.89 | | |
| Low LGA–Renmark Paringa (DC) | 29.7 | 0.32 | | |
| Household prosperity potential | 28.0 | 65% | 100% | 31 |
| High LGA–Karoonda E. Murray (DC) | 86.2 | 184% | | |
| Low LGA–Berri and Barmera (DC) | 13.6 | 35% | | |
| Global knowledge flows | 34.2 | 4.3% | 12.9% | 59 |
| High LGA–Berri and Barmera (DC) | 53.8 | 6.0% | | |
| Low LGA–The Coorong (DC) | 9.0 | 2.0% | | |
| Knowledge driven growth potential | 53.3 | 0.61 | 0.67 | 14 |
| High LGA–The Coorong (DC) | 95.9 | 1.10 | | |
| Low LGA–Murray Bridge (RC) | 31.4 | 0.45 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

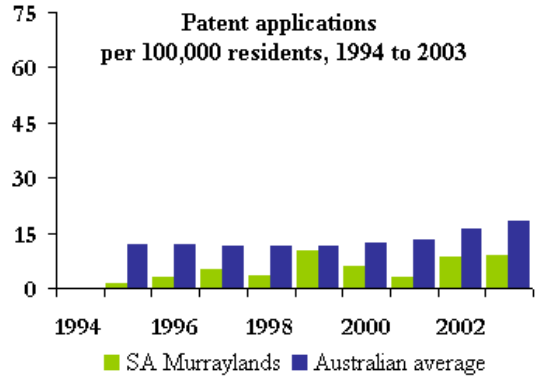
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.34 | 0.33 | 0.32 | 0.31 |
| 25 – 54 | 0.43 | 0.42 | 0.41 | 0.40 |
| 55+ | 0.23 | 0.25 | 0.27 | 0.29 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -343 | -294 | -297 |
| 25 – 54 | | 111 | -35 | 125 |
| 55+ | | -128 | -3 | -58 |
| Average age | 36.3 | 37.5 | 38.1 | 39.1 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.003%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 25.1 | 52 |
| 2001 | 25.8 | 54 |
| 2003 | 32.9 | 60 |
| 2004 | 32.9 | 61 |
| Income supported households (%) | 21.8 | 28 |

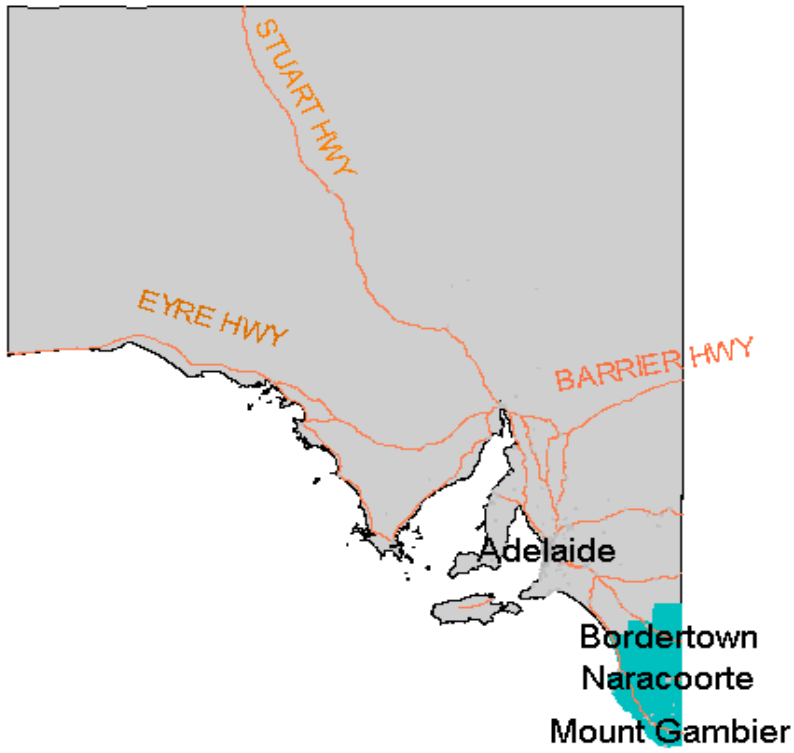



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 3.4 | 59 | 39.2 |
| Average p.a. per capita | 5.1 | 56 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.4 | 58 | 9.8 |
| Hi Tech p.a. per capita | 0.6 | 52 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.0 | 60 | 3.5 |
| Info. Tech p.a. per capita | 0.0 | 60 | 0.9 |
| Average per capita (1994-2000) | 4.5 | 53 | 9.6 |
| Average per capita (2001-2003) | 1.38 | 40 | 1.48 |
| 2001-03 avg./1994-00 avg. | | | |

*Note:* Per capita = 100,000 people.

# SA South East




Though quite flat, the South East of South Australia is limestone country with the remnants of recent volcanic activity round Mt Gambier. It has been a grazing rather than a grain-growing area, but lately has developed viticulture round Penola and a plantation-based timber products industry centred on Mt Gambier.

**Major centres:**

Mt Gambier

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 62,819 | | 62,588 | | 63,137 | | 0.3 |
| No. households | 23,753 | | 24,600 | | 25,778 | | 1.6 |
| Workforce | 32,531 | 51.8 | 35,329 | 56.4 | 35,151 | 55.7 | -0.2 |
| Employment | 29,334 | – | 32,526 | – | 32,545 | – | 0.0 |
| Unemployment | 3,196 | 9.8 | 2,804 | 7.9 | 2,607 | 7.4 | -2.4 |
| DEET U/E | 2,656 | 8.5 | 1,907 | 5.5 | 1,109 | 3.2 | -16.5 |
| Structural U/E, % population[1] | 3,143 | 8.3 | 3,660 | 9.7 | 3,683 | 9.5 | 0.2 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 768 | 12,235 | 907 | 14,495 | 1,005 | 15,911 | 5.4 |
| Taxes paid | 191 | 3,048 | 217 | 3,463 | 281 | 4,444 | 7.8 |
| GST paid | 49 | 777 | 74 | 1,180 | 104 | 1,648 | – |
| Benefits | 148 | 2,357 | 165 | 2,637 | 196 | 3,106 | 5.7 |
| Business income | 108 | 1,721 | 113 | 1,801 | 178 | 2,819 | 10.4 |
| Interest/dividends | 32 | 512 | 42 | 667 | 39 | 616 | 3.8 |
| Interest paid | 55 | 873 | 79 | 1,257 | 97 | 1,543 | 12.1 |
| Net property income | 16 | 249 | 9 | 152 | 5 | 72 | -$178 |
| Net flow of funds | 777 | 12,376 | 867 | 13,851 | 940 | 14,889 | 3.8 |
| Rank | | 26 | | 17 | | 26 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 97 | 54 |
| Skills corrected factor (out of 1,000) | 105 | 54 |
| Industry corrected factor (out of 1,000) | 120 | 52 |
| Global knowledge factor (out of 1,000) | 69 | 56 |
| Resident skills matching | 345 | 23 |
| Resident industry matching | 454 | 3 |
| Catchment jobs/workers | 448 | 52 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 100 | 54 |
| Industry corrected factor (out of 1,000) | 126 | 52 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 107 | 53 |
| Industry corrected factor (out of 1,000) | 135 | 50 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 7,726 | 7,366 |
| 60 minutes, door to door | 11,313 | 10,856 |
| 100 minutes, door to door | 20,996 | 19,642 |
| *"Congestion exposure risk factor, rank"* | 5 | 54 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 17 | 55 |
| Highest performing LGA – Mount Gambier (C) | 25 | 258 |
| Lowest performing LGA –Tatiara (DC) | 7 | 491 |
| Distance to significant retail diversity (km) | 90.4 | 55 |
| Missing local retail types (out of 44) | 38 | 51 |
| Highest performing LGA –Grant (DC) | 31 | 202 |
| Lowest performing LGA –Lacepede (DC) | 44 | 317 |
| Percentage of retail missing (%) | 64.9% | 49 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 699 | 42 |
| 2001 | 1,005 | 48 |
| 2003 | 632 | 30 |
| 2004 | 618 | 34 |

YourPlace
*The place to go for the performance of Australia's local economies*

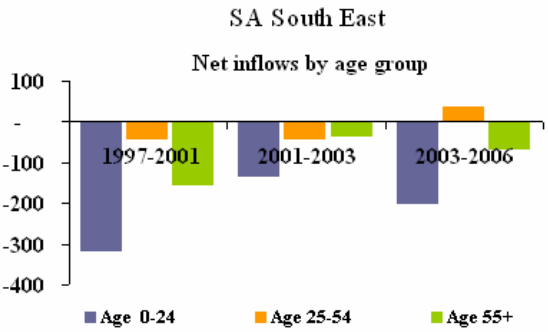
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 60.6 | 67.9% | 59.4% | 5 |
| High LGA – Tatiara (DC) | 86.3 | 78.8% | | |
| Low LGA – Mount Gambier (C) | 43.1 | 62.0% | | |
| Infrastructure | 53.0 | 0.75 | 1.53 | 42 |
| High LGA – Wattle Range (DC) | 86.5 | 1.66 | | |
| Low LGA – Grant (DC) | 17.0 | 0.16 | | |
| Household prosperity potential | 65.3 | 146% | 100% | 18 |
| High LGA – Grant (DC) | 96.6 | 248% | | |
| Low LGA – Wattle Range (DC) | 30.5 | 71% | | |
| Global knowledge flows | 37.7 | 4.6% | 12.9% | 57 |
| High LGA – Mount Gambier (C) | 54.7 | 6.1% | | |
| Low LGA – Robe (DC) | 13.9 | 2.5% | | |
| Knowledge driven growth potential | 37.1 | 0.48 | 0.67 | 34 |
| High LGA – Grant (DC) | 68.9 | 0.69 | | |
| Low LGA – Mount Gambier (C) | 11.8 | 0.32 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

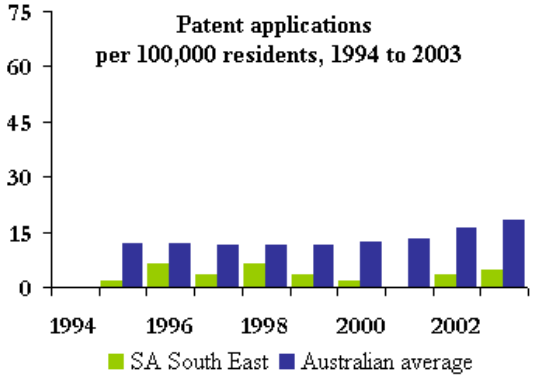
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.44 | 0.43 | 0.43 | 0.42 |
| 55+ | 0.21 | 0.22 | 0.23 | 0.25 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -314 | -132 | -198 |
| 25 – 54 | | -39 | -42 | 35 |
| 55+ | | -155 | -35 | -65 |
| Average age | 35.0 | 36.1 | 36.6 | 37.3 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.166%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 19.0 | 25 |
| 2001 | 19.0 | 22 |
| 2003 | 20.2 | 27 |
| 2004 | 20.7 | 22 |
| Income supported households (%) | 16.2 | 54 |

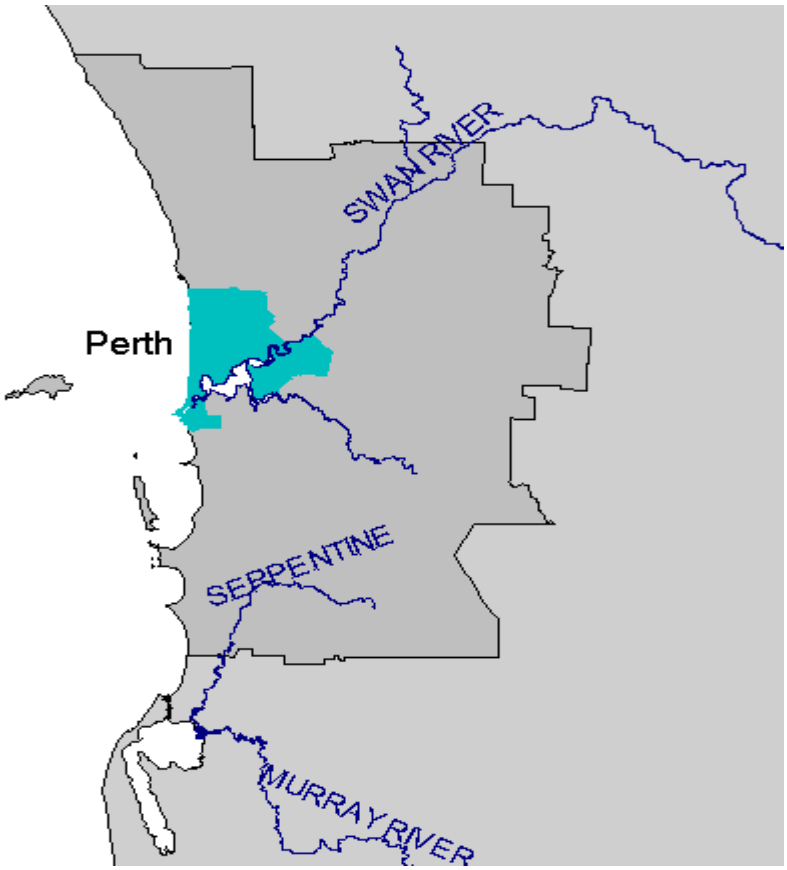



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 2.6 | 60 | 39.2 |
| Average p.a. per capita | 3.7 | 60 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.1 | 62 | 9.8 |
| Hi Tech p.a. per capita | 0.2 | 63 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 51 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 48 | 0.9 |
| Average per capita (1994-2000) | 3.2 | 61 | 9.6 |
| Average per capita (2001-2003) | 4.8 | 59 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.51 | 24 | 1.48 |

*Note:* Per capita = 100,000 people.

# Perth Central




For its first century, what is now metropolitan Perth included several distinct population centres – Fremantle, Perth and others up-river to Guildford. All this was filled in after the second world war, and our region of Central Perth includes all the old centres and all that is between. It thus includes the container port, the established eastern and inner southern suburbs, and long-established manufacturing in Bayswater. Though the region is diverse, the city centre dominates its economic base. The city centre shares educational, cultural and tourism functions with Fremantle.

**Major centres:**

Perth, Fremantle

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 418,744 | | 426,199 | | 439,773 | | 1.1 |
| No. households | 175,613 | | 188,153 | | 197,408 | | 1.6 |
| Workforce | 233,072 | 55.5 | 244,128 | 57.3 | 237,157 | 53.9 | -1.0 |
| Employment | 212,193 | – | 223,009 | – | 220,583 | – | -0.4 |
| Unemployment | 20,878 | 9.0 | 21,121 | 8.7 | 16,573 | 7.0 | -7.8 |
| DEET U/E | 18,740 | 8.1 | 17,593 | 7.2 | 15,831 | 6.7 | -3.5 |
| Structural U/E, % population[1] | 26,536 | 9.9 | 27,538 | 10.1 | 26,612 | 9.0 | -1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 6,395 | 15,226 | 7,713 | 18,096 | 8,449 | 19,212 | 4.8 |
| Taxes paid | 1,952 | 4,649 | 2,333 | 5,473 | 2,980 | 6,777 | 7.8 |
| GST paid | 376 | 896 | 589 | 1,382 | 661 | 1,503 | – |
| Benefits | 954 | 2,272 | 991 | 2,326 | 1,191 | 2,708 | 3.6 |
| Business income | 1,620 | 3,858 | 1,440 | 3,379 | 1,663 | 3,781 | -0.4 |
| Interest/dividends | 458 | 1,092 | 639 | 1,499 | 543 | 1,235 | 2.5 |
| Interest paid | 425 | 1,011 | 537 | 1,260 | 743 | 1,690 | 10.8 |
| Net property income | 225 | 536 | 204 | 479 | 89 | 201 | -$335 |
| Net flow of funds | 6,899 | 16,428 | 7,529 | 17,665 | 7,550 | 17,167 | 0.9 |
| Rank | | 4 | | 6 | | 12 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 637 | 9 |
| Skills corrected factor (out of 1,000) | 609 | 10 |
| Industry corrected factor (out of 1,000) | 621 | 9 |
| Global knowledge factor (out of 1,000) | 574 | 12 |
| Resident skills matching | -197 | 63 |
| Resident industry matching | -851 | 58 |
| Catchment jobs/workers | 628 | 7 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 638 | 9 |
| Industry corrected factor (out of 1,000) | 629 | 10 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 605 | 11 |
| Industry corrected factor (out of 1,000) | 588 | 12 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 94,584 | 114,997 |
| 60 minutes, door to door | 486,687 | 460,953 |
| 100 minutes, door to door | 548,543 | 566,027 |
| *"Congestion exposure risk factor, rank"* | 54 | 33 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 310 | 8 |
| Highest performing LGA – Perth (C) | 980 | 5 |
| Lowest performing LGA –Mosman Park (T) | 155 | 106 |
| Distance to significant retail diversity (km) | 6.8 | 10 |
| Missing local retail types (out of 44) | 2 | 12 |
| Highest performing LGA –Belmont (C) | 2 | 65 |
| Lowest performing LGA –Wanneroo (C) | 4 | 111 |
| Percentage of retail missing (%) | 0.2% | 11 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 827 | 27 |
| 2001 | 1,064 | 45 |
| 2003 | 651 | 27 |
| 2004 | 570 | 40 |

YourPlace
*The place to go for the performance of Australia's local economies*

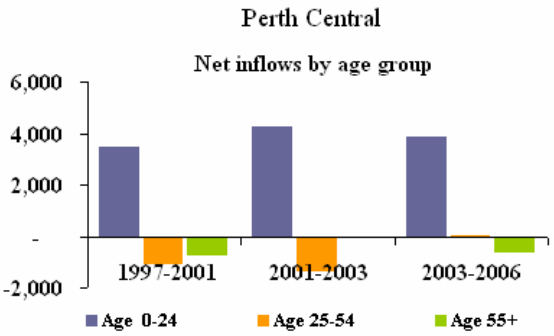
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 32.5 | 58.7% | 59.4% | 48 |
| High LGA – Cottesloe (T) | 53.5 | 64.4% | | |
| Low LGA – Perth (C) | 5.3 | 45.5% | | |
| Infrastructure | 54.8 | 1.22 | 1.53 | 15 |
| High LGA – Perth (C) | 99.1 | 27.05 | | |
| Low LGA – Cottesloe (T) | 8.7 | 0.08 | | |
| Household prosperity potential | 84.1 | 196% | 100% | 4 |
| High LGA – Cottesloe (T) | 100.0 | 362% | | |
| Low LGA – Belmont (C) | 40.9 | 91% | | |
| Global knowledge flows | 93.2 | 19.2% | 12.9% | 9 |
| High LGA – Perth (C) | 99.7 | 31.4% | | |
| Low LGA – Peppermint Grove (S) | 69.0 | 7.8% | | |
| Knowledge driven growth potential | 79.4 | 1.05 | 0.67 | 7 |
| High LGA – Perth (C) | 99.6 | 1.55 | | |
| Low LGA – Peppermint Grove (S) | 23.9 | 0.41 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

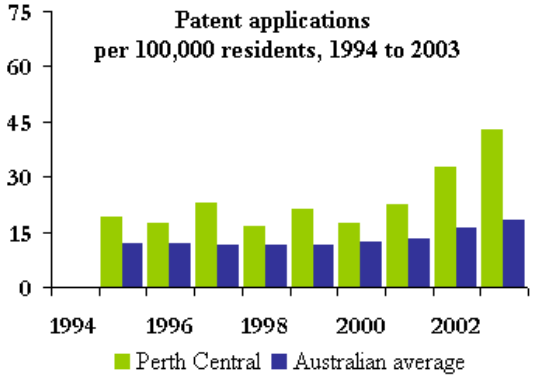
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.32 | 0.31 | 0.31 | 0.30 |
| 25 – 54 | 0.44 | 0.45 | 0.44 | 0.44 |
| 55+ | 0.24 | 0.24 | 0.25 | 0.26 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 3,469 | 4,247 | 3,887 |
| 25 – 54 | | -1,041 | -1,302 | 32 |
| 55+ | | -697 | -39 | -618 |
| Average age | 37.6 | 38.3 | 38.5 | 38.9 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.481%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 13.8 | 10 |
| 2001 | 13.2 | 9 |
| 2003 | 14.8 | 10 |
| 2004 | 15.7 | 10 |
| Income supported households (%) | 16.4 | 51 |

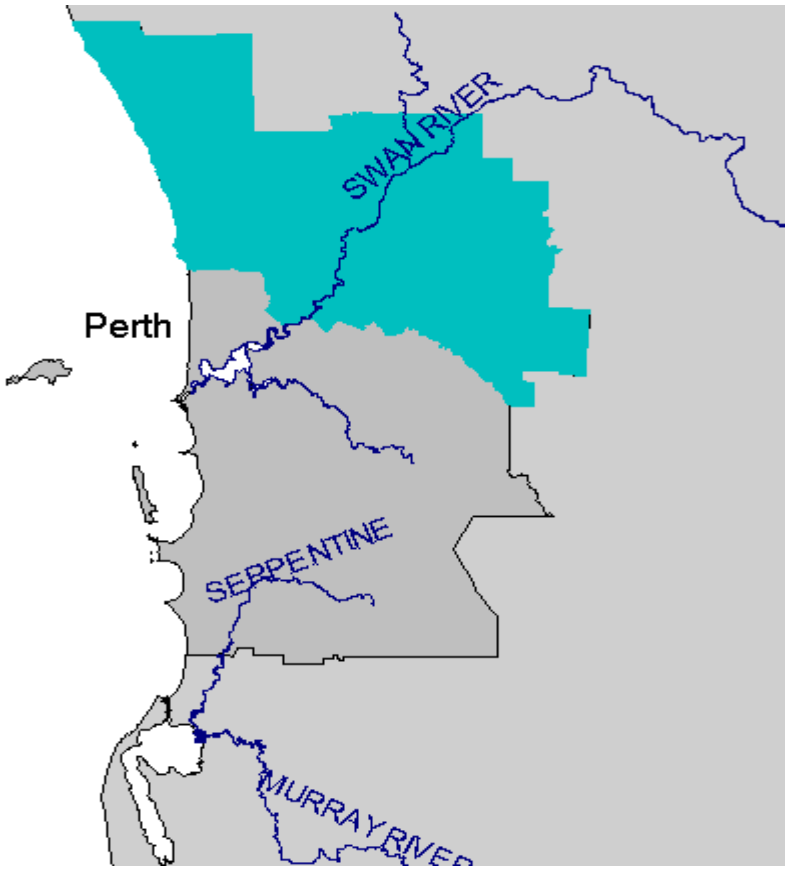



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 103.1 | 9 | 39.2 |
| Average p.a. per capita | 24.9 | 5 | 13.7 |
| Hi Tech p.a. (1994-2003) | 29.3 | 6 | 9.8 |
| Hi Tech p.a. per capita | 6.9 | 5 | 2.5 |
| Info. Tech p.a. (1994-2003) | 8.1 | 11 | 3.5 |
| Info. Tech p.a. per capita | 1.9 | 6 | 0.9 |
| Average per capita (1994-2000) | 19.5 | 4 | 9.6 |
| Average per capita (2001-2003) | 37.5 | 5 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.92 | 5 | 1.48 |

*Note:* Per capita = 100,000 people.

# Perth Outer North




The Outer North of Perth comprises a coastal strip of commuter suburbs developed over the last few decades, plus, inland, the older-established Shires of Swan and Mundaring. The area is largely a commuter zone, but its older parts have manufacturing industries and high-intensity rural production. Above the scarp of the Darling Ranges is an important water catchment.

**Major centres:**

Joondalup, Midland

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 406,586 | | 431,463 | | 457,082 | | 1.9 |
| No. households | 143,936 | | 154,915 | | 169,550 | | 3.1 |
| Workforce | 205,204 | 50.3 | 213,364 | 49.5 | 239,469 | 52.4 | 3.9 |
| Employment | 188,023 | – | 196,934 | – | 224,526 | – | 4.5 |
| Unemployment | 12,588 | 6.1 | 16,430 | 7.7 | 14,943 | 6.2 | -3.1 |
| DEET U/E | 13,426 | 6.6 | 12,524 | 5.9 | 12,973 | 5.5 | 1.2 |
| Structural U/E, % population[1] | 19,273 | 7.6 | 23,828 | 8.8 | 23,726 | 8.0 | -0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 5,635 | 13,561 | 6,527 | 15,126 | 8,177 | 17,618 | 5.4 |
| Taxes paid | 1,526 | 3,672 | 1,605 | 3,721 | 2,146 | 4,625 | 4.7 |
| GST paid | 350 | 843 | 519 | 1,202 | 660 | 1,422 | – |
| Benefits | 840 | 2,021 | 946 | 2,193 | 1,213 | 2,613 | 5.3 |
| Business income | 1,119 | 2,692 | 966 | 2,239 | 1,207 | 2,601 | -0.7 |
| Interest/dividends | 149 | 358 | 195 | 453 | 181 | 390 | 1.7 |
| Interest paid | 553 | 1,331 | 744 | 1,725 | 960 | 2,069 | 9.2 |
| Net property income | 79 | 191 | 37 | 87 | -74 | -159 | -$350 |
| Net flow of funds | 5,392 | 12,977 | 5,803 | 13,450 | 6,937 | 14,947 | 2.9 |
| Rank | | 17 | | 23 | | 25 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 523 | 15 |
| Skills corrected factor (out of 1,000) | 526 | 15 |
| Industry corrected factor (out of 1,000) | 507 | 16 |
| Global knowledge factor (out of 1,000) | 464 | 15 |
| Resident skills matching | 679 | 9 |
| Resident industry matching | -917 | 60 |
| Catchment jobs/workers | 459 | 48 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 522 | 15 |
| Industry corrected factor (out of 1,000) | 510 | 16 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 490 | 16 |
| Industry corrected factor (out of 1,000) | 469 | 17 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 40,922 | 62,114 |
| 60 minutes, door to door | 385,772 | 374,320 |
| 100 minutes, door to door | 545,498 | 562,840 |
| *"Congestion exposure risk factor, rank"* | 261 | 10 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 247 | 12 |
| Highest performing LGA – Bayswater (C) | 286 | 59 |
| Lowest performing LGA –Mundaring (S) | 94 | 136 |
| Distance to significant retail diversity (km) | 8.1 | 14 |
| Missing local retail types (out of 44) | 2 | 13 |
| Highest performing LGA –Bassendean (T) | 2 | 65 |
| Lowest performing LGA –Mundaring (S) | 3 | 94 |
| Percentage of retail missing (%) | 0.2% | 12 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 856 | 24 |
| 2001 | 1,057 | 46 |
| 2003 | 734 | 20 |
| 2004 | 682 | 26 |

YourPlace
*The place to go for the performance of Australia's local economies*

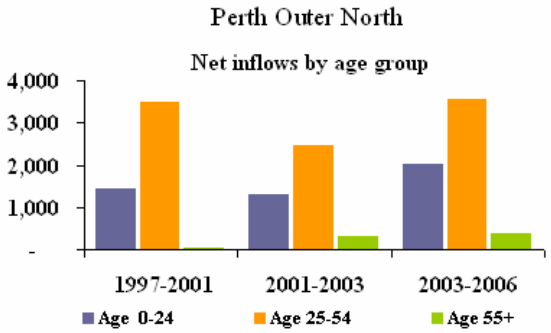
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 37.5 | 60.1% | 59.4% | 44 |
| High LGA – Joondalup (C) | 48.7 | 63.1% | | |
| Low LGA – Wanneroo (C) | 23.9 | 56.2% | | |
| Infrastructure | 50.4 | 0.61 | 1.53 | 26 |
| High LGA – Wanneroo (C) | 73.7 | 1.03 | | |
| Low LGA – Mundaring (S) | 25.8 | 0.27 | | |
| Household prosperity potential | 34.6 | 75% | 100% | 54 |
| High LGA – Bayswater (C) | 65.1 | 134% | | |
| Low LGA – Mundaring (S) | 4.0 | -11% | | |
| Global knowledge flows | 63.6 | 7.2% | 12.9% | 17 |
| High LGA – Bassendean (T) | 76.2 | 9.0% | | |
| Low LGA – Wanneroo (C) | 51.4 | 5.8% | | |
| Knowledge driven growth potential | 33.9 | 0.46 | 0.67 | 53 |
| High LGA – Joondalup (C) | 50.5 | 0.56 | | |
| Low LGA – Bassendean (T) | 16.8 | 0.36 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

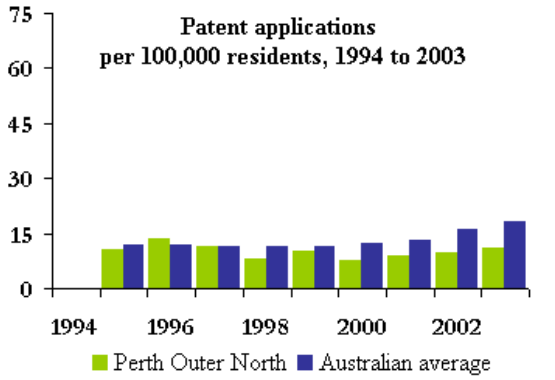
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.37 | 0.36 | 0.35 |
| 25 – 54 | 0.46 | 0.46 | 0.45 | 0.44 |
| 55+ | 0.15 | 0.17 | 0.19 | 0.21 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,425 | 1,307 | 2,017 |
| 25 – 54 | | 3,486 | 2,477 | 3,572 |
| 55+ | | 45 | 298 | 360 |
| Average age | 32.4 | 34.0 | 34.6 | 35.6 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -1.046%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 15.6 | 16 |
| 2001 | 16.3 | 14 |
| 2003 | 17.1 | 13 |
| 2004 | 17.4 | 14 |
| Income supported households (%) | 20.2 | 40 |

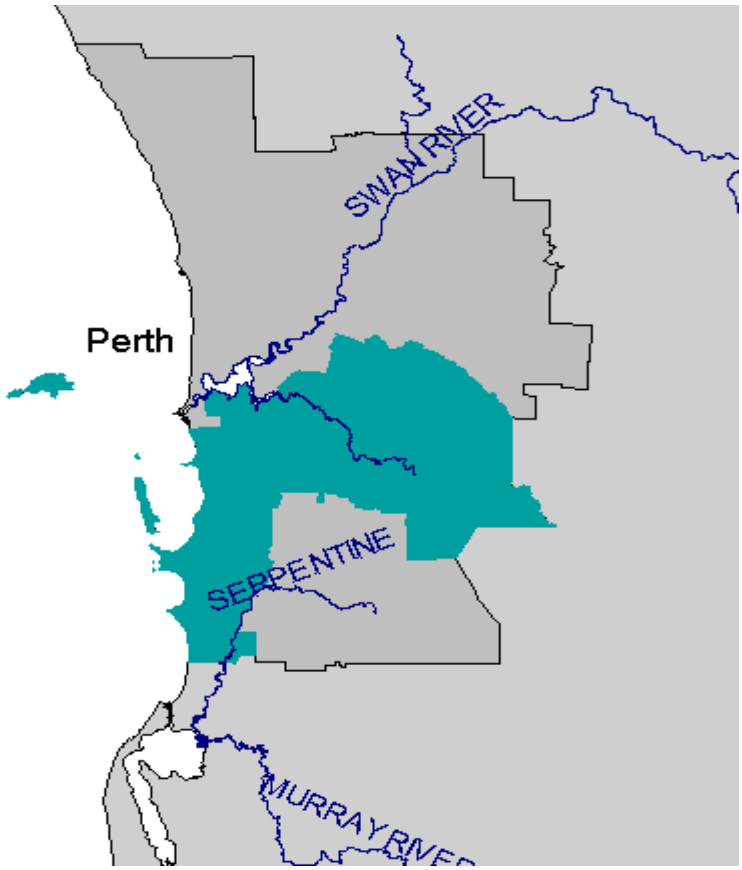



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 39.4 | 20 | 39.2 |
| Average p.a. per capita | 10.4 | 19 | 13.7 |
| Hi Tech p.a. (1994-2003) | 6.7 | 20 | 9.8 |
| Hi Tech p.a. per capita | 1.6 | 23 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.8 | 22 | 3.5 |
| Info. Tech p.a. per capita | 0.4 | 29 | 0.9 |
| Average per capita (1994-2000) | 10.0 | 15 | 9.6 |
| Average per capita (2001-2003) | 11.3 | 29 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.13 | 55 | 1.48 |

*Note:* Per capita = 100,000 people.

