National Economics

Australian Local Government Association

State of the Regions 2001

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Executive summary

National policy priorities need to be established to transform Australia into a knowledge-based economy. Australia needs a quantum leap in our capacity to innovate if we are to maintain our present living standards. This involves promoting the exchange of knowledge and ideas, nurturing creativity and excellence in research and building our knowledge infrastructure as a basis for the commercialisation of new products and services. This is essential if we are to take advantage of our many wealth creation opportunities. We need to establish a strong footing in at least some of the world's most rapidly growing industries and accelerate innovation in our existing industries.

The knowledge-based economy is not just about high technology industries. The economic future of all Australian regions depends on how they handle the transition to the knowledge-based economy. The report argues that all regions, industries, organisations, households and individuals must participate in the knowledge-based economy. Regions not participating in the knowledge-based economy risk marginalisation in terms of low paid jobs, economic insecurity and high unemployment.

This is the fourth State of the Regions (SOR) report prepared by National Economics in collaboration with the Australian Local Government Association. The theme for this year's report is jobs and learning regions. The report provides an annual stock-take of the economic well being of Australia's regions and their prospects for economic development and employment growth. SOR looks at strategies to strengthen local and regional economic and employment outcomes, and emphasises the importance of local government and regional agencies. The report divides Australia into 64 regions – including our major cities, rural, lifestyle, resource based and production regions.

Despite outstanding achievements, some of which are documented in the case studies included in this report, the gap in educational attainment and knowledge-based jobs is widening between regions. Those regions with high education attainment and concentrations of knowledge-based industries are on a virtuous development cycle. Those with low education attainment and engaged in less knowledge-based activities will struggle in the knowledge based economy. Their young people are leaving, few well-paid jobs are being created, businesses are investing less and real incomes are falling. The regions falling behind need support. As documented in SOR reports, globalisation and the knowledge-based economy can accelerate economic growth but many of the benefits are concentrated geographically in the core metropolitan regions of our most globally competitive cities. If we are succeed in the knowledge-based economy we need a strong national framework that enables all regions to attain their economic potential.

The weaknesses of the pattern of Australian economic growth over the past 20 years - the low level of long-term productive investment, the balance of payments deficit and increases in regional inequality - have been associated with the failure to develop a coherent framework for the development of knowledge-based industries and regions.

Guided by a recent OECD study of regions within the European Union, the report seeks to develop measures to quantify the performance of Australia's regions in relation to knowledge-based activities. The report validates the importance of research and development, education attainment and learning for positive socio-economic outcomes at the regional level. The empirical study has the following findings for Australian regions.

- A high correlation between patent applications and the level of wealth creation in regions in terms of gross (non-mining) product per person.
- A strong relationship between education attainment, and wealth creation and employment growth. In other words, the higher the level of education, the wealthier a region tends to be and the higher the employment growth.

By contrast with Europe, in Australia we find a weak relationship between R&D activity and regional economic outcomes. Australia appears to have a real weakness in terms of the location of R&D activity and its integration with regional economies.

Following a sustained period of economic growth, the Australian economy is confronted with a major global economic downturn, which is likely to have major impacts on many regions. Unemployment is high and going up, and many regions are not equipped with the skills to adapt and compete. The report looks in detail at nine Australian regions, and finds a high level of commitment and competence within regions to pursue knowledge-based strategies. Further action and leadership is required.

To support the transition to regional knowledge-based economies, the following actions are proposed:

- Preparation of regional knowledge-based economic strategies setting out their visions, objectives and actions to better position their businesses and households to participate in and enjoy the benefits of the knowledge-based economy.
- Industry cluster and network policies and programs
- Increasing investment in education, research and technological infrastructure knowledge infrastructure.
- Community economic development strategies to support communities disadvantaged by globalisation and skills deficits.
- A national framework through the Council of Australian Governments to achieve better coordination and cooperation between federal, state and local government to support local and regional knowledge based initiatives
- Policies to increase investment in regional infrastructure and industry, particularly those that support innovation and learning.
- A national Learning Communities Program targeted at Councils which are actively engaged in learning based initiatives.
- A national regional benchmarking system to enable regions to monitor and assess their performance in relation to knowledge based indicators in industries, jobs and skills.

1. Overview

1.1 Introduction

This is the fourth State of the Regions (SOR) report prepared by National Economics in collaboration with the Australian Local Government Association. The report provides an annual stock-take of the economic well being of Australia's regions and their prospects for economic development and employment growth. SOR looks at strategies to strengthen local and regional economic and employment outcomes, and emphasises the importance of local government and regional agencies. The report looks at 64 regions[1] (there have been boundary revisions since 2000). A distinctive feature is that SOR divides all Australia into regions: both metropolitan and non-metropolitan regions. The regions are divided into six types: core metropolitan (central cities), dispersed metropolitan (suburban metropolitan regions); production (high concentrations of manufacturing); lifestyle (change is driven by lifestyle choices, predominantly post-retirees and tourism); rural (agricultural based) and resource and remote regions (natural resource based).

1.2 Regions and the knowledge-based economy

Each year the ALGA-National Economics Regional Cooperation and Development Forum and SOR report look in depth at particular themes and their influence on regional economic performance. The theme for this year's report is jobs and learning regions. The prime concern is how well Australian regions are positioned to capture the economic development and employment benefits from the emergence of the knowledge-based or learning economy. The knowledge-based economy is a reality. The performance and prospects of firms and farms, organisations and individuals depend increasingly on what they know, how they know it, how they use it, how they access it, who they know and how they exchange their knowledge with others.

All developed countries are in transition to the knowledge-based or learning economy. The generation, diffusion and application of knowledge to new and existing products, services and organisations increasingly determine productivity and economic competitiveness. Nationally, we are making progress with the National Innovation Summit, the release of the Federal Government's innovation statement "Backing our Ability" and broadening tax concessions for R&D. Some of the states are pro-actively developing technological infrastructure and incentives for high technology industries.

One approach to the knowledge-based economy is to equate it with high technology industries, leading scientific and research institutions, universities, and the most highly skilled occupations. How can we increase investment in R&D? How can we improve the performance of our "national system of innovation", especially its research and education institutions? Which knowledge-based industries should we specialise in? Can we turn the brain drain into a "to and fro" conduit, with leading scientists and researchers spending more time in Australia?

Recent studies provide strong evidence to suggest that knowledge and learning are fundamental to economic success in developed economies. Most developed economies have sought to increase their share of knowledge-based industries including information and communication technologies, biomedical technologies, finance and advanced business services and advanced manufacturing. These industries create good jobs, expand production and trade, and drive continuous innovation. Success in some of these high-value high-growth industries is seen by many as a pre-requisite for sustaining

[1] National Economics, with advice from regions, has undertaken a boundary revision since SOR 2000. The new boundaries and reasons for the changes are set out in Attachment 2.

economic competitiveness. Although there is a lot of evidence to support this proposition, the knowledge economy is much more than getting a slice of the action in high technology industries.

In this report, we use a broad definition of the knowledge-based economy; we do not simply equate it with high technology industries. The report argues that all industries, organisations, households and individuals must participate in the knowledge-based economy. Households and individuals not participating in the knowledge-based economy risk marginalisation into low paid jobs, economic insecurity and high unemployment. For example:

- To remain competitive, manufacturing firms must continually upgrade skills and capabilities, access new ideas and technologies through industry networks and clusters, tap the knowledge of their workers, suppliers and customers, and search for new market opportunities.
- Farmers benefit from working with CSIRO and rural development corporations to expand crop and pasture varieties, reduce water use, control pests, utilise more environmentally sensitive equipment and machinery, and improve resource and environmental management and practices.
- Educational and training institutions are developing innovative courses and programs to upgrade human capital, increase the flexibility of delivery, and deepen relationships with industry.
- Councils are becoming important agents in the knowledge-based economy through their encouragement and (sometimes) coordination of business and community networks, and through economic development strategies that emphasise knowledge and learning.
- Households are getting involved in continuous learning, through the education and training system, learning at work, and increasingly, through use of electronic technologies. Even lower skilled jobs are becoming more demanding.

The core argument of SOR 2001 is that we must successfully manage the transition to regional knowledge-based economies if all Australians are to share in the benefits of globalisation and the digital revolution. An irony of globalisation is that it enhances the significance of local and regional economies. This is due to, amongst other factors, the growing importance of industry clusters and networks, greater regional specialisation, the utilisation of "tacit" local knowledge and the need for regions to promote flexibility and adaptation when confronted with uncertainty.

A defining feature of globalisation is the re-emergence of the local and regional economy as an important unit for innovation. The proposition is that regional stakeholders – industry, community and their local government constituents – will be central to the development and implementation of regional specific knowledge-based strategies if Australia is to successfully make the transition to the knowledge-based economy. Some regions are much more innovative than others. This partly explains the widening divergence in performance of regions. Why are regions becoming more important in a global economy where knowledge is the driving force for competitiveness?

First, the new knowledge economy places human capability at the centre of the development process. Entrepreneurial skills, technical skills and the capacity to work in teams and partnerships are required, along with the capacity to absorb new technology and ideas and the capacity to adapt to change and to continually access knowledge. Traditional approaches to regional economic development concentrated on keeping costs low, providing tax and/or rate concessions, and focussing on resource endowments such as energy and water availability. In the knowledge-based economy, "constructed advantage" – the outcome of human decisions – is the key to competitiveness because innovation is nurtured through continuous learning.

Second, in the globalised economy regions are becoming more specialised. They focus on what they are good at. Successful regions form or strengthen clusters in those industries where they are globally competitive. Globalisation and the knowledge-based economy are resulting in a clustering of higher well-paid industries and jobs in Australia's more globally-oriented regions, particularly in Sydney and Melbourne. This is happening all over the world. The most successful knowledge-based economies

are characterised by continuous interaction of dense networks of firms, research and education institutions and regional agencies. Less competitive industries that survived through cost advantages alone become subject to intense competition, resulting in rationalisations and decline.

Third, global corporations are giving greater emphasis to "regional embeddedness". They seek to incorporate themselves into regional production systems and to tap local "tacit" knowledge as a means of sustaining their own competitiveness. They seek to maintain operations in regions where they have access to relevant research and educational institutions, competitive suppliers and service providers, highly skilled and adaptable workers, and an entrepreneurial and innovative culture. Previously, corporate strategies sought to maximise subsidies from host governments, and for knowledge inputs relied on technology transfer from their parent company to their regional plants.

Fourth, many countries including Australia have adopted policies and signed international agreements reducing the role of national policy instruments. The resulting globalisation and trade liberalisation have intensified competition, leaving it to localities and regions to deal with the consequences, including job losses and firm closures. This has pressured local and regional governments and agencies to become more active in economic development. In the Australian context, councils and regional agencies are playing a more prominent role in developing new visions and strategies, supporting business and community networks, and identifying and implementing projects that impact economic outcomes.

Fifth, globalisation and the knowledge-based economy are generating economic and social disparities based on differences in global connectedness, as outlined in previous SOR reports. To address these growing inequalities and disparities, there is a need for pro-active strategies to enable regions to attain their knowledge-based potential.

1.3 Methodology

The report analyses how Australian regions are performing in the knowledge-based economy. Drawing on National Economics YourPlace database and other economic data, the report looks at the economic structure and dynamics of 64 regions. As with previous issues of SOR, Sections 2-7 provides a snapshot of recent developments in the different types of region.

All previous SOR reports were prepared during a global economic boom. These reports set out National Economics forecasts of a major global economic downturn in 2001, which is now in progress. Section 8 provides National Economics analysis of the global recession, particularly its causes, duration and the prospects for recovery. From the perspective of regional knowledge-based economies, it needs to be emphasised that, although knowledge-intensity can't shield regions from economic downturn, it can provide them with greater flexibility and adaptability in the face of uncertainty. Regions with low skills, low value added industries and poor networks are much more vulnerable to economic downturn.

Section 9 develops a number of knowledge-based indicators and measures the performance of the regions. It draws on a recently released OECD study 'Cities and Regions in the New Learning Economy"[2]. The OECD highlights the central role of knowledge in economic development and why regions are so important in the knowledge-based economy. The study distinguishes between the importance of individual and organisational learning and develops indicators for both. Individual learning is concerned with the acquisition of knowledge and skills through formal and informal education. One condition for high performing knowledge-based economies is highly qualified people - or a high stock of human capital. Measuring human capital is quite difficult. Education attainment is often used as a proxy for human capital, such as the number of residents with secondary and tertiary

[2] OECD, "Cities and Regions in the New learning Economy", OECD, Paris, 2001.

qualifications. In this report, we develop a number of indicators of human capital and test the relationship between human capital and economic performance.

Residents don't only improve their knowledge through formal education. Many "learn-through-doing" on the job, doing short courses or participating in informal learning, whilst increasing numbers use the Internet to learn. The OECD report argues, however, that individual learning is not enough. The economic value of individual learning depends on how it is applied in enterprises and organisations. Organisational learning is concerned with learning that takes place within and between organisations including firms, research and educational institutions and economic development agencies. Organisations learn through ongoing exchanges of knowledge and information with competitors, collaborators, suppliers, and customers and from knowledge-based institutions.

The ongoing interaction between and within organisations nurtures and promotes innovation, increasingly the central attribute of productivity growth and economic competitiveness. Ideas for new designs, products and services, and improvements in organisational performance are generated and implemented most readily in an environment that supports creativity, entrepreneurship and innovation. In this report, we look at four indicators of organisational learning: patents, R&D, concentrations of knowledge-based industries and concentrations of knowledge-based jobs.

Given the limitations of the current data, Section 10 looks at nine Australian regions and analyses how they are going in relation to the transition to the knowledge-based economy. These case studies focus on their current economic development path, regional economic strategies, knowledge-based initiatives and how they are performing in relation to organizational and individual learning. The results are very impressive, confirming the extraordinarily high commitment and innovative capacity of local and regional organizations. The case studies are designed to be reasonably representative of the different types of regions. We adjust our boundaries in a handful of cases to take account of perspectives of regional stakeholders.

The nine regions considered are Gippsland, the Gold Coast, New England North West NSW, Northern Tasmania, Northern Adelaide, South Western Perth, Greater Western Sydney, Wide Bay Burnett and Ballarat.

In Section 11, the report sets out a series of broad strategies to support Australian regions to make a successful transition to the knowledge-based economy. This includes greater emphasis to:

- Preparation of regional knowledge-based economic strategies setting out visions, objectives and actions to better position each region, its businesses and households to participate in and enjoy the benefits of the knowledge-based economy.
- Industry cluster and network policies and programs.
- Increasing investment in regional scientific and technological infrastructure to support farmers, manufacturers and SMEs in advanced services.
- Community economic development.
- Greater coordination between federal, state and local government to support local and regional knowledge-based initiatives.
- Policies to increase investment in regional infrastructure and industries, particularly venture capital.
- A national Learning Communities Program targeted at Councils who are actively engaged in learning based initiatives.
- A national regional benchmarking system.

Appendix 1 provides a copy of the address of Professor Philip Cooke, the keynote speaker of the 2001 Regional Cooperation and Development Forum, who analyses some of the lessons of the successful regional knowledge-based economies.

Appendix 2 sets out the new SOR boundaries and reasons for the changes.

Appendix 3 sets out economic indicators for the 64 regions. These are developed from the National Economics' YourPlace database, which provides the data at the LGA level.

2. Core metropolitan regions

Core metro areas represent the central areas of Australia's major cities. The economic performance and prospects of core metro areas is associated with their size, history, location, economic structure, innovative capacity, position in relation to state and territory boundaries. Globalisation and the emergence of the knowledge-based economy are having major impacts on their economic performance. Those cities or segments most integrated into the global economy are outstripping the rest. Global Sydney and Inner Melbourne dominate in terms of global investment and trade, while Perth and Brisbane are expanding their global potential. All of the core metro areas are giving priority to knowledge-based strategies including investing in knowledge infrastructure, technology parks and are seeking to strengthen knowledge based industry clusters. Globalisation and associated improvements in transport and communications have reduced the role of firms serving local and state markets, with the exception of low value added industries that are not footloose.

The core metropolitan regions are the City of Brisbane, Global and Inner Western Sydney, Canberra, Inner Melbourne, Southern Tasmania (centred on Hobart), Central Adelaide, Central Perth and Darwin. It should be noted that only Global and Inner Western Sydney, Inner Melbourne and Canberra are purely core metro regions. In the other cities the 'core metro' region includes suburbs and in some cases production areas.

Table 2.1 shows changes in population, employment and unemployment rates. Population growth rates vary. Darwin, Perth Central, Inner Melbourne, Brisbane and Global Sydney are growing above national average population growth. On the other hand, the population of Hobart-Southern Tasmania is declining and Central Adelaide is not moving. Unemployment rates have come down in all core metro areas since 1998 except Darwin and Brisbane, where they have gone up slightly. The most significant falls in unemployment rates were in Melbourne and Hobart-Southern Tasmania.

Table 2.1 Core metropolitan regions: Population and employment change 1998-2001

Core metro	Population Est. 2001	Employed Est. 2001	Unemployed	Effective Unemploy-ment Rate	Population growth per year	Employed growth per year	% change in unemployed 1998-01
Global Sydney	694,086	349,660	13,454	0.037	1.78%	-0.10%	-2.17%
Sydney Inner West	227,564	130,360	4,696	0.035	1.58%	8.62%	-1.99%
Melbourne Inner	304,254	151,600	11,874	0.073	3.82%	1.54%	-5.83%
Brisbane City	900,042	442,329	40,606	0.084	2.98%	2.08%	0.08%
Adelaide Central	374,449	172,831	16,822	0.089	0.77%	1.16%	-0.70%
Perth Central	428.697	223,007	21,121	0.087	1.08%	2.52%	-0.31%
Hobart-South Tas.	229,014	93,302	18,560	0.166	-0.13%	0.63%	-3.59%
Darwin	108,255	49,707	6,761	0.120	2.74%	2.84%	0.41%
ACT	313,520	168,561	9,737	0.055	0.82%	3.47%	-2.78%

2.1 Brisbane

Brisbane is at the centre of Australia's most rapidly growing urban conurbation, South East Queensland (SEQ). Queensland has put in place some innovative planning mechanisms for SEQ and Brisbane is both a participant and beneficiary in this process. The current population of Brisbane is 883,000, and it is forecast to reach 1 million people by 2011. SEQ, which includes the Gold Coast, Brisbane and its hinterland and the Sunshine Coast, is forecast to grow to 3.5 million people. It may not yet be a global city but strategically is well placed to become one.

Brisbane's major advantages are its location in relation to Asia-Pacific markets, its stock of competitively priced land and rentals for property and other business inputs, its status as the business centre for Queensland's vast resource base, its research and scientific infrastructure (including University of Queensland, QUT and Griffith University), its long-term strategic investments in port and airport infrastructure and comprehensive planning, its high population growth and status as the centrepiece of a major urban conurbation, and its outstanding heritage and environmental assets.

Another advantage is the size of the local government area itself. Brisbane is by far the largest local government area in Australia and it able to use its human and financial resources to focus on major strategic developments in industry, transport and liveability.

Brisbane is well placed to strengthen its position as a knowledge-based city over the next decade. The Queensland Government and Brisbane City Council are pro-active in seeking new investment in Brisbane. Queensland is rebadging itself as the smart state. Recognising that Brisbane's industrial base has been relatively weak in the past, it is seeking to attract global corporates and to build on its scientific and technological base to transform the economy towards a knowledge-based industry structure. The Queensland Government has recognised that it is not sufficient to rely on the strength of the state's considerable resource base, post-retirement migration and tourism, hence the focus on strengthening Brisbane's technological base and competitive industry clusters.

Queensland authorities and the Brisbane City Council have taken a much more strategic approach to the long term development of its global gateway infrastructure compared to Sydney, which is experiencing growing congestion problems, and, because of political intervention, has been unable to solve its long term airport capacity problems. Australia's TradeCoast – an alliance of airport and seaport agencies, Queensland government and Brisbane City Council – has adopted a integrated approach to planning and development with the objective of creating a globally competitive transport hub, linked to industrial sites that are attractive to global and national investors. TradeCoast was successful in 2000-01 in attracting Virgin Airlines, dry-food manufacturer Kerry Ingredients, international freight forwarders DHL Global Worldwide, and Qantas Airways. Qantas relocated its Boeing 767 heavy maintenance facility from Sydney Airport to Brisbane[3].

The state has a 10 year plan for bioindustries, the aim of which is to make "Queensland the Asia-Pacific hub of biotechnology". It is successfully attracting high technology plants including Lucent Technologies and Filtronic – the latter manufacturing cellular telecommunications equipment for the Asia-Pacific region. Brisbane is attracting its share of major projects. Office rents are about half those in global Sydney ($265 psm as against $572 psm), the city's global gateways – airport and seaport – are implementing long term strategic plans, and the city boasts wonderful climate, good housing and good arts and cultural infrastructure.

Brisbane has identified the link between cultural assets and economic development as a major economic strength. A 2% levy is applied to all major developments to pay for art works and cultural facilities.

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[3] http://www.australiatradecoast.com.au

Major projects include manufacturing investment in urea processing plant and processed foods, a high speed fibre optic link between Brisbane and the Gold Coast and major cultural projects including Powerhouse Arts and Cultural Precinct and Theatre Convention Centre. Transport projects include the City Valley bypass, from Brisbane port to the west, new busways linking the north and south of the city to the centre and upgraded road and rail links to the Gold Coast.

2.2 Sydney

We define the core metro region as a small Inner Western region and Global Sydney - a spine running from North Ryde through Chatswood and North Sydney, the CBD, surrounding inner city localities, and south to Kingsford Smith Airport and Port Botany[4]. Sydney is Australia's only sub-global city, the major gateway and interface between the Asia-Pacific region and the Australian economy. It is Australia's largest finance and business centre, a major administrative centre, a cultural and entertainment centre and it takes the dominant share of investment by global corporates in Australian regional headquarters. Behind Melbourne, Port Botany is Australia's largest port.

This region has the highest concentration of knowledge-based industries and jobs in Australia – with information and communications technology and bio-medical clusters around Macquarie Park and the Lower North Shore, advertising, finance and business services in the CBD and North Sydney, multimedia in East Sydney, and management and engineering around St Leonards/North Sydney.

Global Sydney confronts a number of challenges. First, it has to manage the global economic downturn. Sydney and NSW are leading the Australian economy down because they are most exposed to downturns in the tourism and business service industries, as well as in new economy industries.

Second, once you become a successful global city, you have to work hard to stay there. Sydney must compete more with Singapore and Hong Kong, rather than Melbourne and Brisbane. This includes developing the city's globally competitive production clusters and knowledge infrastructure, attracting global investment and technology, improving liveability and tourist facilities, and maintaining environmental assets.

Third, Sydney has to manage and accommodate population growth. The population of metropolitan Sydney is increasing by 50,000 people per year. Global Sydney's population is forecast to reach 1 million people by 2021. Through its urban consolidation policies, the NSW Government has managed to increase residential densities, but there is a limit to what can be achieved – the inner city areas are running short of premium sites. Hence, most population growth will be accommodated in Western Sydney and the Central Coast. In both Global Sydney and outer areas, there is a political bashlash against population growth. The more successful Sydney becomes globally the more people will want to live there. The issue is not one of population growth per se, but how to set the whole metropolitan area onto a sustainable development path.

Fourth, Global Sydney needs to address major problems of car dependence, pollution and congestion. Recent infrastructure investments include the M2 freeway, which improves links with the highly skilled residential areas of North Western Sydney; the Eastern Distributor, the New Southern Railway and extension of the light-rail network from Darling Harbour to residential areas around Leichhardt. The M5 East Extension, which links Port Botany and Kingsford Smith Airport with South Western Sydney, is approaching completion. The NSW Government has announced its intention to construct an underground cross-city tunnel, under the CBD, to reduce the 240,000 daily vehicle through traffic movements. The deferral of a decision on Sydney's second airport at Badgerys Creek is likely to have negative economic and environmental impacts on the city in the medium term.

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[4] See National Economics, **State of the Regions report**, with the ALGA, 1998 and 1999.

More than half the international visitors to Australia – business and tourists – arrive and depart from Sydney. Around 3 million international visitors come to NSW every year - almost all of them arrive in Sydney. Recent tourism data suggest that the number of visitors to Sydney has declined by 12% since the Sydney 2000 Olympics, which is line with expectations. More serious concerns are now being expressed about the cumulative impacts of terrorist attacks in the US, the collapse of Ansett and the global downturn, with international travel forecast to decline by 23%.

Sydney CBD has just completed a major phase of development. According to Sydney City Council[5], during the period 1999/2000 completed development was spread across three sectors:

- Residential - $600 million;
- hotel and serviced apartments - $520 million; and
- commercial and public - $1.2 billion.

This resulted in an additional:

- 2,703 residential dwellings;
- 3,253 accommodation rooms and units; and
- 373,089 square metres of commercial and public floor space.

Sydney has experienced a construction boom over the past six years, driven by high growth rates and macro-stability, but activity is slowing markedly. Sydney CBD has around 4.5 million square metres of office space, with almost half of it premium and A grade[6]. Corporate collapses such as HIH and One-Tel and the global downturn in high tech and finance have resulted in increasing office vacancies in the CBD and North Sydney. Total office vacancies in the CBD are around 6%, there highest level in six years. As a result of the slowdown, rents are not increasing.

The residential population of Global Sydney is changing. The population of Sydney CBD has tripled over the past decade, with more than half the population born overseas. Escalating property prices, driven by international investment and high demand for residential property close to the city, is pushing lower income earners out of the city centre.

The construction of the Parramatta Rail Link between Parramatta and Chatswood will strengthen the links between North Ryde/Macquarie Park – Australia's premier business park – with the CBD and the North Shore. Current forecasts indicate that employment at Macquarie Park will more than double over the next 20 years, from 29,000 to 60,000, arguably the most rapidly growing employment growth node in Australia.

5 http://www.cityofsydney.nsw.gov.au

6 Colliers Jardine

2.3 Canberra

Canberra ACT, dominated by national government functions, has a unique economy. Self-government in the ACT enabled the region to chart a new direction. Canberra has recovered following federal government cutbacks in 1996. Employment is growing and the economy is diversifying. As the location for some of Australia's most significant arts, cultural, historical and scientific infrastructure, the region is capturing a growing share of the tourist market. It has expanded recreational and entertainment facilities and caters for a significant number of international visitors including tourists, students and government representatives.

Around 53% of the population between the ages of 15-64 has a recognised post-secondary qualification, the highest in Australia. The ACT retains strong research and educational infrastructure with the Australian National University, originally envisaged as a national centre of excellence for Australia's researchers; University of Canberra, Duntroon and major divisions of CSIRO. Education expenditure for school students per capita is higher than other regions. The highly skilled workforce, good telecommunications, educational infrastructure and lifestyle attributes (clean air, open space, accessibility) is encouraging the growth of new business precincts and home-based businesses.

The population of Canberra is forecast to increase from 312,350 in 2000 to 341,050 in 2010, an annual increase of 0.9%[7]. The population is ageing as the baby boomers reach retirement age, and most population growth is to be accommodated in the outlying areas of South, West and North Canberra, whereas some of the traditional areas are likely to experience population decline.

2.4 Melbourne

Inner Melbourne comprises the Cities of Melbourne, Port Phillip, Stonnington and Yarra. It encompasses the Melbourne CBD, which along with Global Sydney, is Australia's most globally competitive knowledge-based area.

Melbourne CBD has experienced a major phase of development over the past eight years. According to property experts Colliers Jardine, Melbourne has around 120,000 sqm of office space under construction. Vacancies are low and many businesses are seeking new office space to accommodate new technological requirements associated with the new economy. Having experienced declining population growth rates throughout the late 1980s and early 1990s, with a big shift to Australia's lifestyle regions, Melbourne has recovered its robustness and dynamism and is now growing by just under 1.0% per year, compared with growth in regional Victoria of around 0.3% per year. Population forecasts are set out in Table 2.2, showing that the population of Inner Melbourne will increase by 45,000 people over the next 20 years.

Table 2.2 Population forecasts for Inner Melbourne 2021

Local government area	**1999**	**2021**
Melbourne	43 595	63 447
Port Phillip	80 127	93 230
Stonnington	90 786	97 279
Yarra	67 942	73 071
Total	**282 450**	**327 027**

Source: Victorian Department of Infrastructure

[7] ACT Government, Population forecasts for Canberra Suburbs and districts, 2001.

The city has been revitalised. New developments along the Yarra River such as Southbank and Crown Casino, redevelopment of the Exhibition Buildings and the massive Dockland redevelopment project have shifted the city onto a higher development path. Commercial, recreation and tourism projects have been complemented by increased demand for city apartments and revitalisation of inner city residential areas. As Table 2.2 shows, by 2021 the population of the City of Melbourne is forecast to increase by almost 50%. A high proportion of the additional population will be accommodated in high density developments around Docklands.

Melbourne Docklands, with a potential investment value of $6 billion, is the largest redevelopment project in urban Australia. A total of $2 billion has already been committed to the projct's development. The first major project, Docklands Stadium, was completed in 2000. Docklands covers 200 hectares, and its eight precincts aim to create a multi-purpose development covering entertainment, waterfront restaurants and shops, residential, technology and business uses[8].

The Washington-based Population Crisis Committee awarded Melbourne the title of World's Most Livable City. Its advantages include affordability, knowledge industries and infrastructure, safety, amenities, cultural assets and recreational amenities.

Though Melbourne is less successful than Sydney in attracting short stay international tourists and Regional Headquarters, it compensates with major national and international events – horse racing, Australian Grand Prix and festivals – musicals and the arts, and major conferences associated with its outstanding research and industrial base.

One of Melbourne's great strengths is the knowledge base of firms and residents and its world class research and educational infrastructure. The Victorian Government - in partnership with Council, industry and research institutions – is seeking to strengthen clusters around its science and medical research base, particularly in biotechnology and information and communications technologies. Major research institutes in proximity to the centre of Melbourne include the Biomolecular Research Institute, CSIRO Molecular Science, the Howard Florey Institute of Experimental Physiology and Medicine, the Macfarlane Burnet Centre for Medical Research and Peter MacCallum Cancer Institute and the Walter and Eliza Hall Institute of Medical Research. The City of Melbourne is using its sister city relationship with Boston to promote knowledge flows about Boston's transformation into a world leading biotechnology cluster. The establishment of the BioMelbourne Network is designed to improve collaboration and cooperation between medical and educational establishments, hospitals, biotechnology industries and broader community interests.

To position itself in the knowledge-based economy, Melbourne public and private stakeholders have established the Digital River Project. The project emerged out of concern that the city's needs for affordable, high speed, easily accessible, digital access were not being met by the major telcommunications companies.

Melbourne is also upgrading its transport infrastructure. Melbourne City Link, comprising the Western Link and the Southern Link, Australia's largest private road projects, is now operational. The $2 billion privately-funded tollroad connects three of the city's major freeways and improves car access into the city and encourage through traffic to bypass the city. The project has increased road capacity but critics argue that it will only induce traffic onto Melbourne's roads and further reduce the role of the city's highly regarded public transport system, which has been in decline over the past 50 years.

[8] http://www.docklands.vic.gov.au

Major projects recently completed or due for completion include Docklands Stadium ($430 million), the Museum of Victoria ($296 million), Vodafone Arena ($65 million), Central Equity residential projects ($1.4 billion), Federation Square ($338 million), the Flinders Street Station upgrade ($24 million) and the County Court Complex/ Melbourne Law Courts ($140 million).

2.5 Hobart

Hobart is the major business, administrative and educational centre for Tasmania. An attractive and livable city, Hobart is impacted by the stagnation of population growth, higher unemployment and slow GDP growth in Tasmania. Hobart has the highest office vacancy rates of any core metro city. The population of Tasmania is slowly declining. The main industries in the economy are retailing, community services, education and tourism. The state has turned away from its previous policies encouraging energy-intensive projects and is a major player in "green politics" nationally, concentrating on protecting the state's wilderness areas. This entails a focus on sustainable industries particularly in tourism, services, fishing, arts and culture, and education.

Tourism is the major growth activity. Around 550,000 people visit Tasmania each year, and about 300,000 of these visitors are on holidays. The region is particularly attractive with backpackers, families wanting to get away from city pressures and visitors with an appreciation of the natural environment. Visitors use Hobart as a base for visiting some of the extraordinary natural and heritage assets in Tasmania, including Hobart itself. An impediment for some travellers is the distance and for some the cost of travelling to Australia's island state. A recent set-back is the failure to gain major sponsorship for the Sydney to Hobart Yacht Race, which has provided a major stimulus to Hobart for many decades.

The University of Tasmania is taking an increasing number of international students. A major research and development specialty is around marine activities. Hobart is the home base for the CSIRO Division of Marine Research, Cooperative Research Centre for Antarctica and the Southern Ocean (Antarctic CRC) and Tasmanian Aquaculture and Fisheries Institute (TAFI).

The Tasmanian Government, through the Port Access 2000 project, is seeking to develop an inter-modal transport hub linking road, rail and sea transport at the Port of Hobart. The aim is to facilitate the growth of export industries within the southern region of the state.

When natural gas is made available in Tasmania following completion of a transmission pipeline in 2002, the state will be in a better position to attract manufacturing industries.

2.6 Adelaide

Adelaide has found it difficult to position itself in the global economy, but its position is improving. Some of the larger SA-owned corporates have relocated because of a perception – right or wrong – that it is more difficult to become embedded in the globally competitive networks from an Adelaide base. The lack of a critical mass and a significant global presence impedes new investment. A number of local business people base themselves in Sydney and travel home at weekends. Slow population growth reduces opportunities in the local market.

Although it has strong manufacturing and technical capabilities, particularly in automotive and defence industries and increasingly in IT&T niches, the small size of the Adelaide market results in higher unit production costs. Although industrial networks – industrial machines tools, foundries, steel suppliers and fabricators, plastics, castings, and fasteners – have evolved around the major industries, they have been weakened by tariff liberalisation and increasing global out-sourcing by the major corporates.

These challenges are not new for Adelaide. Since its inception, Adelaide developed a reputation as a national innovator in urban development. Its history and geographical location are factors that spur continuous innovation. Metropolitan Adelaide and its regional components have had to continually re-define themselves. Three examples include the original Wakefield experiment, which laid the foundations for Australia's best planned city; the Playford economic development strategy, which used innovative housing and infrastructure policies to attract global investment; and the Dunstan era, which established the city a global reputation in the arts. This constant search for innovation is consistent with the view that some of the world's most innovative cities – in technology, culture and organisational innovations – have been outsiders driven to innovate by their outsider status[9].