# Perth Outer South




Though Rockingham, at the far end of the Outer South of Perth, is a seaside suburb which bears comparison with the Outer North, the waterfront along Cockburn Sound is industrial, with bulk port facilities. There are also industrial and transport-oriented areas in the inland part of the region, as well as extensive commuter residential areas and several higher educational facilities. In overall socio-economic status, the region is probably lower than the other two Perth regions, and it is less dependent on central city commuting for its economic base, though this may change after completion of the fast rail connection now under construction.

**Major centres:**

Armadale, Rockingham

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 502,751 | | 523,636 | | 549,378 | | 1.6 |
| No. households | 179,778 | | 194,588 | | 210,358 | | 2.6 |
| Workforce | 253,466 | 50.4 | 272,630 | 52.1 | 281,888 | 51.3 | 1.1 |
| Employment | 235,218 | – | 248,982 | – | 263,835 | – | 2.0 |
| Unemployment | 18,249 | 7.2 | 23,649 | 8.7 | 18,053 | 6.4 | -8.6 |
| DEET U/E | 16,402 | 6.5 | 17,379 | 6.4 | 16,473 | 5.9 | -1.8 |
| Structural U/E, % population[1] | 25,604 | 8.3 | 30,887 | 9.5 | 30,292 | 8.6 | -0.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 6,832 | 13,427 | 7,794 | 14,885 | 8,909 | 16,217 | 3.8 |
| Taxes paid | 1,883 | 3,701 | 1,967 | 3,756 | 2,521 | 4,588 | 4.4 |
| GST paid | 408 | 803 | 624 | 1,192 | 743 | 1,353 | – |
| Benefits | 1,134 | 2,230 | 1,273 | 2,431 | 1,562 | 2,843 | 5.0 |
| Business income | 1,455 | 2,859 | 1,261 | 2,407 | 1,493 | 2,718 | -1.0 |
| Interest/dividends | 225 | 442 | 283 | 540 | 274 | 499 | 2.5 |
| Interest paid | 613 | 1,205 | 836 | 1,597 | 1,071 | 1,949 | 10.1 |
| Net property income | 131 | 258 | 75 | 144 | -34 | -62 | -$320 |
| Net flow of funds | 6,872 | 13,506 | 7,258 | 13,861 | 7,869 | 14,324 | 1.2 |
| Rank | | 15 | | 16 | | 35 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 504 | 16 |
| Skills corrected factor (out of 1,000) | 496 | 18 |
| Industry corrected factor (out of 1,000) | 486 | 17 |
| Global knowledge factor (out of 1,000) | 425 | 16 |
| Resident skills matching | 647 | 13 |
| Resident industry matching | -942 | 61 |
| Catchment jobs/workers | 372 | 59 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 503 | 17 |
| Industry corrected factor (out of 1,000) | 494 | 17 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 485 | 17 |
| Industry corrected factor (out of 1,000) | 481 | 16 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 47,355 | 60,033 |
| 60 minutes, door to door | 335,822 | 370,449 |
| 100 minutes, door to door | 557,180 | 575,374 |
| *"Congestion exposure risk factor, rank"* | 363 | 7 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 226 | 15 |
| Highest performing LGA – Canning (C) | 473 | 21 |
| Lowest performing LGA –Armadale (C) | 76 | 148 |
| Distance to significant retail diversity (km) | 10.2 | 17 |
| Missing local retail types (out of 44) | 4 | 15 |
| Highest performing LGA –Canning (C) | 2 | 65 |
| Lowest performing LGA –Rockingham (C) | 13 | 134 |
| Percentage of retail missing (%) | 0.9% | 16 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 880 | 23 |
| 2001 | 1,189 | 39 |
| 2003 | 734 | 21 |
| 2004 | 609 | 35 |

YourPlace
*The place to go for the performance of Australia's local economies*

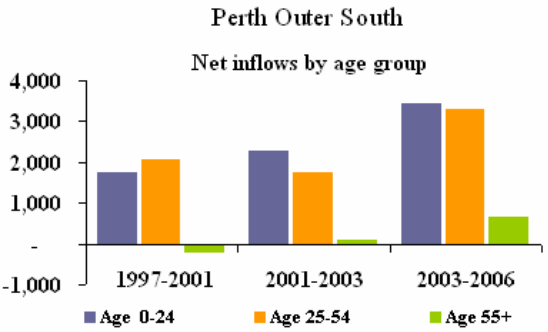
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 28.8 | 57.5% | 59.4% | 54 |
| High LGA – Kalamunda (S) | 43.0 | 62.0% | | |
| Low LGA – Kwinana (T) | 10.5 | 49.7% | | |
| Infrastructure | 67.0 | 3.59 | 1.53 | 11 |
| High LGA – Melville (C) | 97.1 | 15.43 | | |
| Low LGA – Armadale (C) | 31.3 | 0.34 | | |
| Household prosperity potential | 40.0 | 89% | 100% | 44 |
| High LGA – Melville (C) | 86.6 | 184% | | |
| Low LGA – Gosnells (C) | 12.8 | 33% | | |
| Global knowledge flows | 66.8 | 8.1% | 12.9% | 23 |
| High LGA – Melville (C) | 89.6 | 12.3% | | |
| Low LGA – Armadale (C) | 38.0 | 4.6% | | |
| Knowledge driven growth potential | 32.9 | 0.47 | 0.67 | 54 |
| High LGA – Melville (C) | 84.1 | 0.84 | | |
| Low LGA – Gosnells (C) | 16.2 | 0.35 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

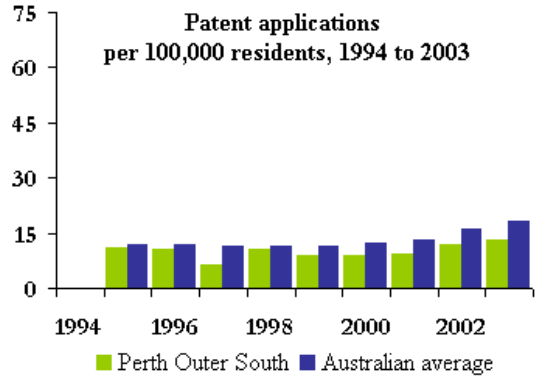
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.37 | 0.36 | 0.35 |
| 25 – 54 | 0.44 | 0.44 | 0.43 | 0.42 |
| 55+ | 0.18 | 0.20 | 0.21 | 0.23 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 1,749 | 2,259 | 3,425 |
| 25 – 54 | | 2,076 | 1,748 | 3,303 |
| 55+ | | -180 | 102 | 653 |
| Average age | 33.6 | 35.0 | 35.5 | 36.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.141%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 16.5 | 18 |
| 2001 | 17.5 | 16 |
| 2003 | 18.1 | 17 |
| 2004 | 19.8 | 17 |
| Income supported households (%) | 19.4 | 46 |

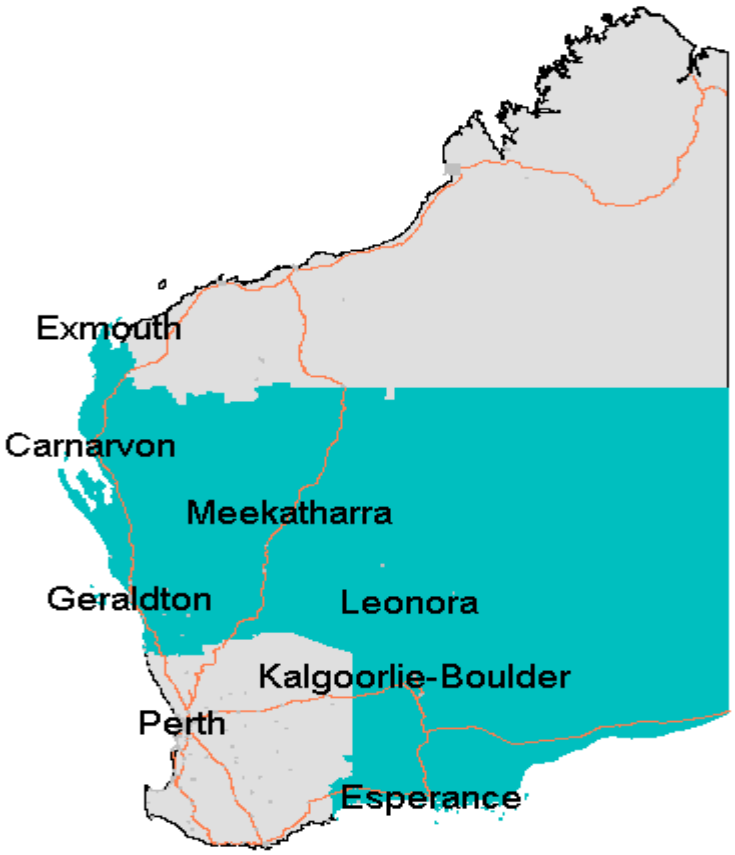



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 48.2 | 17 | 39.2 |
| Average p.a. per capita | 10.0 | 22 | 13.7 |
| Hi Tech p.a. (1994-2003) | 8.7 | 15 | 9.8 |
| Hi Tech p.a. per capita | 1.7 | 21 | 2.5 |
| Info. Tech p.a. (1994-2003) | 2.8 | 15 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 20 | 0.9 |
| Average per capita (1994-2000) | 9.4 | 18 | 9.6 |
| Average per capita (2001-2003) | 11.5 | 28 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.22 | 47 | 1.48 |

*Note:* Per capita = 100,000 people.

# WA Gascoyne-Goldfields




The Gascoyne/Goldfields region comprises the three low-population WA planning regions centred on Carnarvon, Geraldton and Kalgoorlie. With the exception of the wheat country back of Geraldton and in the immediate vicinity of Esperance, rural production is confined to extensive pastoralism, which peters out inland. The region includes the major mineral province centred on Kalgoorlie, and the lesser but still significant mineral output of the Murchison region. Though Kalgoorlie is a major supply and mineral processing centre, many of the mines are worked by fly-in fly-out workforces based in Perth.

**Major centres:**

Carnarvon, Geraldton, Kalgoorlie

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 117,610 | | 115,880 | | 115,006 | | -0.3 |
| No. households | 43,334 | | 45,611 | | 47,333 | | 1.2 |
| Workforce | 70,232 | 59.2 | 65,097 | 56.2 | 66,987 | 58.2 | 1.0 |
| Employment | 64,827 | – | 59,058 | – | 61,610 | – | 1.4 |
| Unemployment | 5,405 | 7.7 | 6,039 | 9.3 | 5,377 | 8.0 | -3.8 |
| DEET U/E | 5,185 | 7.5 | 3,882 | 6.0 | 3,194 | 4.8 | -6.3 |
| Structural U/E, % population[1] | 6,246 | 8.5 | 7,665 | 10.2 | 7,344 | 10.0 | -1.4 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,547 | 13,408 | 1,657 | 14,401 | 2,219 | 19,440 | 7.7 |
| Taxes paid | 433 | 3,755 | 416 | 3,613 | 584 | 5,120 | 6.4 |
| GST paid | 112 | 975 | 150 | 1,307 | 237 | 2,075 | – |
| Benefits | 243 | 2,103 | 295 | 2,561 | 386 | 3,382 | 10.0 |
| Business income | 449 | 3,887 | 392 | 3,409 | 540 | 4,728 | 4.0 |
| Interest/dividends | 51 | 443 | 53 | 461 | 47 | 408 | -1.6 |
| Interest paid | 141 | 1,225 | 203 | 1,766 | 251 | 2,201 | 12.4 |
| Net property income | 19 | 168 | 7 | 57 | -4 | -33 | -$202 |
| Net flow of funds | 1,622 | 14,056 | 1,634 | 14,202 | 2,115 | 18,528 | 5.7 |
| Rank | | 13 | | 15 | | 6 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 71 | 58 |
| Skills corrected factor (out of 1,000) | 74 | 57 |
| Industry corrected factor (out of 1,000) | 76 | 58 |
| Global knowledge factor (out of 1,000) | 59 | 58 |
| Resident skills matching | 144 | 36 |
| Resident industry matching | -137 | 33 |
| Catchment jobs/workers | 596 | 11 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 73 | 57 |
| Industry corrected factor (out of 1,000) | 81 | 58 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 73 | 57 |
| Industry corrected factor (out of 1,000) | 86 | 58 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 8,191 | 7,128 |
| 60 minutes, door to door | 9,224 | 7,967 |
| 100 minutes, door to door | 9,959 | 8,558 |
| *"Congestion exposure risk factor, rank"* | 5 | 55 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 7 | 60 |
| Highest performing LGA – Greenough (S) | 11 | 395 |
| Lowest performing LGA –Exmouth (S) | 1 | 612 |
| Distance to significant retail diversity (km) | 281.5 | 60 |
| Missing local retail types (out of 44) | 40 | 56 |
| Highest performing LGA –Geraldton (C) | 34 | 218 |
| Lowest performing LGA –Carnamah (S) | 44 | 317 |
| Percentage of retail missing (%) | 70.7% | 55 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 267 | 64 |
| 2001 | 404 | 64 |
| 2003 | 253 | 62 |
| 2004 | 293 | 63 |

YourPlace
*The place to go for the performance of Australia's local economies*

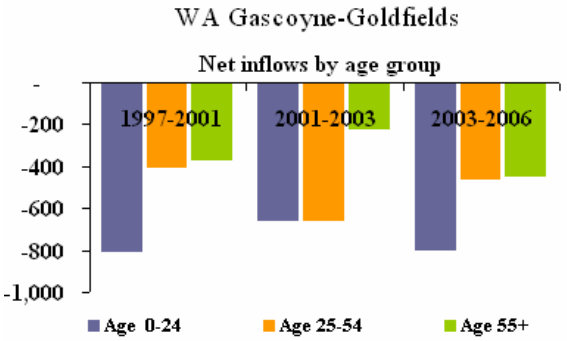
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 54.8 | 66.4% | 59.4% | 3 |
| High LGA – Yalgoo (S) | 99.9 | 117.8% | | |
| Low LGA – Ngaanyatjarraku (S) | 0.6 | 36.3% | | |
| Infrastructure | 66.3 | 1.14 | 1.53 | 44 |
| High LGA – Chapman Valley (S) | 92.3 | 3.74 | | |
| Low LGA – Menzies (S) | 0.2 | 0.00 | | |
| Household prosperity potential | 52.1 | 106% | 100% | 46 |
| High LGA – Northampton (S) | 86.4 | 184% | | |
| Low LGA – Menzies (S) | 0.1 | -100% | | |
| Global knowledge flows | 56.0 | 6.6% | 12.9% | 30 |
| High LGA – Yalgoo (S) | 83.5 | 10.5% | | |
| Low LGA – Northampton (S) | 8.2 | 1.9% | | |
| Knowledge driven growth potential | 34.2 | 0.46 | 0.67 | 60 |
| High LGA – Ravensthorpe (S) | 74.4 | 0.73 | | |
| Low LGA – Upper Gascoyne (S) | 0.1 | 0.04 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

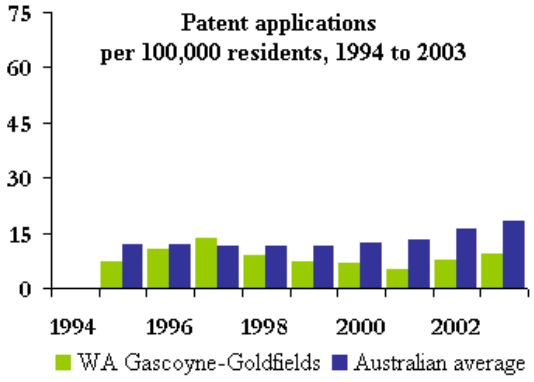
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.40 | 0.38 | 0.37 | 0.36 |
| 25 – 54 | 0.46 | 0.46 | 0.46 | 0.45 |
| 55+ | 0.14 | 0.16 | 0.18 | 0.19 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -806 | -654 | -799 |
| 25 – 54 | | -402 | -656 | -457 |
| 55+ | | -368 | -220 | -447 |
| Average age | 31.2 | 32.7 | 33.5 | 34.5 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -1.032%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 15.0 | 15 |
| 2001 | 18.0 | 19 |
| 2003 | 17.4 | 14 |
| 2004 | 18.2 | 15 |
| Income supported households (%) | 19.4 | 45 |

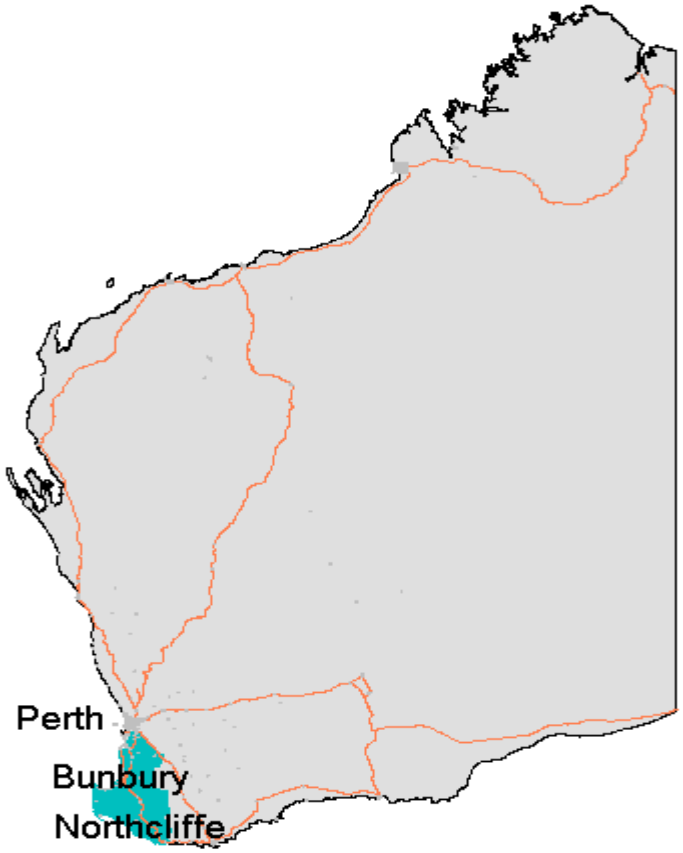



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 9.6 | 45 | 39.2 |
| Average p.a. per capita | 8.4 | 31 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.6 | 55 | 9.8 |
| Hi Tech p.a. per capita | 0.5 | 56 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.2 | 46 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 44 | 0.9 |
| Average per capita (1994-2000) | 8.5 | 26 | 9.6 |
| Average per capita (2001-2003) | 8.3 | 44 | 14.3 |
| 2001-03 avg./1994-00 avg. | 0.98 | 60 | 1.48 |

*Note:* Per capita = 100,000 people.

# WA Peel-South West




The Peel/South West region comprises the two WA planning regions on the coast south of Perth, the first centred on the resort town of Mandurah and the second on Bunbury, with its bulk freight port. The region is noted for its resource-based industries: bauxite and alumina, coal and power, and forestry and timber products. The coastal strip is intensively farmed, by WA standards, and Margaret River is known for its viticulture. In addition, much of the coastline, especially Mandurah and Busselton, is a resort and retirement area which bears comparison with the NSW coast. In the timber country there is conflict between the timber industry and conservation with its allies in tourism.

**Major centres:**

Mandurah, Bunbury

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 187,992 | | 205,833 | | 223,222 | | 2.7 |
| No. households | 69,012 | | 78,001 | | 86,558 | | 3.5 |
| Workforce | 90,174 | 47.8 | 100,171 | 48.7 | 105,809 | 47.4 | 1.8 |
| Employment | 83,202 | – | 89,744 | – | 97,430 | – | 2.8 |
| Unemployment | 6,974 | 7.7 | 10,427 | 10.4 | 8,379 | 7.9 | -7.0 |
| DEET U/E | 5,798 | 6.5 | 6,699 | 6.8 | 6,935 | 6.7 | 1.2 |
| Structural U/E, % population[1] | 10,444 | 9.4 | 13,782 | 11.4 | 13,806 | 10.1 | 0.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,342 | 12,063 | 2,674 | 12,991 | 3,317 | 14,858 | 4.3 |
| Taxes paid | 634 | 3,268 | 659 | 3,204 | 895 | 4,008 | 4.2 |
| GST paid | 148 | 763 | 230 | 1,116 | 312 | 1,399 | – |
| Benefits | 484 | 2,495 | 556 | 2,700 | 713 | 3,195 | 5.1 |
| Business income | 490 | 2,522 | 422 | 2,051 | 542 | 2,428 | -0.8 |
| Interest/dividends | 84 | 435 | 107 | 519 | 108 | 482 | 2.1 |
| Interest paid | 191 | 982 | 259 | 1,257 | 338 | 1,512 | 9.0 |
| Net property income | 59 | 304 | 45 | 218 | 6 | 26 | -$278 |
| Net flow of funds | 2,486 | 12,804 | 2,656 | 12,905 | 3,141 | 14,070 | 1.9 |
| Rank | | 18 | | 33 | | 36 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 177 | 39 |
| Skills corrected factor (out of 1,000) | 174 | 39 |
| Industry corrected factor (out of 1,000) | 180 | 39 |
| Global knowledge factor (out of 1,000) | 150 | 38 |
| Resident skills matching | 154 | 35 |
| Resident industry matching | -210 | 45 |
| Catchment jobs/workers | 533 | 18 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 171 | 40 |
| Industry corrected factor (out of 1,000) | 179 | 40 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 165 | 40 |
| Industry corrected factor (out of 1,000) | 171 | 40 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 10,773 | 12,492 |
| 60 minutes, door to door | 23,154 | 26,464 |
| 100 minutes, door to door | 125,301 | 114,843 |
| *"Congestion exposure risk factor, rank"* | 117 | 20 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 50 | 35 |
| Highest performing LGA – Bunbury (C) | 77 | 146 |
| Lowest performing LGA –Manjimup (S) | 11 | 395 |
| Distance to significant retail diversity (km) | 43.3 | 36 |
| Missing local retail types (out of 44) | 34 | 43 |
| Highest performing LGA –Dardanup (S) | 26 | 178 |
| Lowest performing LGA –Augusta-Margaret River (S) | 44 | 317 |
| Percentage of retail missing (%) | 50.7% | 42 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 978 | 15 |
| 2001 | 1,274 | 27 |
| 2003 | 812 | 14 |
| 2004 | 746 | 20 |

YourPlace
*The place to go for the performance of Australia's local economies*

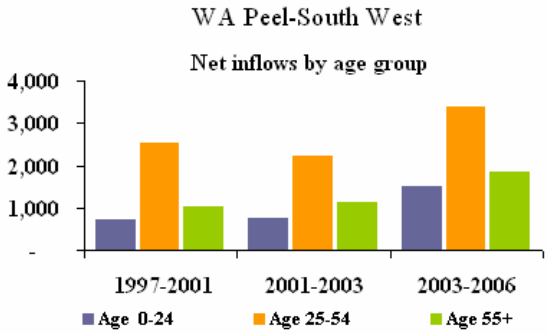
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 28.3 | 56.4% | 59.4% | 40 |
| High LGA – Boyup Brook (S) | 82.6 | 76.5% | | |
| Low LGA – Mandurah (C) | 6.8 | 47.3% | | |
| Infrastructure | 61.1 | 0.87 | 1.53 | 21 |
| High LGA – Boddington (S) | 90.7 | 2.42 | | |
| Low LGA – Boyup Brook (S) | 2.6 | 0.00 | | |
| Household prosperity potential | 30.3 | 67% | 100% | 47 |
| High LGA – Boyup Brook (S) | 76.2 | 156% | | |
| Low LGA – Bunbury (C) | 6.4 | 4% | | |
| Global knowledge flows | 49.5 | 5.8% | 12.9% | 35 |
| High LGA – Boddington (S) | 84.2 | 10.7% | | |
| Low LGA – Nannup (S) | 4.1 | 1.2% | | |
| Knowledge driven growth potential | 35.6 | 0.48 | 0.67 | 39 |
| High LGA – Boyup Brook (S) | 88.3 | 0.90 | | |
| Low LGA – Collie (S) | 11.1 | 0.31 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

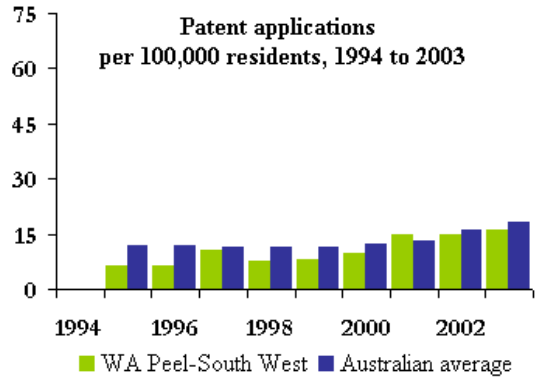
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.35 | 0.34 | 0.33 |
| 25 – 54 | 0.43 | 0.42 | 0.42 | 0.41 |
| 55+ | 0.21 | 0.23 | 0.25 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 733 | 736 | 1,504 |
| 25 – 54 | | 2,517 | 2,205 | 3,388 |
| 55+ | | 1,040 | 1,135 | 1,831 |
| Average age | 34.7 | 36.4 | 37.1 | 38.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.100%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 19.5 | 26 |
| 2001 | 20.9 | 29 |
| 2003 | 21.4 | 34 |
| 2004 | 22.6 | 34 |
| Income supported households (%) | 19.5 | 43 |

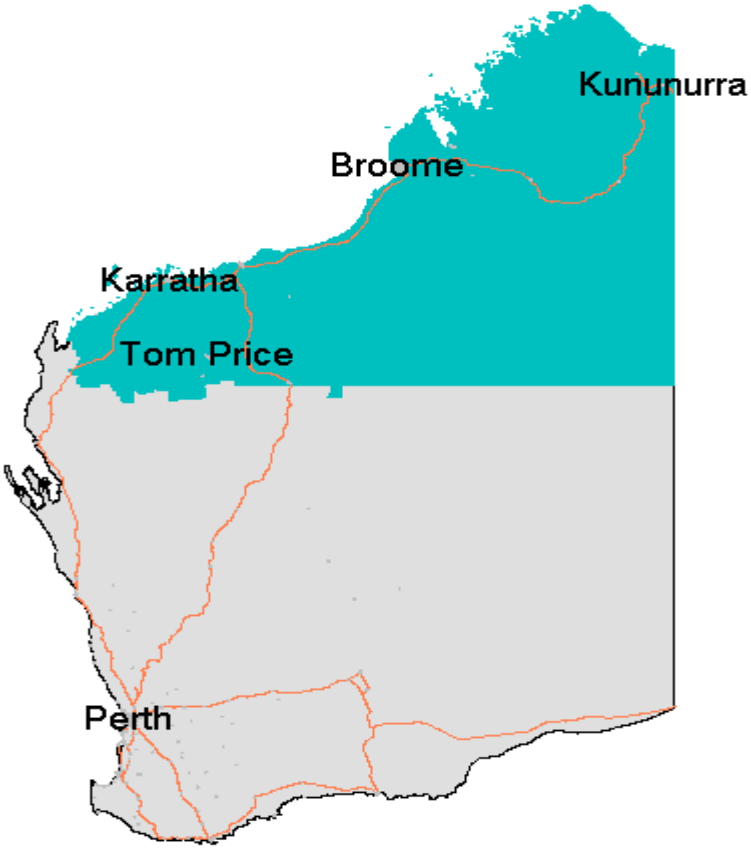



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 19.0 | 32 | 39.2 |
| Average p.a. per capita | 10.6 | 17 | 13.7 |
| Hi Tech p.a. (1994-2003) | 4.2 | 24 | 9.8 |
| Hi Tech p.a. per capita | 2.1 | 13 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.5 | 39 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 39 | 0.9 |
| Average per capita (1994-2000) | 9.1 | 20 | 9.6 |
| Average per capita (2001-2003) | 14.1 | 16 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.55 | 23 | 1.48 |

*Note:* Per capita = 100,000 people.

# WA Pilbara-Kimberly




The Pilbara and Kimberley are two WA planning regions, here brought together. Their output is dominated by minerals: offshore oil and gas, and onshore iron ore. The extensive pastoral stations first settled in the nineteenth century are still there, and so is a significant Aboriginal population. The region has a dry-season tourist trade. Towns in the Pilbara accommodate workers in the mining and petroleum industries, while those in the Kimberley include the old polyglot pearling port of Broome and the newer town of Kununurra, which was founded as an urban centre for the Ord River intensive agricultural area.

N.B Unemployment figures in remote regions can display excess variation.

**Major centres:**

Karratha, Port Hedland, Broome

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 68,979 | | 72,086 | | 74,913 | | 1.3 |
| No. households | 26,281 | | 27,384 | | 28,802 | | 1.7 |
| Workforce | 42,438 | 61.1 | 39,655 | 55.0 | 41,859 | 55.9 | 1.8 |
| Employment | 39,607 | – | 35,573 | – | 36,808 | – | 1.1 |
| Unemployment | 2,832 | 6.7 | 4,082 | 10.3 | 5,051 | 12.1 | 7.4 |
| DEET U/E | 2,829 | 6.7 | 2,782 | 7.1 | 1,787 | 4.4 | -13.7 |
| Structural U/E, % population[1] | 3,743 | 8.3 | 4,943 | 10.5 | 5,820 | 11.7 | 5.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,054 | 14,940 | 1,176 | 16,314 | 1,659 | 22,148 | 8.2 |
| Taxes paid | 308 | 4,361 | 312 | 4,329 | 465 | 6,214 | 7.3 |
| GST paid | 72 | 1,022 | 100 | 1,388 | 154 | 2,058 | – |
| Benefits | 141 | 2,005 | 204 | 2,824 | 323 | 4,314 | 16.6 |
| Business income | 320 | 4,532 | 287 | 3,982 | 403 | 5,380 | 3.5 |
| Interest/dividends | 17 | 238 | 19 | 269 | 21 | 281 | 3.4 |
| Interest paid | 83 | 1,170 | 117 | 1,624 | 193 | 2,578 | 17.1 |
| Net property income | -2 | -33 | -10 | -144 | -18 | -245 | -$211 |
| Net flow of funds | 1,067 | 15,129 | 1,146 | 15,904 | 1,575 | 21,029 | 6.8 |
| Rank | | 8 | | 11 | | 3 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 31 | 63 |
| Skills corrected factor (out of 1,000) | 38 | 63 |
| Industry corrected factor (out of 1,000) | 29 | 63 |
| Global knowledge factor (out of 1,000) | 31 | 63 |
| Resident skills matching | 95 | 41 |
| Resident industry matching | -409 | 53 |
| Catchment jobs/workers | 574 | 13 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 25 | 63 |
| Industry corrected factor (out of 1,000) | 30 | 63 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 31 | 63 |
| Industry corrected factor (out of 1,000) | 26 | 63 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 5,114 | 4,317 |
| 60 minutes, door to door | 5,114 | 4,317 |
| 100 minutes, door to door | 5,114 | 4,317 |
| *"Congestion exposure risk factor, rank"* | 3 | 62 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 1 | 64 |
| Highest performing LGA –Port Hedland (T) | 2 | 594 |
| Lowest performing LGA –Wyndham-E. Kimberley (S) | 1 | 612 |
| Distance to significant retail diversity (km) | 703.5 | 64 |
| Missing local retail types (out of 44) | 43 | 61 |
| Highest performing LGA –Roebourne (S) | 41 | 256 |
| Lowest performing LGA –Ashburton (S) | 44 | 317 |
| Percentage of retail missing (%) | 88.2% | 61 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 483 | 53 |
| 2001 | 778 | 55 |
| 2003 | 378 | 52 |
| 2004 | 603 | 36 |

YourPlace
*The place to go for the performance of Australia's local economies*

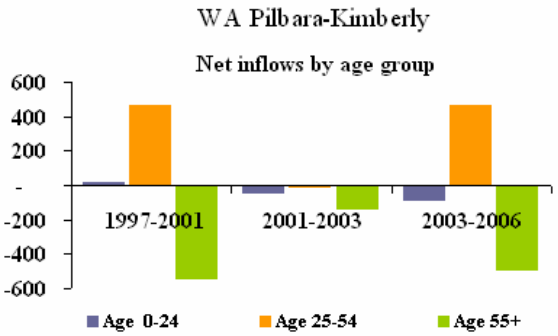
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 60.1 | 67.0% | 59.4% | 15 |
| High LGA–East Pilbara (S) | 88.2 | 80.2% | | |
| Low LGA–Halls Creek (S) | 1.2 | 39.1% | | |
| Infrastructure | 60.5 | 0.76 | 1.53 | 19 |
| High LGA–Wyndham-East Kimberley | 77.8 | 1.16 | | |
| Low LGA–East Pilbara (S) | 36.5 | 0.39 | | |
| Household prosperity potential | 55.1 | 110% | 100% | 32 |
| High LGA–Broome (S) | 92.2 | 211% | | |
| Low LGA–Darby-West Kimberley (S) | 0.3 | -86% | | |
| Global knowledge flows | 55.6 | 6.3% | 12.9% | 29 |
| High LGA–Port Hedland (T) | 70.2 | 8.0% | | |
| Low LGA–Halls Creek (S) | 33.3 | 4.2% | | |
| Knowledge driven growth potential | 28.2 | 0.42 | 0.67 | 61 |
| High LGA–Broome (S) | 41.7 | 0.50 | | |
| Low LGA–Derby-West Kimberley (S) | 7.7 | 0.27 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

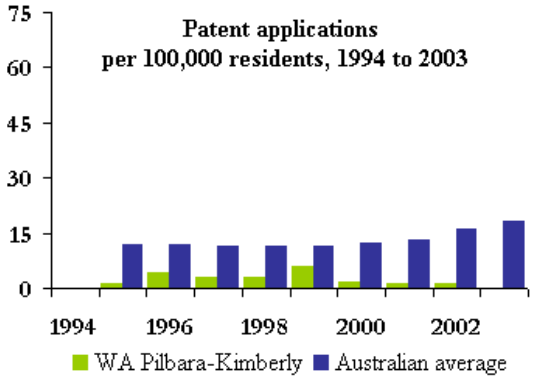
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.44 | 0.42 | 0.41 | 0.39 |
| 25 – 54 | 0.47 | 0.50 | 0.50 | 0.51 |
| 55+ | 0.10 | 0.09 | 0.09 | 0.10 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 19 | -45 | -88 |
| 25 – 54 | | 462 | -11 | 463 |
| 55+ | | -541 | -136 | -492 |
| Average age | 28.2 | 28.6 | 29.3 | 30.2 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 1.377%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 13.3 | 8 |
| 2001 | 17.8 | 17 |
| 2003 | 20.0 | 25 |
| 2004 | 20.5 | 19 |
| Income supported households (%) | 20.6 | 36 |

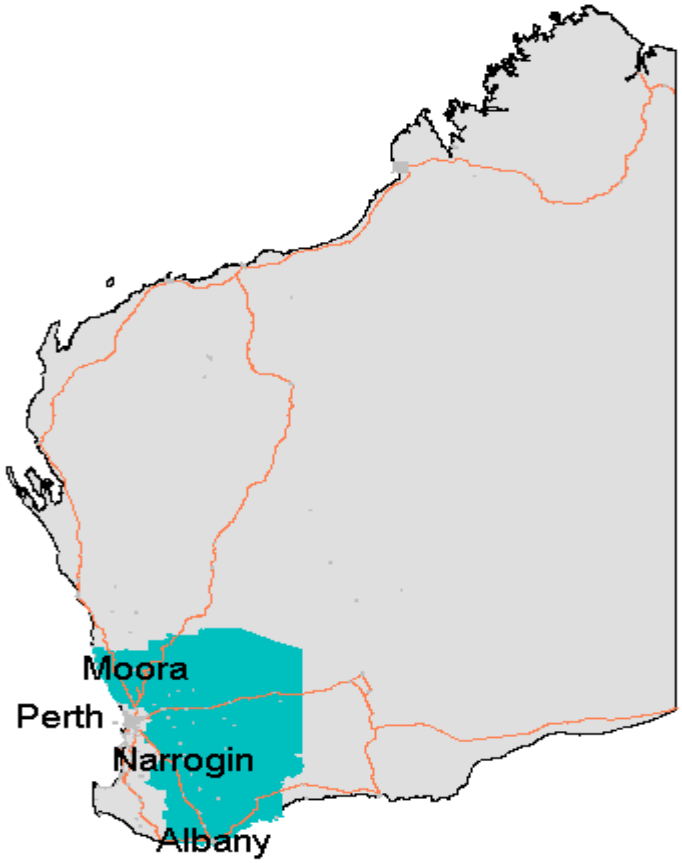



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 1.9 | 63 | 39.2 |
| Average p.a. per capita | 2.5 | 63 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.1 | 62 | 9.8 |
| Hi Tech p.a. per capita | 0.1 | 64 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.0 | 60 | 3.5 |
| Info. Tech p.a. per capita | 0.0 | 60 | 0.9 |
| Average per capita (1994-2000) | 3.0 | 63 | 9.6 |
| Average per capita (2001-2003) | 1.4 | 64 | 14.3 |
| 2001-03 avg./1994-00 avg. | 0.48 | 63 | 1.48 |

*Note:* Per capita = 100,000 people.

# WA Wheatbelt-Great Southern




The WA planning authorities distinguish the Wheat Belt and the Great Southern, but they are here brought together. Relative to the Eastern States, towns in the WA wheat belt are few and small; the largest are Northam and Narrogin. Much of the area depends directly on Perth for higher-order retail and administrative functions. By contrast, the Great Southern comprises the hinterland of Albany, a town of some size and long history. The region as a whole is classic wheat/sheep country, much of it now troubled by dry-land saltation. The strip close to Albany is better watered, with some plantation forestry.

**Major centres:**

Albany, Northam

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 123,115 | | 126,062 | | 125,972 | | 0.0 |
| No. households | 45,297 | | 48,477 | | 51,094 | | 1.8 |
| Workforce | 70,218 | 56.9 | 67,826 | 53.8 | 69,157 | 54.9 | 0.7 |
| Employment | 60,511 | – | 61,504 | – | 63,815 | – | 1.2 |
| Unemployment | 9,707 | 13.8 | 6,323 | 9.3 | 5,343 | 7.7 | -5.5 |
| DEET U/E | 3,224 | 5.1 | 3,284 | 4.9 | 3,480 | 5.2 | 1.9 |
| Structural U/E, % population[1] | 6,211 | 8.5 | 8,503 | 11.4 | 8,089 | 10.5 | -1.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,251 | 10,043 | 1,428 | 11,326 | 1,969 | 15,628 | 9.2 |
| Taxes paid | 309 | 2,477 | 344 | 2,726 | 526 | 4,178 | 11.0 |
| GST paid | 97 | 780 | 136 | 1,080 | 244 | 1,939 | – |
| Benefits | 291 | 2,333 | 341 | 2,704 | 423 | 3,362 | 7.6 |
| Business income | 448 | 3,593 | 382 | 3,029 | 732 | 5,811 | 10.1 |
| Interest/dividends | 77 | 615 | 110 | 876 | 113 | 894 | 7.8 |
| Interest paid | 129 | 1,032 | 191 | 1,516 | 250 | 1,984 | 14.0 |
| Net property income | 42 | 333 | 28 | 223 | 14 | 113 | -$220 |
| Net flow of funds | 1,573 | 12,629 | 1,618 | 12,836 | 2,231 | 17,707 | 7.0 |
| Rank | | 19 | | 35 | | 9 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 73 | 57 |
| Skills corrected factor (out of 1,000) | 72 | 58 |
| Industry corrected factor (out of 1,000) | 78 | 57 |
| Global knowledge factor (out of 1,000) | 68 | 57 |
| Resident skills matching | -51 | 59 |
| Resident industry matching | -152 | 35 |
| Catchment jobs/workers | 532 | 19 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 67 | 59 |
| Industry corrected factor (out of 1,000) | 79 | 59 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 65 | 59 |
| Industry corrected factor (out of 1,000) | 80 | 59 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 2,494 | 2,460 |
| 60 minutes, door to door | 4,224 | 4,984 |
| 100 minutes, door to door | 25,595 | 25,405 |
| *"Congestion exposure risk factor, rank"* | 6 | 49 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 14 | 57 |
| Highest performing LGA – Chittering (S) | 54 | 172 |
| Lowest performing LGA –Lake Grace (S) | 4 | 553 |
| Distance to significant retail diversity (km) | 120.5 | 57 |
| Missing local retail types (out of 44) | 42 | 59 |
| Highest performing LGA –Albany (C) | 34 | 218 |
| Lowest performing LGA –Beverley (S) | 44 | 317 |
| Percentage of retail missing (%) | 85.0% | 60 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 388 | 59 |
| 2001 | 488 | 62 |
| 2003 | 382 | 51 |
| 2004 | 378 | 58 |

YourPlace
*The place to go for the performance of Australia's local economies*

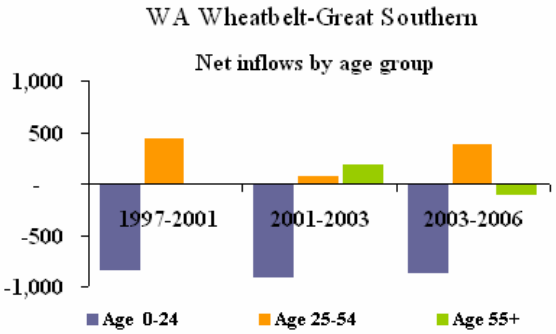
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 46.3 | 64.6% | 59.4% | 2 |
| High LGA – Kent (S) | 98.9 | 101.9% | | |
| Low LGA – Denmark (S) | 10.2 | 49.6% | | |
| Infrastructure | 52.4 | 1.12 | 1.53 | 48 |
| High LGA – Brookton (S) | 96.5 | 13.00 | | |
| Low LGA – Wandering (S) | 0.3 | 0.00 | | |
| Household prosperity potential | 62.4 | 132% | 100% | 12 |
| High LGA – Kent (S) | 96.1 | 242% | | |
| Low LGA – Katanning (S) | 5.7 | 0% | | |
| Global knowledge flows | 41.7 | 5.0% | 12.9% | 60 |
| High LGA – Broomehill (S) | 81.4 | 10.0% | | |
| Low LGA – Tammin (S) | 0.0 | 0.0% | | |
| Knowledge driven growth potential | 57.4 | 0.62 | 0.67 | 29 |
| High LGA – Lake Grace (S) | 94.4 | 1.05 | | |
| Low LGA – Narrogin (S) | 2.2 | 0.14 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

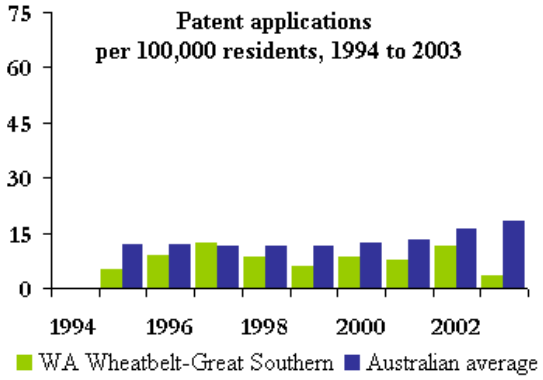
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.37 | 0.34 | 0.34 | 0.32 |
| 25 – 54 | 0.44 | 0.43 | 0.42 | 0.41 |
| 55+ | 0.20 | 0.22 | 0.24 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -828 | -896 | -860 |
| 25 – 54 | | 439 | 73 | 381 |
| 55+ | | -6 | 189 | -103 |
| Average age | 34.4 | 36.3 | 37.3 | 38.5 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.032%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 18.5 | 22 |
| 2001 | 21.1 | 31 |
| 2003 | 19.2 | 19 |
| 2004 | 18.9 | 16 |
| Income supported households (%) | 20.1 | 41 |

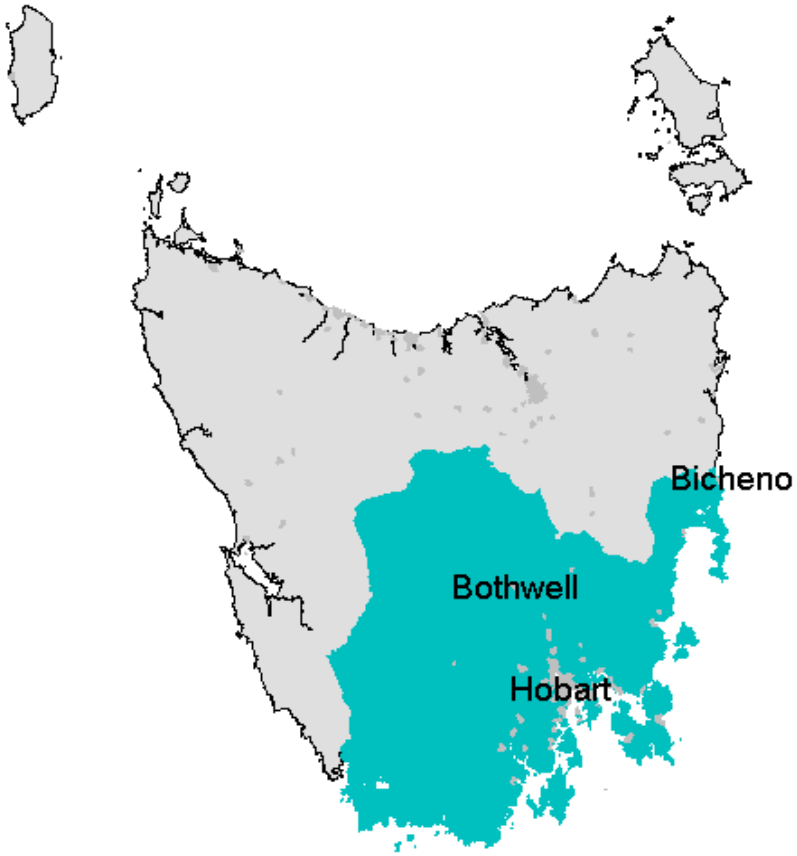



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 10.3 | 44 | 39.2 |
| Average p.a. per capita | 8.4 | 32 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.9 | 51 | 9.8 |
| Hi Tech p.a. per capita | 0.7 | 46 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.2 | 46 | 3.5 |
| Info. Tech p.a. per capita | 0.2 | 47 | 0.9 |
| Average per capita (1994-2000) | 8.1 | 27 | 9.6 |
| Average per capita (2001-2003) | 9.2 | 35 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.13 | 52 | 1.48 |

*Note:* Per capita = 100,000 people.

# TAS Hobart-South




Southern Tasmania includes all of Hobart, plus its commuter zone, purely rural areas and forests. It accordingly has a greater mix of economic base than the capital city regions of the mainland states. The regional economic base includes city centre functions, manufacturing (much of which is resource-related), agriculture, fishing, forestry and tourism, the latter based on both natural attractions and the region's urban heritage. The region extends into high country exploited for hydro-electricity.

**Major centres:**

Hobart

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 229,471 | | 231,854 | | 237,771 | | 0.8 |
| No. households | 91,561 | | 93,874 | | 97,733 | | 1.4 |
| Workforce | 115,429 | 50.3 | 111,862 | 48.2 | 117,540 | 49.4 | 1.7 |
| Employment | 92,134 | – | 93,300 | – | 100,918 | – | 2.7 |
| Unemployment | 23,294 | 20.2 | 18,560 | 16.6 | 16,623 | 14.1 | -3.6 |
| DEET U/E | 9,252 | 8.5 | 9,956 | 9.3 | 7,280 | 6.5 | -9.9 |
| Structural U/E, % population[1] | 25,006 | 17.9 | 22,372 | 16.1 | 21,673 | 14.6 | -1.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 2,675 | 11,602 | 3,053 | 13,167 | 3,663 | 15,406 | 5.8 |
| Taxes paid | 709 | 3,075 | 773 | 3,335 | 1,007 | 4,234 | 6.6 |
| GST paid | 215 | 933 | 284 | 1,225 | 347 | 1,457 | – |
| Benefits | 689 | 2,988 | 700 | 3,018 | 870 | 3,657 | 4.1 |
| Business income | 401 | 1,739 | 371 | 1,598 | 447 | 1,880 | 1.6 |
| Interest/dividends | 119 | 517 | 143 | 615 | 123 | 517 | 0.0 |
| Interest paid | 198 | 861 | 237 | 1,020 | 320 | 1,348 | 9.4 |
| Net property income | 46 | 199 | 55 | 239 | 27 | 115 | -$84 |
| Net flow of funds | 2,807 | 12,176 | 3027 | 13,057 | 3,456 | 14,536 | 3.6 |
| Rank | | 28 | | 26 | | 31 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 210 | 34 |
| Skills corrected factor (out of 1,000) | 202 | 35 |
| Industry corrected factor (out of 1,000) | 211 | 34 |
| Global knowledge factor (out of 1,000) | 215 | 30 |
| Resident skills matching | 161 | 33 |
| Resident industry matching | -285 | 50 |
| Catchment jobs/workers | 531 | 20 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 204 | 34 |
| Industry corrected factor (out of 1,000) | 212 | 34 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 201 | 33 |
| Industry corrected factor (out of 1,000) | 207 | 34 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 14,669 | 15,443 |
| 60 minutes, door to door | 53,852 | 55,578 |
| 100 minutes, door to door | 73,747 | 73,536 |
| *"Congestion exposure risk factor, rank"* | 304 | 8 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 50 | 36 |
| Highest performing LGA – Hobart (C) | 77 | 146 |
| Lowest performing LGA –Central Highlands (M) | 11 | 395 |
| Distance to significant retail diversity (km) | 36.0 | 32 |
| Missing local retail types (out of 44) | 20 | 30 |
| Highest performing LGA –Clarence (C) | 14 | 135 |
| Lowest performing LGA –Central Highlands (M) | 44 | 317 |
| Percentage of retail missing (%) | 23.7% | 30 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 743 | 35 |
| 2001 | 1,189 | 32 |
| 2003 | 595 | 23 |
| 2004 | 749 | 19 |

YourPlace
*The place to go for the performance of Australia's local economies*

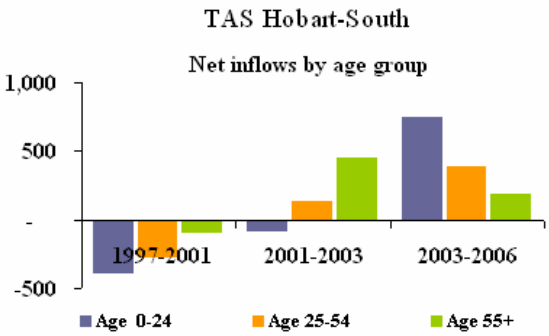
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 18.6 | 53.2% | 59.4% | 61 |
| High LGA – Hobart (C) | 28.5 | 57.5% | | |
| Low LGA – Brighton (M) | 3.6 | 43.5% | | |
| Infrastructure | 45.1 | 0.66 | 1.53 | 55 |
| High LGA – Hobart (C) | 87.3 | 1.79 | | |
| Low LGA – Southern Midlands (M) | 4.1 | 0.01 | | |
| Household prosperity potential | 48.7 | 106% | 100% | 42 |
| High LGA – Hobart (C) | 89.5 | 197% | | |
| Low LGA – Huon Valley (M) | 7.3 | 10% | | |
| Global knowledge flows | 74.7 | 12.1% | 12.9% | 39 |
| High LGA – Hobart (C) | 97.8 | 18.6% | | |
| Low LGA – Tasman (M) | 9.4 | 2.0% | | |
| Knowledge driven growth potential | 60.6 | 0.73 | 0.67 | 42 |
| High LGA – Hobart (C) | 94.5 | 1.05 | | |
| Low LGA – Derwent Valley (M) | 8.1 | 0.27 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

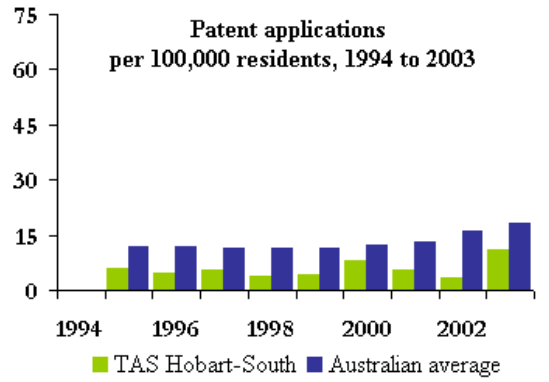
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.34 |
| 25 – 54 | 0.43 | 0.42 | 0.41 | 0.40 |
| 55+ | 0.21 | 0.24 | 0.25 | 0.26 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -385 | -80 | 750 |
| 25 – 54 | | -268 | 135 | 388 |
| 55+ | | -91 | 455 | 189 |
| Average age | 35.4 | 36.7 | 37.2 | 37.7 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.111%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 24.5 | 49 |
| 2001 | 23.1 | 43 |
| 2003 | 25.3 | 48 |
| 2004 | 25.2 | 47 |
| Income supported households (%) | 24.1 | 15 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 13.9 | 38 | 39.2 |
| Average p.a. per capita | 6.1 | 48 | 13.7 |
| Hi Tech p.a. (1994-2003) | 3.5 | 29 | 9.8 |
| Hi Tech p.a. per capita | 1.5 | 25 | 2.5 |
| Info. Tech p.a. (1994-2003) | 1.2 | 27 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 22 | 0.9 |
| Average per capita (1994-2000) | 5.4 | 47 | 9.6 |
| Average per capita (2001-2003) | 7.6 | 49 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.39 | 39 | 1.48 |

*Note:* Per capita = 100,000 people.