The population of South Australia is growing at 0.4 per cent a year, compared with the national average of 1.1 per cent. This depresses economic and employment prospects in Adelaide. In many parts of Australia, population growth rates are an important spur for employment growth. Industries such as retailing, manufacturing of building and consumption products, and construction industries are driven by population growth. The composition of growth also gives cause for concern. Because of shortages of opportunities for skilled workers, many highly skilled people, particularly young people trained in "new economy" skills, are forced to leave. The state is finding it difficult to replace them with skilled migrants from other states or from overseas, predominantly because income opportunities are less and career paths are more.

The Adelaide market has the second lowest supply of commercial offices of any of the listed cities. Adelaide also has the second highest vacancy rate after Hobart.

Adelaide and South Australia are working hard to capture a global niche in information and communications technologies through enticing global corporates to Adelaide such as Microsoft, EDS, Optus and Motorola; and putting more resources into research and technological infrastructure. South Australia has also sought to strengthen high technology business capabilities. The Government of South Australia and EDS established Playford Centre in 1997. The Playford Centre has worked with over 150 businesses and invested over $6 million in 24 business ventures. The benefits to the state have been improved income and more employment. In 2001, the group launched a new subsidiary with a charter to invest seed capital in South Australian information technology firms which have the potential and commitment to become high growth companies exporting interstate and overseas.

The city has outstanding education infrastructure with three universities with combined enrolments of 45,000 students, export income of $53 million growing at 15% per year, and contributing 24% of all R&D in the state[10].

The decision to proceed with the Alice Springs–Darwin rail line will provide significant opportunities for Adelaide-based suppliers. The project aims to link Adelaide better into national and global tourist markets and to establish Adelaide as an important national transport hub. Adelaide Airport is to be upgraded with the construction of an integrated domestic and international passenger terminal.

Adelaide actively promotes its cultural assets and activities including the world famous Adelaide Festival of Arts, Adelaide Fringe Festival; Come Out Youth Arts Festival (longest running youth arts festival in the world); Womadelaide Music Festival; and International Barossa Music Festival.

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9 Peter Hall, Cities in Civilization – Culture, Innovation and Urban Order, Weidenfeld & Nicolson, London, 1998.

10 SA Government.

2.7 Perth

Perth is one of Australia's fastest growing and most dynamic cities. Using its isolation from east coast cities to its advantage, its success has been largely driven by the extraordinarily rich natural resource base of Western Australia. Over the past year, Western Australia's resource exports have boomed, spinning off opportunities for the Perth CBD and its surrounds. Strong population growth is fuelling opportunities for service based industries.

The core metro region is central to the Perth metropolitan economy. Because of the long distances, relatively low population density, and improvements in communications and transport, the metropolitan dominance of Perth over the rest of the state is strong, with around 73% of the state's population residing in Perth. The city and the state are growing strongly, with the Perth metropolitan area forecast to grow from 1.4 million to 2.1 million in 2031, or 1.4% per year, compared to the national average of 1.1% per year. The population of Perth is young by Australian metropolitan standards and the city is attracting a high share of immigrants coming to Australia. Metropolitan Perth has experienced strong employment growth over the past 15 years. Between 1986 and 1996, for example, employment grew from 350,000 to 490,000. The tourism industry is growing. The state attracts 600,000 international visitors and just under 1 million interstate visitors a year. It has to work harder than east coast states because of the cost and time involved in travelling from major markets. Perth is developing strong links with South East Asia and Southern Africa, both important sources of migrants.

Planning authorities are seeking to consolidate population growth. The population of inner Perth is forecast to increase from 218,000 in 2000 to 254,000 in 2016, an increase of 36,000 people. Liberal planning regimes in the past encouraged the city to disperse along the coastline to the north and south of the city. To address this, the Government has invested in improving public transport links. The East Perth Redevelopment Authority is an important public agency designed to facilitate urban renewal in strategically important East Perth, and is now responsible for a number of inner city projects.

Perth's strengths relate to its major role as a business centre for the state's resource sector, Western Australia's administrative centre, retail and tourism. Around one third of office space in the CBD supports the resources sector. The city is not as strong in finance and property markets relative to Sydney and Melbourne, with globalisation resulting in greater consolidation in finance and property in the larger cities. The relative isolation of the city creates opportunities for import replacement. The city's manufacturing industries are growing at a higher rate than the national average - driven by population growth, major resource projects, relative isolation and a depreciating currency. The WA Government is also providing a supportive framework for WA suppliers. Two Western Australian companies have been awarded contracts to supply steel to the LNG Train 4 Project in Karratha.

The knowledge base of the urban economy is changing rapidly. Major universities – Western Australia, Curtin, Murdoch and Edith Cowan – offer a wide range of higher degrees and are becoming more pro-active in developing links with industry. The Western Australian Technology Park, associated with Curtin University and the WA Government, is experiencing high growth rates. Over the past five years, the number of organisations associated with the Park has increased from 25 to 70, with approximately 30 per cent associated with R&D activities. The Western Australian Government, in collaboration with CSIRO, has recently allocated $35 million for the establishment of the Australian Resources Research Centre, an important part of Australia's technological infrastructure in this sector. Perth based firms are world leaders in software development for the resources and transport sectors.

2.8 Darwin

Australia's smallest capital is likely to experience rapid growth over the next 20 years. The population of Darwin Statistical Division is projected to grow from between 105,000 to between 126,500 and 184,500 people. Given geographical constraints on the city, a new township of Weddell is likely to be established between Darwin and Palmerston to accommodate population growth. Three factors are driving growth. First, the NT Government is working hard to position Darwin as Australia's gateway to Asia and is putting resources into cultural links as well as economic infrastructure. The Alice Springs-Darwin rail link will complete a gap in Australia's national rail network, attracting more freight and visitors through Darwin. Second, the proximity of the world's "newest" nation is having significant spin-offs on Darwin. Development of East Timor's oil and gas reserves may be linked to Darwin and value adding of the resource is proposed to take place in Darwin. Major resource based projects are underway in Northern Territory and Darwin is a growing service centre. Third, Darwin is becoming a popular tropical lifestyle region for new residents and tourists. The city has developed its tourist infrastructure – casino and hotels, and is linked to Australia's Top End and to tourist icons – particularly Uluru and Kakadu.

3. Dispersed metropolitan regions

Dispersed metropolitan regions accommodate the highest proportion of Australia's population growth. This is suburban Australia. The suburbs developed originally at low-density as population growth spread out from inner city centres. A number of state governments have sought to limit what they term "urban sprawl" in the dispersed metro regions by encouraging medium density population growth in or close to core metro regions. But high growth rates continue, albeit at a more subdued rate.

The dispersed metro regions are predominantly residential areas with workers commuting to employment centres in core metro areas or production zones. They include: 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 and Perth Outer South[11]. Table 3.1 sets out population and employment change over the period 1998-2001. Most of these regions are growing at or above national average, with the exception of Outer Adelaide. The fastest growing regions are Brisbane North, Perth Outer South and Central Coast NSW (ie Gosford-Wyong). Unemployment rates have come down, but the fast growing regions often have difficulty in sustaining sufficient job growth to match the rapid rate of labour force growth. Dispersed metropolitan regions tend to have strong GRP growth rates, driven by residential growth, construction, service industries supporting population growth and industrial firms located in dispersed metropolitan areas because of the availability of land and lower locational costs than core metro locations.

Table 3.1 Dispersed metropolitan regions: Population and employment change 1998-2001

Dispersed metro	Population 2001	Employed 2001	Unemploy-ment 2001	Effective Unemploy-ment Rate %	Population growth pa.	Gr in Employed	% point change in unemployment
NSW Central Coast	296,620	108,487	14,402	11.7	2.70%	0.79%	0.88%
Sydney Outer North	631,521	339,380	7,494	2.2	1.65%	3.23%	-1.23%
Sydney Outer South West	232,278	119,282	10,446	8.1	2.12%	3.61%	-0.01%
Sydney Outer West	316,392	164,218	12,903	7.3	1.33%	5.63%	-0.76%
Sydney South	434,514	214,372	9,778	4.4	1.60%	1.95%	-0.80%
Melbourne East	835,590	442,321	23,204	5.0	1.21%	3.34%	-0.85%
Melbourne South	353,650	164,712	10,865	6.2	1.41%	0.08%	-1.09%
Brisbane North	288,272	124,457	16,823	11.9	2.90%	2.47%	1.22%
Adelaide Outer	359,294	167,687	12,295	10.3	0.84%	1.83%	0.39%
Perth Outer North	432,662	196,934	16,430	7.7	2.95%	2.34%	0.55%
Perth Outer South	527,691	248,981	23,649	8.7	2.39%	2.88%	1.47%

[11] We have defined Brisbane, the biggest LGA in Australia, as a core metro region, even though parts of it should really be considered as dispersed metro.

SOR 2000 provided an overview of economic development issues associated with employment and occupational change[12]. The evidence suggests that over the past 20 years, population growth in dispersed metropolitan areas has been a factor driving local employment growth. The dispersal of jobs often wasn't fast enough to keep up with high labour force growth, but it managed to reduce unemployment in these regions. The major employment opportunities were retailing, community services particularly health and education, transport and storage, construction, and local business and recreational services.

Increasingly, in the knowledge-economy, the issue is becoming where people live in relation to "good" jobs. The new knowledge-based jobs are re-concentrating around the core metro regions. This poses a challenge for dispersed metro regions. Should more attention be given to improving transport links to core metro areas, and/or should new strategies be put in place to attract more knowledge-based jobs into regional centres and business parks and to encourage home based businesses. Despite the inner city renaissance in the larger metropolitan cities, population growth rates in dispersed regions remain high. The main drivers for growth are the availability of land to support new residential development, particularly affordable housing for first and second homebuyers. The outer areas are attractive to higher income residents who want access to metropolitan cities combined with lifestyle attributes such as rural based residential dwellings on the periphery.

A major issue facing the dispersed metro regions is how to meet the housing needs of the growing population while maintaining affordability. High property prices in core metropolitan regions are forcing more people, particularly families, to look for housing in the dispersed metropolitan regions. Measuring housing affordability using a benchmark known as *housing stress*, the Affordable Housing in Australia Research Consortium has observed that the number of low-income households has increased from 90,000 in 1996, to over 250,000 in 2000. Given current lending rates and the financial assistance provided by the First Home Owners Scheme affordability should be improving. However, this not the case, since the rapid increase in median house prices and rents across most regions has caused a reduction in affordability relative to income across all dwelling types, particularly in Melbourne, Sydney and Adelaide.

An indicator of housing stress is the proportion of households in the bottom 40 percent by income who spend 30 per cent or more of their income on housing costs, whether renting or buying. It is projected that the number of households in housing stress could reach 1 million by 2020. If housing affordability deteriorates as predicted the potential for disruptive socioeconomic outcomes is high.

ABS statistics indicate that 54 per cent of private tenants are in housing stress. This figure is twice as high as the number of purchasing owners in stress. This has primarily resulted from a reduction in median household incomes in the lower 40 per cent income bracket.

Many low income earners, even those in full-time employment, do not meet the lending criteria of lending institutions, and are thus precluded from home ownership. Private rentals are becoming the predominant form of shelter, with the number renting in Sydney and Melbourne increasing by 20 per cent and 11 per cent respectively. Stocks of low rental housing have fallen significantly. The housing market has dichotomised with a reduction of housing choices for those low-income people and an expansion of options for higher income people.[13]

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[12] National Economics, **State of the Regions,** prepared for the ALGA, 2000.

[13] Affordable housing in Australia, Affordable Housing In Australia Research Consortium

In June 2000 no low-income rental household could:

- Afford to buy a one-bedroom house unit anywhere in Sydney, with only 15 per cent of lower-income families able to buy in Melbourne, and then only in outer areas;
- Afford to rent a three-bedroom house anywhere in Adelaide. In Melbourne and Sydney only 9 per cent and 3 per cent of low income households could so.
- Only 50 per cent of low income households could afford to rent a one bedroom unit in the outer suburbs of Adelaide, Melbourne and Sydney.

A geographic concentration of low cost housing in areas of low employment can have a snowball effect in terms of limiting the future earning and employment prospects of low-income earners, creating broad socioeconomic cleavages. Possible flow-through effects could consist of poorer health, education and social cohesion leading to increased crime in suburbs characterised by low income.

3.1 Melbourne

Melbourne has a number of geographical advantages over Sydney including the central location of the CBD, relatively flat topography and a relatively efficient public transport system. The opening of the Citilink tollways has improved road-based access to central metropolitan areas. Planned augmentations to the road system (Scoresby freeway) will improve the situation further.

The 2001 September quarter median house price in Melbourne rose by 33.1 per cent from the corresponding quarter in 2000. Most suburbs experienced a rise in median house prices. The primary drivers of this growth have been a low interest rate environment and the First home Owners Scheme, causing a supply shortage. Building approvals have reached 5 000 per month across Victoria.[14] However, the reduction of the First Home Owners grant from $14,000 to $7,000 next year is having a pull forward effect, which should result in reduction of housing activity next year.

The most affordable suburbs by median price are in outer areas such as Franskton, St Albans, Sunbury, Mt Evelyn, Sunshine, Endevour Hills, Braybrook, Kilsyth, Braybrook and Bayswater[15]. As the aging baby boomers opt for the comfort, lifestyle and the sense of community offered in outer metropolitan Melbourne, however, house price rises may rise towards those in the inner Metropolitan areas. This has the potential to displace low-income earners from purchasing throughout the metropolitan area.

Metropolitan planning instruments have restricted outward growth of the city and the planning authorities have encouraged employment growth in areas of high accessibility along rail-based corridors. Dispersed Melbourne has developed a number of transit-oriented district centres such as Frankston, Box Hill, Moonee Ponds and Footscray, which provide for a range of employment, shopping and community and cultural amenities[16]. Prior to the election of the current Victorian Government, many of the strategies to concentrate employment in district centres were relaxed in favour of a more laissez faire, car-oriented approach, but it is expected that this policy will be reversed.

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[14] Property update - September quarter house prices, Real Estate Institute of Victoria.

[15] Source REIV

[16] Paul Mees, A Very Public Solution – Transport in the Dispersed City, Melbourne University Press, Melbourne 2000.

3.2 Sydney

The NSW Government is implementing a new planning strategy for the Greater Metropolitan region of Sydney. In order to accommodate economic and population changes occurring in Western Sydney, Sydney South, and the Central Coast the Department of Urban Affairs and Planning is implementing a new set of planning guidelines and policies aimed at improving urban development within the context of environmental sustainability. The central tenants of the plan consist of facilitating healthy living environments; affordable neighbourhoods which meet people's housing needs; a robust economy which provides employment and quality of life; and, the necessary infrastructure to provide access to jobs, services and leisure.[17]

Population growth and declining household sizes highlight a need for an increased supply of housing and jobs in metropolitan areas. Despite the fact employment growth has been strongest in the outer suburbs there is still a need for more jobs. Outer metropolitan Sydney houses 45 per cent of the region's population but only 31 per cent of its employment.[18] House price increases associated with low lending rates and the FHOG have precluded low-income earners from purchasing or renting inner metropolitan housing, so that the only viable alternative has been new estates on metropolitan fringes.

Car usage is outpacing population growth, increasing traffic congestion with associated environmental and public health risks. In order to constrain car usage, public transport systems and settlement patterns must be more closely aligned with the geographical distribution of employment and leisure facilties. Urban design initiatives are being implemented to reduce travel demand. This includes enhancing town centres to improve the standards of shopping, living and levels of employment and managing land uses to support alternatives to car use and improve pedestrian environments. A necessary consequence of containing urban sprawl is continuation of the shift toward medium density housing in metropolitan regions. Currently 54 per cent of all new home are multi-dwelling units, significantly higher than 27 per cent constructed in 1987/88.[19]

More than 60,000 first homebuyers have received $608 million in Commonwealth and state grants for the First Home Owners Grants Scheme and the NSW Government's First Home Plus Scheme. The western, southern and southwestern areas of Sydney have been major beneficiaries of such incentives. The largest number of grants has been taken up in Liverpool, Campbelltown, Blacktown, Gosford, Parramatta, Bankstown, Wyong, and Fairfield.

3.3 Perth, Adelaide and Brisbane

In each of Perth, Adelaide and Brisbane the core region includes significant areas of suburbs, and issues affecting the suburbs have accordingly already been covered in discussing the core regions.

As regards metropolitan strategy, Perth is typical. The Ministry for Planning is currently developing an urban planning framework to enhance the metropolitan area based on several key measures: reduction in private car travel, viability to support employment, enhancement of community integration, energy use minimisation and finding new uses for old buildings.[20] The population of

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[17] Shaping our Cities, www.duap.gov.au/plansforaction/metro.html

[18] ABS, Journey to work.