# TAS North


Northern Tasmania comprises the north east part of the island. Its chief city is Launceston. The region includes areas of intensive farming with associated agricultural processing. The northern midlands and east coast are relatively dry, and are devoted to livestock rather than crop production. It has some manufacturing, with a nucleus of heavy industry at the port of Bell Bay, and also a coal mine.

**Major centres:**

Launceston

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 133,459 | | 133,115 | | 136,514 | | 0.8 |
| No. households | 52,674 | | 53,970 | | 55,955 | | 1.2 |
| Workforce | 66,741 | 50.1 | 68,679 | 51.6 | 69,237 | 50.7 | 0.3 |
| Employment | 56,753 | – | 58,304 | – | 59,786 | – | 0.8 |
| Unemployment | 9,988 | 15.0 | 10,375 | 15.1 | 9,450 | 13.6 | -3.1 |
| DEET U/E | 7,269 | 11.2 | 4,987 | 7.5 | 5,386 | 8.2 | 2.6 |
| Structural U/E, % population[1] | 11,244 | 14.0 | 12,356 | 15.4 | 12,143 | 14.4 | -0.6 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,418 | 10,653 | 1,613 | 12,114 | 1,875 | 13,733 | 5.2 |
| Taxes paid | 359 | 2,699 | 383 | 2,880 | 497 | 3,641 | 6.2 |
| GST paid | 117 | 877 | 156 | 1,176 | 198 | 1,450 | – |
| Benefits | 387 | 2,907 | 423 | 3,181 | 521 | 3,815 | 5.6 |
| Business income | 214 | 1,607 | 196 | 1,474 | 253 | 1,851 | 2.9 |
| Interest/dividends | 59 | 444 | 70 | 523 | 67 | 492 | 2.1 |
| Interest paid | 108 | 812 | 139 | 1,048 | 169 | 1,241 | 8.9 |
| Net property income | 25 | 188 | 16 | 124 | 5 | 39 | -$149 |
| Net flow of funds | 1,519 | 11,412 | 1,639 | 12,313 | 1,856 | 13,597 | 3.6 |
| Rank | | 47 | | 48 | | 43 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 150 | 42 |
| Skills corrected factor (out of 1,000) | 150 | 42 |
| Industry corrected factor (out of 1,000) | 157 | 42 |
| Global knowledge factor (out of 1,000) | 132 | 43 |
| Resident skills matching | 115 | 39 |
| Resident industry matching | -70 | 28 |
| Catchment jobs/workers | 487 | 43 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 150 | 42 |
| Industry corrected factor (out of 1,000) | 162 | 41 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 154 | 42 |
| Industry corrected factor (out of 1,000) | 165 | 42 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 16,176 | 16,211 |
| 60 minutes, door to door | 27,015 | 26,809 |
| 100 minutes, door to door | 43,587 | 41,579 |
| *"Congestion exposure risk factor, rank"* | 108 | 23 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 42 | 40 |
| Highest performing LGA –Launceston (C) | 56 | 168 |
| Lowest performing LGA –Break O'Day (M) | 10 | 421 |
| Distance to significant retail diversity (km) | 50.6 | 40 |
| Missing local retail types (out of 44) | 32 | 37 |
| Highest performing LGA –Launceston (C) | 26 | 175 |
| Lowest performing LGA –Break O'Day (M) | 44 | 317 |
| Percentage of retail missing (%) | 43.9% | 37 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 784 | 33 |
| 2001 | 1,395 | 16 |
| 2003 | 811 | 15 |
| 2004 | 841 | 10 |

YourPlace
*The place to go for the performance of Australia's local economies*

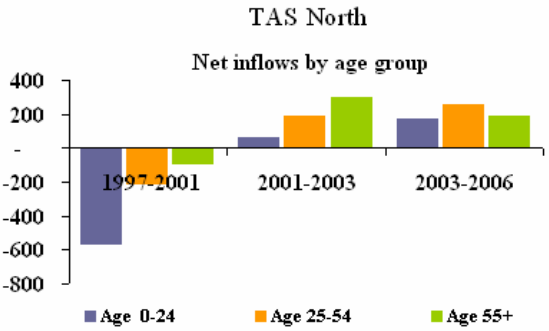
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 20.5 | 53.9% | 59.4% | 55 |
| High LGA – Flinders (M) | 56.9 | 65.3% | | |
| Low LGA – Break O'Day (M) | 1.8 | 40.7% | | |
| Infrastructure | 50.4 | 0.58 | 1.53 | 38 |
| High LGA – George Town (M) | 71.9 | 0.97 | | |
| Low LGA – West Tamar (M) | 29.5 | 0.32 | | |
| Household prosperity potential | 41.7 | 91% | 100% | 40 |
| High LGA – West Tamar (M) | 80.8 | 168% | | |
| Low LGA – Meander Valley (M) | 11.7 | 30% | | |
| Global knowledge flows | 62.6 | 7.5% | 12.9% | 46 |
| High LGA – Launceston (C) | 77.5 | 9.2% | | |
| Low LGA – Flinders (M) | 16.7 | 2.8% | | |
| Knowledge driven growth potential | 42.9 | 0.52 | 0.67 | 48 |
| High LGA – Meander Valley (M) | 74.1 | 0.73 | | |
| Low LGA – George Town (M) | 13.9 | 0.34 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

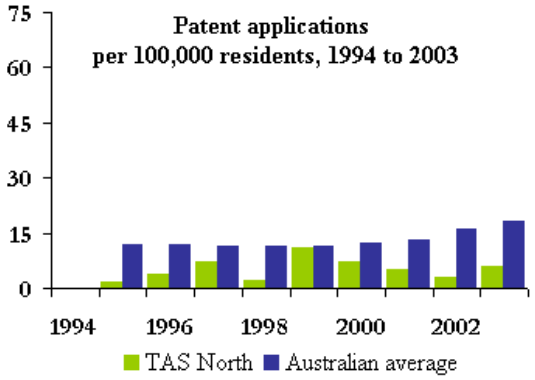
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.42 | 0.42 | 0.41 | 0.40 |
| 55+ | 0.22 | 0.24 | 0.26 | 0.27 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -559 | 63 | 171 |
| 25 – 54 | | -212 | 188 | 254 |
| 55+ | | -87 | 297 | 189 |
| Average age | 35.6 | 36.8 | 37.3 | 38.0 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.208%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 25.5 | 54 |
| 2001 | 25.8 | 55 |
| 2003 | 26.4 | 52 |
| 2004 | 28.1 | 52 |
| Income supported households (%) | 26.0 | 7 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 7.6 | 52 | 39.2 |
| Average p.a. per capita | 5.7 | 52 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.9 | 52 | 9.8 |
| Hi Tech p.a. per capita | 0.6 | 49 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 56 | 0.9 |
| Average per capita (1994-2000) | 5.5 | 46 | 9.6 |
| Average per capita (2001-2003) | 6.2 | 55 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.12 | 56 | 1.48 |

*Note:* Per capita = 100,000 people.

# TAS North West


North West Tasmania comprises the urban strip along the Cradle Coast (Devonport to Ulverstone, Burnie and Wynyard, with Stanley and Smithton beyond) plus the hinterland of this strip including the West Coast. The coastal North West is dairy farming country, while further inland plantation forestry is in conflict with the conservation of native forest and so with the tourist industry. The West Coast has a history of more than a century of mining, but tourism now overshadows mining as its economic base. Extensive tree plantations were originally started to support a paper industry, but the two industries have become disconnected and much of the product of the plantations is exported as woodchips.

**Major centres:**

Burnie, Devonport

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 109,068 | | 106,826 | | 107,587 | | 0.2 |
| No. households | 42,164 | | 42,950 | | 43,878 | | 0.7 |
| Workforce | 51,639 | 47.3 | 51,213 | 47.9 | 50,865 | 47.3 | -0.2 |
| Employment | 43,035 | – | 41,371 | – | 42,241 | – | 0.7 |
| Unemployment | 8,606 | 16.7 | 9,843 | 19.2 | 8,624 | 17.0 | -4.3 |
| DEET U/E | 5,351 | 10.8 | 5,172 | 10.7 | 3,661 | 7.7 | -10.9 |
| Structural U/E, % population[1] | 9,693 | 9.1 | 11,518 | 11.0 | 10,945 | 16.7 | -1.7 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,143 | 10,602 | 1,248 | 11,685 | 1,448 | 13,457 | 4.9 |
| Taxes paid | 293 | 2,716 | 293 | 2,745 | 366 | 3,398 | 4.6 |
| GST paid | 99 | 914 | 123 | 1,152 | 163 | 1,520 | – |
| Benefits | 319 | 2,958 | 358 | 3,352 | 442 | 4,111 | 6.8 |
| Business income | 173 | 1,606 | 159 | 1,491 | 205 | 1,908 | 3.5 |
| Interest/dividends | 33 | 304 | 41 | 386 | 37 | 344 | 2.5 |
| Interest paid | 84 | 778 | 110 | 1,027 | 133 | 1,239 | 9.7 |
| Net property income | 17 | 154 | 10 | 97 | 4 | 40 | -$115 |
| Net flow of funds | 1,209 | 11,216 | 1,291 | 12,087 | 1,474 | 13,703 | 4.1 |
| Rank | | 53 | | 51 | | 41 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 135 | 45 |
| Skills corrected factor (out of 1,000) | 136 | 45 |
| Industry corrected factor (out of 1,000) | 144 | 44 |
| Global knowledge factor (out of 1,000) | 107 | 46 |
| Resident skills matching | 127 | 38 |
| Resident industry matching | 9 | 17 |
| Catchment jobs/workers | 516 | 25 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 139 | 45 |
| Industry corrected factor (out of 1,000) | 154 | 44 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 146 | 44 |
| Industry corrected factor (out of 1,000) | 162 | 43 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 8,988 | 8,526 |
| 60 minutes, door to door | 21,208 | 20,364 |
| 100 minutes, door to door | 32,917 | 34,570 |
| *"Congestion exposure risk factor, rank"* | 58 | 31 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 22 | 53 |
| Highest performing LGA – Devonport (C) | 29 | 234 |
| Lowest performing LGA –West Coast (M) | 6 | 515 |
| Distance to significant retail diversity (km) | 65.5 | 47 |
| Missing local retail types (out of 44) | 34 | 42 |
| Highest performing LGA –Devonport (C) | 28 | 185 |
| Lowest performing LGA –Circular Head (M) | 44 | 317 |
| Percentage of retail missing (%) | 44.4% | 38 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,288 | 6 |
| 2001 | 2,024 | 2 |
| 2003 | 1,255 | 4 |
| 2004 | 1,272 | 4 |

YourPlace
*The place to go for the performance of Australia's local economies*

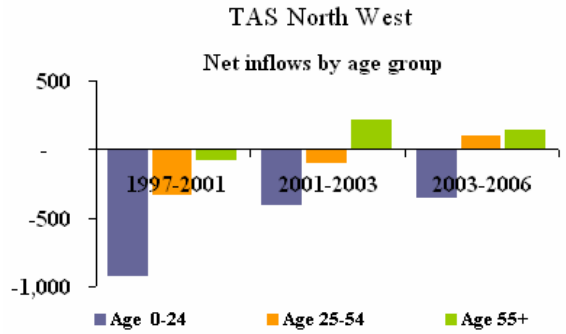
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 15.5 | 51.8% | 59.4% | 56 |
| High LGA – King Island (M) | 87.1 | 79.3% | | |
| Low LGA – Kentish (M) | 7.2 | 47.6% | | |
| Infrastructure | 45.3 | 0.53 | 1.53 | 46 |
| High LGA – Kentish (M) | 70.8 | 0.93 | | |
| Low LGA – Waratah/Wynyard (M) | 17.8 | 0.17 | | |
| Household prosperity potential | 33.7 | 73% | 100% | 51 |
| High LGA – Burnie (C) | 62.8 | 130% | | |
| Low LGA – Central Coast (M) | 7.6 | 12% | | |
| Global knowledge flows | 47.4 | 5.6% | 12.9% | 47 |
| High LGA – Burnie (C) | 65.3 | 7.3% | | |
| Low LGA – King Island (M) | 10.1 | 2.1% | | |
| Knowledge driven growth potential | 28.0 | 0.43 | 0.67 | 52 |
| High LGA – Kentish (M) | 55.5 | 0.59 | | |
| Low LGA – West Coast (M) | 11.9 | 0.32 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

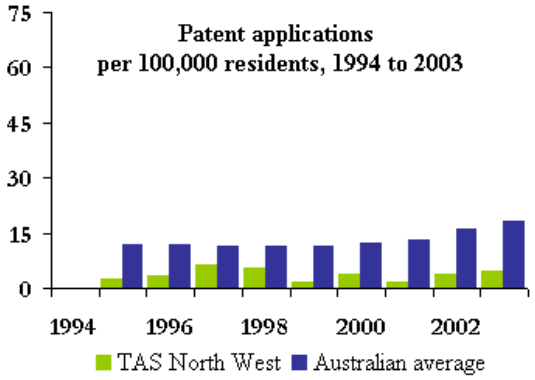
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.36 | 0.34 | 0.34 | 0.33 |
| 25 – 54 | 0.42 | 0.42 | 0.41 | 0.39 |
| 55+ | 0.21 | 0.24 | 0.26 | 0.28 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -913 | -395 | -341 |
| 25 – 54 | | -323 | -96 | 100 |
| 55+ | | -66 | 212 | 141 |
| Average age | 35.0 | 36.7 | 37.4 | 38.3 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) 0.306%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 26.4 | 56 |
| 2001 | 27.7 | 58 |
| 2003 | 26.5 | 53 |
| 2004 | 30.0 | 56 |
| Income supported households (%) | 26.8 | 5 |

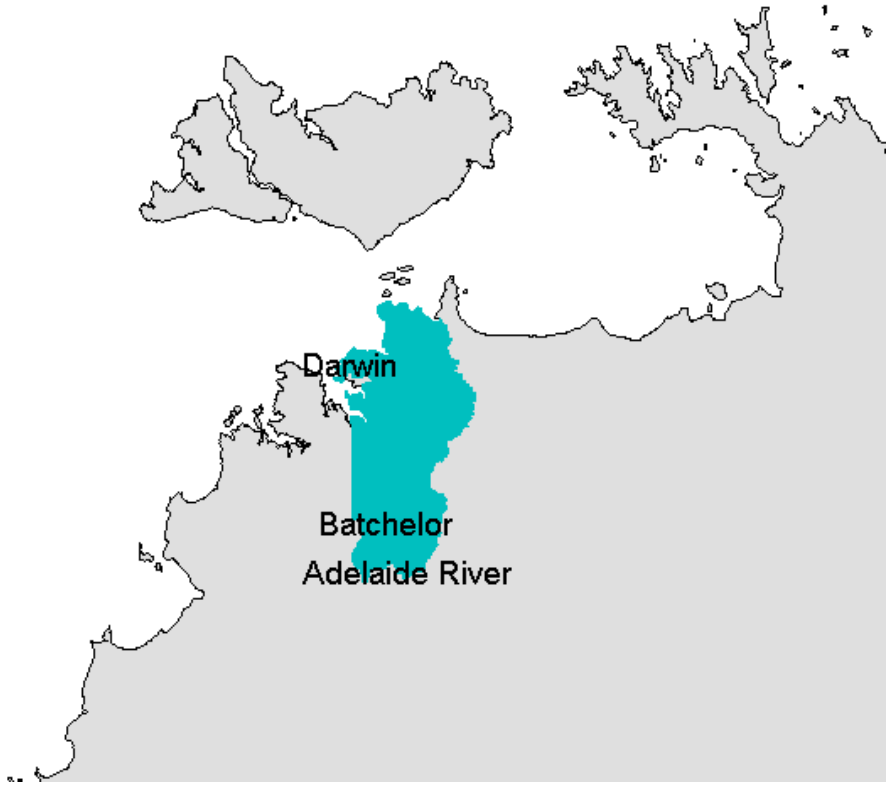



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 4.4 | 57 | 39.2 |
| Average p.a. per capita | 4.0 | 58 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.3 | 60 | 9.8 |
| Hi Tech p.a. per capita | 0.3 | 60 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.0 | 60 | 3.5 |
| Info. Tech p.a. per capita | 0.0 | 60 | 0.9 |
| Average per capita (1994-2000) | 3.6 | 59 | 9.6 |
| Average per capita (2001-2003) | 4.9 | 58 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.37 | 41 | 1.48 |

*Note:* Per capita = 100,000 people.

# Darwin




As the smallest of the capitals (though growing faster than the rest), Darwin comprises a single region which includes the CBD, all the suburbs and virtually all of the commuter and hobby farm belt. Darwin's economic base includes the provision of urban functions for the Top End and government functions for the whole of the NT. Tourism is important, and defence very important. Darwin is also the service port for offshore oil and gas fields, and expects to gain gas-processing industries. It is yet to be seen whether the rain connection from the south will increase activity in the port.

**Major centres:**

Darwin

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 101,699 | | 107,477 | | 109,353 | | 0.6 |
| No. households | 37,863 | | 41,322 | | 44,135 | | 2.2 |
| Workforce | 53,142 | 51.8 | 56,467 | 52.5 | 59,372 | 54.3 | 1.7 |
| Employment | 46,996 | – | 49,706 | – | 53,495 | – | 2.5 |
| Unemployment | 6,146 | 11.6 | 6,761 | 12.0 | 5,877 | 9.9 | -4.6 |
| DEET U/E | 2,388 | 4.5 | 2,042 | 3.7 | 1,962 | 3.3 | -1.3 |
| Structural U/E, % population[1] | 6,744 | 10.0 | 7,844 | 11.0 | 7,784 | 10.4 | -0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 1,579 | 14,070 | 1,680 | 15,628 | 2,152 | 19,614 | 6.9 |
| Taxes paid | 423 | 3,769 | 392 | 3,645 | 610 | 5,559 | 8.1 |
| GST paid | 101 | 900 | 153 | 1,424 | 168 | 1,533 | – |
| Benefits | 201 | 1,791 | 222 | 2,068 | 269 | 2,450 | 6.5 |
| Business income | 195 | 1,734 | 189 | 1,760 | 177 | 1,611 | -1.5 |
| Interest/dividends | 41 | 361 | 32 | 298 | 37 | 342 | -1.1 |
| Interest paid | 84 | 745 | 117 | 1,092 | 149 | 1,354 | 12.7 |
| Net property income | 2 | 13 | -14 | -133 | -33 | -302 | -$315 |
| Net flow of funds | 1,409 | 12,555 | 1,447 | 13,459 | 1,675 | 15,269 | 4.0 |
| Rank | | 22 | | 22 | | 23 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 215 | 32 |
| Skills corrected factor (out of 1,000) | 245 | 29 |
| Industry corrected factor (out of 1,000) | 222 | 32 |
| Global knowledge factor (out of 1,000) | 226 | 29 |
| Resident skills matching | 84 | 47 |
| Resident industry matching | -70 | 27 |
| Catchment jobs/workers | 306 | 61 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 286 | 27 |
| Industry corrected factor (out of 1,000) | 301 | 26 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 275 | 27 |
| Industry corrected factor (out of 1,000) | 295 | 26 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 38,814 | 43,075 |
| 60 minutes, door to door | 53,480 | 58,248 |
| 100 minutes, door to door | 54,072 | 58,843 |
| *"Congestion exposure risk factor, rank"* | 21 | 39 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 25 | 50 |
| Highest performing LGA – Darwin (C) | 29 | 234 |
| Lowest performing LGA –Coomalie (CGC) | 7 | 491 |
| Distance to significant retail diversity (km) | 54.9 | 43 |
| Missing local retail types (out of 44) | 16 | 25 |
| Highest performing LGA –Darwin (C) | 11 | 129 |
| Lowest performing LGA –Coomalie (CGC) | 44 | 317 |
| Percentage of retail missing (%) | 17.5% | 27 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 1,857 | 3 |
| 2001 | 1,942 | 3 |
| 2003 | 1,397 | 1 |
| 2004 | 1,676 | 2 |

YourPlace
*The place to go for the performance of Australia's local economies*

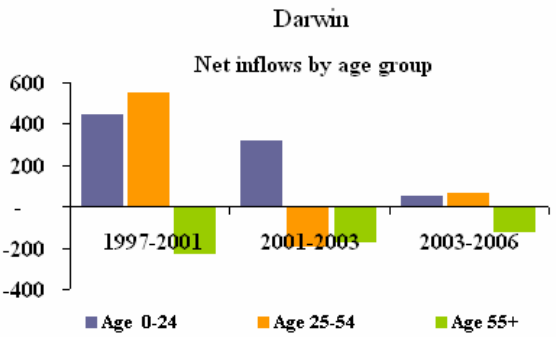
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 49.6 | 63.5% | 59.4% | 32 |
| High LGA – Litchfield (S) | 65.4 | 68.3% | | |
| Low LGA – Coomalie (CGC) | 16.5 | 52.7% | | |
| Infrastructure | 82.7 | 1.52 | 1.53 | 7 |
| High LGA – Litchfield (S) | 89.3 | 2.07 | | |
| Low LGA – Coomalie (CGC) | 39.0 | 0.42 | | |
| Household prosperity potential | 51.8 | 105% | 100% | 56 |
| High LGA – Darwin (C) | 70.0 | 143% | | |
| Low LGA – Litchfield (S) | 3.9 | -12% | | |
| Global knowledge flows | 87.1 | 13.6% | 12.9% | 15 |
| High LGA – Darwin (C) | 95.2 | 15.6% | | |
| Low LGA – Litchfield (S) | 53.6 | 6.0% | | |
| Knowledge driven growth potential | 72.8 | 0.77 | 0.67 | 37 |
| High LGA – Darwin (C) | 85.4 | 0.86 | | |
| Low LGA – Coomalie (CGC) | 9.6 | 0.30 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

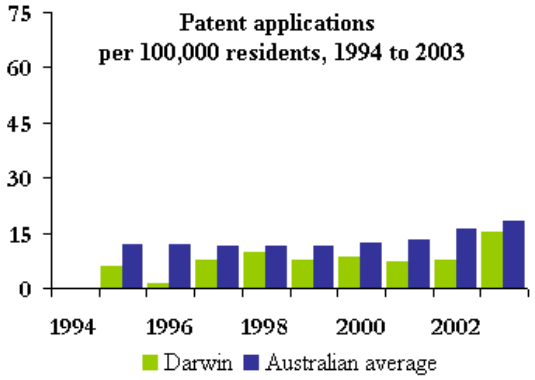
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.40 | 0.38 | 0.38 | 0.36 |
| 25 – 54 | 0.51 | 0.50 | 0.49 | 0.49 |
| 55+ | 0.09 | 0.11 | 0.13 | 0.15 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 448 | 316 | 48 |
| 25 – 54 | | 551 | -191 | 68 |
| 55+ | | -227 | -166 | -117 |
| Average age | 29.6 | 32.8 | 33.3 | 34.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -1.134%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 14.3 | 11 |
| 2001 | 15.4 | 11 |
| 2003 | 14.9 | 11 |
| 2004 | 16.5 | 11 |
| Income supported households (%) | 19.7 | 42 |

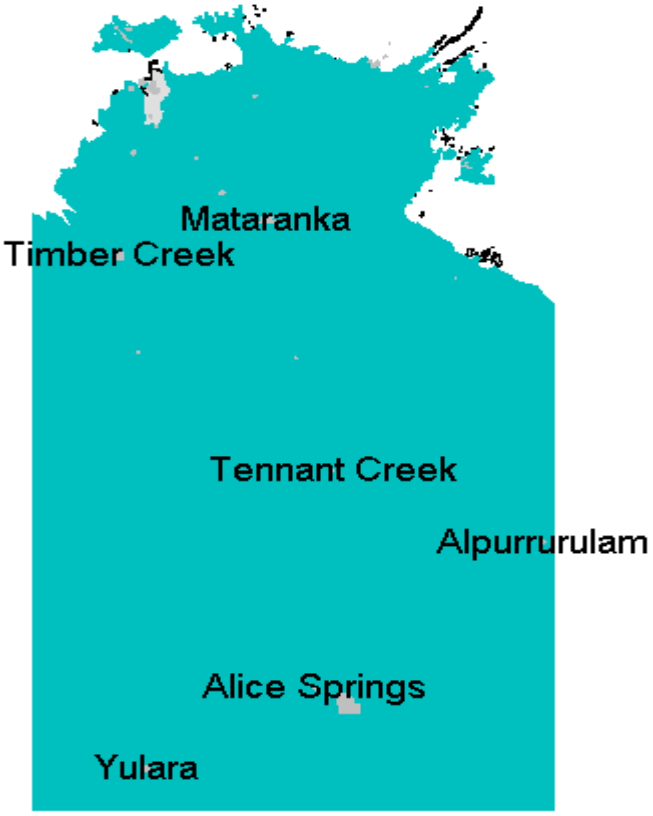



## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 8.2 | 49 | 39.2 |
| Average p.a. per capita | 8.4 | 33 | 13.7 |
| Hi Tech p.a. (1994-2003) | 1.1 | 46 | 9.8 |
| Hi Tech p.a. per capita | 1.1 | 40 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.5 | 37 | 3.5 |
| Info. Tech p.a. per capita | 0.5 | 26 | 0.9 |
| Average per capita (1994-2000) | 6.7 | 35 | 9.6 |
| Average per capita (2001-2003) | 12.2 | 24 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.82 | 8 | 1.48 |

*Note:* Per capita = 100,000 people.

# NT Lingiari




Outside Darwin, the Northern Territory comprises conservation reserves and low-productivity pastoral country, with only small areas incorporated under fully-fledged local governments. Productions statistics are dominated by offshore oil and gas and onshore minerals, but these do not yield much in employment or local income. In the two main towns, Katherine and Alice Springs, defence and tourism are important parts of the economic base. Outside the towns and mining settlements, the people are predominantly Aboriginal, and mostly live in communities which, due to lack of economic base, are heavily dependent on social security in its Community Development Employment Project form.

N.B Unemployment figures in remote regions can display excess variation.

**Major centres:**

Alice Springs, Katherine

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 87,077 | | 90,291 | | 89,921 | | -0.1 |
| No. households | 26,719 | | 28,016 | | 29,166 | | 1.4 |
| Workforce | 38,977 | 44.6 | 41,258 | 45.7 | 40,082 | 44.6 | -1.0 |
| Employment | 31,738 | – | 30,708 | – | 27,976 | – | -3.1 |
| Unemployment | 7,238 | 18.6 | 10,549 | 25.6 | 12,105 | 30.2 | 4.7 |
| DEET U/E | 1,777 | 4.6 | 2,798 | 6.8 | 3,434 | 8.8 | 7.1 |
| Structural U/E, % population[1] | 8,259 | 15.4 | 10,627 | 19.4 | 11,658 | 20.4 | 3.1 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 905 | 10,190 | 719 | 7,961 | 906 | 10,080 | -0.2 |
| Taxes paid | 237 | 2,672 | 165 | 1,832 | 338 | 3,763 | 7.1 |
| GST paid | 62 | 699 | 86 | 956 | 120 | 1,338 | – |
| Benefits | 272 | 3,066 | 443 | 4,903 | 737 | 8,198 | 21.7 |
| Business income | 120 | 1,355 | 117 | 1,295 | 208 | 2,308 | 11.2 |
| Interest/dividends | 15 | 168 | 13 | 146 | 18 | 197 | 3.2 |
| Interest paid | 36 | 410 | 63 | 699 | 70 | 774 | 13.5 |
| Net property income | 7 | 79 | -6 | -69 | -8 | -89 | -$168 |
| Net flow of funds | 984 | 11,078 | 970 | 10,748 | 1,333 | 14,820 | 6.0 |
| Rank | | 54 | | 62 | | 27 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 40 | 62 |
| Skills corrected factor (out of 1,000) | 44 | 62 |
| Industry corrected factor (out of 1,000) | 48 | 62 |
| Global knowledge factor (out of 1,000) | 40 | 62 |
| Resident skills matching | 87 | 44 |
| Resident industry matching | -41 | 24 |
| Catchment jobs/workers | 475 | 46 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 43 | 62 |
| Industry corrected factor (out of 1,000) | 55 | 62 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 38 | 62 |
| Industry corrected factor (out of 1,000) | 40 | 62 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 5,175 | 5,802 |
| 60 minutes, door to door | 6,319 | 6,663 |
| 100 minutes, door to door | 6,549 | 6,833 |
| *"Congestion exposure risk factor, rank"* | 4 | 59 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 2 | 63 |
| Highest performing LGA – Jabiru (T) | 4 | 553 |
| Lowest performing LGA –Alice Springs (T) | 2 | 594 |
| Distance to significant retail diversity (km) | 555.1 | 63 |
| Missing local retail types (out of 44) | 42 | 60 |
| Highest performing LGA –Alice Springs (T) | 38 | 238 |
| Lowest performing LGA –Tennant Creek (T) | 44 | 317 |
| Percentage of retail missing (%) | 84.4% | 59 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 881 | 22 |
| 2001 | 1,533 | 10 |
| 2003 | 750 | 18 |
| 2004 | 942 | 7 |

YourPlace
*The place to go for the performance of Australia's local economies*

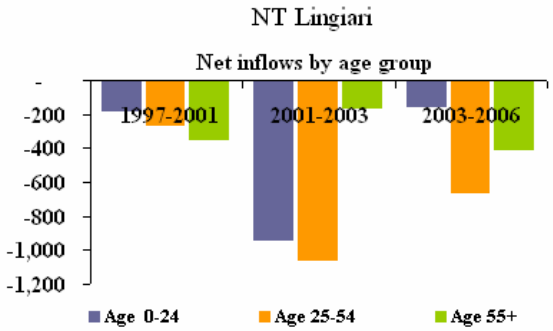
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 26.3 | 50.5% | 59.4% | 34 |
| High LGA – Jabiru (T) | 87.6 | 79.8% | | |
| Low LGA – Unincorporated NT | 1.0 | 38.5% | | |
| Infrastructure | 59.3 | 0.69 | 1.53 | 41 |
| High LGA – Katherine (T) | 69.6 | 0.90 | | |
| Low LGA – Tennant Creek (T) | 12.5 | 0.12 | | |
| Household prosperity potential | 20.2 | -12% | 100% | 58 |
| High LGA – Alice Springs (T) | 57.9 | 122% | | |
| Low LGA – Unincorporated NT | 0.2 | -97% | | |
| Global knowledge flows | 63.8 | 7.5% | 12.9% | 21 |
| High LGA – Alice Springs (T) | 81.9 | 10.1% | | |
| Low LGA – Katherine (T) | 49.4 | 5.6% | | |
| Knowledge driven growth potential | 37.9 | 0.49 | 0.67 | 57 |
| High LGA – Alice Springs (T) | 59.5 | 0.62 | | |
| Low LGA – Tennant Creek (T) | 9.7 | 0.30 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

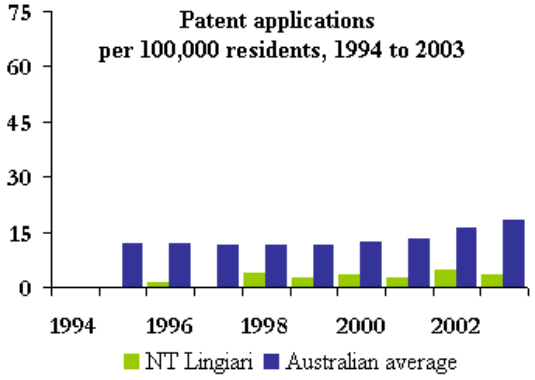
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.48 | 0.45 | 0.44 | 0.44 |
| 25 – 54 | 0.44 | 0.45 | 0.45 | 0.44 |
| 55+ | 0.08 | 0.09 | 0.10 | 0.11 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | -181 | -940 | -152 |
| 25 – 54 | | -258 | -1,055 | -663 |
| 55+ | | -347 | -157 | -405 |
| Average age | 26.9 | 29.7 | 30.5 | 30.8 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -1.240%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 27.7 | 59 |
| 2001 | 45.6 | 64 |
| 2003 | 44.5 | 64 |
| 2004 | 56.6 | 64 |
| Income supported households (%) | 52.0 | 1 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 2.1 | 62 | 39.2 |
| Average p.a. per capita | 2.4 | 64 | 13.7 |
| Hi Tech p.a. (1994-2003) | 0.2 | 61 | 9.8 |
| Hi Tech p.a. per capita | 0.2 | 62 | 2.5 |
| Info. Tech p.a. (1994-2003) | 0.1 | 53 | 3.5 |
| Info. Tech p.a. per capita | 0.1 | 52 | 0.9 |
| Average per capita (1994-2000) | 1.9 | 64 | 9.6 |
| Average per capita (2001-2003) | 3.7 | 61 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.93 | 4 | 1.48 |

*Note:* Per capita = 100,000 people.

# ACT


The boundaries of the ACT have been static since the delineation of the national capital territory early last century. The Canberra urban area extends beyond these limits, and its hobby farm and commuter zone extends even further out to include a significant part of SE NSW; however because of its late foundation, political separateness and situation in an area of relatively low population density Canberra has not become a regional capital. Its original raison d'etre, government administration, remains fundamental to its economic base. Virtually all the former farmland in the ACT is now urbanised, but the territory still includes a significant area of forested water reserves.

**Major centres:**

Canberra

## POPULATION / LABOUR FORCE

| | 1998 level | 1998 percentage | 2001 level | 2001 percentage | 2004 level | 2004 percentage | % p.a. growth 2001-2004 |
|---|---|---|---|---|---|---|---|
| Population | 308,947 | | 319,317 | | 324,223 | | 0.5 |
| No. households | 116,413 | | 122,366 | | 131,069 | | 2.3 |
| Workforce | 171,586 | 55.6 | 178,298 | 55.8 | 179,129 | 55.2 | 0.2 |
| Employment | 157,447 | – | 168,561 | – | 170,545 | – | 0.4 |
| Unemployment | 14,138 | 8.2 | 9,737 | 5.5 | 8,584 | 4.8 | -4.1 |
| DEET U/E | 10,742 | 6.3 | 8,501 | 4.8 | 7,034 | 4.0 | -6.1 |
| Structural U/E, % population[1] | 15,287 | 7.6 | 13,114 | 6.4 | 13,009 | 5.9 | -0.3 |

*Note:* 1. Population aged 18–65 years.

## FLOW OF FUNDS

| | 1999 level ($m) | 1999 per capita ($) | 2001 level ($m) | 2001 per capita ($) | 2004 level ($m) | 2004 per capita ($) | % p.a. growth 1999-2004 |
|---|---|---|---|---|---|---|---|
| Wages/salaries | 5,701 | 16,599 | 6,721 | 21,049 | 7,749 | 23,900 | 7.6 |
| Taxes paid | 1,658 | 4,829 | 1,855 | 5,810 | 2,056 | 6,340 | 5.6 |
| GST paid | 324 | 942 | 503 | 1,574 | 621 | 1,915 | – |
| Benefits | 489 | 1,425 | 486 | 1,521 | 470 | 1,449 | 0.3 |
| Business income | 496 | 1,444 | 598 | 1,873 | 682 | 2,103 | 7.8 |
| Interest/dividends | 197 | 573 | 284 | 889 | 253 | 780 | 6.4 |
| Interest paid | 349 | 1,016 | 449 | 1,407 | 543 | 1,676 | 10.5 |
| Net property income | 49 | 144 | 31 | 96 | 17 | 54 | -$90 |
| Net flow of funds | 4,602 | 13,398 | 5313 | 16,638 | 5,951 | 18,355 | 6.5 |
| Rank | | 16 | | 8 | | 8 | |

## ACCESS TO EMPLOYMENT

| Accessibility measure | Score | SOR rank |
|---|---|---|
| Total jobs accessibility, 2001 | | |
| Accessibility factor (out of 1,000) | 332 | 23 |
| Skills corrected factor (out of 1,000) | 386 | 21 |
| Industry corrected factor (out of 1,000) | 370 | 21 |
| Global knowledge factor (out of 1,000) | 418 | 18 |
| Resident skills matching | 617 | 15 |
| Resident industry matching | 1,000 | 1 |
| Catchment jobs/workers | 235 | 62 |
| Total jobs accessibility, 1996 | | |
| Accessibility factor (out of 1,000) | 347 | 22 |
| Industry corrected factor (out of 1,000) | 409 | 19 |
| Total jobs accessibility, 1991 | | |
| Accessibility factor (out of 1,000) | 363 | 21 |
| Industry corrected factor (out of 1,000) | 439 | 19 |
| *Jobs and workers within travel time* | *Jobs* | *Workers* |
| 30 minutes, door to door | 86,340 | 79,368 |
| 60 minutes, door to door | 155,497 | 168,318 |
| 100 minutes, door to door | 160,523 | 179,571 |
| *"Congestion exposure risk factor, rank"* | 24 | 37 |

## RETAIL ACCESSIBILITY INDICATORS

| Indicator | Score | Rank |
|---|---|---|
| "*Shop till you drop*" score (out of 1,000) | 161 | 22 |
| Highest performing LGA – Unincorporated ACT | 161 | 105 |
| Lowest performing LGA – | 161 | 105 |
| Distance to significant retail diversity (km) | 8.5 | 15 |
| Missing local retail types (out of 44) | 5 | 18 |
| Highest performing LGA –Equal access | n.a. | n.a. |
| Lowest performing LGA –Equal access | n.a. | n.a. |
| Percentage of retail missing (%) | 0.8% | 15 |

## RAINFALL

| Year | Average annual rainfall (mm) | Rank |
|---|---|---|
| 1991 | 587 | 48 |
| 2001 | 1,224 | 29 |
| 2003 | 343 | 55 |
| 2004 | 442 | 53 |

YourPlace
*The place to go for the performance of Australia's local economies*

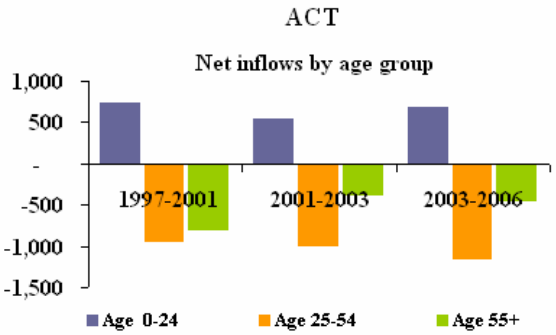
| Indicators | YP score | Value | Aust. avg. | SOR rank |
|---|---|---|---|---|
| Labour utilisation | 55.5 | 64.9% | 59.4% | 16 |
| High LGA – Unincorporated ACT | 55.6 | 64.9% | | |
| Low LGA – Unincorporated ACT | 55.6 | 64.9% | | |
| Infrastructure | 79.8 | 1.25 | 1.53 | 4 |
| High LGA – Unincorporated ACT | 79.8 | 1.25 | | |
| Low LGA – Unincorporated ACT | 79.8 | 1.25 | | |
| Household prosperity potential | 86.8 | 185% | 100% | 5 |
| High LGA – Unincorporated ACT | 86.8 | 185% | | |
| Low LGA – Unincorporated ACT | 86.8 | 185% | | |
| Global knowledge flows | 99.4 | 28.0% | 12.9% | 1 |
| High LGA – Unincorporated ACT | 99.4 | 28.0% | | |
| Low LGA – Unincorporated ACT | 99.4 | 28.0% | | |
| Knowledge driven growth potential | 99.3 | 1.53 | 0.67 | 1 |
| High LGA – Unincorporated ACT | 99.3 | 1.53 | | |
| Low LGA – Unincorporated ACT | 99.3 | 1.53 | | |

*Note:* For local government area specific information call Peter Hylands, National Economics, (03) 9488 8444.

## POPULATION AND MIGRATION

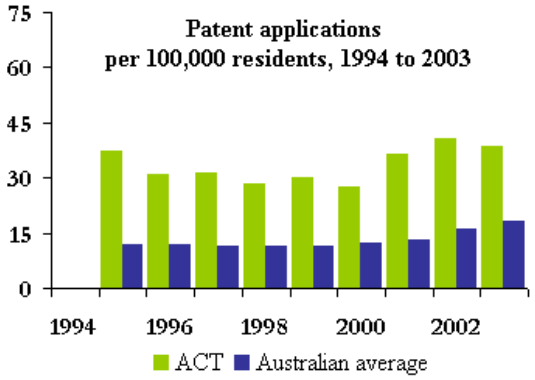
| | 1996 | 2001 | 2003 | 2006 |
|---|---|---|---|---|
| Share of population | | | | |
| 0 – 24 | 0.39 | 0.37 | 0.36 | 0.34 |
| 25 – 54 | 0.47 | 0.46 | 0.45 | 0.45 |
| 55+ | 0.14 | 0.17 | 0.19 | 0.21 |
| Net inflow of migrants (average between years) | | | | |
| 0 – 24 | | 743 | 534 | 690 |
| 25 – 54 | | -932 | -987 | -1,143 |
| 55+ | | -803 | -376 | -450 |
| Average age | 32.3 | 33.8 | 34.4 | 35.4 |

Average pop. growth change 1998-2004 versus 1991-1998 (%) -0.266%




## SOCIAL SECURITY

| Year | Social security as % of NFOF | Rank |
|---|---|---|
| 1999 | 10.6 | 3 |
| 2001 | 9.1 | 4 |
| 2003 | 8.3 | 4 |
| 2004 | 7.8 | 4 |
| Income supported households (%) | 11.5 | 61 |




## PATENT APPLICATIONS

| | No. | Rank | Aust. average |
|---|---|---|---|
| Average p.a. (1994-2003) | 103.2 | 8 | 39.2 |
| Average p.a. per capita | 33.9 | 3 | 13.7 |
| Hi Tech p.a. (1994-2003) | 47.1 | 3 | 9.8 |
| Hi Tech p.a. per capita | 15.1 | 3 | 2.5 |
| Info. Tech p.a. (1994-2003) | 13.1 | 6 | 3.5 |
| Info. Tech p.a. per capita | 4.2 | 4 | 0.9 |
| Average per capita (1994-2000) | 31.7 | 3 | 9.6 |
| Average per capita (2001-2003) | 39.0 | 4 | 14.3 |
| 2001-03 avg./1994-00 avg. | 1.23 | 46 | 1.48 |

*Note:* Per capita = 100,000 people.

# APPENDIX 2

# INDEX OF LOCALITIES AND REGION MEMBERSHIP

## A2.1 Index of localities

| Local Government Area | Region |
|---|---|
| Adelaide (C) | Adelaide Central |
| Adelaide Hills (DC) | Adelaide Outer |
| Albany (C) | WA Wheatbelt-Great Southern |
| Albury (C) | NSW Murray |
| Alexandrina (DC) | Adelaide Outer |
| Alice Springs (T) | NT Lingiari |
| Alpine (S) | VIC Ovens-Hume |
| Aramac (S) | QLD Pastoral |
| Ararat (RC) | Central Highland |
| Armadale (C) | Perth Outer South |
| Armidale Dumaresq (A) | NSW North |
| Ashburton (S) | WA Pilbara-Kimberly |
| Ashfield (A) | Sydney Inner West |
| Atherton (S) | QLD Far North |
| Auburn (A) | Sydney Mid West |
| Augusta-Margaret River (S) | WA Peel-South West |
| Aurukun (S) | QLD Far North |
| Ballarat (C) | Central Highland |
| Ballina (A) | NSW Richond-Tweed |
| Balonne (S) | QLD Pastoral |
| Balranald (A) | NSW Murray |
| Banana (S) | QLD Fitzroy |
| Bankstown (C) | Sydney Mid West |
| Banyule (C) | Melbourne North |
| Barcaldine (S) | QLD Pastoral |
| Barcoo (S) | QLD Pastoral |
| Barossa (DC) | Adelaide Outer |
| Barraba (A) | NSW North |
| Barunga West (DC) | SA Eyre and Yorke |
| Bass Coast (S) | VIC Gippsland |
| Bassendean (T) | Perth Outer North |
| Bathurst (C) | NSW Central West |
| Bauhinia (S) | QLD Fitzroy |
| Baulkham Hills (A) | Sydney Outer North |
| Baw Baw (S) | VIC Gippsland |
| Bayside (C) | Melbourne South |
| Bayswater (C) | Perth Outer North |
| Beaudesert (S) | QLD Gold Coast |
| Bega Valley (A) | NSW South-East |
| Bellingen (A) | NSW Mid North Coast |
| Belmont (C) | Perth Central |
| Belyando (S) | QLD Mackay |
| Bendemere (S) | QLD Pastoral |
| Berri and Barmera (DC) | SA Murraylands |

| Local Government Area | Region |
|---|---|
| Berrigan (A) | NSW Murray |
| Beverley (S) | WA Wheatbelt-Great Southern |
| Biggenden (S) | QLD Wide Bay-Burnett |
| Bingara (A) | NSW North |
| Blackall (S) | QLD Pastoral |
| Blacktown (C) | Sydney Mid West |
| Bland (A) | NSW Central West |
| Blayney (A) | NSW Central West |
| Blue Mountains (C) | Sydney Outer West |
| Boddington (S) | WA Peel-South West |
| Bogan (A) | NSW Far and North West |
| Bombala (A) | NSW South-East |
| Boonah (S) | QLD West Moreton |
| Booringa (S) | QLD Pastoral |
| Boorowa (A) | NSW South-East |
| Boroondara (C) | Melbourne East |
| Botany Bay (C) | Global Sydney |
| Boulia (S) | QLD Pastoral |
| Bourke (A) | NSW Far and North West |
| Bowen (S) | QLD North |
| Boyup Brook (S) | WA Peel-South West |
| Break O'Day (M) | TAS North |
| Brewarrina (A) | NSW Far and North West |
| Bridgetown-Greenbushes (S) | WA Peel-South West |
| Brighton (M) | TAS Hobart-South |
| Brimbank (C) | Melbourne West |
| Brisbane (C) | Brisbane City |
| Broadsound (S) | QLD Mackay |
| Broken Hill (C) | NSW Far and North West |
| Brookton (S) | WA Wheatbelt-Great Southern |
| Broome (S) | WA Pilbara-Kimberly |
| Broomehill (S) | WA Wheatbelt-Great Southern |
| Bruce Rock (S) | WA Wheatbelt-Great Southern |
| Bulloo (S) | QLD Pastoral |
| Buloke (S) | VIC Mallee-Wimmera |
| Bunbury (C) | WA Peel-South West |
| Bundaberg (C) | QLD Wide Bay-Burnett |
| Bungil (S) | QLD Pastoral |
| Burdekin (S) | QLD North |
| Burke (S) | QLD North West |
| Burnett (S) | QLD Wide Bay-Burnett |
| Burnie (C) | TAS North West |
| Burnside (C) | Adelaide Central |
| Burwood (A) | Sydney Inner West |

| Local Government Area | Region |
|---|---|
| Busselton (S) | WA Peel-South West |
| Byron (A) | NSW Richmond-Tweed |
| Cabonne (A) | NSW Central West |
| Caboolture (S) | Brisbane North |
| Cairns (C) | QLD Far North |
| Calliope (S) | QLD Fitzroy |
| Caloundra (C) | QLD Sunshine Coast |
| Cambooya (S) | QLD Agricultural SW |
| Cambridge (T) | Perth Central |
| Camden (A) | Sydney Outer South West |
| Campaspe (S) | VC Goulburn |
| Campbelltown (C) NSW | Sydney Outer South West |
| Campbelltown (C) SA | Adelaide Central |
| Canning (C) | Perth Outer South |
| Canterbury (C) | Sydney Mid West |
| Capel (S) | WA Peel-South West |
| Cardinia (S) | Melbourne Westernport |
| Cardwell (S) | QLD Far North |
| Carnamah (S) | WA Gascoyne-Goldfields |
| Carnarvon (S) | WA Gascoyne-Goldfields |
| Carpentaria (S) | QLD North West |
| Carrathool (A) | NSW Murrumbidgee |
| Casey (C) | Melbourne Westport |
| Ceduna (DC) | SA Eyre and Yorke |
| Central Coast (M) | TAS North West |
| Central Darling (A) | NSW Far and North West |
| Central Goldfields (S) | VIC Loddon |
| Central Highlands (M) | TAS Hobart-South |
| Cessnock (C) | NSW Hunter |
| Chapman Valley (S) | WA Gascoyne-Goldfields |
| Charles Sturt (C) | Adelaide Plains |
| Charters Towers (C) | QLD North |
| Chinchilla (S) | QLD Agricultural SW |
| Chittering (S) | WA Wheatbelt-Great Southern |
| Circular Head (M) | TAS North West |
| Clare and Gilbert Valleys (DC) | SA Eyre and Yorke |
| Claremont (T) | Perth Central |
| Clarence (C) | TAS Hobart-South |
| Cleve (DC) | SA Eyre and Yorke |
| Clifton (S) | QLD Agricultural SW |
| Cloncurry (S) | QLD North West |
| Cobar (A) | NSW Far and North West |
| Cockburn (C) | Perth Outer South |
| Coffs Harbour (C) | NSW Mid North Coast |
| Colac-Otway (S) | VIC Barwon |
| Collie (S) | WA Peel-South West |
| Conargo (A) | NSW Murray |

| Local Government Area | Region |
|---|---|
| Concord (A) | Sydney Inner West |
| Coober Pedy (DC) | SA Eyre and Yorke |
| Cook (S) | QLD Far North |
| Coolah (A) | NSW Far and North West |
| Coolamon (A) | NSW Murrumbidgee |
| Coolgardie (S) | WA Gascoyne-Goldfields |
| Cooloola (S) | QLD Wide Bay-Burnett |
| Coomalie (CGC) | Darwin |
| Cooma-Monaro (A) | NSW South-East |
| Coonabarabran (A) | NSW Far and North West |
| Coonamble (A) | NSW Far and North West |
| Coorow (S) | WA Gascoyne-Goldfields |
| Cootamundra (A) | NSW Murrumbidgee |
| Copmanhurst (A) | NSW Mid North Coast |
| Copper Coast (DC) | SA Eyre and Yorke |
| Corangamite (S) | VIC West |
| Corowa (A) | NSW Murray |
| Corrigin (S) | WA Wheatbelt-Great Southern |
| Cottesloe (T) | Perth Central |
| Cowra (A) | NSW Central West |
| Cranbrook (S) | WA Wheatbelt-Great Southern |
| Crookwell (A) | NSW South-East |
| Crow's Nest (S) | QLD Agricultural SW |
| Croydon (S) | QLD Far North |
| Cuballing (S) | WA Wheatbelt-Great Southern |
| Cue (S) | WA Gascoyne-Goldfields |
| Culcairn (A) | NSW Murray |
| Cunderdin (S) | WA Wheatbelt-Great Southern |
| Dalby (T) | QLD Agricultural SW |
| Dalrymple (S) | QLD North |
| Dalwallinu (S) | WA Wheatbelt-Great Southern |
| Dandaragan (S) | WA Wheatbelt-Great Southern |
| Dardanup (S) | WA Peel-South West |
| Darebin (C) | Melbourne North |
| Darwin (C) | Darwin |
| Delatite (S) | VC Goulburn |
| Deniliquin (A) | NSW Murray |
| Denmark (S) | WA Wheatbelt-Great Southern |
| Derby-West Kimberley (S) | WA Pilbara-Kimberly |
| Derwent Valley (M) | TAS Hobart-South |
| Devonport (C) | TAS North West |
| Diamantina (S) | QLD Pastoral |
| Donnybrook-Balingup (S) | WA Peel-South West |
| Dorset (M) | TAS North |
| Douglas (S) | QLD Far North |
| Dowerin (S) | WA Wheatbelt-Great Southern |

| Local Government Area | Region |
|---|---|
| Drummoyne (A) | Sydney Inner West |
| Duaringa (S) | QLD Fitzroy |
| Dubbo (C) | NSW Far and North West |
| Dumbleyung (S) | WA Wheatbelt-Great Southern |
| Dundas (S) | WA Gascoyne-Goldfields |
| Dungog (A) | NSW Hunter |
| Eacham (S) | QLD Far North |
| East Fremantle (T) | Perth Central |
| East Gippsland (S) | VIC Gippsland |
| East Pilbara (S) | WA Pilbara-Kimberly |
| Eidsvold (S) | QLD Wide Bay-Burnett |
| Elliston (DC) | SA Eyre and Yorke |
| Emerald (S) | QLD Fitzroy |
| Esk (S) | QLD West Moreton |
| Esperance (S) | WA Gascoyne-Goldfields |
| Etheridge (S) | QLD Far North |
| Eurobodalla (A) | NSW South-East |
| Evans (A) | NSW Central West |
| Exmouth (S) | WA Gascoyne-Goldfields |
| Fairfield (C) | Sydney Mid West |
| Fitzroy (S) | QLD Fitzroy |
| Flinders (M) | TAS North |
| Flinders (S) | QLD North West |
| Flinders Ranges (DC) | SA Eyre and Yorke |
| Forbes (A) | NSW Central West |
| Franklin Harbor (DC) | SA Eyre and Yorke |
| Frankston (C) | Melbourne Westport |
| Fremantle (C) | Perth Central |
| Gannawarra (S) | VIC Mallee-Wimmera |
| Gatton (S) | QLD West Moreton |
| Gawler (M) | Adelaide Plains |
| Gayndah (S) | QLD Wide Bay-Burnett |
| George Town (M) | TAS North |
| Geraldton (C) | WA Gascoyne-Goldfields |
| Gilgandra (A) | NSW Far and North West |
| Gingin (S) | WA Wheatbelt-Great Southern |
| Gladstone (C) | QLD Fitzroy |
| Glamorgan/Spring Bay (M) | TAS Hobart-South |
| Glen Eira (C) | Melbourne South |
| Glen Innes (A) | NSW North |
| Glenelg (S) | VIC West |
| Glenorchy (C) | TAS Hobart-South |
| Gloucester (A) | NSW Hunter |
| Gnowangerup (S) | WA Wheatbelt-Great Southern |
| Gold Coast (C) | QLD Gold Coast |
| Golden Plains (S) | VIC Barwon |
| Goomalling (S) | WA Wheatbelt-Great Southern |

| Local Government Area | Region |
|---|---|
| Goondiwindi (T) | QLD Agricultural SW |
| Gosford (C) | NSW Central Coast |
| Gosnells (C) | Perth Outer South |
| Goulburn (C) | NSW South-East |
| Goyder (DC) | SA Eyre and Yorke |
| Grafton (C) | NSW Mid North Coast |
| Grant (DC) | SA South East |
| Great Lakes (A) | NSW Hunter |
| Greater Bendigo (C) | VIC Loddon |
| Greater Dandenong (C) | Melbourne Westport |
| Greater Geelong (C) | VIC Barwon |
| Greater Lithgow (C) | NSW Central West |
| Greater Shepparton (C) | VC Goulburn |
| Greater Taree (C) | NSW Mid North Coast |
| Greenough (S) | WA Gascoyne-Goldfields |
| Griffith (C) | NSW Murrumbidgee |
| Gundagai (A) | NSW Murrumbidgee |
| Gunnedah (A) | NSW North |
| Gunning (A) | NSW South-East |
| Guyra (A) | NSW North |
| Halls Creek (S) | WA Pilbara-Kimberly |
| Harden (A) | NSW South-East |
| Harvey (S) | WA Peel-South West |
| Hastings (A) | NSW Mid North Coast |
| Hawkesbury (C) | Sydney Outer West |
| Hay (A) | NSW Murrumbidgee |
| Hepburn (S) | Central Highland |
| Herberton (S) | QLD Far North |
| Hervey Bay (C) | QLD Wide Bay-Burnett |
| Hinchinbrook (S) | QLD North |
| Hindmarsh (S) | VIC Mallee-Wimmera |
| Hobart (C) | TAS Hobart-South |
| Hobsons Bay (C) | Melbourne West |
| Holbrook (A) | NSW Murray |
| Holdfast Bay (C) | Adelaide Central |
| Holroyd (C) | Sydney Mid West |
| Hornsby (A) | Sydney Outer North |
| Horsham (RC) | VIC Mallee-Wimmera |
| Hume (A) | NSW Murray |
| Hume (C) | Melbourne North |
| Hunter's Hill (A) | Global Sydney |
| Huon Valley (M) | TAS Hobart-South |
| Hurstville (C) | Sydney South |
| Ilfracombe (S) | QLD Pastoral |
| Indigo (S) | VIC Ovens-Hume |
| Inglewood (S) | QLD Agricultural SW |
| Inverell (A) | NSW North |
| Ipswich (C) | QLD West Moreton |