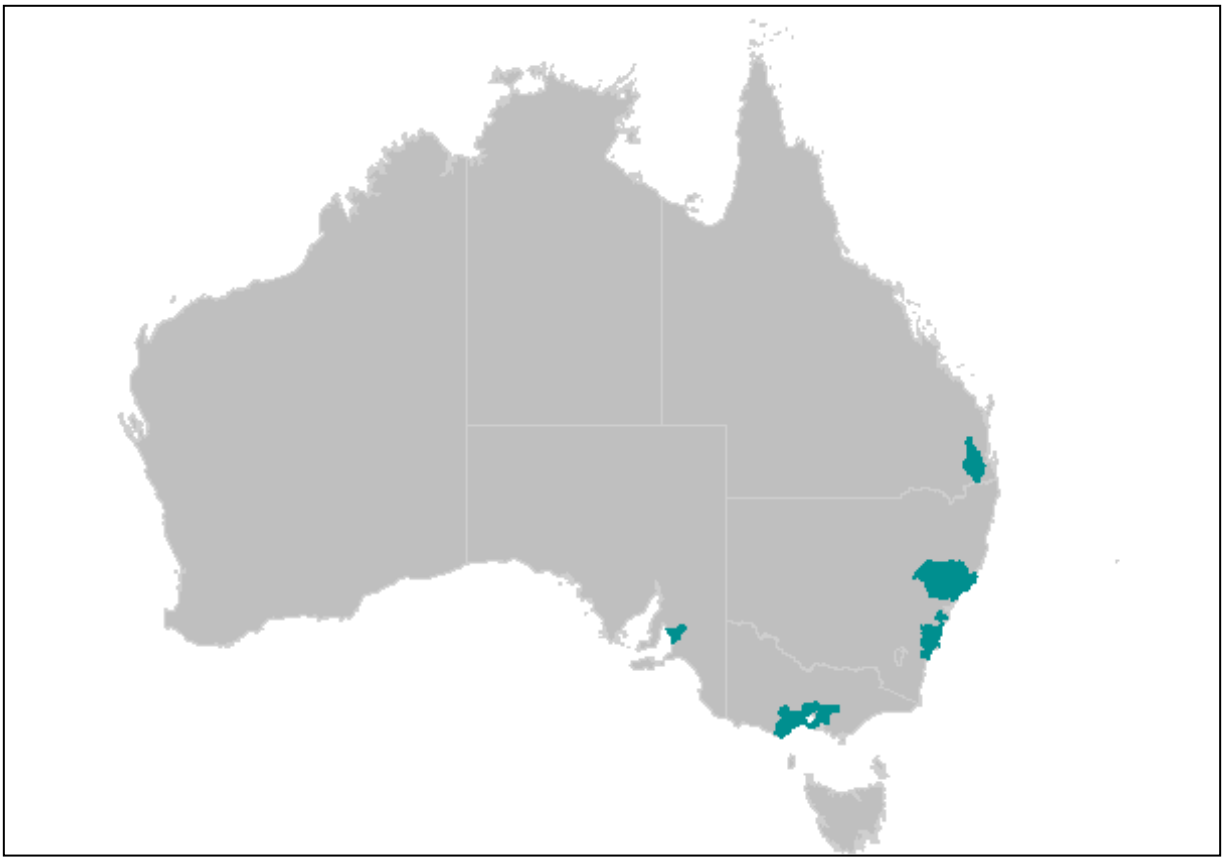
[19] Op.cit

[20] Which Suburbs Work? A comparison between traditionally planned suburbs and conventual suburban development, Ministry of Planning West Australia

metropolitan Perth is expected to increase at an average of rate 1.4 per cent to 2031.[21] Population growth and the shift in demographic structure – largely an aging of the population - will place new demands on infrastructure, transport, healthcare, employment, education, housing and community services. Similar issues must be addressed in Brisbane, but in Adelaide, with a weaker outlook for population growth, a higher priority is directed towards strengthening the economic base.

[21] Future Perth study - Working Papers, West Australian Planning Commission

4. Industrial production regions



Industrial production regions are defined as those regional economies with a higher than average concentration of manufacturing industries in terms of output and employment. Manufacturing industries tend to cluster at the regional level. They are characterised by clusters of manufacturing firms, industrial land and infrastructure and an industrial workforce.

Production areas take a number of forms. Some are major regions in their own right, including the Lower Hunter focused on Newcastle and the Northern Illawarra based around Wollongong. Smaller industrial cities including Geelong, Whyalla, Port Pirie and Rockingham-Kwinana are incorporated into broader regions. There are also distinct and relatively self-contained regions in the major cities. Examples include what we have termed the Sydney Production Zone - a substantial part of Western Sydney, stretching from Bankstown, through Liverpool, Fairfield, Holroyd, Auburn, Parramatta and Blacktown. In Melbourne, production zones are located at in North East and North West Melbourne (Moreland, Hume, Darebin), Western Melbourne and Dandenong. North and Western Adelaide - including the localities of Port Adelaide Enfield, Charles Sturt, Salisbury and Playford - is one of Australia's most significant industrial production zones.

Population and employment change in the industrial production regions is set out in Table 4.1.

Table 4.1 Population and employment change in industrial production regions 1998-01							
Production zones	Population Est. 2001	Employed Est. 2001	Unemployed 2001	Effective Unemployed % 2001	Population growth rate pa	Employed growth rate pa	% point change in unemploy-ment 1998-01
NSW Hunter	582,793	248,762	39,423	13.7	1.36%	3.58%	0.90%
NSW Illawarra	394,109	168,455	23,468	12.2	1.75%	2.45%	0.61%
Sydney Mid West	1,299,441	561,809	63,570	10.2	1.88%	2.62%	-0.61%
VIC Barwon	252,886	103,608	15,074	12.7	2.06%	0.32%	0.46%
Melbourne North	703,448	311,969	36,700	10.5	1.58%	0.93%	-0.31%
Melbourne West	569,499	250,543	33,086	11.7	2.73%	3.33%	-0.37%
Melbourne Westport	749,800	349,303	37,260	9.6	2.85%	4.27%	0.65%
QLD West Moreton	180,525	87,011	11,924	12.1	-0.24%	4.39%	0.31%
Adelaide Plains	473,230	195,269	36,760	15.8	0.38%	2.10%	0.02%

Australian production zones have generally evolved in a number of phases.

In the 19th Century, industrial areas grew up around the inner city areas of the capital cities to supply domestic demand and to capture import replacement opportunities (eg Central Industrial Area – Sydney; Fitzroy/Collingwood – Melbourne). The industries that concentrated around these inner city areas included metals and engineering and textiles, clothing and footwear. Most are in the process of being transformed into high-density residential areas due to scarce and high priced land. Sale of sites finances the shift of industry to low-priced land in outer areas.

Industrial regions also developed in areas with natural resource endowments including coal (Ipswich, Newcastle and Wollongong), iron ore (Whyalla) and port infrastructure (Geelong, Port Adelaide and Kwinana). Smaller supplier firms clustered around larger firms in steel and heavy manufacturing.

In the postwar period manufacturing dispersed from inner city areas to large industrial estates. These sites were favoured as international companies set up operations to supply the Australian market. Many of these were branch plants, manufacturing to specifications provided by overeas parents and constrained from exporting. This was the age of large-scale production systems, hierarchical corporate structures and standardised technologies. Interaction with other local firms tended to be minimal.

In the current phase, innovation is driving competitiveness. Knowledge-based industrial firms cluster geographically around scientific and research institutions and link into high skilled labour pools, management and technological expertise, venture capital, and competitive and collaborative networks of firms. Many of the world's successful high technology industrial clusters are located in proximity to university establishments – Cambridge UK, Silicon Valley - rather than smokestack industries.

The economic future of production regions in Australia depends on their capacity to attract and develop high technology industries. They face long term structural challenges and are finding it difficult to make the transition to the knowledge-based economy. Most are involved in a range of innovative projects to improve their position in the knowledge economy (see below). However, they have insufficient high-value-added industries and too many industries in declining sectors of the economy, and too high a high proportion of routine production workers. The major reason for their poor performance is the lack of a national framework that recognises the importance of

manufacturing. The production regions have paid a high price for Australia's de-industrialisation over the past 20 years. Although a number of industrial clusters can be identified in the production regions, almost all of them are in mature or declining industries. Australia's manufacturing industries, with the exception of processed foods and energy-intensive industries such as aluminium, are not globally competitive:

- in the aerospace industry Australia's exports are no more than 12 per cent of imports compared to the OECD average of 142 per cent;
- in the electronics industry Australia's exports are no more than 17 per cent of imports compared to the OECD average of 106 and 200 per cent in Ireland;
- in IT manufacturing Victoria's exports are only 15.9 per cent of imports compared to the OECD average of 79 per cent and 166 per cent in Ireland;
- in the pharmaceuticals industry Victoria's exports are only 52.2 per cent of imports compared to the OECD average of 114 per cent and 323 per cent in Ireland; and for all manufacturing, exports are only 52.7 per cent of imports compared to 105 per cent for the OECD and 142 per cent for Ireland. Even so, the significant improvement since 1990 is acknowledged.

Major challenges confront our manufacturing industries. One of our biggest challenges is to change the mindset of policy makers who have advised governments against pro-active industry policies for manufacturing. In the view of the economic mandarins in the Productivity Commission, making computer chips is the same as making potato chips, hence economies don't need to think strategically about which industries they should get into[22]. In developed economies, with the exception of Australia and New Zealand, a dynamic and competitive manufacturing sector is seen as central to national competitiveness[23]. The importance of manufacturing emanates from:

- Advances in science, knowledge and available technologies are more often relevant to wealth creation in manufacturing than in other sectors;
- National productivity growth is closely associated with manufacturing, which accounts for 50% of all productivity growth in the Australian economy;
- The weakness of Australia's international trading position is associated with a relative loss of competitiveness in manufacturing. For example, in 1968-69, 39.3% of manufacturing value added was imported. By 1996-97, imports accounted for 106.2 % of value added. In 1998-99 Australia had a trade deficit of $56.1 billion in manufactured products.
- Manufacturing enterprises are the strategic core of most supply chains of high value. The more innovation can be incorporated into making things, the greater the benefits for the Australian economy in terms of output and employment.
- Advanced manufacturing processes are the vehicle by which new technologies, skills and experience are introduced into an economy. They are then dispersed over other manufacturing and service industries to lift economy-wide productivity.
- Much of the growth of advanced service industries can be explained by organisational changes in manufacturing firms that have resulted in the outsourcing of functions that were once conducted in-house. Examples include financial management, design and engineering and computer services. Hence, the view that service industries are replacing manufacturing is too simplistic. Many advanced services are complementary to manufacturing and their economic well being is positively correlated to the competitiveness of manufacturing.

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[22] The original source of this quote was Mike Boskin, Chairman of the US Council of Economic Advisors.

[23] **National Economics,** State of the Regions 2000**, A Report to the Australian Local Government Association, December 2000; and Phil Toner,** Manufacturing Industry in the Australian Economy: Its Role and Significance, **2001.**

With a growing population, a low currency and innovative industry and education policies, Australia could quickly exploit new manufacturing opportunities in a range of environmentally friendly areas. Examples include renewable technologies, waste management technologies, public transport, environmentally friendly vehicles, photonics, information and communication technologies/microelectronics, environmentally compatible agricultural and mining machinery, and bio-technology devices and related services. Some of our scientific and technological capabilities in water and soil erosion and remote area energy systems are well positioned to increase exports.

Australia made a strategic error in the early 1980s when the ideology of the Productivity Commission was adopted by the Australian Government, resulting in a "slash and burn" attitude to Australia's manufacturing industries. Regions such as North Adelaide, Whyalla and Onkaparinga (SA), Newcastle, Wollongong, South West Sydney (NSW), Dandenong, Western Melbourne and Geelong (Victoria), Ipswich (Queensland) and Kwinana-Rockingham (WA) are still paying a high price for this folly. The economic rationalists argue that government "can't pick winners" but this is nonsense. In all successful economies, governments, researchers and industries work in partnership to identify strategic industry goals, investments and strategic directions.

A number of factors explain the lack of competitiveness in manufacturing. First, Australia's production regions have been unable to make significant inroads as exporters of high technology and other high value added products including pharmaceuticals, advanced materials, biotechnology and information and communications technologies, electronics and aerospace.

Second, our business R&D in manufacturing remains alarmingly low, at less than half the average for a selected group of OECD countries (Table 4.2). Of greater concern, between 1995-96 and 1999-2000, private sector R&D in manufacturing declined by 14.2 per cent. The Commonwealth Government recognised the problem and has increased the R&D tax concession to 175 per cent for additional R&D, but R&D eligibility has been re-defined and much of the additional funding for public sector R&D does not cut in till after 2002-03[24].

Table 4.2 Manufacturing R&D as % of manufacturing value added[25]

OECD (14 countries)	6.6
UE (9 countries)	5.2
Sweden	11.2
United States	8.9
Japan	7.8
Finland	7.1
France	6.6
Germany	6.5
United Kingdom	5.5
Australia	**3.0**

[24] Commonwealth Government, **Backing Australia's Ability**, Canberra, 2001.

[25] OECD, **Benchmarking Knowledge Based Economies for OECD countries**, Paris, 1999. For Australia 1998-99 Census data for value added and 1999-2000 ABS 8104 for manufacturing R&D. Given that manufacturing value added would have increased by around 2 per cent in 1999-2000, the Australian data marginally overstates the R&D/value added ratio. Countries use different base years and hence figures must be treated with caution.

Third, links between manufacturing and the financial sector need to be strengthened if the production regions are to make the transition to the knowledge economy. One of the features of successful knowledge-based regions is the catalyst role played by venture capitalists with the management and financing expertise to assist with the commercialisation of new products and processes.

Fourth, most Australian production regions are finding it difficult to attract substantial foreign direct investment to assist industrial restructuring and access technological innovations. Australia not a preferred location for manufacturing investment. Globalisation is favouring developing countries because of low wages, the Australian market is too small and, most importantly, Australia doesn't have an industry policy regime that can negotiate large-scale investment in manufacturing, particularly in the high tech electronics and information and communication technology sector.

4.1 Lower Hunter

Despite its diversity, the Hunter is one of Australia's most identifiable regions. The area has a long history of innovative regional organisations with a track record of attracting major projects to the region, most recently the Navy's Minesweeper project. Major industries include agriculture (including a high value added wine industry), coal, manufacturing (including aluminium and heavy engineering), defence and community services. The region has good transport links to Sydney, the North Coast, New England and North West NSW. Local authorities are developing strategies to expand port and airport infrastructure to integrate the region into the national and global economy. Unemployment remains high, particularly amongst blue-collar workers and young people.

The Upper Hunter has a strong resource base and is developing a strong profile in tourism and lifestyle attributes, while the Lower Hunter is one of Australia's prominent industrial production regions. Over the past 25 years the Lower Hunter has been experiencing continuous structural adjustment. The cessation of steel making in 1999 left a major gap in the regional economy. Major strategies including revitalising manufacturing and attracting new industrial investment, creating opportunities for knowledge-base jobs through innovative IT&T investments and links with the tertiary education sector, improving tourist and cultural infrastructure and encouraging small business start-ups.

Manufacturing remains central to the region's future. Aluminium capacity has been expanded to take advantage of increased export opportunities due to the low Australian dollar. The Hunter is highly competitive in metals and engineering and is seeking to reconstruct a steel industry. The six Huon class composite minehunters are being constructed in Newcastle, with orders going to around 545 Hunter firms. The RAAF's new Hawk lead-in fighters are being assembled for British Aerospace in purpose-built facilities at Newcastle Airport [26].

In February 2001, Austeel announced its intention to construct a new steel mill in the Hunter. The project has the support of the federal Government, which has granted it major project status, and the NSW Government, which has offered $240 million in funding for land purchase, earthworks and new port facilities, and will also provide major tax and stamp duty concessions. The Mayfield Steel River Technology Park, a 104 ha. industrial estate, has been taken over by a local consortium. The CSIRO Energy Centre will boost the local economy and its knowledge base, providing a focal point for the research and development of environmentally acceptable fossil fuels, energy storage and renewable energy. The Centre is designed to foster collaboration between CSIRO, universities, government agencies, resource companies, and associated technology suppliers and providers in Australian energy industries.

[26] HEDC

The region has gone further than most in supporting industry clusters and networks. The Hunter Regional Development Organisation (HRDO) undertook a major industry audit to identify industry clusters and linkages. The HunterNet Co-operative is a network of mechanical, electrical and manufacturing companies involved in sharing resources and collaboration on projects. Hunter Group Training, which is one of Australia's largest group-training companies, takes on apprentices and trainees and hires them out to local businesses at award wages while taking responsibility for their training.

The Hunter is confronted with a number of challenges and opportunities to better position itself in the knowledge economy.

First, global links need to be strengthened. The region needs to be better integrated into the Greater Sydney Metropolitan Region, particularly in terms of rapid rail links and port infrastructure. The rail link to Sydney is too slow. Whereas Brisbane and Melbourne are looking at developing fast rail links to regional cities, only incremental improvements are planned between Sydney and Newcastle. The Port of Newcastle is the world's largest coal export port, with coal exports representing more than 80% of the total throughput tonnage. Over the past decade, Newcastle Port Corporation has been actively seeking to diversify into non-bulk general cargo trades, particularly products such as aluminium, iron, steel and timber. The area around Sydney port is facing long-term congestion problems and Newcastle is well positioned to capture new markets and take pressure off Port Botany by developing as a container port. This would underpin the shift to trade in knowledge-based products.

Second, with a successful transition to a knowledge-based region, the Lower Hunter could accommodate an additional 20,000 more people above what is already forecast over the next 20 years. The area has land, good infrastructure and lifestyle amenities. The region requires more investment in knowledge-based industries. Current NSW Government forecasts that the population of the Lower Hunter will increase by 60,000 people by 2021, compared to up to 600,000 for Western Sydney. The region has some very innovative IT companies, good educational and health facilities and significant industry capabilities.

Third, consideration should be given to devolving resources and more responsibilities to regional agencies including allocating a proportion of the state's capital works budget to regional organisations, establishing a regional strategic infrastructure fund, and implementing initiatives to attract more venture capital and institutional investment into the region.