| Local Government Area | Region |
|---|---|
| Irwin (S) | WA Gascoyne-Goldfields |
| Isis (S) | QLD Wide Bay-Burnett |
| Isisford (S) | QLD Pastoral |
| Jabiru (T) | NT Lingiari |
| Jericho (S) | QLD Fitzroy |
| Jerilderie (A) | NSW Murray |
| Jerramungup (S) | WA Wheatbelt-Great Southern |
| Johnstone (S) | QLD Far North |
| Jondaryan (S) | QLD Agricultural SW |
| Joondalup (C) | Perth Outer North |
| Junee (A) | NSW Murrumbidgee |
| Kalamunda (S) | Perth Outer South |
| Kalgoorlie/Boulder (C) | WA Gascoyne-Goldfields |
| Kangaroo Island (DC) | SA Eyre and Yorke |
| Karoonda East Murray (DC) | SA Murraylands |
| Katanning (S) | WA Wheatbelt-Great Southern |
| Katherine (T) | NT Lingiari |
| Kellerberrin (S) | WA Wheatbelt-Great Southern |
| Kempsey (A) | NSW Mid North Coast |
| Kent (S) | WA Wheatbelt-Great Southern |
| Kentish (M) | TAS North West |
| Kiama (A) | NSW Illawarra |
| Kilcoy (S) | Brisbane North |
| Kilkivan (S) | QLD Wide Bay-Burnett |
| Kimba (DC) | SA Eyre and Yorke |
| King Island (M) | TAS North West |
| Kingaroy (S) | QLD Wide Bay-Burnett |
| Kingborough (M) | TAS Hobart-South |
| Kingston (C) | Melbourne South |
| Knox (C) | Melbourne East |
| Kogarah (A) | Sydney South |
| Kojonup (S) | WA Wheatbelt-Great Southern |
| Kolan (S) | QLD Wide Bay-Burnett |
| Kondinin (S) | WA Wheatbelt-Great Southern |
| Koorda (S) | WA Wheatbelt-Great Southern |
| Kulin (S) | WA Wheatbelt-Great Southern |
| Ku-ring-gai (A) | Sydney Outer North |
| Kwinana (T) | Perth Outer South |
| Kyogle (A) | NSW Richond-Tweed |
| La Trobe (S) | VIC Gippsland |
| Lacepede (DC) | SA South East |
| Lachlan (A) | NSW Central West |
| Laidley (S) | QLD West Moreton |
| Lake Grace (S) | WA Wheatbelt-Great Southern |
| Lake Macquarie (C) | NSW Hunter |
| Lane Cove (A) | Global Sydney |
| Latrobe (M) | TAS North West |

| Local Government Area | Region |
|---|---|
| Latrobe (S) | VIC Gippsland |
| Launceston (C) | TAS North |
| Laverton (S) | WA Gascoyne-Goldfields |
| Le Hunte (DC) | SA Eyre and Yorke |
| Leeton (A) | NSW Murrumbidgee |
| Leichhardt (A) | Sydney Inner West |
| Leonora (S) | WA Gascoyne-Goldfields |
| Light (DC) | Adelaide Plains |
| Lismore (C) | NSW Richond-Tweed |
| Litchfield (S) | Darwin |
| Liverpool (C) | Sydney Mid West |
| Livingstone (S) | QLD Fitzroy |
| Lockhart (A) | NSW Murrumbidgee |
| Loddon (S) | VIC Loddon |
| Logan (C) | QLD Gold Coast |
| Longreach (S) | QLD Pastoral |
| Lower Eyre Peninsula (DC) | SA Eyre and Yorke |
| Loxton Waikerie (DC) | SA Murraylands |
| Macedon Ranges (S) | VIC Loddon |
| Mackay (C) | QLD Mackay |
| Maclean (A) | NSW Mid North Coast |
| Maitland (C) | NSW Hunter |
| Mallala (DC) | Adelaide Plains |
| Mandurah (C) | WA Peel-South West |
| Manilla (A) | NSW North |
| Manjimup (S) | WA Peel-South West |
| Manly (A) | Sydney Outer North |
| Manningham (C) | Melbourne East |
| Mareeba (S) | QLD Far North |
| Maribyrnong (C) | Melbourne West |
| Marion (C) | Adelaide Central |
| Maroochy (S) | QLD Sunshine Coast |
| Maroondah (C) | Melbourne East |
| Marrickville (A) | Sydney Mid West |
| Maryborough (C) | QLD Wide Bay-Burnett |
| McKinlay (S) | QLD North West |
| Meander Valley (M) | TAS North |
| Meekatharra (S) | WA Gascoyne-Goldfields |
| Melbourne (C) | Melbourne Inner |
| Melton (S) | Melbourne West |
| Melville (C) | Perth Outer South |
| Menzies (S) | WA Gascoyne-Goldfields |
| Merredin (S) | WA Wheatbelt-Great Southern |
| Merriwa (A) | NSW Hunter |
| Mid Murray (DC) | SA Murraylands |
| Mildura (RC) | VIC Mallee-Wimmera |
| Millmerran (S) | QLD Agricultural SW |

| Local Government Area | Region |
|---|---|
| Mingenew (S) | WA Gascoyne-Goldfields |
| Mirani (S) | QLD Mackay |
| Miriam Vale (S) | QLD Wide Bay-Burnett |
| Mitcham (C) | Adelaide Central |
| Mitchell (S) | VC Goulburn |
| Moira (S) | VC Goulburn |
| Monash (C) | Melbourne East |
| Monto (S) | QLD Wide Bay-Burnett |
| Moonee Valley (C) | Melbourne West |
| Moora (S) | WA Wheatbelt-Great Southern |
| Moorabool (S) | VIC Central Highlands |
| Morawa (S) | WA Gascoyne-Goldfields |
| Moree Plains (A) | NSW North |
| Moreland (C) | Melbourne North |
| Mornington (S) | QLD North West |
| Mornington Peninsula (S) | Melbourne Westport |
| Mosman (A) | Global Sydney |
| Mosman Park (T) | Perth Central |
| Mount Alexander (S) | VIC Loddon |
| Mount Barker (DC) | Adelaide Outer |
| Mount Gambier (C) | SA South East |
| Mount Isa (C) | QLD North West |
| Mount Magnet (S) | WA Gascoyne-Goldfields |
| Mount Marshall (S) | WA Wheatbelt-Great Southern |
| Mount Morgan (S) | QLD Fitzroy |
| Mount Remarkable (DC) | SA Eyre and Yorke |
| Moyne (S) | VIC West |
| Mudgee (A) | NSW Far and North West |
| Mukinbudin (S) | WA Wheatbelt-Great Southern |
| Mullewa (S) | WA Gascoyne-Goldfields |
| Mulwaree (A) | NSW South-East |
| Mundaring (S) | Perth Outer North |
| Mundubbera (S) | QLD Wide Bay-Burnett |
| Murchison (S) | WA Gascoyne-Goldfields |
| Murgon (S) | QLD Wide Bay-Burnett |
| Murilla (S) | QLD Agricultural SW |
| Murray (A) | NSW Murray |
| Murray (S) | WA Peel-South West |
| Murray Bridge (RC) | SA Murraylands |
| Murrindindi (S) | VC Goulburn |
| Murrumbidgee (A) | NSW Murrumbidgee |
| Murrurundi (A) | NSW Hunter |
| Murweh (S) | QLD Pastoral |
| Muswellbrook (A) | NSW Hunter |
| Nambucca (A) | NSW Mid North Coast |
| Nanango (S) | QLD Wide Bay-Burnett |
| Nannup (S) | WA Peel-South West |

| Local Government Area | Region |
|---|---|
| Naracoorte and Lucindale (DC) | SA South East |
| Narembeen (S) | WA Wheatbelt-Great Southern |
| Narrabri (A) | NSW North |
| Narrandera (A) | NSW Murrumbidgee |
| Narrogin (S) | WA Wheatbelt-Great Southern |
| Narrogin (T) | WA Wheatbelt-Great Southern |
| Narromine (A) | NSW Far and North West |
| Nebo (S) | QLD Mackay |
| Nedlands (C) | Perth Central |
| Newcastle (C) | NSW Hunter |
| Ngaanyatjarraku (S) | WA Gascoyne-Goldfields |
| Nillumbik (S) | Melbourne North |
| Noosa (S) | QLD Sunshine Coast |
| North Sydney (A) | Global Sydney |
| Northam (S) | WA Wheatbelt-Great Southern |
| Northam (T) | WA Wheatbelt-Great Southern |
| Northampton (S) | WA Gascoyne-Goldfields |
| Northern Areas (DC) | SA Eyre and Yorke |
| Northern Grampians (S) | VIC Mallee-Wimmera |
| Northern Midlands (M) | TAS North |
| Norwood Payneham St Peters (C) | Adelaide Central |
| Nundle (A) | NSW North |
| Nungarin (S) | WA Wheatbelt-Great Southern |
| Oberon (A) | NSW Central West |
| Onkaparinga (C) | Adelaide Outer |
| Orange (C) | NSW Central West |
| Orroroo/Carrieton (DC) | SA Eyre and Yorke |
| Palmerston (C) | Darwin |
| Parkes (A) | NSW Central West |
| Paroo (S) | QLD Pastoral |
| Parramatta (C) | Sydney Mid West |
| Parry (A) | NSW North |
| Peak Downs (S) | QLD Fitzroy |
| Penrith (C) | Sydney Outer West |
| Peppermint Grove (S) | Perth Central |
| Perenjori (S) | WA Gascoyne-Goldfields |
| Perry (S) | QLD Wide Bay-Burnett |
| Perth (C) | Perth Central |
| Peterborough (DC) | SA Eyre and Yorke |
| Pine Rivers (S) | Brisbane North |
| Pingelly (S) | WA Wheatbelt-Great Southern |
| Pittsworth (S) | QLD Agricultural SW |
| Pittwater (A) | Sydney Outer North |
| Plantagenet (S) | WA Wheatbelt-Great Southern |
| Playford (C) | Adelaide Plains |

| Local Government Area | Region |
|---|---|
| Port Adelaide Enfield (C) | Adelaide Plains |
| Port Augusta (C) | SA Eyre and Yorke |
| Port Hedland (T) | WA Pilbara-Kimberly |
| Port Lincoln (C) | SA Eyre and Yorke |
| Port Phillip (C) | Melbourne Inner |
| Port Pirie City and Dists (C) | SA Eyre and Yorke |
| Port Pirie City and Dists (M) | SA Eyre and Yorke |
| Port Stephens (A) | NSW Hunter |
| Pristine Waters (A) | NSW Mid North Coast |
| Prospect (C) | Adelaide Central |
| Pyrenees (S) | VIC Central Highlands |
| Quairading (S) | WA Wheatbelt-Great Southern |
| Queanbeyan (C) | NSW South-East |
| Queenscliffe (B) | VIC Barwon |
| Quilpie (S) | QLD Pastoral |
| Quirindi (A) | NSW North |
| Randwick (C) | Global Sydney |
| Ravensthorpe (S) | WA Gascoyne-Goldfields |
| Redcliffe (C) | Brisbane North |
| Redland (S) | QLD Gold Coast |
| Renmark Paringa (DC) | SA Murraylands |
| Richmond (S) | QLD North West |
| Richmond Valley (A) | NSW Richond-Tweed |
| Robe (DC) | SA South East |
| Rockdale (C) | Sydney South |
| Rockhampton (C) | QLD Fitzroy |
| Rockingham (C) | Perth Outer South |
| Roebourne (S) | WA Pilbara-Kimberly |
| Roma (T) | QLD Pastoral |
| Rosalie (S) | QLD Agricultural SW |
| Roxby Downs (M) | SA Eyre and Yorke |
| Ryde (C) | Global Sydney |
| Rylstone (A) | NSW Central West |
| Salisbury (C) | Adelaide Plains |
| Sandstone (S) | WA Gascoyne-Goldfields |
| Sarina (S) | QLD Mackay |
| Scone (A) | NSW Hunter |
| Serpentine-Jarrahdale (S) | WA Peel-South West |
| Severn (A) | NSW North |
| Shark Bay (S) | WA Gascoyne-Goldfields |
| Shellharbour (C) | NSW Illawarra |
| Shoalhaven (C) | NSW Illawarra |
| Singleton (A) | NSW Hunter |
| Snowy River (A) | NSW South-East |
| Sorell (M) | TAS Hobart-South |
| South Gippsland (S) | VIC Gippsland |
| South Perth (C) | Perth Central |
| South Sydney (C) | Global Sydney |
| Southern Grampians (S) | VIC West |
| Southern Mallee (DC) | SA Murraylands |
| Southern Midlands (M) | TAS Hobart-South |
| Stanthorpe (S) | QLD Agricultural SW |
| Stirling (C) | Perth Central |
| Stonnington (C) | Melbourne Inner |
| Strathbogie (S) | VC Goulburn |
| Strathfield (A) | Sydney Inner West |
| Streaky Bay (DC) | SA Eyre and Yorke |
| Subiaco (C) | Perth Central |
| Surf Coast (S) | VIC Barwon |
| Sutherland Shire (A) | Sydney South |
| Swan (C) | Perth Outer North |
| Swan Hill (RC) | VIC Mallee-Wimmera |
| Sydney (C) | Global Sydney |
| Tallaganda (A) | NSW South-East |
| Tambellup (S) | WA Wheatbelt-Great Southern |
| Tambo (S) | QLD Pastoral |
| Tammin (S) | WA Wheatbelt-Great Southern |
| Tamworth (C) | NSW North |
| Tara (S) | QLD Agricultural SW |
| Taroom (S) | QLD Agricultural SW |
| Tasman (M) | TAS Hobart-South |
| Tatiara (DC) | SA South East |
| Tea Tree Gully (C) | Adelaide Outer |
| Temora (A) | NSW Murrumbidgee |
| Tennant Creek (T) | NT Lingiari |
| Tenterfield (A) | NSW North |
| The Coorong (DC) | SA Murraylands |
| Three Springs (S) | WA Gascoyne-Goldfields |
| Thuringowa (C) | QLD North |
| Tiaro (S) | QLD Wide Bay-Burnett |
| Toodyay (S) | WA Wheatbelt-Great Southern |
| Toowoomba (C) | QLD Agricultural SW |
| Torres (S) | QLD Far North |
| Townsville (C) | QLD North |
| Towong (S) | VIC Ovens-Hume |
| Trayning (S) | WA Wheatbelt-Great Southern |
| Tumbarumba (A) | NSW Murray |
| Tumby Bay (DC) | SA Eyre and Yorke |
| Tumut (A) | NSW Murrumbidgee |
| Tweed (A) | NSW Richond-Tweed |
| Unincorporated ACT | ACT |
| Unincorporated NSW | NSW Far and North West |
| Unincorporated NT | NT Lingiari |

| Local Government Area | Region |
|---|---|
| Unincorporated SA | SA Eyre and Yorke |
| Unincorporated Vic | VIC Gippsland |
| Unincorporated WA | WA Pilbara-Kimberly |
| Unley (C) | Adelaide Central |
| Upper Gascoyne (S) | WA Gascoyne-Goldfields |
| Uralla (A) | NSW North |
| Urana (A) | NSW Murray |
| Victor Harbor (DC) | Adelaide Outer |
| Victoria Park (T) | Perth Central |
| Victoria Plains (S) | WA Wheatbelt-Great Southern |
| Vincent (T) | Perth Central |
| Wagga Wagga (C) | NSW Murrumbidgee |
| Waggamba (S) | QLD Agricultural SW |
| Wagin (S) | WA Wheatbelt-Great Southern |
| Wakefield (DC) | SA Eyre and Yorke |
| Wakool (A) | NSW Murray |
| Walcha (A) | NSW North |
| Walgett (A) | NSW Far and North West |
| Walkerville (M) | Adelaide Central |
| Wambo (S) | QLD Agricultural SW |
| Wandering (S) | WA Wheatbelt-Great Southern |
| Wangaratta (RC) | VIC Ovens-Hume |
| Wanneroo (S) | Perth Outer North |
| Waratah/Wynyard (M) | TAS North West |
| Waroona (S) | WA Peel-South West |
| Warren (A) | NSW Far and North West |
| Warringah (A) | Sydney Outer North |
| Warrnambool (C) | VIC West |
| Warroo (S) | QLD Pastoral |
| Warwick (S) | QLD Agricultural SW |
| Wattle Range (DC) | SA South East |
| Waverley (A) | Global Sydney |
| Weddin (A) | NSW Central West |
| Wellington (A) | NSW Far and North West |
| Wellington (S) | VIC Gippsland |
| Wentworth (A) | NSW Murray |
| West Arthur (S) | WA Wheatbelt-Great Southern |
| West Coast (M) | TAS North West |
| West Tamar (M) | TAS North |
| West Torrens (C) | Adelaide Plains |
| West Wimmera (S) | VIC Mallee-Wimmera |
| Westonia (S) | WA Wheatbelt-Great Southern |
| Whitehorse (C) | Melbourne East |
| Whitsunday (S) | QLD Mackay |
| Whittlesea (C) | Melbourne North |
| Whyalla (C) | SA Eyre and Yorke |
| Wickepin (S) | WA Wheatbelt-Great Southern |
| Williams (S) | WA Wheatbelt-Great Southern |
| Willoughby (C) | Global Sydney |
| Wiluna (S) | WA Gascoyne-Goldfields |
| Windouran (A) | NSW Murray |
| Wingecarribee (A) | NSW Illawarra |
| Winton (S) | QLD Pastoral |
| Wodonga (RC) | VIC Ovens-Hume |
| Wollondilly (A) | Sydney Outer South West |
| Wollongong (C) | NSW Illawarra |
| Wondai (S) | QLD Wide Bay-Burnett |
| Wongan-Ballidu (S) | WA Wheatbelt-Great Southern |
| Woocoo (S) | QLD Wide Bay-Burnett |
| Woodanilling (S) | WA Wheatbelt-Great Southern |
| Woollahra (A) | Global Sydney |
| Wyalkatchem (S) | WA Wheatbelt-Great Southern |
| Wyndham (C) | Melbourne West |
| Wyndham-East Kimberley (S) | WA Pilbara-Kimberly |
| Wyong (A) | NSW Central Coast |
| Yalgoo (S) | WA Gascoyne-Goldfields |
| Yallaroi (A) | NSW North |
| Yankalilla (DC) | Adelaide Outer |
| Yarra (C) | Melbourne Inner |
| Yarra Ranges (S) | Melbourne Westport |
| Yarriambiack (S) | VIC Mallee-Wimmera |
| Yarrowlumla (A) | NSW South-East |
| Yass (A) | NSW South-East |
| Yilgarn (S) | WA Wheatbelt-Great Southern |
| York (S) | WA Wheatbelt-Great Southern |
| Yorke Peninsula (DC) | SA Eyre and Yorke |
| Young (A) | NSW South-East |

## A2.2 Index of region membership

| Region | Local Government Area |
|---|---|
| ACT | Unincorporated ACT |
| Adelaide Central | Adelaide (C) |
| | Burnside (C) |
| | Campbelltown (C) SA |
| | Holdfast Bay (C) |
| | Marion (C) |
| | Mitcham (C) |
| | Norwood Payneham St Peters (C) |
| | Prospect (C) |
| | Unley (C) |
| | Walkerville (M) |
| Adelaide Outer | Adelaide Hills (DC) |
| | Alexandrina (DC) |
| | Barossa (DC) |
| | Mount Barker (DC) |
| | Onkaparinga (C) |
| | Tea Tree Gully (C) |
| | Victor Harbor (DC) |
| | Yankalilla (DC) |
| Adelaide Plains | Charles Sturt (C) |
| | Gawler (M) |
| | Light (DC) |
| | Mallala (DC) |
| | Playford (C) |
| | Port Adelaide Enfield (C) |
| | Salisbury (C) |
| | West Torrens (C) |
| Brisbane City | Brisbane (C) |
| Brisbane North | Caboolture (S) |
| | Kilcoy (S) |
| | Pine Rivers (S) |
| | Redcliffe (C) |
| Darwin | Coomalie (CGC) |
| | Darwin (C) |
| | Litchfield (S) |
| | Palmerston (C) |
| Global Sydney | Botany Bay (C) |
| | Hunter's Hill (A) |
| | Lane Cove (A) |
| | Mosman (A) |
| | North Sydney (A) |
| | Randwick (C) |
| | Ryde (C) |
| | South Sydney (C) |
| | Sydney (C) |
| | Waverley (A) |
| | Willoughby (C) |
| | Woollahra (A) |
| Melbourne East | Boroondara (C) |
| | Knox (C) |
| | Manningham (C) |
| | Maroondah (C) |
| | Monash (C) |
| | Whitehorse (C) |
| Melbourne Inner | Melbourne (C) |
| | Port Phillip (C) |
| | Stonnington (C) |
| | Yarra (C) |
| Melbourne North | Banyule (C) |
| | Darebin (C) |
| | Hume (C) |
| | Moreland (C) |
| | Nillumbik (S) |
| | Whittlesea (C) |
| Melbourne South | Bayside (C) |
| | Glen Eira (C) |
| | Kingston (C) |
| Melbourne West | Brimbank (C) |
| | Hobsons Bay (C) |
| | Maribyrnong (C) |
| | Melton (S) |
| | Moonee Valley (C) |
| | Wyndham (C) |
| Melbourne Westernport | Cardinia (S) |
| | Casey (C) |
| | Frankston (C) |
| | Greater Dandenong (C) |
| | Mornington Peninsula (S) |
| | Yarra Ranges (S) |
| NSW Central Coast | Gosford (C) |
| | Wyong (A) |
| NSW Central West | Bathurst (C) |
| | Bland (A) |
| | Blayney (A) |
| | Cabonne (A) |
| | Cowra (A) |
| | Evans (A) |
| | Forbes (A) |
| | Greater Lithgow (C) |

| Region | Local Government Area |
|---|---|
| | Lachlan (A) |
| | Oberon (A) |
| | Orange (C) |
| | Parkes (A) |
| | Rylstone (A) |
| | Weddin (A) |
| NSW Far and North West | Bogan (A) |
| | Bourke (A) |
| | Brewarrina (A) |
| | Broken Hill (C) |
| | Central Darling (A) |
| | Cobar (A) |
| | Coolah (A) |
| | Coonabarabran (A) |
| | Coonamble (A) |
| | Dubbo (C) |
| | Gilgandra (A) |
| | Mudgee (A) |
| | Narromine (A) |
| | Unincorporated NSW |
| | Walgett (A) |
| | Warren (A) |
| | Wellington (A) |
| NSW Hunter | Cessnock (C) |
| | Dungog (A) |
| | Gloucester (A) |
| | Great Lakes (A) |
| | Lake Macquarie (C) |
| | Maitland (C) |
| | Merriwa (A) |
| | Murrurundi (A) |
| | Muswellbrook (A) |
| | Newcastle (C) |
| | Port Stephens (A) |
| | Scone (A) |
| | Singleton (A) |
| NSW Illawarra | Kiama (A) |
| | Shellharbour (C) |
| | Shoalhaven (C) |
| | Wingecarribee (A) |
| | Wollongong (C) |
| NSW Mid North Coast | Bellingen (A) |
| | Coffs Harbour (C) |
| | Copmanhurst (A) |
| | Grafton (C) |
| | Greater Taree (C) |
| | Hastings (A) |
| | Kempsey (A) |

| Region | Local Government Area |
|---|---|
| | Maclean (A) |
| | Nambucca (A) |
| | Pristine Waters (A) |
| NSW Murray | Albury (C) |
| | Balranald (A) |
| | Berrigan (A) |
| | Conargo (A) |
| | Corowa (A) |
| | Culcairn (A) |
| | Deniliquin (A) |
| | Holbrook (A) |
| | Hume (A) |
| | Jerilderie (A) |
| | Murray (A) |
| | Tumbarumba (A) |
| | Urana (A) |
| | Wakool (A) |
| | Wentworth (A) |
| | Windouran (A) |
| NSW Murrumbidgee | Carrathool (A) |
| | Coolamon (A) |
| | Cootamundra (A) |
| | Griffith (C) |
| | Gundagai (A) |
| | Hay (A) |
| | Junee (A) |
| | Leeton (A) |
| | Lockhart (A) |
| | Murrumbidgee (A) |
| | Narrandera (A) |
| | Temora (A) |
| | Tumut (A) |
| | Wagga Wagga (C) |
| NSW North | Armidale Dumaresq (A) |
| | Barraba (A) |
| | Bingara (A) |
| | Glen Innes (A) |
| | Gunnedah (A) |
| | Guyra (A) |
| | Inverell (A) |
| | Manilla (A) |
| | Moree Plains (A) |
| | Narrabri (A) |
| | Nundle (A) |
| | Parry (A) |
| | Quirindi (A) |
| | Severn (A) |
| | Tamworth (C) |

| Region | Local Government Area |
|---|---|
| | Tenterfield (A) |
| | Uralla (A) |
| | Walcha (A) |
| | Yallaroi (A) |
| NSW Richmond-Tweed | Ballina (A) |
| | Byron (A) |
| | Kyogle (A) |
| | Lismore (C) |
| | Tweed (A) |
| | Richmond Valley (A) |
| NSW South-East | Bega Valley (A) |
| | Bombala (A) |
| | Boorowa (A) |
| | Cooma-Monaro (A) |
| | Crookwell (A) |
| | Eurobodalla (A) |
| | Goulburn (C) |
| | Gunning (A) |
| | Harden (A) |
| | Mulwaree (A) |
| | Queanbeyan (C) |
| | Snowy River (A) |
| | Tallaganda (A) |
| | Yarrowlumla (A) |
| | Yass (A) |
| | Young (A) |
| NT Lingiari | Alice Springs (T) |
| | Jabiru (T) |
| | Katherine (T) |
| | Tennant Creek (T) |
| | Unincorporated NT |
| Perth Central | Belmont (C) |
| | Cambridge (T) |
| | Claremont (T) |
| | Cottesloe (T) |
| | East Fremantle (T) |
| | Fremantle (C) |
| | Mosman Park (T) |
| | Nedlands (C) |
| | Peppermint Grove (S) |
| | Perth (C) |
| | South Perth (C) |
| | Stirling (C) |
| | Subiaco (C) |
| | Swan (C) |
| | Victoria Park (T) |
| | Vincent (T) |
| Perth Outer North | Bassendean (T) |

| Region | Local Government Area |
|---|---|
| | Bayswater (C) |
| | Joondalup (C) |
| | Mundaring (S) |
| | Swan (C) |
| | Wanneroo (S) |
| Perth Outer South | Armadale (C) |
| | Canning (C) |
| | Cockburn (C) |
| | Gosnells (C) |
| | Kalamunda (S) |
| | Kwinana (T) |
| | Melville (C) |
| | Rockingham (C) |
| QLD Agricultural SW | Cambooya (S) |
| | Chinchilla (S) |
| | Clifton (S) |
| | Crow's Nest (S) |
| | Dalby (T) |
| | Goondiwindi (T) |
| | Inglewood (S) |
| | Jondaryan (S) |
| | Millmerran (S) |
| | Murilla (S) |
| | Pittsworth (S) |
| | Rosalie (S) |
| | Stanthorpe (S) |
| | Tara (S) |
| | Taroom (S) |
| | Toowoomba (C) |
| | Waggamba (S) |
| | Wambo (S) |
| | Warwick (S) |
| QLD Far North | Atherton (S) |
| | Aurukun (S) |
| | Cairns (C) |
| | Cardwell (S) |
| | Cook (S) |
| | Croydon (S) |
| | Douglas (S) |
| | Eacham (S) |
| | Etheridge (S) |
| | Herberton (S) |
| | Johnstone (S) |
| | Mareeba (S) |
| | Torres (S) |
| QLD Fitzroy | Banana (S) |
| | Bauhinia (S) |
| | Calliope (S) |

| Region | Local Government Area |
|---|---|
| | Duaringa (S) |
| | Emerald (S) |
| | Fitzroy (S) |
| | Gladstone (C) |
| | Jericho (S) |
| | Livingstone (S) |
| | Mount Morgan (S) |
| | Peak Downs (S) |
| | Rockhampton (C) |
| QLD Gold Coast | Beaudesert (S) |
| | Gold Coast (C) |
| | Logan (C) |
| | Redland (S) |
| QLD Mackay | Belyando (S) |
| | Broadsound (S) |
| | Mackay (C) |
| | Mirani (S) |
| | Nebo (S) |
| | Sarina (S) |
| | Whitsunday (S) |
| QLD North | Bowen (S) |
| | Burdekin (S) |
| | Charters Towers (C) |
| | Dalrymple (S) |
| | Hinchinbrook (S) |
| | Thuringowa (C) |
| | Townsville (C) |
| QLD North West | Burke (S) |
| | Carpentaria (S) |
| | Cloncurry (S) |
| | Flinders (S) |
| | McKinlay (S) |
| | Mornington (S) |
| | Mount Isa (C) |
| | Richmond (S) |
| QLD Pastoral | Aramac (S) |
| | Balonne (S) |
| | Barcaldine (S) |
| | Barcoo (S) |
| | Bendemere (S) |
| | Blackall (S) |
| | Booringa (S) |
| | Boulia (S) |
| | Bulloo (S) |
| | Bungil (S) |
| | Diamantina (S) |
| | Ilfracombe (S) |
| | Isisford (S) |