4.2 Northern Illawarra

The region is based around the industrial city of Wollongong. Although traditional manufacturing will remain important, new industries – particularly high-value-added manufacturing and service based industries – are expected to drive employment growth in the future. The industrial city age ended in the last years of last century, but what is to replace it is the challenge that confronts the region. Wollongong has struggled to establish a new identity and economic development path following massive job losses in the early 1980s in the steel, coal, engineering and clothing industries. The steel industry crisis left its mark on the city. The future of the steel industry remains uncertain, particularly with BHP separating its steel operations from its other activities and growing industrial tension due to increased use of out-sourcing.

Wollongong is likely to remain an important manufacturing centre for the foreseeable future. A longstanding challenge is the transformation of engineering and other supplier firms to the local steel industry. Traditional local suppliers to BHP have diversified and become more export oriented, or faced extinction. A number of SMEs have succeeded but more needs to be done to strengthen industry networks, links to educational and training institutions and to attract investment in advanced

manufacturing. In the past two years, a number of light manufacturing firms have relocated from Botany to Wollongong, taking over engineering sheds that had been run-down[27].

The availability of industrial land may constrain future development opportunities. However, BHP may be looking to offload land as it restructures its steel operations. A number of government agencies are working together with Wollongong City Council and private owners to develop new employment lands in Kembla Grange and at the old Tallawarra Power Station.

Unemployment remains high. The region doesn't generate enough job for young people. Significant sections of the population have become economically and socially marginalised in areas such as Bellambi, Cringilla, Port Kembla, Berkeley and Dapto.

The Illawarra Regional Development Board, the local business community, unions and community groups with support of government have encouraged investment in new areas. The region has won greater autonomy for its port authority and has had some success in diversifying into agricultural exports, although it remains vulnerable as a coal exporter. Industry networks remain weak, with few firms collaborating with each other on order winning and technology sharing.

The Port of Port Kembla has a significant role in the development of the regional economy. It has important coal, grain and multi-berth facilities. With limited prospects for increased coal exports from the underground mines of the Southern and Western coalfields, the port is seeking to capture new markets. Recently named Australian Port of the Year, the port has embarked on an aggressive development strategy to increase its market share of exports and imports through new general, bulk and breakbulk berthside terminals and infrastructure. The port is seeking new traffic, including containers and liquid facilities by providing competitive services and fast turn-around times than Port Botany. Important target markets include Western and South Western Sydney and the Riverina.

The completion of the Eastern Gas Pipeline, which links Longford in Victoria to Horsely Park in Western Sydney via Wollongong, is forecast to generate substantial economic and employment benefits for the Illawarra, as well as significant national economic and environmental benefits. The aim is to attract new energy-intensive industries to the Illawarra, based on competitive electricity and gas prices. The success of this strategy depends not only on the availability of energy at competitive prices, but also on suitable land and transport infrastructure. One option being considered is the redevelopment of the Tallawarra Power Station, which closed in 1989, as an Energy Park with a Combined Cycle Gas Turbine Power Station.

The University of Wollongong has evolved from an outpost of UNSW in the 1960s to an important university and a major employer in its own right. The University has developed a national reputation with its industry research work and is taking on an increasingly international orientation with its student enrolments[28]. It plays an important regional role with about 57 per cent of its domestic enrolments coming from the Illawarra and 30 per cent from South and South West Sydney. The NSW Government has designated Wollongong as the State's Centre of Expertise for information technology and telecommunications. The major priorities relevant to economic development are superconductors, intelligent polymers, steel processing and products, microwave technology and smart foods. The university is a participant in four cooperative research centres – Rail Engineering, Smart Internet, Intelligent Manufacturing and Welded Structures. The University also has a number of key centres involved in the Asia Pacific region, in biomedical research, medical radiation, physics and multimedia. The Illawarra Technology Corporation, itself the outcome of the economic crisis of the 1980's, opened new opportunities for the region in high technology industries including information technology. Associated with the university, it has established itself as an important research base in

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[27] Interview with Warwick MacMillan, NSW Department of State and Regional Development.

[28] http://www.uow.edu.au/uniofyear.html

telecommunications through a partnership with Nortel. Despite its growing reputation, the university's links with local SMEs remain undeveloped.

The NSW Government and major regional stakeholders are seeking to build on the emerging technological base by creating a technology precinct through transferring land from the under-utilised Brandon Park sporting complex to the university. The long-term vision is to build a cluster of industries around the technology oriented educational institutions including the University itself, the Illawarra Institute of TAFE and Wollongong Technology High School. A major education cluster is emerging but it is poorly linked to the Wollongong CBD.

4.3 Gladstone Qld

Gladstone has developed important industry clusters in export-oriented energy and minerals processing industries. The city sees it future in adding value to minerals and energy resources, particularly in advanced materials and a commodity exporter. Gladstone is a major port, exporting $3,482.4 million of in commodity exports in 2000, or close to 20% of the Queensland total. Glastone has the world's largest alumina plant, the Boyne Island aluminium smelter, power stations, cement and lime works. One of Australia's largest resource-based manufacturing projects, the Australian Magnesium Corporation magnesium smelter, is proposed for Gladstone. The Federal Government has granted it major project status and underwritten the project with a $100 million loan. Rio Tinto, with strong backing of the Queensland Government and the Commonwealth Government through Invest Australia, has decided to proceed with the construction of a Alumina Refinery in Gladstone. If these projects proceed on schedule, the region may be facing a major construction boom.

4.4 Fremantle-Rockingham

Much of Western Australia's port and industry infrastructure is located in this area. It includes the Kwinana Industrial Area, a major heavy industry cluster. The region contains an oil refinery, shipbuilding facilities, fertilizer plant, power station and alumina mill. New infrastructure development is designed to maximise industrial spin-offs from the massive resource projects in the state, particularly the North West Shelf. Construction of the Jervoise Bay Complex – a large engineering and fabrication cluster - commenced over last year. The project is supported by an $80 million injection from the Commonwealth Government's Federation Fund. The project aims to include oil and gas-related fabrication and maintenance, mining-related fabrication and maintenance, mineral and hydrocarbon downstream-processing-related fabrication and maintenance, shipping-related upgrading, modification, repair and maintenance, heavy manufacturing-related fabrication and maintenance and oversize/overweight equipment fabrication and assembly.

4.5 Geelong

Like other production regions, Geelong is facing a challenging future. Regional agencies expect a long-term decline in industrial employment as industries upgrade technologies and skills to bring themselves up to world best practice. The region is heavily dependent on the decisions of global corporates regarding future investment and has to its manage strategies in light of the increasing footloose nature of modern industry including the growth of global sourcing, contract manufacturing and improved information and communications technologies.

Geelong faces a particular difficult time when tariffs are reduced in 2004 in the automobile and textile, clothing and footwear sectors. The city is developing a number of strategic directions to counter these threats. The development of Avalon Airport has been identified as a major opportunity to attract airport-sensitive industries to the region – transport and logistics, manufacturing and fresh produce. The region is seeking to build on its natural resource base and good transport links to add

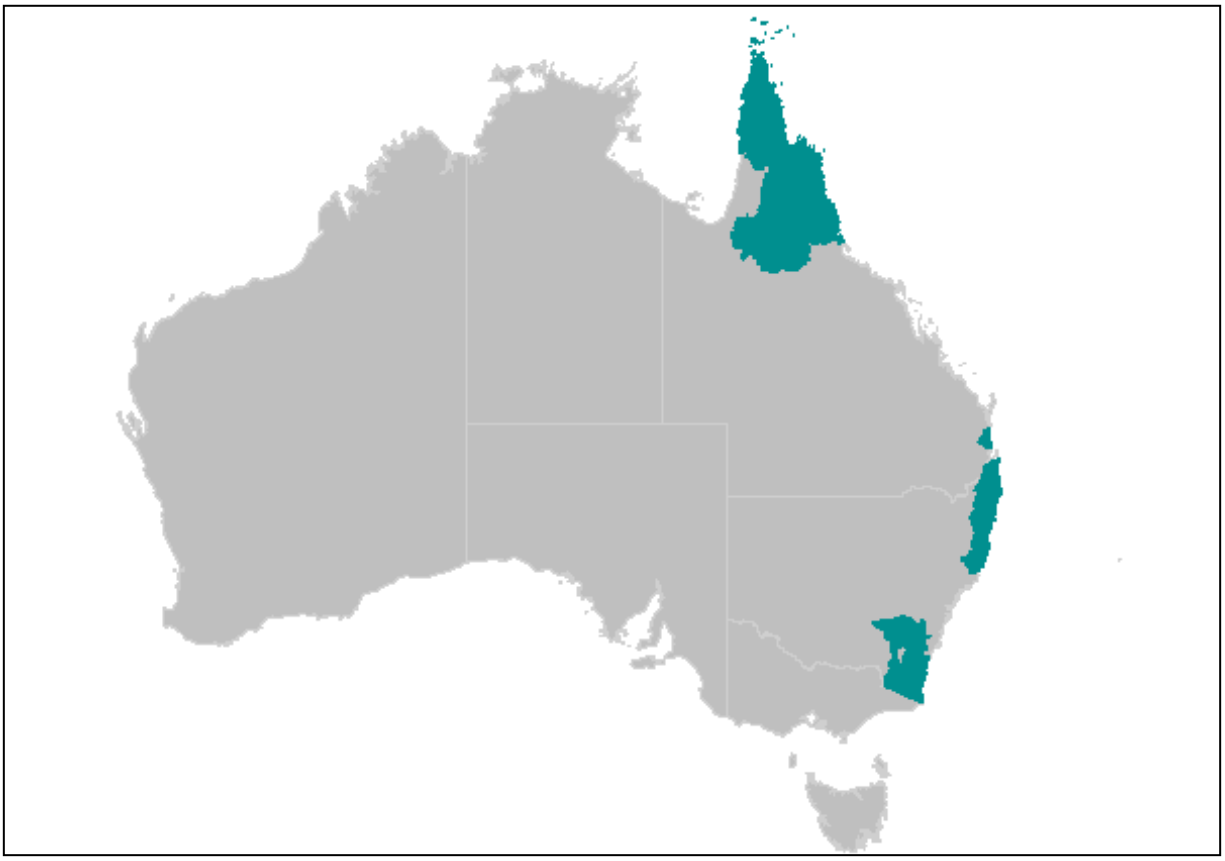
value to sea food, wool and horticulture. Above all else, the major focus is on strengthening the region's education and training and R&D infrastructure. In particular the focus is on the development of an Institute of Manufacturing at Deakin University.

4.6 Ipswich

Ispwich, a traditional industrial city to the west in Brisbane, is experiencing fast population growth. Impacted by downturns in the railway, engineering and mining industries, the area is actively transforming itself. It is utilising its population growth, cultural and heritage assets, industry base, proximity to Amberley Airforce Base and the presence of Boeing to strengthen its economic base. Recent projects completed or underway include:[29] the Workshops Redevelopment (a $20 million redevelopment of railway facilities to include a science and technology park, museum and IT and Business precincts), the revitalisation of Ipswich City Centre, the creation of Ipswich River Park (including a museum, parkland, commercial village and business park) and the development of Synergy Industrial Park. This last project is a 43 hectare employment site targeting processed food companies and supporting industries. A feature of the project is careful consideration to best practice design and planning, emphasising energy efficiency, recycling and re-use, environmental management and building design.

[29] www.econdev.ipswich.qld.gov.au

5. Lifestyle regions



Lifestyle regions tend to have beaches, good year-round climate, scenic surroundings and strong environmental and cultural assets. Although much of the wealth of these regions has historically come from timber and fertile soils, the main drivers of wealth are increasingly associated with lifestyle choices. These regions are attractive to retirees, tourists and increasingly to working age residents employed in lifestyle-related industries or who have the flexibility to work and live at least some of the time in these areas. Most have significant indigenous communities, with some tapping into lifestyle economic opportunities including arts and cultural industries. All have important primary activities including dairying, sugar cane, horticulture, forestry and fishing industries.

Australia's lifestyle regions developed in three phases. In the first stage primary industries such as forestry and agriculture were dominant, creating the demand for infrastructure and settlement. In the second phase, post-retirement migrants and holiday-makers drove economic opportunities in industries such as building and construction, wholesale and retail, community services and tourism. The wealth generators of the first two phases remain important. Lifestyle regions are now entering a third phase, where they are seeking to attract knowledge-based jobs. How they manage the transformation to regional knowledge-based economies will determine how sustainable their development path will be over the next 20 years. The digital revolution, improvements in infrastructure, frustrations with city living and lifestyle choices are driving investors and high skilled workers to Australian lifestyle regions. The challenge is to transform these regions from lifestyle regions to **lifestyle and learning** regions.

These regions are concentrated on Australia's east coast - Australia's Holiday Coast, Northern Rivers, Gold Coast, Sunshine Coast and Far North Queensland. Other regions have localities and sub-regions and pockets that have these lifestyle attributes. Examples include South-Eastern NSW, Shoalhaven, Port Stephens, Hervey Bay, Mackay-Whitsunday, the Fleurieu Peninsula (SA) and Mandurah (WA).

Most of these regions are experiencing high rates of population growth and high rates of labour force growth. An interesting feature of these regions is that they are increasing attractive to a broad range of people. The initial impetus for population growth came from retirees selling up their assets in the cities and moving to lifestyle regions. They also became popular with alternative lifestyle groups and cultural workers who sought a less materialistic existence. More recently, they are attracting knowledge-based workers who telecommute, maintain links and travel regularly to metropolitan cities.

Population, employment and unemployment change is set out in Table 5.1. The table indicates extraordinarily high population growth in all regions except South East NSW and very high rates of effective unemployment, based on National Economics estimates of real unemployment. Unemployment has been coming down on the Sunshine Coast but increasing in the NSW lifestyle regions, particularly South east NSW.

Table 5.1 Population and employment change 1998-2001

Lifestyle	Population 2001	Employed 2001	Unemployed 2001	Effective unemployed rate	Population growth rate 2001	Employed growth per year	% change in unemployed 1998-01
NSW Mid North Coast	275,964	89,522	24,167	21.3	1.40%	-1.87%	2.50%
NSW Richmond-Tweed	212,895	71,729	19,432	21.3	1.47%	-0.74%	0.66%
NSW South-East	185,443	76,793	11,303	12.8	1.33%	-7.31%	5.04%
QLD Gold Coast	756,347	341,182	49,121	12.6	3.60%	6.37%	-0.20%
QLD Sunshine Coast	243,082	102,889	19,541	16.0	3.99%	8.21%	-0.58%
QLD Far North	203,075	81,227	11,343	12.3	1.86%	-5.41%	2.15%

These regions confront a number of challenges:

First, labour force growth exceeds employment growth, resulting in high unemployment. Youth unemployment is a major problem in all of these regions. The composition of employment is a problem, with most new jobs being part-time and casual. Employment opportunities tend to be concentrated in the major centres and distance and poor public transport impedes access to opportunities for workers not located in the major centres. Nevertheless population growth and tourism results in employment growth in retail, community services, building and construction, personal services and tourism and hospitality.

Second, many are seeking to broaden their economic base through facilitating growth of high value-added industries such as IT, telecommuting, education, arts and culture and business services. Development driven by population growth and tourism, although bringing significant benefits, can also result in boom-bust cycles.

Third, most have a large non-working population, particularly elderly people. This can put a strain on community services and infrastructure and in some regions results in a lower circulation of incomes. Many young people leave to get qualifications and don't come back because of the lack jobs which use their new skills. However, over the past decade the high growth lifestyle regions have been attracting younger and more skilled people. Improvements in educational infrastructure in some lifestyle regions are addressing this challenge – Southern Cross University (Lismore, Coffs Harbour and Coolangatta); Bond and Griffith University (Gold Coast); University of the Sunshine Coast, Central Queensland University (Rockhampton and Mackay) and James Cook University (Townsville and Cairns).

Fourth, environmental assets are under pressure because of the demand for development. Once environmental assets are degraded, lifestyle regions lose their appeal. A number of regions, in partnership with government, are seeking to plan and manage growth around the principles of sustainable development – by giving more emphasis on protecting environmental and natural resources such as wetlands, rivers, forests, bio-diversity and coastlines.

Fifth, lifestyle regions are suffering significant backlogs in transport, telecommunications, community facilities and community services. The most successful lifestyle regions have good transport links to major metropolitan centres and, in the case of Far North Queensland, good international air links.

Sixth, significant intra-regional differences are occurring within lifestyle regions. Most growth is concentrated around high amenity coastal centres such as Port Macquarie, Coffs Harbour, Byron Bay, Surfers Paradise, Noosa, Whitsunday and Cairns. Many older, inland centres in the lifestyle regions are battling, due to the decline in employment in traditional activities such as dairying and forestry.

Events in recent months are likely to have significant impacts on the lifestyle regions. The collapse of Ansett put pressure on a number of regional airlines including Hazelton, Kendell, Skywest and Aeropelican. The unknown variable is to what extent the airline crisis will impact competition and airfares to regional locations. Second, recent forecasts of international visitations suggest a decline of 23% as a result of terrorist attacks in the US. The global economic global downturn will hurt those lifestyle regions most exposed to international visitors. These include Far North Queensland and the Gold Coast. A more optimistic forecast is that the low currency and Australia's "safe" destination reputation will counteract the downturn. Fewer Australians are travelling overseas, and this is likely to lead a substitute of domestic tourism for international travel by Australians. The critical factor here is the extent of the economic downturn in Australia and how it impacts on domestic tourism.

5.1 Factors impacting economic performance and prospects

Lifestyle regions are Australia's fastest growing regions. Although they have similarities, there are also significant differences in their economic performance and prospects. They appeal to different groups based on climate, location and socio-economic status. Some localities in lifestyle regions are becoming very expensive to live in and visit. Examples include Byron Bay, Surfers Paradise and Noosa. Others are affordable but less developed, and many of their residents and visitors prefer it that way. Some of the factors that impact their performance and prospects include:

5.1.1 Economic base

There are significant differences in economic structure and performance. Employment grew by 80,000 jobs (30 per cent) on the Gold Coast over the past decade but the best performing lifestyle region was Far North Queensland, which increased employment by 30,000 (or 40 per cent) off a low base. Economic performance and potential correlates with population size. The larger lifestyle centres have a critical mass of industries and service activities that reinforce each other and attract further investment. The high growth regions are attracting high levels of investments in hotels and

motels, tourist infrastructure and property. Some regions are more diversified than others. The Gold Coast is increasingly becoming part of the SE Queensland conurbation. The Northern Rivers is expanding opportunities in horticulture.

5.1.2 Identity and profile

Lifestyle attributes have an element of subjectivity. Some people like casinos, high density beachfront apartments while others prefer fishing villages, rainforests and eco-resorts. Regional tourism strategies seek to concentrate on different markets segments. For example, FNQ has a strong share of Australia's international tourism market; Hervey Bay specialises in eco-tourism (Fraser Island) and affordable housing for retirees, the Gold Coast offers shopping precincts, Movie World, Dream World and Sea World and Byron Bay (in the Northern Rivers) is an international destination for backpackers.

5.1.3 Climate

Lifestyle regions vary considerable in climatic, from the temperate climate of East Gippsland and the Tasmanian resorts to the tropical climate of Far North Queensland. The popularity of the latter peaks during winter months whilst during summer months tourist flows favour Tasmania. South East Queensland and North Coast NSW offer all year round sunshine and swimming.

5.1.4 Transport infrastructure

Transport infrastructure is important. Large lifestyle centres have outstanding airport infrastructure. Brisbane and Coolangatta Airports are positioning the Gold Coast as an important international destination. Maroochy Airport on the Sunshine Coast is expanding the availability of services. High growth centres have regular air services to the capital cities. Many businesses cite airport infrastructure and services as critical to maintain operations in a lifestyle region, where they can have contact with customers in major cities and access efficient air-freight services. A number of areas are looking at expanding airport infrastructure. Port Stephens, a lifestyle locality in the Hunter, is undertaking a strategic plan to expand capacity and services at Williamtown Airport.

Road infrastructure can enhance development prospects. The upgrading of the Pacific Highway is creating new opportunities for residents and businesses in Australia's Holiday Coast around Taree and Port Macquarie. Improved links between the Northern Rivers NSW and the Queensland border will more closely integrate Northern Rivers and South East Queensland. Improved links between Brisbane and the Sunshine Coast and the Gold Coast are creating a major urban conurbation with increasing commuter travel between lifestyle residents and the Brisbane labour market.

5.1.5 Accessibility

The location of lifestyle regions in relation to capital cities impacts on their economic potential. Proximity enables businesses in lifestyle regions to access finance and business services in the big cities, and enables residents make use of capital city arts and cultural facilities Increasing numbers of workers are commuting from the Gold and Sunshine Coasts to Brisbane. By contrast, Hervey Bay is disadvantaged by its distance from major centres. Far North Queensland has the same challenge, but the rapidly growing population is creating opportunities for greater self-containment because of the distances from major markets.

5.2 Lifestyle region snapshots

In Section 6, we examine two lifestyle regions in more detail. An overview of issues and recent developments in some of the other regions includes:

5.2.1 Far North Queensland

FNQ has been transformed over the past 20 years and is recognised as a major regional economic success story. It includes the major centre of Cairns, tourist destinations such as Port Doulgas and the Great Barrier Reef, large bauxite deposits at Weipa, and world heritage rainforests. The region also has a significant Aboriginal and Torres Strait Islander population. Its population reached 225,000 in 2000, with growth averaging 1.9 per cent a year between 1995 and 2000. It is becoming a very diverse region, attracting new residents with a wide range of backgrounds.

The region contains just under 20% of all of Queensland's accommodation. Over the last couple of years, economic activity was subdued due to a downturn in the sugar industry and the impact of the Asian economic crisis. Unemployment remains high, with around 7,700 residents unemployed.

The upgrading of Cairns Airport by the Cairns Port Authority and improved air services was instrumental in accelerating Far North Queensland onto a high growth development path. It is Australia's third largest airport in terms of international visitors. The region believes it is well positioned to weather the downturn due to the demise of Ansett and the international crisis. Qantas has replaced the capacity lost by Ansett by putting on larger planes including Jumbos, and is considering using Cairns as a major port for its new low cost subsidiary that starts in 2002, including some maintenance operations. Virgin Airlines is commencing flights to Cairns, which will sustain competition.

Cairns is an important destination and gateway to parts of the Great Barrier Reef and the rainforests of FNQ. It represents 55% of the total regional population. The city is undergoing substantial inner city renewal with CityPort, a major commercial and residential redevelopment of the port area undertaken by the innovative port authority; CBD revitalisation and the Esplanade development. The prosperous sugar industry (which is coming out of a price slump) is the source of a lot of regional investment in real estate. The Queensland Government is financing the development of the Cairns Convention Centre. Educational investments are also increasing with the extension of the James Cook University campus, which accommodated 6,000 international students in 2000, and is the home for the tropical Rainforest CRC. Port Douglas is the recipient of large scale investment in the tourism industry; including accommodation and golf courses.

5.2.2 Sunshine Coast

The Sunshine Coast, comprising the local government areas of Caloundra, Maroochy and Noosa, is located 100 kilometres north of Brisbane. The population is expected to double over the next fifteen years. Traditionally based around agriculture – sugar and horticulture – the area is emerging as an attractive lifestyle region, experiencing significant growth in tourism and recreation, retail, construction and community services. Its coastal location, climate and mountain settings provide the backup for its current popularity.

The region has 150 tourist accommodation establishments but its occupancy rates (55%) are lower than the Gold Coast (67%). Residential and non-residential construction is also strong, but the region is subject to severe boom-bust cycles in the property industry. The region's proximity to Brisbane and good transport links improved the upgrade of the Bruce Highway, completion of the Sunshine

Motorway and electrification of the North Coast railway are supporting this growth. Much of the employment growth has depended on population growth and tourism.

The region is seeking to diversify and create more knowledge-based jobs. Sunshine Coast University is providing opportunities for residents to gain higher education qualifications and is seeking to attract more professional people to the area. Sunshine Coast University Innovation Centre is under construction, jointly funded by the Commonwealth Government, Queensland Government, and the Maroochy Shire Council. Maroochy Council – the largest LGA - is seeking to accelerate the shift to high-value to secure good jobs[30]. Major initiatives include investigations into a high technology park, business incubator and an industry cluster study that has identified clusters in tourism, education, communications, primary industry and the retirement industry.

5.2.3 Northern Coast NSW

The Richmond-Tweed and Mid North Coast have the relatively high population growth rates, around 1.4 per cent pa. Growth is most pronounced in coastal towns and villages. For example, Tweed Heads, Byron Bay, Coffs Harbour and Port Macquarie are growing rapidly. On the other hand, some of inland towns are struggling with structural unemployment and little growth. These include Casino, Grafton, Taree and Kempsey.

The NSW Department of Urban Affairs and Planning estimates that 270,000 more people will be living in the lifestyle regions of NSW by 2021. From these figures, the population of Richmond Tweed will increase by almost 50 per cent, and the population of the mid-North Coast will increase by almost 40 per cent.

The emergence and diffusion of new information and communication technologies are creating new opportunities for the North Coast to develop knowledge-based strategies. Increasingly, the fortunes of communities, regions, businesses, firms and individuals depend on their ability to use advanced information and communications technologies and systems. Local organisations are active in promoting IT&T technologies. An important group was Norlink, which aims "To be a catalyst for the development of an information economy in the Northern Rivers region" … "by creating an adaptive climate within which people of the region will benefit economically and socially from the availability of information and communications services." Norlink has focused on increasing Internet awareness and attracting telephone companies to the region. The Federal Government granted Norlink $1.5 million under its Networking the Nation program[31] to undertake an Access Strategy as part of the Northern Rivers Regional Telecommunications Strategic Plan, which was finalised in late 2000. Educational infrastructure is strengthening with the expansion of Southern Cross University including a number of cooperative research centres. Importantly, Coffs Futures, the lead economic agency in Coffs Harbour, and the Coffs Harbour Education Campus, have targeted information technology as a major growth industry.

5.2.4 South East New South Wales

This region encompasses coastal areas of southern NSW and inland areas such as Snowy Mountains[32]. It is a composite of different activities – lifestyle, agriculture, forestry and knowledge workers living in rural environments but with good access to Canberra. Restructuring of the forestry and dairying industries has impacted the region. Historically dependent on timber, the region experienced conflict

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30 Maroochy Shire, **Managing the Future,** 2000.

31 DCITA, announcement 2/7/01

32 National Economics SE NSW boundaries excludes Canberra

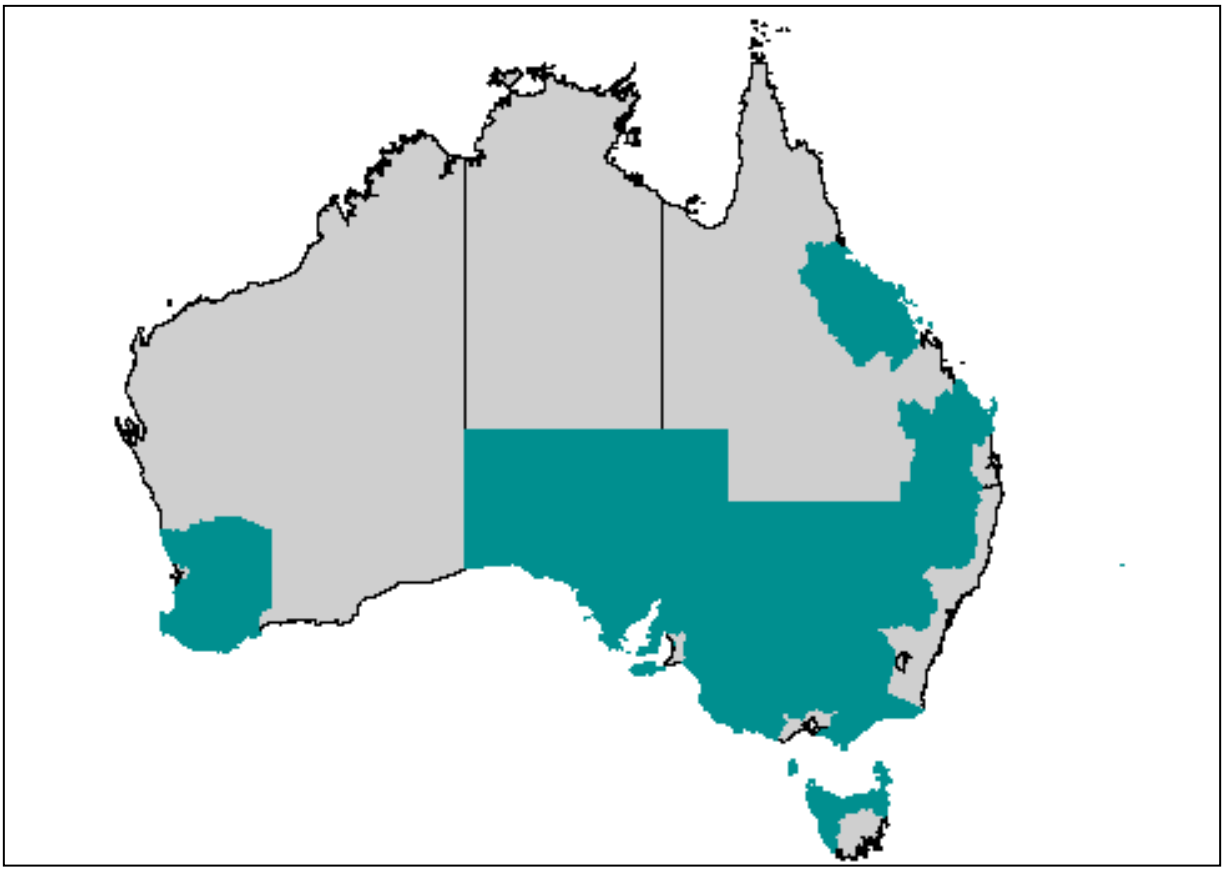
over woodchipping of native forests. Lifestyle drivers are creating new opportunities with the growth of centres such as Moyura and Narooma. Some localities are experiencing rapid population growth. Eurobodalla and Bega Valley have grown at 4.1% pa and 2.1% pa over the past 20 years. Unemployment remains very high, particularly in the coastal localities of Eurobodalla and Bega. SE NSW is forecast to grow at a lower rate than North Coast NSW and the Queensland lifestyle regions – by around 14% to 2021. Population growth will be constrained by lack of employment opportunities and relatively poor infrastructure. Household incomes remain low because of the deficit of investment and good jobs.

The area is attractive to retirees from Victoria and Canberra. It lacks the year-round climatic advantages of some of the more northern lifestyle regions, but, of course, getting sun-burned all year isn't everyone's fancy. The Snowy Mountains is Australia's most sought-after skiing destination, and offers year round activities.

Poor transport infrastructure links are a major impediment. The poor quality of sections of the Princes Highway is a significant barrier to development in parts of South East NSW – travel distances are lengthy and the highway has a poor reputation for safety. Eurobodalla Shire Council is looking at ways to redevelop of Moruya Airport and to provide a high quality tourist facility adjacent to the existing airport terminal.

SE NSW is not growing as fast as other the northern lifestyle regions. The region is seeking to strengthen its identity in environmental tourism. The South East NSW Area Consultative Committee is sponsoring a number of studies aimed at strengthening employment opportunities including the establishment of a SE NSW Eco centre, eco-tourism, renewable energy, Eden Marine Discovery Centre and boutique accommodation.

6. Rural based regions



In rural based regions, agriculture is a major driver for wealth, and in the past agriculture has been a significant driver for employment. Increasing capital intensity in farming has reduced employment in agriculture and this, coupled with better roads which have decreased travel times to larger centres, has pressured the viability of numerous small towns. Currently, agriculture accounts for 15% of employment in rural regions. As a proportion of national employment, agriculture halved to less than 4% over the past 30 years.

Table 6.1 shows changes in population, employment and unemployment since 1998. The table indicates that most rural regions are growing very slowly and some have high unemployment rates.

The main economic challenge for rural regions is how to integrate agricultural into broader complementary activities including value-added food, fibre and other manufacturing, higher order services and diversification into tourism.

The diversity of rural economies reflects a number of factors including their natural resource and economic base, climate, infrastructure, skills and their location in relation to ports and major centres. Climatic, soil, topography and rainfall provide an extraordinary range of growing and grazing conditions such as tropical and sub-tropical conditions in North Queensland, temperate climate with reliable rainfall in Victoria and Tasmania, and the semi-arid climate of Central WA, Northern SA and Far Western NSW.

Table 6.1 Rural and remote regions Population and employment change 1998-2001							
Rural	Population 2001	Employed 2001	Unem-ployed 2001	Effective Unem-ployed % 2001	Population growth rate 2001 %	Employed growth rate 2001 %	% change in unem-ployed 1998-01
NSW Central West	174,174	72,799	9,741	11.8	0.40%	-2.37%	1.86%
NSW Far and North West	141,275	59,354	9,208	13.8	-0.29%	-1.25%	-0.09%
NSW Murrumbidgee	149,549	70,921	6,723	8.7	0.17%	1.90%	0.52%
NSW Murray	110,671	53,070	5,752	9.8	-0.33%	1.97%	-0.75%
NSW North	173,810	74,772	11,337	13.2	-0.59%	-2.39%	0.12%
VIC Gippsland	235,257	84,800	15,776	15.7	0.16%	-6.23%	3.34%
VC Goulburn	189,912	86,403	10,358	10.7	1.14%	2.03%	-0.28%
VIC Loddon	163,265	63,503	9,653	13.2	0.96%	-1.39%	0.53%
VIC Mallee-Wimmera	139,905	66,910	7,006	9.5	0.09%	3.23%	-0.65%
VIC Ovens-Hume	91,611	48,569	4,823	9.0	0.83%	1.92%	1.05%
VIC West	98,463	46,369	5,106	9.9	-0.51%	0.49%	0.86%
VIC Central Highlands	139,303	68,850	8,658	11.2	1.04%	8.50%	-2.07%
QLD Agricultural SW	204,588	98,345	10,332	9.5	0.95%	3.81%	0.28%
QLD Mackay	129,129	64,022	6,686	9.5	1.92%	1.89%	-0.85%
QLD North	203,075	81,227	11,343	12.3	2.06%	-8.42%	1.74%
QLD Wide Bay-Burnett	237,337	82,977	21,800	20.8	1.44%	-3.29%	2.58%
SA Eyre and Yorke	164,043	61,296	12,248	16.7	-0.15%	-3.67%	2.85%
SA Murraylands	68,270	33,744	4,046	10.7	-0.01%	7.32%	-0.66%
SA South East	62,794	32,525	2,804	7.9	0.01%	5.30%	-1.89%
WA Wheatbelt-Great Southern	125,940	61,502	6,323	9.3	0.98%	0.82%	-4.50%
TAS North West	108,022	41,370	9,843	19.2	-0.48%	-1.95%	2.55%
TAS North	133,004	58,304	10,375	15.1	-0.08%	1.36%	0.14%

In rural regions, the past year is "as good as it gets". Australia's agricultural industries in general are highly internationally competitive. The combination of strong demand in the global economy, dramatic depreciation of the Australian dollar and good weather produced a record year for exports. ABARE forecasts that export earnings will increase from $29.2 billion in 2000-01 to $30.4 billion in 2001-02 (or by 4.1%) with increases in wheat, rice, canola, beef and veal, live cattle, wool, dairy products, sugar and wine. In the light of recent international events, these forecasts may be optimistic.