| Region | Local Government Area |
|---|---|
| | Longreach (S) |
| | Murweh (S) |
| | Paroo (S) |
| | Quilpie (S) |
| | Roma (T) |
| | Tambo (S) |
| | Warroo (S) |
| | Winton (S) |
| QLD Sunshine Coast | Caloundra (C) |
| | Maroochy (S) |
| | Noosa (S) |
| QLD West Moreton | Boonah (S) |
| | Esk (S) |
| | Gatton (S) |
| | Ipswich (C) |
| | Laidley (S) |
| QLD Wide Bay-Burnett | Biggenden (S) |
| | Bundaberg (C) |
| | Burnett (S) |
| | Cooloola (S) |
| | Eidsvold (S) |
| | Gayndah (S) |
| | Hervey Bay (C) |
| | Isis (S) |
| | Kilkivan (S) |
| | Kingaroy (S) |
| | Kolan (S) |
| | Maryborough (C) |
| | Miriam Vale (S) |
| | Monto (S) |
| | Mundubbera (S) |
| | Murgon (S) |
| | Nanango (S) |
| | Perry (S) |
| | Tiaro (S) |
| | Wondai (S) |
| | Woocoo (S) |
| SA Eyre and Yorke | Barunga West (DC) |
| | Ceduna (DC) |
| | Clare and Gilbert Valleys (DC) |
| | Cleve (DC) |
| | Coober Pedy (DC) |
| | Copper Coast (DC) |
| | Elliston (DC) |
| | Flinders Ranges (DC) |
| | Franklin Harbor (DC) |
| | Goyder (DC) |
| | Kangaroo Island (DC) |

| Region | Local Government Area |
|---|---|
| | Kimba (DC) |
| | Le Hunte (DC) |
| | Lower Eyre Peninsula (DC) |
| | Mount Remarkable (DC) |
| | Northern Areas (DC) |
| | Orroroo/Carrieton (DC) |
| | Peterborough (DC) |
| | Port Augusta (C) |
| | Port Lincoln (C) |
| | Port Pirie City and Dists (C) |
| | Roxby Downs (M) |
| | Streaky Bay (DC) |
| | Tumby Bay (DC) |
| | Unincorporated SA |
| | Wakefield (DC) |
| | Whyalla (C) |
| | Yorke Peninsula (DC) |
| | Port Pirie City and Dists (M) |
| SA Murraylands | Berri and Barmera (DC) |
| | Karoonda East Murray (DC) |
| | Loxton Waikerie (DC) |
| | Mid Murray (DC) |
| | Murray Bridge (RC) |
| | Renmark Paringa (DC) |
| | Southern Mallee (DC) |
| | The Coorong (DC) |
| SA South East | Grant (DC) |
| | Lacepede (DC) |
| | Mount Gambier (C) |
| | Naracoorte and Lucindale (DC) |
| | Robe (DC) |
| | Tatiara (DC) |
| | Wattle Range (DC) |
| Sydney Inner West | Ashfield (A) |
| | Burwood (A) |
| | Concord (A) |
| | Drummoyne (A) |
| | Leichhardt (A) |
| | Strathfield (A) |
| Sydney Mid West | Auburn (A) |
| | Bankstown (C) |
| | Blacktown (C) |
| | Canterbury (C) |
| | Fairfield (C) |
| | Holroyd (C) |
| | Liverpool (C) |
| | Marrickville (A) |
| | Parramatta (C) |

| Region | Local Government Area |
|---|---|
| Sydney Outer North | Baulkham Hills (A) |
| | Hornsby (A) |
| | Ku-ring-gai (A) |
| | Manly (A) |
| | Pittwater (A) |
| | Warringah (A) |
| Sydney Outer South West | Camden (A) |
| | Campbelltown (C) NSW |
| | Wollondilly (A) |
| Sydney Outer West | Blue Mountains (C) |
| | Hawkesbury (C) |
| | Penrith (C) |
| Sydney South | Hurstville (C) |
| | Kogarah (A) |
| | Rockdale (C) |
| | Sutherland Shire (A) |
| TAS Hobart-South | Brighton (M) |
| | Central Highlands (M) |
| | Clarence (C) |
| | Derwent Valley (M) |
| | Glamorgan/Spring Bay (M) |
| | Glenorchy (C) |
| | Hobart (C) |
| | Huon Valley (M) |
| | Kingborough (M) |
| | Sorell (M) |
| | Southern Midlands (M) |
| | Tasman (M) |
| TAS North | Break O'Day (M) |
| | Dorset (M) |
| | Flinders (M) |
| | George Town (M) |
| | Launceston (C) |
| | Meander Valley (M) |
| | Northern Midlands (M) |
| | West Tamar (M) |
| TAS North West | Burnie (C) |
| | Central Coast (M) |
| | Circular Head (M) |
| | Devonport (C) |
| | Kentish (M) |
| | King Island (M) |
| | Latrobe (M) |
| | Waratah/Wynyard (M) |
| | West Coast (M) |
| VC Goulburn | Campaspe (S) |
| | Delatite (S) |
| | Greater Shepparton (C) |

| Region | Local Government Area |
|---|---|
| | Mitchell (S) |
| | Moira (S) |
| | Murrindindi (S) |
| | Strathbogie (S) |
| VIC Barwon | Colac-Otway (S) |
| | Golden Plains (S) |
| | Greater Geelong (C) |
| | Queenscliffe (B) |
| | Surf Coast (S) |
| VIC Central Highlands | Ararat (RC) |
| | Ballarat (C) |
| | Hepburn (S) |
| | Moorabool (S) |
| | Pyrenees (S) |
| VIC Gippsland | Bass Coast (S) |
| | Baw Baw (S) |
| | East Gippsland (S) |
| | La Trobe (S) |
| | South Gippsland (S) |
| | Unincorporated Vic |
| | Wellington (S) |
| | Latrobe (S) |
| VIC Loddon | Central Goldfields (S) |
| | Greater Bendigo (C) |
| | Loddon (S) |
| | Macedon Ranges (S) |
| | Mount Alexander (S) |
| VIC Mallee-Wimmera | Buloke (S) |
| | Gannawarra (S) |
| | Hindmarsh (S) |
| | Horsham (RC) |
| | Mildura (RC) |
| | Northern Grampians (S) |
| | Swan Hill (RC) |
| | West Wimmera (S) |
| | Yarriambiack (S) |
| VIC Ovens-Hume | Alpine (S) |
| | Indigo (S) |
| | Towong (S) |
| | Wangaratta (RC) |
| | Wodonga (RC) |
| VIC West | Corangamite (S) |
| | Glenelg (S) |
| | Moyne (S) |
| | Southern Grampians (S) |
| | Warrnambool (C) |
| WA Gascoyne-Goldfields | Carnamah (S) |
| | Carnarvon (S) |

| Region | Local Government Area |
|---|---|
| | Chapman Valley (S) |
| | Coolgardie (S) |
| | Coorow (S) |
| | Cue (S) |
| | Dundas (S) |
| | Esperance (S) |
| | Exmouth (S) |
| | Geraldton (C) |
| | Greenough (S) |
| | Irwin (S) |
| | Kalgoorlie/Boulder (C) |
| | Laverton (S) |
| | Leonora (S) |
| | Meekatharra (S) |
| | Menzies (S) |
| | Mingenew (S) |
| | Morawa (S) |
| | Mount Magnet (S) |
| | Mullewa (S) |
| | Murchison (S) |
| | Ngaanyatjarraku (S) |
| | Northampton (S) |
| | Perenjori (S) |
| | Ravensthorpe (S) |
| | Sandstone (S) |
| | Shark Bay (S) |
| | Three Springs (S) |
| | Upper Gascoyne (S) |
| | Wiluna (S) |
| | Yalgoo (S) |
| WA Peel-South West | Augusta-Margaret River (S) |
| | Boddington (S) |
| | Boyup Brook (S) |
| | Bridgetown-Greenbushes (S) |
| | Bunbury (C) |
| | Busselton (S) |
| | Capel (S) |
| | Collie (S) |
| | Dardanup (S) |
| | Donnybrook-Balingup (S) |
| | Harvey (S) |
| | Mandurah (C) |
| | Manjimup (S) |
| | Murray (S) |
| | Nannup (S) |
| | Serpentine-Jarrahdale (S) |
| | Waroona (S) |
| WA Pilbara-Kimberly | Ashburton (S) |

| Region | Local Government Area |
|---|---|
| | Broome (S) |
| | Derby-West Kimberley (S) |
| | East Pilbara (S) |
| | Halls Creek (S) |
| | Port Hedland (T) |
| | Roebourne (S) |
| | Wyndham-East Kimberley (S) |
| | Unincorporated WA |
| WA Wheatbelt-Great Southern | Albany (C) |
| | Beverley (S) |
| | Brookton (S) |
| | Broomehill (S) |
| | Bruce Rock (S) |
| | Chittering (S) |
| | Corrigin (S) |
| | Cranbrook (S) |
| | Cuballing (S) |
| | Cunderdin (S) |
| | Dalwallinu (S) |
| | Dandaragan (S) |
| | Denmark (S) |
| | Dowerin (S) |
| | Dumbleyung (S) |
| | Gingin (S) |
| | Gnowangerup (S) |
| | Goomalling (S) |
| | Jerramungup (S) |
| | Katanning (S) |
| | Kellerberrin (S) |
| | Kent (S) |
| | Kojonup (S) |
| | Kondinin (S) |
| | Koorda (S) |
| | Kulin (S) |
| | Lake Grace (S) |
| | Merredin (S) |
| | Moora (S) |
| | Mount Marshall (S) |
| | Mukinbudin (S) |
| | Narembeen (S) |
| | Narrogin (S) |
| | Narrogin (T) |
| | Northam (S) |
| | Northam (T) |
| | Nungarin (S) |
| | Pingelly (S) |
| | Plantagenet (S) |
| | Quairading (S) |

| Region | Local Government Area |
|---|---|
| | Tambellup (S) |
| | Tammin (S) |
| | Toodyay (S) |
| | Trayning (S) |
| | Victoria Plains (S) |
| | Wagin (S) |
| | Wandering (S) |
| | West Arthur (S) |
| | Westonia (S) |
| | Wickepin (S) |
| | Williams (S) |
| | Wongan-Ballidu (S) |
| | Woodanilling (S) |
| | Wyalkatchem (S) |
| | Yilgarn (S) |
| | York (S) |

## A2.3 Regional classification

The regions resulting from these boundary changes can be included within the established classification as follows.

### *Core metropolitan regions*

Global Sydney
Sydney Inner West
Melbourne Inner
Brisbane City
Adelaide Central
Perth Central
TAS Hobart-South
Darwin
ACT

### *Dispersed metropolitan regions*

NSW Central Coast
Sydney Outer North
Sydney Outer South West
Sydney Outer West
Sydney South
Melbourne East
Melbourne South
Brisbane North
Adelaide Outer
Perth Outer North
Perth Outer South

### *Production zones*

NSW Hunter
NSW Illawarra
Sydney Mid West
VIC Barwon
Melbourne North
Melbourne West
Melbourne Westport
QLD West Moreton
Adelaide Plains

### *Resource-based regions*

QLD Pastoral
QLD Fitzroy
QLD North West
WA Pilbara-Kimberly
WA Gascoyne-Goldfields
WA Peel-South West
NT Lingiari

### *Lifestyle regions*

NSW Mid North Coast
NSW Richmond-Tweed
NSW South-East
QLD Gold Coast
QLD Sunshine Coast

### *Rural based regions*

NSW Central West
NSW Far and North West
NSW Murrumbidgee
NSW Murray
NSW North
VIC Gippsland
VC Goulburn
VIC Loddon
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC West
VIC Central Highlands
QLD Agricultural SW
QLD Far North
QLD Mackay
QLD North
QLD Wide Bay-Burnett
SA Eyre and Yorke
SA Murraylands
SA South East
WA Wheatbelt-Great Southern
TAS North West
TAS North

# APPENDIX 3

# INDICATOR EXPLANATIONS

# Appendix 3: Indicator explanations

## A3.1 Regional indicators

This section provides an explanation and exposition of the indicators presented in the regional summaries. Each indicator is described, data sources referenced and the ideas behind each discussed. Every indicator is expressed in different units and in general is presented in a format that makes regional comparisons easy. Most measures are accompanied with a rank, which is a rank out of the 64 State of the Region regions, with 1 being the best.

***Population and Labour Force***

**Population:** Residential population by region for 1998 and 2003 are taken from the *ABS estimated resident population* (ERP) series. The 2004 population was derived from the household growth for 2002/2003 and constrained to 2004 state population growth. The 2004 household total was derived by increasing the 2003 household total by the number of dwelling approvals.

**Households:** The number of Households per region uses the *ABS Census* for 1998 and 2001. From the 2001 levels, which are known, new residential building approvals data is used to grow the stock of houses in a region. This data is provided by the ABS and reported quarterly. If however, the new building approvals data is added to the stock in 2003 an over estimation will occur, due to the demolition of old houses. Therefore, National Economics uses estimated demolition rates to ensure no double counting occurs.

**Workforce:** This is a measure of the labour force adjusted for the movement of people from the workforce to Disability Support Pensions (DSP). The labour force estimates are produced by the *Department of Employment, Education and Training* (DEET). The information is contained in the *Small Area Labour Markets* publication that is produced quarterly. The labour force is defined as the yearly average level for 1998 and 2001 and 2004. The average DEET figure is added to the excess movement to disability support pensions. Excess movement is defined as any growth in excess of the rate of growth in the general population. It therefore assumes that there is a natural level of people (expressed as a per cent of the population) who need to access the DSP. The DSP data is ascertained from the Department of Social Security (Centrelink). The rationale for adding in people who move from unemployment benefits to disability support is to measure the real labour force. If a person is receiving unemployment benefits, they are counted as part of the labour force, however when people move from unemployment benefits to the DSP they are excluded. This impacts on the unemployment rate which is defined as the number of unemployed divided by the labour force.

**Employment:** This is a National Economics' measure of employment. It is the adjusted labour force as defined above, minus the estimated National Economics unemployment level.

**Unemployment:** This is a National Economics' measure of unemployment. It is derived using Centrelink data. It includes all people receiving Newstart allowance, Mature Age Allowance, excess growth in DSP (that is, at a level greater than population growth), youth allowance as a non-student and an estimate of students on youth allowance who are, for example, unemployed and undertaking compulsory training. This latter measure is based on demographic trends and microsimulation.

**Structural unemployment :** This is a measure of the level of long-term unemployed as a percentage of the population aged 18 to 65 years old. It includes all those classified as long-term unemployed, those receiving disability support pensions, 50 per cent of people from a non-English speaking background receiving Newstart allowance, 50 per cent of people receiving single parents benefits and all people receiving the mature age allowance. This measure excludes people on Newstart allowance short-term and anyone receiving youth allowance. It therefore assumes that none of the youth are structurally unemployed.

**DEWRSB unemployment:** This is the unemployment rate produced by the *Department of Employment, Education and Training* (DEET). The information is contained in the *Small Area Labour Markets* publication. It contains estimates of employment, labour force participation, unemployment and the unemployment rate by Statistical Local Areas (SLAs).

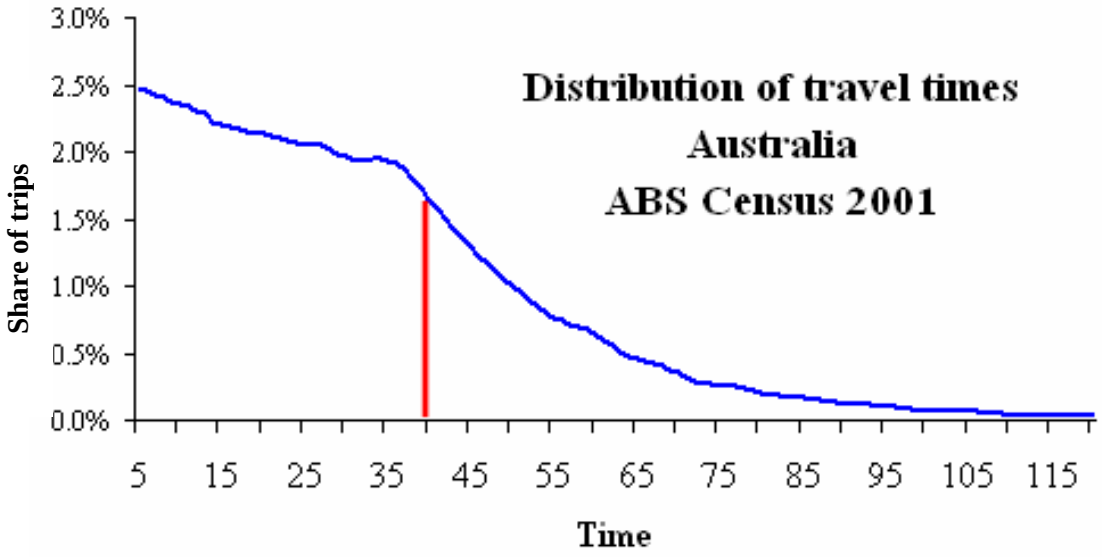
***Flow of funds***

All elements of the flow of funds analysis have been discussed in detail in Chapter 1 including information relating to their construction and data sources.

***Accessibility***

Accessibility indices were derived from the Census 2001 for each Statistical Local Area. SLA to SLA car driver times were taken from a commercial courier peak travel time software program. Estimates were added for time spent within the origin and destination SLAs, and for time spend parking the car and walking to and from it. Public transport times were taken from timetables, or, where these could not be procured, by assuming an average bus speed. Allowance for walking and waiting was added, derived from typical behaviour revealed in transportation study surveys. The time-distance used in the indicators in the report is the quickest of motoring and public transport. Needless to say the motoring time is usually the quickest, but not always.

The time based weighting factor is related to the revealed distribution of travel times below.




Indices calculated at the SLA level were averaged to SOR regions using population or employment weights as appropriate.

The following series are included.

**Accessibility factor:** score based on the number of job-locations accessible from residences.

$$AIO_i = f\left(AIO_i^*\right)$$

$$AIO_i^* = \sum_k^N \tilde{d}_{ik} I_k$$

*where*

$i$ – region of interest

$N$ – all SLA regions in Australia

$AIO_i^*$ – non standardised accessibility factor

$f(\ )$ is a function standardising the score to value between 0 and 1000

$\tilde{d}_{ik}$ – weighting on distance between region $i$ and region $k$

$I_k$ – total employment in region $k$

**Skills corrected factor:** score based on the number of job-locations appropriate to the skills of the resident population accessible from residences.

$$AIC_i = f\left(AIC_i^*\right)$$

$$AIC_i^* = \sum_j^{TC} \sum_k^N RC_{ij} \tilde{d}_{ik} C_{jk}$$

*where*

$i$ – region of interest

$N$ – all SLA regions in Australia

$TC$ – all occupation groups, 10 in total

$AIC_i^*$ – non standardised accessibility factor

$f(\ )$ is a function standardising the score to value between 0 and 1000

$\tilde{d}_{ik}$ – weighting on distance between region $i$ and region $k$

$C_{jk}$ – employment in occupation $j$ in region $k$

$RC_{ij}$ – share of resident employment, region $i$ in occupation $j$

**Industry corrected factor:** score based on the number of job-locations appropriate to the industry of employment of the resident population accessible from residences.

$$AI_i = f\left(AI_i^*\right)$$

$$AI_i^* = \sum_j^{TI} \sum_k^N R_{ij} \tilde{d}_{ik} I_{jk}$$

*where*

$i$ – region of interest

$N$ – all SLA regions in Australia

$TI$ – all industry groups

$AI_i^*$ – non standardised accessibility factor

$f(\ )$ is a function standardising the score to value between 0 and 1000

$\tilde{d}_{ik}$ – weighting on distance between region $i$ and region $k$

$I_{jk}$ – employment in industry $j$ in region $k$

$R_{ij}$ – share of resident employment, region $i$ in industry $j$

**Global knowledge factor:** score based on the number of global-knowledge job-locations accessible within from residences.

$$AIG_i = f\left(AIG_i^*\right)$$

$$AIG_i^* = \sum_k^N \tilde{d}_{ik} G_k$$

*where*

$i$ – region of interest

$N$ – all SLA regions in Australia

$AIG_i^*$ – non standardised accessibility factor

$f(\ )$ is a function standardising the score to value between 0 and 1000

$\tilde{d}_{ik}$ – weighting on distance between region $i$ and region $k$

$G_k$ – total global knowledge occupation employment in region $k$

**Resident skills matching:** score based on the difference between the skills-corrected factor, above, and a similar factor calculated in reverse; i.e. the number of resident workers with appropriate skills whose residences are accessible within forty minutes of job locations.

**Resident industry matching:** score based on the difference between the industry-corrected factor, above, and a similar factor calculated in reverse, i.e. the number of resident workers, by industry, whose residences are accessible within forty minutes of job locations.

**Catchment jobs/workers:** score based on the ratio of the accessibility factor, above, and a similar ratio calculated in reverse, i.e. the number of resident workers whose residences are accessible within forty minutes of job locations.

**Congestion exposure risk factor:** this score is measured out of 1000 and establishes the marginal loss in employment access which is likely to be experienced by residents. As shown in the body of the report there is a significant decline in the number of people accessing employment beyond a 40 minute

travel time. In effect the 40 minute point represents a serious point of inflection in people behaviour. As congestion increases and the number of jobs which can be access within this critical 40 minute window falls the capacity of a local region to remain optimally employed is reduced. The steeper the loss in access which is likely to be experienced by a region, the stronger the congestion exposure risk factor. Therefore a region with a high score is likely to face the steepest relative loss of employment caused by an increase in congestion around the critical 40 minute time point.

### *Retail Accessibility*

The retail accessibility scores are based on access to the range of retail types. For reasons of data sourcing the retail categories which have been used are the 44 ANZSIC 4-digit codes in Retail Trade.

| 4-digit ANZSIC code | ANZIC Name | 4-digit ANZSIC code | ANZIC Name |
|---|---|---|---|
| 5110 | Supermarket and Grocery Stores | 5251 | Pharmaceutical, Cosmetic and Toiletry Retailing |
| 5121 | Fresh Meat, Fish and Poultry Retailing | 5252 | Antique and Used Good Retailing |
| 5122 | Fruit and Vegetable Retailing | 5253 | Garden Equipment Retailing |
| 5123 | Liquor Retailing | 5254 | Flower Retailing |
| 5124 | Bread and Cake Retailing | 5255 | Watch and Jewellery Retailing |
| 5125 | Takeaway Food Retailing | 5259 | Retailing, nec |
| 5126 | Milk Vending | 5261 | Household Equipment Repair Services (Electrical) |
| 5129 | Specialised Food Retailing, nec | 5269 | Household Equipment Repair Services, nec |
| 5210 | Department Stores | 5311 | Car Retailing |
| 5221 | Clothing Retailing | 5312 | Motor Cycle Dealing |
| 5222 | Footwear Retailing | 5313 | Trailer and Caravan Dealing |
| 5223 | Fabric / Soft Good Retailing | 5321 | Automotive Fuel Retailing |
| 5231 | Furniture Retailing | 5322 | Automotive Electrical Services |
| 5232 | Floor Covering Retailing | 5323 | Smash Repairing |
| 5233 | Domestic Hardware Retailing | 5324 | Tyre Retailing |
| 5234 | Domestic Appliance Retailing | 5329 | Automotive Repair and Services, nec |
| 5235 | Recorded Music Retailing | 5710 | Accommodation |
| 5241 | Sport and Camping Equipment Retailing | 5720 | Pubs, Taverns and Bars |
| 5242 | Toy and Game Retailing | 5730 | Cafes and Restaurants |
| 5243 | Newspaper, Book and Stationery Retailing | 5740 | Clubs (Hospitality) |
| 5244 | Photographic Equipment Retailing | 9511 | Video Hire Outlets |
| 5245 | Marine Equipment Retailing | 9526 | Hairdressing and Beauty Salons |

**'Shop till you drop' score:** score based on the kilometre distance from residences to retail jobs and the density of those jobs per square kilometre within this time-distance.

**Distance to significant retail diversity:** average distance, in km, to the nearest 300 supermarket jobs and nearest 100 retail jobs in each of 43 other retail classifications. This is the distance component of the 'shop till you drop' indicator.

**Missing local retail types:** proportion of the 43 types of retail employment not represented, on average, within 40 km of residences in the region.

## A3.2 YourPlace indicators

YourPlace is an essential and comprehensive source of information and data to enhance strategic planning capability for business and government for Australian markets covering:

- industry and economic development;
- social development; and
- infrastructure development.

The YourPlace database is a commercial product available from National Economics 

### *Household Prosperity Potential Indicator*

The *Prosperity Potential Indicator* is a forward looking measure that attempts to gauge an area's economic growth potential based on certain socio-demographic features. In analysing trends over the last 15 years in income and employment for all areas of Australia certain patterns emerge. These patterns infer that when certain socio-demographic characteristics are in place particular economic outcomes can be expected. For example different features will produce different outcomes, features such as:

- the level of ethnicity;
- income disparity;
- propensity to spend; and
- skills of the workforce.

These features, when presented in differing mixes across a variety of regions, infer differing levels of prosperity potential. For example, if a region is endowed with a high propensity to spend, and a skilled and educated workforce, residents are unlikely to face structural barriers to employment and income growth and the prosperity potential of the local economy will most likely be high.

If a particular area is characterised by a high levels of ethnicity, low workforce skills and income disparity the level of income generation and retained expenditure within the community will most likely be insufficient to support a robust economy. Consequently, the community's prosperity potential, or its future growth outlook will most likely be low. As a general rule, areas that encompass a greater degree of diversity, as opposed to ethnic homogeneity for example, have a greater level of prosperity potential.

The relationship between prosperity potential and the variety of socio-demographic features used in the computation of the index have been derived from an analysis of historical data to determine significant correlations between key variables. For example, a socio-demographic feature that has been found to be positively correlated with prosperity potential is the level of workforce skills within a community. The level and type of skills within a community influences employment and income growth prospects which are key determinants of household growth. Poor workforce skills undermine future household growth by limiting potential for earnings growth. The prosperity potential and household growth indicators are all interrelated. For example if the prosperity potential of an area is scored higher than the household growth for the corresponding area, this infers the region has under-performed in view of its socio-economic assets. Household growth is regionally specific; it takes into account what is happening in a particular region. The prosperity potential indicator is not regionally specific in the sense that it is based on fitted values from implied national trends and how this is associated with a regionally specific set of socio-economic characteristics.

The indicator can be used for a variety of purposes. For example, high prosperity unusually infers dynamic spending patterns, hence the information will assist in making location decisions for retail outlets. A high prosperity score infers that certain skills will be available in a region, thus businesses or industries with specialist requirements can identify suitable locations for the establishment of operations based on proximity to the necessary skills. Government and economic development practitioners can use the indicator to identify areas requiring a particular type of stimulus or policy response.

Prosperity potential is derived by using regression techniques; essentially household growth is regressed against a number of socio-demographic measures. That is, household growth (dependant variable) at the national level is regressed against the socio-demographic variable (explanatory variable) at the national level to produce a national estimated equation. Regional socio-demographic data is then input to the estimated equation to produce a regional fitted value which is the indicator value. The independent variables are as follows:

- proportion of renters to homeowners;
- ethnicity (proportion of foreign born);
- marriage and divorce rates;
- income disparity;
- household lifecycle – a propensity to spend;
- skills of workforce;
- housing homogeneity;
- vacant dwelling rate; and
- size of LGA (population size).

### *Labour Utilisation Indicator*

The Labour Utilisation Indicator measures how well the region is utilising the total available workforce hours available in the region. Due to the increasing casualisation of the workforce it is important to calculate a measure that takes account of those who work full-time and those who are part-time and casually employed. To do this we measure the total hours of paid work provided by the population. The potential workforce is defined as, the number of people who are over 18 and younger than 60 whom are not full-time students. If each of these people worked 37.5 hours we would have a fully utilised workforce. So dividing the actual hours by this amount we obtain the labour utilisation rate (ELU).

Participation rate variations and the growing number of workers in part time and casual work has undermined the usefulness of the unemployment rate as a measure of a community's success in winning work. This is because a worker is counted as employed even if he/she is able to obtain only 10 hours of work per week. As much job growth is now in casual and part time positions and conversely many full time positions are being scaled down to part time, this measure is crucial in capturing these changes. The traditional measures of unemployment do not reflect the part time/full time dilemma, thus can over state the employment situation.

This measure has the ability to identify regions for which employment generation is internally constrained. The measure does not use the participatory definition of workforce, as the decision not to look for work is the sort of constraint that this measure seeks to identify. The main effect on economic development that low labour utilisation has is that the total income that the community can generate is always spread thinly. Multiplier effects to other areas of the economy are diminished as potential spending in areas such as local retail are low. Put simply the smaller total regional income, the larger the share of it that is required for other income. This in turn puts pressure on infrastructure and services at the regional level.

In turn the Labour Utilisation Indicator can help identify potential pools of under-utilised labour. Research can be undertaken to understand why this is the case and to help develop policy initiatives. Results can also be used to facilitate business investment by highlighting an available source of labour. This type of analysis will benefit from information provided by other YourPlace indicators, such as the skills set of local residents as provided in the occupational based indexes.

This index measures total hours worked, divides them by the labour force multiplied by 37.5 (average full time weekly hours) to provide the labour utilisation rate. A low rate reflects lower levels of total income and spending within the region, which will constrain local economic growth prospects.

### *Infrastructure Indicator*

The Infrastructure Indicator measures the completion rate for commercial infrastructure periods. Commercial infrastructure includes:

- shops;
- factories;
- offices;
- hotels;
- health and education institutions; and
- entertainment and recreational facilities.

The higher the recent commercial Infrastructure Indicator the more likely the immediate prospects for employment growth. The reason we use this indicator is to establish the rate at which the current stock is being replaced, which is a good proxy for short-term growth expectations. If no short-term growth is expected then the level of stock in place will only be maintained at replacement levels. The regions that expect the highest short-term growth will have the highest rates of floor space additions.

The indicator uses ABS data for construction jobs as well as floor area for non-residential building.

### *Knowledge Driven Growth Potential Indicator*

The knowledge intensity of economic activity is increasing, and superior economic outcomes at the regional level are generated by having high concentrations of knowledge-based activity. However in order to support knowledge intensive industries there must be an adequate supply of the requisite skills and a fluid exchange of knowledge flows. That is, a region must have access to certain types of skills in order to support the proliferation of high growth and value adding industries.

The Knowledge Driven Growth Potential and Global Knowledge Flows Indicators seek to identify and measure the types and level of skills present at the regional level in order to gain an insight into a regions capacity to participate in these emerging knowledge intensive economic opportunities. The quantum and types of skills available within a region will delineate its capacity to support particular industries and consequently its outlook for economic growth.

An important facet of regional economic development deals with the skills and experience of the workforce employed. Significant worldwide trends towards information processing and knowledge based work place pressure on the long-term viability of many occupations. As such National Economics has developed two indicators designed to measure labour force skills. They are the Knowledge Driven Growth Potential and Global Knowledge Flows Indicators. Both indicators use a form of occupational classification called the Reich System and a supplementary classification to identify knowledge flows. The Reich Scale identifies occupations as either:

- Symbolic Analysts (occupations that use codified systems to process information used to inform decisions);
- In Person Service Worker (face to face interaction and service delivery); and
- Routine Worker (low skilled occupations).

A subset of Symbolic Analysts and a small number of In Person Service Workers such as lawyers are classified as global knowledge flow occupations. These occupations are said to be crucial in enabling effective flows that support the information economy and knowledge intensive industries. The Knowledge Driven Growth Potential Indicator measures the ratio of Symbolic Analysts to Routine Workers. The higher the ratio the more secure the employment prospects of the workforce and regional growth.

Given the shift in economic activity to knowledge and skill based industries it is the Routine Workers category that are anticipated to be most vulnerable to technological risks. For example as routine processes and activities become either automated or carried out by computers, the individuals who perform these task face the potential of becoming disenfranchised from economic opportunities due to a lack of skills. It is the routine workers who face the greatest prospect of structural unemployment due to economic change and industrial re-organisation, thus a low score for this indicator is cause for concern.

Regions, which are ranked high for knowledge driven growth potential, are best positioned to participate in the "new economy". Regions where the requisite skills base and knowledge capacity are in place are more likely to attract the industries, which will lead to more dynamic economic outcomes.

When a region is successful in engaging knowledge economy activities the multiplier benefits will be reflected across all the YourPlace dimensions. The Household dimension will exhibit improvement due to employment and income growth, residents jobs from national growth will increase and so on. As the multiplier effects of increased income perpetuate throughout the region the regional dimension will show improvement through increased lifestyle choices, improved educational facilities and infrastructure. In terms of the industry dimension the level of retained retail expenditure will increase; and, the industry structure for future growth will improve.

The importance of the Knowledge Driven Growth Potential Indicator for government practitioners cannot be understated. It should be interpreted as an early warning signal that action must be taken to in regards to developing economic opportunities though skills enhancement.

### *Global Knowledge Flows Indicator*

The Global Knowledge Flows Indicator is measured as the proportion of workers identified as global knowledge flow workers out of the entire workforce. Global knowledge flow workers have occupational skills associated with information technology, international business, and innovation in finance, marketing, design and production. A very high concentration and hence, high indicator score can indicate that a region can be an effective knowledge transfer centre that is integrated in to the global information economy. A moderate concentration or score shows that a region has some capability in processing or using the expanding base of information flows without necessarily being integral to its operation.

In the knowledge economy, dense flows of knowledge and learning within a region and between global centres are critical for innovation and regional competitiveness. This indicator shows a region's connectedness to global flows of knowledge and its innovative capacity. Regions with the highest values are best placed to take advantage of global information flows and participate in innovative value creating enterprise networks.

In the early nineties the building blocks of these hubs and nodes were in place. There was however little accentuation between regions. In 1991 3.3 per cent of the City of Melbourne's workforce were global knowledge flow workers and most suburban areas had a ratio between 2 and 3 per cent. The nations best placed and most successful region, North Sydney, had only 13% of its workforce as global knowledge workers. The explosion in the global information economy since, has dramatically affected the variations of these concentrations.

The trend implication for planning purposes relates to the consequences of not being an effective hub of knowledge flows. It is impossible for all regions to be hubs of global knowledge capable of competing on a worldwide basis. The management issue is ensuring the level of support for local knowledge flows at least tries to meets the needs of local business. As the income and wealth of global knowledge flow workers increases faster than other workers (as has happened between 1991 and 1998) it will be harder to attract the required level of support locally. Metropolitan Melbourne will benefit considerably from the application of this human capital, if not in the local area specifically, at least within the boundaries of the city. It is harder to extend this influence to the sub regions without devoting particular attention to this group of the workforce.

The Global Knowledge Flows Indicator is measured as the proportion of workers identified as global knowledge flow workers out of the entire workforce. A very high concentration and hence high indicator score, can indicate that a region can be an effective knowledge transfer centre (a node of the information network). A moderate concentration or score shows that a region has some capability in processing or using the expanding base of information flows without necessarily being integral to its operation.

## A3.3 Ageing and migration information

The presentation of ageing, population and migration information is primarily based on the ABS report census migration rates, ABS Estimated Resident Population (ERP) series by age 1991 to 2003, and National Economics' population and migration modelling program called PopInfo.

The calculation of the 2001 to 2003 migration patterns relies heavily on the trends established in the ABS ERP by Age series. Based on reported changes in population and age distribution at the LGA level, and recent migration patterns, the population movements are modelled to produce the population outcomes estimated in the 2003 ERP series. The extent to which such a series has incorrectly modelled the actual 2003 estimated resident population by age will create errors in the modelled net flows of migration.

Other balancing time crucial to the performance of this modelling on an inter-censual basis is the sate control totals relating to net migration from both overseas and interstate.

## A3.4 Patent information

**GRP (excluding mining) per person employed:** This is a measure of gross regional product, in 2001, which is value added produced by a region. Value added is the total market value of goods and services produced by an industry within a given period after deducting the cost of goods and services used up in the process of production, but before deducting allowances for the consumption of fixed capital. The sum of value added across all industries and all regions is equal to gross domestic product (GDP). The GDP figure is the most often quoted economic statistic by the media. A change in its level is the best indicator of economic activity and wealth creation for a nation.

Gross regional product (GRP) is the sum of value added for all industries within a region. For ease of exposition this measure is quoted as a per employee figure. This makes regional comparisons more valid. If it were quoted as a raw number then all capital cities would register well and rural areas dismally.

This measure excludes mining activity from both value added and employment. This is due to the distorting effects mining can have on GRP per employee figures. Take the LGA of Roebourne in Western Australia, for example. Oil and gas exploration and extraction dominates local industry. Together these industries produce approximately $7.8 billion in value added and total employment in the area is 7800. This gives a GRP per employee figure of about $1 million. This makes the region the most productive in Australia. This GRP measure is designed to capture the region's all-round performance so any aberrations caused by mining activity have been removed.

**Global knowledge workers (C21):** The global knowledge flows indicator is measured as the proportion of workers identified as global knowledge flow workers out of the entire workforce. It is presented as a percentage and relates to the 2001 ABS Census.

Global knowledge flow workers have occupational skills associated with information technology, international business, and innovation in finance, marketing, design and production. A very high concentration and hence high indicator score indicates that a region can be an effective knowledge transfer centre that is integrated into the global information economy. A moderate concentration shows that a region has some capability in processing or using the expanding base of information flows without necessarily being integral to its operation.

**Patent applications per 100,000 people:** This indicator measures the number of patent applications from businesses and individuals over a ten-year period. It is an average from 1993 to 2003, expressed as the number of patents per 100,000 residents. Expressing the measure in these terms allows for regional comparisons.

The patent data is provided by the Australian patent office (IP Australia). The number of applications was chosen over patents granted, due to the long delays associated with the granting of patents. In some cases this can be up to 5 years.

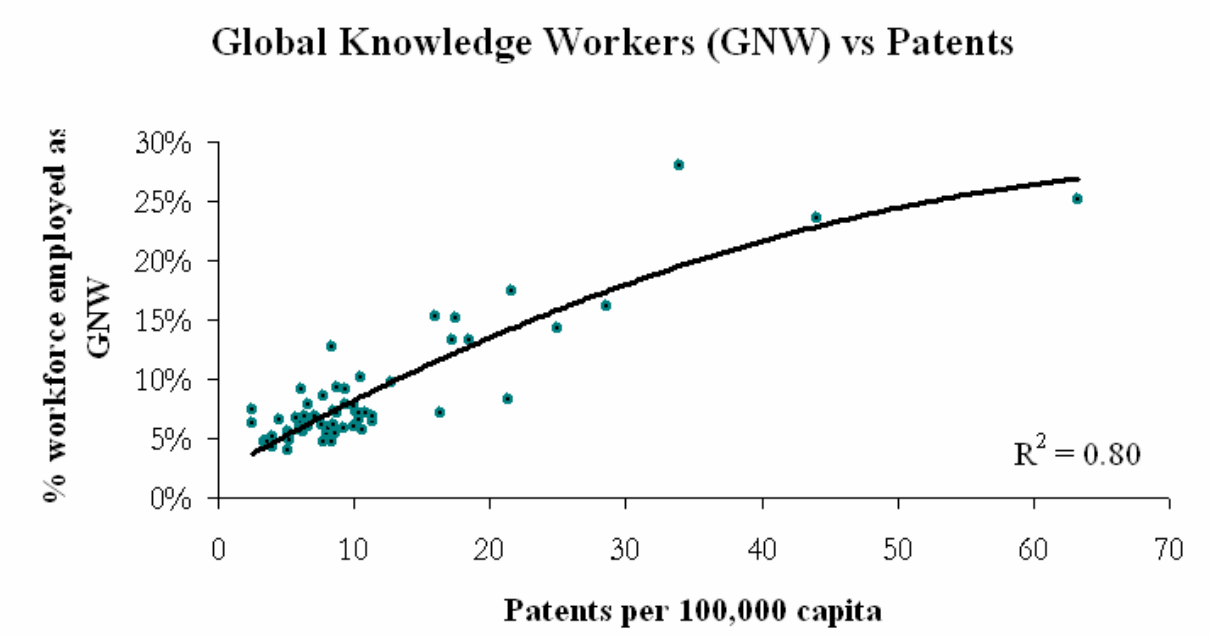
This measure acts as a proxy for scientific innovation, knowledge endowment and entrepreneurial dynamism. Regions with a high value for this indicator will generally prosper, as innovation leads to greater value added and wealth creation.

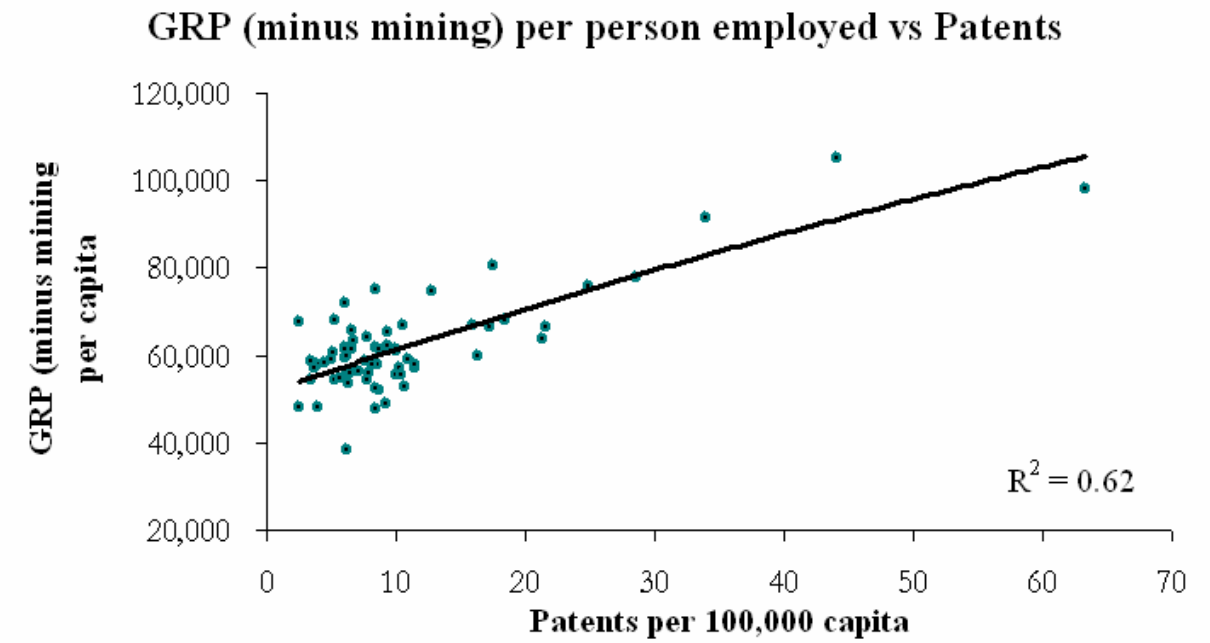
**Hi-Tech and IT applications per 100,000 people:** The patent application data is grouped into 31 different classifications. The following classifications were identified as 'Hi-Tech':

Electrical devices and engineering
Information technology
Optics
Instrumentation
Medical engineering
Polymers
Pharmaceuticals
Biotechnology
Environmental processes
Nuclear engineering
Space technology, weapons

The following classifications were identified as Information Technology (IT):

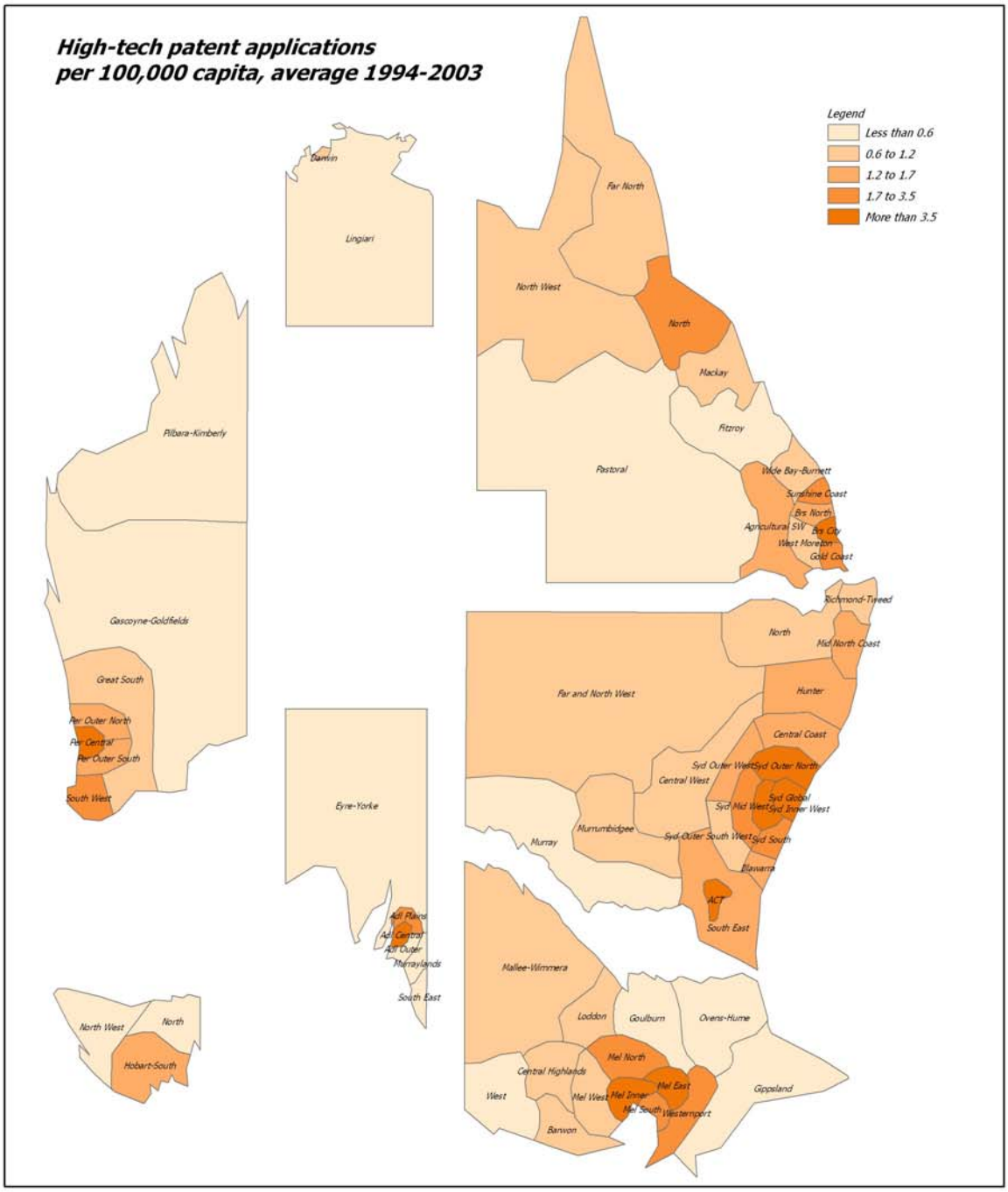
Information Technology
Audiovisual
Telecommunications

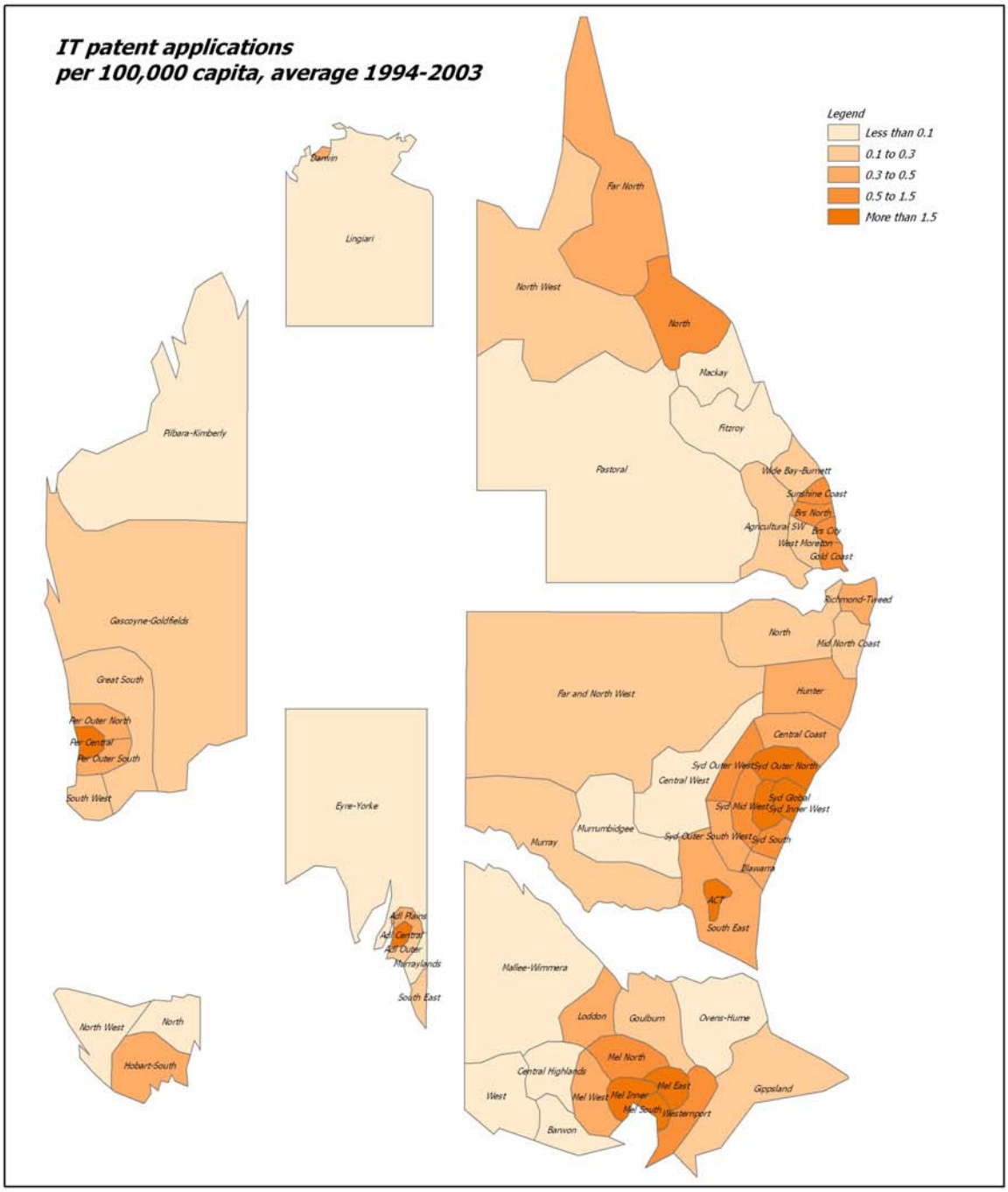


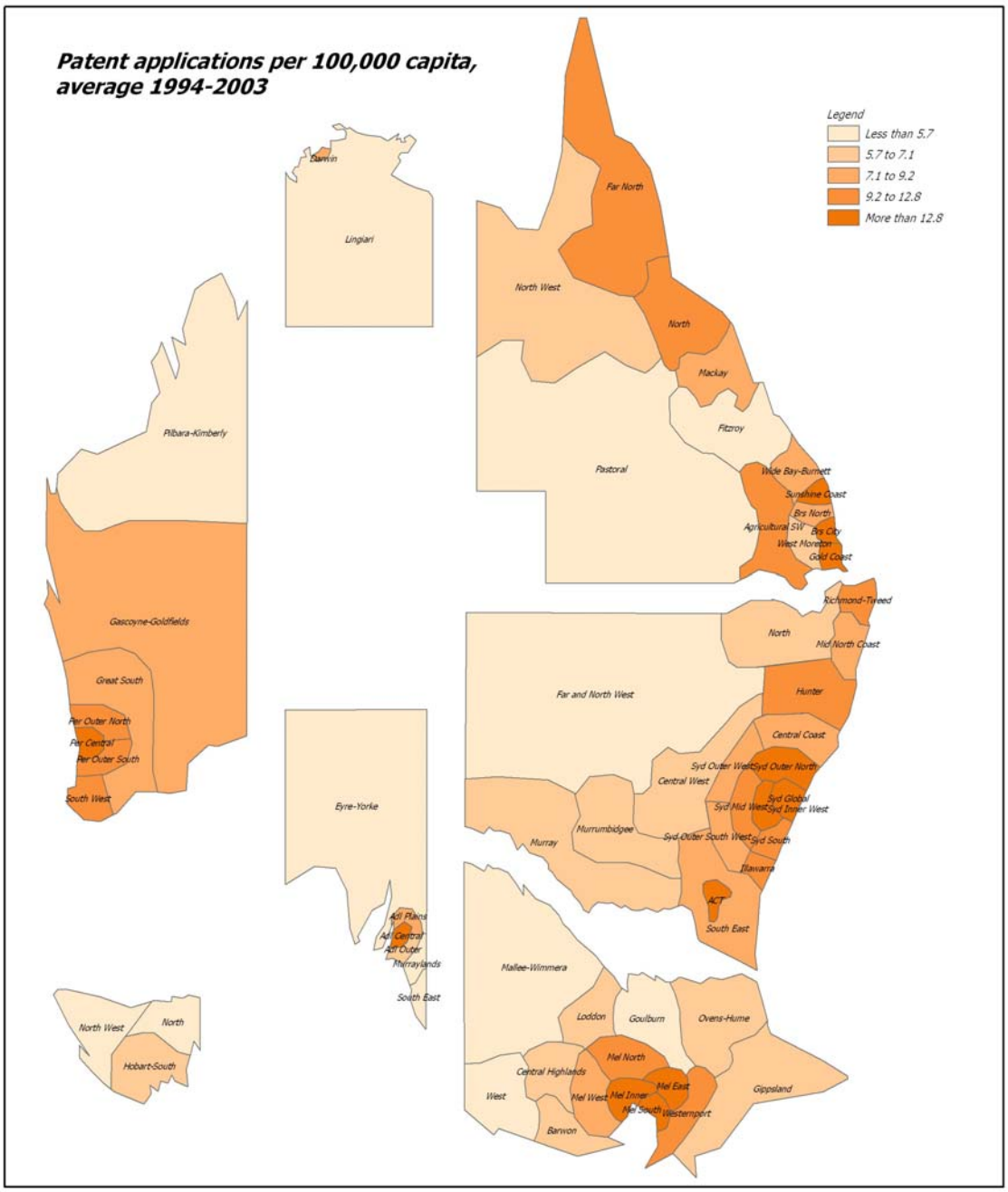




An analysis of the patent intensity of the SOR regions is presented in the following series of maps.

1. High tech patent applications per 100,000 people, average per year, 1994 to 2003.
2. Information technology patent applications per 100,000 people, average per year, 1994 to 2003.
3. Total patent applications per 100,000 people, average per year, 1994 to 2003.


High-tech patent applications
per 100,000 capita, average 1994-2003
Legend
Less than 0.6
0.6 to 1.2
1.2 to 1.7
1.7 to 3.5
More than 3.5
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Pilbara-Kimberly
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Gascoyne-Goldfields
Richmond-Tweed
North
Mid North Coast
Great South
Far and North West
Hunter
Per Outer North
Per Central
Per Outer South
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
South West
Eyre-Yorke
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
North West
North
Loddon
Goulburn
Overs-Hume
Hobart-South
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon


IT patent applications
per 100,000 capita, average 1994-2003
Legend
Less than 0.1
0.1 to 0.3
0.3 to 0.5
0.5 to 1.5
More than 1.5
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Pilbara-Kimberly
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Gascoyne-Goldfields
Great South
Far and North West
Hunter
Per Outer North
Per Central
Per Outer South
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
South West
Eyre-Yorke
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
North West
North
Loddon
Goulburn
Ovens-Hume
Hobart-South
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernport
Barwon


Patent applications per 100,000 capita, average 1994-2003
Legend
Less than 5.7
5.7 to 7.1
7.1 to 9.2
9.2 to 12.8
More than 12.8
Darwin
Lingiari
Far North
North West
North
Mackay
Fitzroy
Pastoral
Pilbara-Kimberly
Wide Bay-Burnett
Sunshine Coast
Brs North
Agricultural SW
Brs City
West Moreton
Gold Coast
Richmond-Tweed
North
Mid North Coast
Gascoyne-Goldfields
Great South
Far and North West
Hunter
Far Outer North
Far Central
Far Outer South
Central Coast
Syd Outer West
Syd Outer North
Central West
Syd Global
Syd Mid West
Syd Inner West
South West
Eyre-Yorke
Murrumbidgee
Murray
Syd Outer South West
Syd South
Illawarra
ACT
South East
Adl Plains
Adl Central
Adl Outer
Murraylands
South East
Mallee-Wimmera
North West
North
Loddon
Goulburn
Ovens-Hume
Hobart-South
Mel North
Central Highlands
Mel East
Gippsland
West
Mel West
Mel Inner
Mel South
Westernprvt
Barwon

STATE OF THE REGIONS REPORT 2004-05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