Beef and veal production increased to $4.4 billion and exports were up to $3.3 billion. This resulted in improvements in average cash income to $51 200, an increase of 22% over the previous year. Around 60% of production occurs in northern Australia and agri-business firms have a growing presence in the supply chain in abbatoirs.

Lamb and mutton producer incomes improved over the period 2000-01 due to stronger export demand and higher prices. Overall, incomes remain low for prime lamb specialists – on average around $23 300 per year in the three years to 2000.

Australia is a leading world grain exporter, with around 15% of world exports. The industry has experienced significant increases in productivity but also increasing global competition. The US

"War on Terrorism" presents a challenge to the industry as one third of Australia's exports go to the Middle East. Over the past decade, the area planted to grain increased by 40%. Many livestock producers, faced with declining incomes, converted to grains over the past decade. Around 34 100 farms are involved in grain production as specialist grain farms and mixed livestock-grain farms. Following a record harvest in 1999-00, production declined because of dry conditions in southern Queensland, northern NSW and WA. Incomes have improved modestly.

Australian wine exports continue to perform strongly, with exports forecast to double over the next five years to around $3 billion, depending on the health of the global economy. The Australian wine industry is an outstanding success story with high levels of R&D, entrepreneurial companies and international marketing. As a globally-oriented industry, the industry is continuing to rationalise resulting in a smaller group of globally competitive companies. The industry continues to strive to improve market access into major European countries.

Cotton continued to enjoy strong growth with prices increasing by 20% and good export growth particularly to China, Pakistan and India. Wool also shared in the increased global demand for fibres.

The dairy industry experienced a 25% boost in export earnings to $3 billion and "manufacturing milk" – predominantly cheese and butter products – is Australia's largest processed food export. Australian exporters are still impeded by US and European market access restrictions and dairy industry subsidies. Australian producers are also adjusting in major changes to the Australian domestic environment. De-regulation, with the cessation of the Domestic Market Scheme, is leading to significant rationalisation of the industry with small producers finding it difficult to survive. Since 1975, the number of dairy farms has declined from 30,000 to 14,000. The industry has an important regional component with Victorian regions producing 62% of national production.

Sugar cane was one of the few agricultural industries to experience a more subdued environment, due to global production outstripping consumption is a number of countries – resulting in expected declines of around 3%.

Table 6.2 indicates the wide diversity in rural activities across Australian states and territories and the continuing declines of farming establishments.

Much of the debate about regional Australia has focused on rural-based regions. Some of the important issues confronting rural based regions include the following:

- Population decline in a number of regions
- Global protection and economic downturn
- Lagging rural and household incomes
- Demise of family farms and small rural towns
- Lack of business investment
- Regional innovation and skills
- Infrastructure links
- Environmental degradation

Table 6.2 Major rural activities by state				
State	**Main activities ($ million)**	**Establishments 1993**	**Establishments 1998**	**Gross value agricultural commodities (million)**
Queensland	Cattle slaughtering $1,900.0 Sugar cane $961.0 Cereals $596.0 Vegetables $529.0 Cotton $528.0 Fruit and nuts $490.0	33 500	30 800	$6 384.3
NSW	Cereal grains $1,900.0 Livestock slaughter $1,800.0 Livestock products $1,400.0	43 000	43 000	$7 699.7
Victoria	Milk products $1,600.0 Livestock slaughter $1,700.0 Vegetables $499.0	37 800	36 700	$6 311.4
Tasmania	Vegetables $155.0 Milk $152.0	4 700	4 400	$699.9
SA	Grains $981.0 Grapes $541.0	17 400	15 700	3 243.6
WA	Wheat $600.0 Wool $441.0	14 900	14 000	4 270.0
NT	Cattle slaughtering $170.0 Tropical Fruit $21.0	322	377	244.2
ACT	Livestock products $10.0	100	101	14.4

Source: Australian Bureau of Statistics

6.1 Population dynamics

A small number of regions are faced with population stagnation and an ageing population. These regions include Eyre and Yorke in SA, Far West, Northern and North-West NSW, Mallee-Wimmera and Western Victoria and North West Tasmania. They are not attracting many young skilled people and many young residents are not returning after school An important issue facing all Australians is whether it matters if some rural regions continue to lose population and economic opportunities.

Although there are significant differences, a number of broad trends are established:

- Outward migration from agricultural establishments and small rural towns to larger regional centres is termed bysome the "sponge city" effect. This term is rejected here because other and more positive factors are driving growth in some of Australia's dynamic centres, including investment in knowledge-based industries, education and lifestyle opportunities.
- An ageing population, and the loss of young people to regional centres and core metropolitan regions, particularly those with high skills.
- Outward migration of rural people from inland locations to lifestyle coastal areas, along with their retired city counterparts.

Some rural regions are also experiencing reasonable population growth including Goulburn, Vic, and rural coastal Queensland. Growing regions tend to be more concentrated in high growth agricultural industries. They also tend to be more diverse, offering lifestyle opportunities and innovative regional centres with good educational, health and cultural facilities. Another trend is the growth of rural areas with good access to metropolitan areas, offering opportunities for people who are semi-retired, hobby farmers and tele-commuters and artists. Examples include Mudgee (NSW), the Central Highlands (Victoria) and the Sunshine Coast hinterland.

6.2 Global protection and downturn

Two major international issues are causing concern in rural-based regions. The first is the prospect of a global recession, and possibly a depression. The United Nations has scaled down forecasts of global growth from 3.2% to 1.4%. In East Asia, forecasts have been scaled down from 4.1% to 1.7%. Accelerated but not caused by the events of 11 September recession, simultaneous economic downturn in North America, Europe and Japan will have a major impact on Australia's agricultural exports and rural regions. Secondly, there is increasing concern about the rise of agricultural protectionism in the US, which is approaching the high levels of support in the European Union.

6.3 Lagging rural and household incomes

A large number of rural Australians live in poverty. Along with the industrial regions, rural regions have borne the brunt of changes in the economic environment over the past 15 years. Many farmers only stay on the land because they pay themselves poorly. According to ABARE, around a quarter of all broadacre farms have a negative cash income. On the other hand, 17% had cash incomes exceeding $100,000.

Some of the biggest changes in income distribution are not between city and the bush – an extraordinarily unhelpful concept – but between and within rural based regions themselves. Many factors explain growing income differentials. Firstly, farm fortunes depend on what activities they are based in, climatic and environmental conditions, technology, regulatory environment and market access. There are wide differentials in productivity growth. Secondly, farm size and practices impact viability. One analyst has suggested that Australian farms are beginning to polarise geographically across states – with cropping farms in Western Australia and Queensland, where settlement took place later and farms are larger, better placed to take advantage of modern technology than farms in other states[33].

One way of addressing low farm incomes has been for one or more members of a farm household to seek employment in local towns. For example, around 45% of broadacre farmers earn two thirds of their net income off-farm.

6.4 Demise of small towns and family farms

Small towns remain vulnerable to structural change in rural industries, improvements in transport infrastructure and the growth of E-Commerce. The decline of agricultural employment is resulting in a decline in household expenditure. Residents spend more of their income outside the locality they live in, either through travelling to larger centres or, increasingly, purchasing over the internet both consumer goods and business to business transactions.

[33] Alistair Watson

The implementation of economic reforms over the past decade – reducing the role of government, tax minimisation, increasing user charges – resulted in the rationalisation of government services in regional centres. While larger centres could adapt and absorb these income and employment losses, the smaller towns were much harder hit. The service cuts fuelled the political backlash against government in rural Australia.

Once localities fall below a certain size, it becomes more difficult to sustain retail and other services. This is particularly the case where there are alternative regional centres accessible to the surrounding rural population. Shoppers will travel longer distances to a major centre rather than make frequent visits to smaller local towns.

6.5 Financing rural development

Rural-based regions have been relatively disadvantaged in raising capital through debt and equity for prospective projects. Major banks have been criticised for the rationalisation of services in many rural regions and the conditions they put on bank loans to rural customers such as family farms. The demise of the Commonwealth Development Bank – a specialist government-owned bank that provided funds for agricultural industries – resulted in a loss of specialist rural financial expertise.

Despite their contributions to super funds, these regions have uneven access to development and venture capital. Information imperfections result in investments concentrating around core metro and to some extent lifestyle regions. Investments outside these areas are often classified as high risk, mainly because of lack of attention to risk-packaging and/or because regional investment proponents are not linked into the financial networks. A number of initiatives are seeking to address the finance and equity gaps that resulted from globalisation and restructuring of the financial system. New community banks, led by the innovative Bendigo Bank, are building new assets in rural communities that have lost the financial services of the "big four" banks. The new Bendigo Stock Exchange (BSE) has recently been launched with a charter to raise capital, trade and provide business services for small and medium enterprises in regional Australia. BSX has listed a number of opportunities in aquaculture, wineries, information technology, tourism, manufacturing and health. BSX is developing a suite of capital raising, trading and business services for SMEs.

The NSW LGSA, NSW Government and ASX have recently embarked on a pilot project – Regional Enterprise Markets – to strengthen linkages between non-metropolitan companies seeking to raise funds and Sydney based equity and finance markets. The Local Government Superannuation Fund has announced its intention to invest close to 4% or $130 million of its $3 billion portfolio into regional development projects in NSW. This is the first major commitment of a super fund to invest back into regions where much of its sources of funds come from. The Regional Development Trust is a joint initiative between Deutsche Asset Management and the Local Government Superannuation Scheme.

Despite these exciting developments, rural-based regions will continue to miss opportunities because globalisation concentrates investment opportunities in major cities and globally-competitive industrial clusters. New policy instruments including enterprise zones – which would provide development assistance in designated areas – and regional bonds with tax concessions should be put in place to attract more investment in designated rural based regions and to raise funds locally for strategic economic projects.

6.6 Rural innovation and skills

The Australian agricultural sector is highly productive by world standards. Productivity is growing in agricultural industries at 2.2% pa. Significant differences exist between agricultural industries, with productivity in crop specialist farms growing at 3.6% pa, compared to 0.6% pa for specialist sheep farmers.

As a nation, we give high priority to agricultural R&D through a number of specialised Rural Research and Development Corporations (RDCs), CSIRO and rural oriented Cooperative Research Centres. The Rural Industry Research & Development Corporation (RIRDC) provides funding and organisational support for research and development in all areas of production, processing, transport, handling or marketing of agricultural products. RIRDC finances approximately 400 projects across 25 program areas, including short-term tactical and long-term strategic research. Over the past decade, RDC projects have increased agricultural productivity. Closer interaction between farmers and scientists has increased the applied and practical nature of research. Projects include improvements in plant breeding, reductions in water consumption, technological improvements in equipment, better pest control, better water management, improved harvesting techniques, better resource management and improved risk management tools.

Despite these successes, concern has been expressed that current R&D is focused too heavily on existing agricultural enterprises and their problems rather than breaking new ground in new agricultural activities, products and practices. Further, the R&D system is more concerned with technological innovation rather than organisational and management innovation. Recent contributions to regional innovation systems emphasise the importance of interaction right across the supply chain to nurture innovation rather than expecting all innovation to emanate from scientists alone. Feedback from customers and strategic alliances with manufacturers and marketers can guide research questions and projects. A major challenge is to build value added links across the whole food and fibre chain. This includes expanding opportunities for further processing, manufacturing, transport and distribution. It should be emphasised that around 40% of Australia's processed food manufacturers are based in non-metropolitan regions[34].

The skill deficit is a significant impediment to economic development in rural-based regions. The problem is most acute in the more remote regions. Improvements in distance education in terms of course content, online delivery and associated interactive learning methods is creating new opportunities for rural-based regions.

Attracting and retaining tradespeople, managers and professionals and associate professionals is a major challenge. The Federal Government has put resources into attracting medical specialists to rural areas. Cotton growers find it difficult to attract skilled mechanics to look after expensive machinery. Growing income disparities, cultural diversity and lifestyle opportunities are attracting young people to the coast after they complete their education in regional institutions. A number of regional universities and TAFEs provide innovative programs to improve human capital in areas relevant to their regional economies. What is missing in a number of regions is a critical mass of knowledge-based jobs to absorb highly skilled workers. The tertiary institutions – in addition to their teaching and research responsibilities – may be expected to become increasingly pro-active in spinning-off knowledge based start-up companies to a much larger extent than they have in the past.

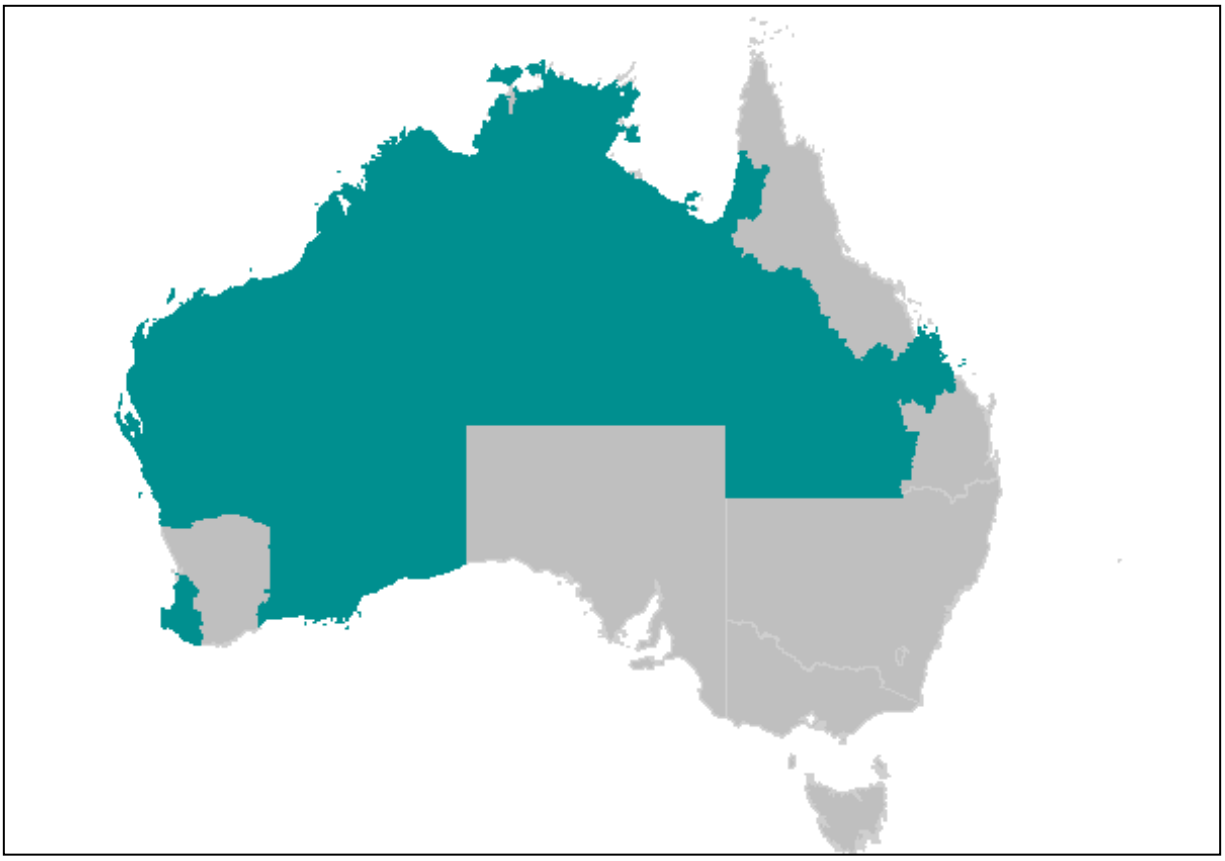
[34] ABARE, Country Australia: Influences on Employment and Population Growth, 2001.

6.7 Environmental degradation

Rural-based regions are environmentally fragile. Inappropriate farming practices have resulted in serious soil erosion, loss of bio-diversity and deterioration of water quality through chemical dependence and salinisation, often through upstream activities. A parliamentary inquiry has suggested that unsustainable use of land, water and vegetation is costing Australia approximately $3.5 billion per year.

A major concern is the health of the Murray-Darling Basin, which accounts for most of the agricultural production and related food industries in inland south-eastern Australia. Environmental problems due to rising water tables and nutrient run-off are increasing.

7. Resource based and remote regions



Resource based regions are those where economic wealth is associated with resource endowments in minerals and energy – including coal, oil and natural gas, uranium, alumina, lead and zinc, nickel and gold. In some regions and sub-regions, minerals and energy dominate the economy. In others, the resource sector forms an important part of the regional economy, generally in addition to the pastoral and tourism industries. Major regions and sub-regions include the Pilbara, Kimberleys and Kalgoorlie/Boulder in Western Australia; the Bowen Basin and North-West Queensland and the Upper Hunter in NSW.

Population and employment change is set out in Table 7.1.

The pattern of regional development associated with resource development has changed. Australia has a number of cities that developed around their resource base such as Bendigo, Ballarat, Broken Hill and Mt Isa. The expansion of global corporates in the resource sector, technological change in the size and sophistication of machinery and equipment and workplace re-organisations, as well as improvements in transport and communications, have changed the relationship between major resource projects and their surrounding regions. Over the past two decades, there has been a significant increase in global sourcing of supplies, fly-in fly-out operations and the capital intensity of resource projects. Projects that can have significant national and state benefits may in fact have limited regional impacts, and an increasing proportion of resource-based employment is generated in the major cities. Australia does well as a developer of mining software and exports of high-technology mining services. These exports were worth nearly $2 billion in 1999-2000 and are

projected to increase[35]. Most of the firms and research organisations associated with these high-value added activities are located in the core metropolitan areas such as Perth. The challenge for the resource-based regions is how to build clusters of economic activities around major resource projects.

Table 7.1 Resource-based regions: Population and employment change 1998-2001

Resourced based	Population 2001	Employed 2001	Unem-ployed 2001	Effective Unem-ployed % 2001	Population growth rate 2001 %	Employed growth rate 2001 %	% change in unemployed 1998-2001
QLD Pastoral	37,887	22,799	1,491	6.1	-0.50%	3.63%	-2.72%
QLD Fitzroy	182,534	87,958	9,905	10.1	0.57%	2.12%	-0.98%
QLD North West	35,950	17,418	1,895	9.8	0.23%	-8.91%	7.85%
WA Pilbara-Kimberly	71,282	35,573	4,082	10.3	1.28%	-5.23%	3.62%
WA Gascoyne-Goldfields	119,955	59,058	6,039	9.3	0.53%	-4.55%	1.58%
WA Peel-South West	203,620	89,744	10,427	10.4	3.92%	3.86%	2.68%
NT Lingiari	89,416	30,709	10,549	25.6	1.13%	-1.63%	7.00%

A number of factors influence the performance and prospects of resource based regions:

- Global demand and prices for minerals and energy commodities and competition from global suppliers.
- Global strategies of major resource based companies including sourcing, technologies and work practices and their relationships with local and regional suppliers.
- Economic prospectivity, exploration technology, and the cost of recovery.
- Domestic demand and energy costs and strategies to attract energy-intensive industries.
- Policy regimes including taxation such as excises and production levies, native title, environmental regulations and practices (including the cost of rehabilitation) and political processes.
- Regional economic development strategies and policies to attract new investment in resource-based regions such as procurement, downstream activities and diversification of regional economies.
- Distance to markets and adequacy and cost competitiveness of transport infrastructure

Most of Australia's resource-based regions have benefited from high world demand and prices, the depreciation of the Australian dollar, and expanded supply capacity as new resource projects come on line to meet the global growth in consumption.

Export earnings from resource based regions boomed over 2000-01. According to ABARE, exports increased by nearly $12 billion (27 per cent) to a record $55.6 billion[36] over this period. Petroleum was the best performer with exports earnings increasing by 50% to $13.5 billion, mainly from the North West Shelf. Other sectors where exports increased more than $1 billion included alumina, coking coal, iron ore and steaming coal. Smaller exports experienced good increases in average unit export prices including titanium dioxide pigment, zinc and zircon.

[35] AGSO – Geoscience, 2001.

[36] ABARE Executive Director, Dr Brian Fisher, media statement, 12 September 2001.

7.1 Coal

The Bowen Basin and the Hunter region dominate Australia's black coal industry, with smaller fields in West Moreton, the Darling Downs, the NSW Western Coalfields around Lithgow and Southern coalfields in the Illawarra. Small domestic fields providing coal for electricity generation are located in Collie in WA and Leigh Creek in SA. The La Trobe Valley provides brown coal for power generators in Victoria. Small collieries in the Fingal Valley provide coal for industries elsewhere in Tasmania.

The impetus for growth comes from export demand for coking and steaming coal[37]. Uncertainty over limits to greenhouse emissions in developing countries is deferring strategic decisions about the coal industry. Capacity increases of 12 million tonnes are ready to start production in the next three years and the total capacity increase to 2006 could be as high as 55 million tonnes.

Until recently, the prognosis for the coal industry has been optimistic. According to official forecasts, increasing prices over the medium term and demand growth concentrated in the Asian region are is expected to result in continuing increases in the volume of exports. By 2006 exports could reach 216 million tonnes, however an appreciating Australian dollar could erode the value of those exports significantly.[38]

Major job losses that occurred over the previous three years were slowed over the past year. In fact, employment increased by around 100-200 jobs nationally. Most of these marginal increases have occurred in brownfield operations, rather than from new mines. Production is being increased more through increased working hours and use of contracting rather than new employment.

The structure of the Australian coal industry has changed appreciably in the past 12 months. As a result of takeovers and mergers, the industry is now dominated by three companies (BHP, Rio Tinto and Anglo Coal) moving to increase their share of the exports. BHP dominates in coking coal while Rio Tinto dominates in steam coal. Increases in productivity together with a weaker exchange rate have allowed the Australian coal industry to avoid mine closures and to gain market share in some markets – especially hard coal. New super-pit operations that can produce around 8-10 million tonnes pa. are having a significant impact on employment by reducing the profitability of smaller mines and dramatically increasing output-employment ratios. BHP-Billiton's proposed Mt Arthur mine in the Hunter Valley, now under construction, will have the capacity to produce up to 15 million tonnes per year and will employ around 200 workers when fully operational, whereas a decade ago it would have employed around 800 workers.

A strategic issue for resource regions is how to maximise industry spin-offs from resource projects. A precedent is provided by Macquarie Generation, the operator of Bayswater and Liddell power stations in the Hunter Valley; which has developed a plan in conjunction with Hunter Specialty Steels and Sterling Pulp Chemicals to attract new energy-intensive industries to an a Industry Zone it is establishing adjacent to the existing power stations[39].

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[37] Much of this analysis comes from NIEIR, **Energy Working Party**, July 2001.

[38] Australian Commodities, vol 8, no.1, March quarter 2001.

[39] Macquarie Generation, 25 June 2001.

7.2 Oil

Australia has a number of important oil and gas fields. Bass Strait offshore Gippsland played an important role in meeting Australia's oil and gas needs over the past 30 years but its contribution is continuing to decline. The North West Shelf in the Pilbara has emerged as a major producer in the Asia-pacific region. Important gas fields are located in the Cooper-Eromanga basin in South Australia.

Higher world demand and increased discipline by the Organisation of Petroleum Producing Countries (OPEC) saw oil prices rise and stabilise over the past year within the US$28-30/barrel range. Australia became a net exporter of oil in 2000, for the first time in eight years. The value of Australian oil exports increased dramatically in 2000 following the surge in prices. However, world oil prices are now extremely uncertain following reactions to the 11-9 events in New York.

Offshore petroleum discoveries reached record levels in 2000. All discoveries occurred off north western Australia in the Bonaparte, Browse and Carnarvon basins Offshore exploration drilling is at the third highest level ever recorded. However, development drilling is at its lowest level since 1996 (26 wells).[40]

7.3 Natural gas

Australia is becoming a major global player in LNG production, with capacity forecast to rise to 12 million tonnes by 2005-06. A major national success story is the development of Australia's north west shelf, which probably exceeds the much lauded Snowy Mountains scheme. The North West Shelf Gas Project has[41] contributed to regional development in the Pilbara. The project employs a workforce of 1000 based in Karratha, and has resulted in $80 million expenditure on community infrastructure, such as schools, hospital, community centre. It has also stimulated development of increased capability and competitiveness of Australian suppliers of goods and services, resulting in their expansion into export markets. (There have been $11 billion in purchases from Australian manufacturers and suppliers since 1980). The North West Shelf LNG project is Australia's largest engineering project, and there are plans to increase its capacity. Recent announcements include expansion of LNG processing facilities, the addition of a fourth train (the largest in the world), and a second pipeline to the gas fields. The new plant will be designed in Perth, and is expected to provide up to 400 jobs and support around 9,000 jobs across Australia.

Other projects that have potential regional spinoffs include the proposed development of Bayu-Udan and Sunrise fields in the Timor Sea, following agreement between Australia and East Timor. A joint venture led by Woodside and Shell propose to construct offshore production facilities and a 490 kilometre subsea pipeline to a location near Darwin. The project includes an onshore gas plant and associated pipelines and is expected to commence construction in 2002, and APT has put forward a proposal to extend the project by constructing a pipeline from the East Timor project to Townsville and the Moomba grid. However, an alternative design would eliminate construction in Australia in favour of direct export from an offshore platform.

A second possible development is the 3,000 kilometre pipeline project from Papua New Guinea to Queensland. The proponents of this project are confident it will proceed, reducing the probability of a Darwin-Queensland pipeline. Both developments would enhance the capacity of Queensland to attract new energy-intensive industries.

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[40] Australian Geological Survey Organisation.

[41] http://www.isr.gov.au/agendas/Sectors/lng/

7.4 Alumina and aluminium

Australia is the world's largest producer of bauxite and alumina and third largest exporter of aluminium. Alumina and aluminium capacity has been increased because of strong export growth. Over the past year, exports of alumina increased by over $1 billion and aluminium exports rose by 20%. The industry accounts for 1.5% of manufacturing employment. Its contribution to regional employment is significant in areas such as Peel WA, Weipa Far North Queensland, Gove Northern Territory for bauxite and the Hunter NSW, Bell Bay Tasmania, Gladstone Queensland, and Portland Victoria for aluminium.

7.5 Copper – lead – zinc

Australian copper exports increased by $680 million (42 per cent) to $2296 million over the period 2000-01. Global copper demand has been consistently rising, driven by massive growth of the electronics industry, particularly in the Asia-Pacific region.

Australia has re-asserted its role as a major copper producing country. Exports account for 25% of turnover and are growing rapidly. Established copper provinces, such as northwest Queensland, are continuing to yield new discoveries as well as extensions of resources at known deposits.

The collapse of Pasminco in September 2001, sparked by a plunge in zinc prices and poor foreign currency hedging, could have significant impacts on regional employment. The company employed 700 workers at its smelters in Port Pirie in South Australia, 500 in Hobart and 500 in the Hunter.

7.6 Gold

Australia's gold resources are mined in all States and the Northern Territory. Australia produces over 300 tonnes of gold per year, making it the world's third largest producer (around 13% of the global total). Gold exports earned Australia $4.5 billion, with 80% of production based in Western Australia. Gold mining is particularly very important to the Goldfields region in Western Australia, which accounts for 64 per cent of the state's total gold output. The value of gold production in this region fell from $2.04 billion in 1998/99 to $1.89 billion in 2000/01[42].

7.7 Iron ore

Iron ore exports increased by $1133 million to $4912 million over 2000-2001, an increase of 30%. Iron ore accounts for around 5% of Australia's total merchandise exports and employs 5,000 people. ABARE forecasts that iron ore exports will increase another 13% over the next 5 years, due to increases in steel production in Asia. The Australian industry is dominated by two suppliers - BHP and Rio Tinto - and production is concentrated in the Pilbara. Major proposed projects include[43]:

- $300 million Hamersley Iron, Iron Ore Deposits, Shire of Roebourne.
- $450 million Hope Downs Iron Ore.
- $1.35 billion Robe River Mining Co, West Angelas and Cape Lambert Iron Ore Projects.

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42 http://www.gedc.wa.gov.au

43 http://www.dotrs.gov.au/regional/northern_forum

8. Macroeconomic environment

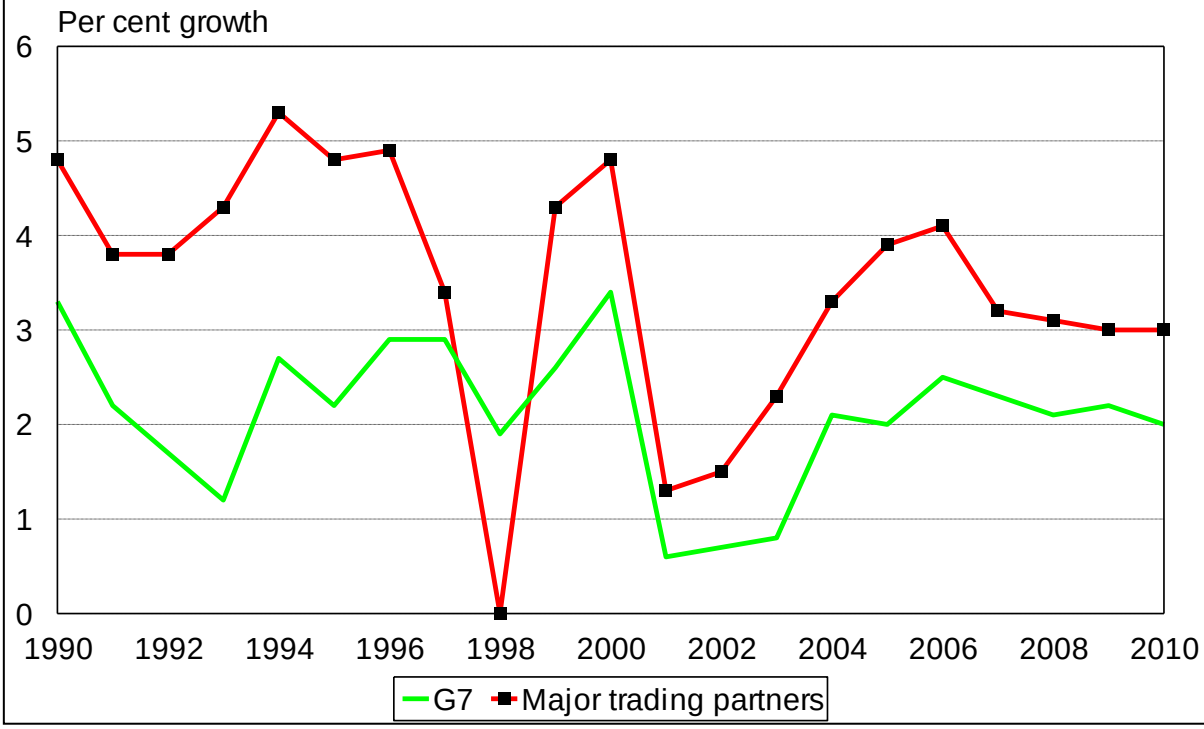
8.1 Introduction

The economic environment is a major determinant of regional economic performance and prospects. Global and national economic growth rates drive demand in existing industries, and the economic 'fundamentals' – interest rates, exchange rates and inflation – determine rates of return and stability.

All previous State of the Region reports were prepared during a period of sustained global and national economic growth. National Economics' forecasts in these reports highlighted a major economic downturn in 2001, which would have a significant impact on regions. Our weak currency and high global demand have, until recently, spurred economic activity in resource-based, rural and lifestyle regions linked into global markets.

The 'economic boom' has now come to an end, and regions must plan and manage the transition to the knowledge-based economy in a subdued economic environment.

Figure 8.1 GDP major trading partnersand G7



Before the 11 September terrorist attacks there was a good probability that the world would experience, over 2001 and 2002, the worst recession since World War II. The terrorist attacks have made this probability a near certainty.

The phrase the "likelihood of the worst recession since World War II" is now commonplace in the media. The standard IMF definition of a world recession is that a world recession is deemed to have occurred when world economic growth falls below 2.5 per cent over a 12 month period. The severe world recessions of the early 1970 and 1980 decades generated world growth rates of around 1.5 per cent. The estimated world growth rate for 2001 is placed at between 1.0 and 1.5 per cent. To this point in time the terrorist attack appears to have reduced world economic growth for 2001 by approximately 0.5 per cent, compared to what otherwise would have been the case. Given that only three and a half months are left for 2001, from the date of the terrorist attack, this implies that world GDP in the last quarter of 2001 will decline by 1.3 per cent.

There is little doubt that the terrorist attack has unsettled America. Over and above the direct impact on the aviation and tourism industries, the psychological damage inflicted by the attack has been the catalyst for the curtailment of travel, entertainment and recreational expenditure. Given the low savings and high debt levels of United States households, this would have happened in any case, although with a lower degree of intensity. Therefore, the current changes will not be temporary, despite low interest rates.

Economic growth for the United States for 2001 is now estimated at 1.0 per cent or lower, with the estimates for the decline in GDP for the fourth quarter 2001 now put at between 1.0 and 3.0 per cent.

Evidence of the severe impact of the slowdown in United States economic growth on Asia's economic growth is mounting. The recent "flash" estimate for Singapore's GDP indicated that it fell 5.6 per cent over the past 12 months. This will make the recession in Singapore the worst in 30 years. This is due to the collapse in demand for electronic goods, coupled with the fact that in August world sales of semi conductors were 42 per cent below sales in August in 2000.

Growth estimates for 2001 are now being revised downwards across the Asian region. Japan is now expected to contract by between 1.0 and 2.0 per cent for 2001, with the remainder of East Asia (excluding China) now likely to generate zero growth in 2001.

The 12 month per cent change in the OECD composite indicator (world trend) is shown in the attached figures. The indicator is available to August 2001. What is clear is that the percentage decline in the indicator over recent months has been the same as for the early 1980 and early 1990 decades. For these two recessions the indicator fell by between 3.0 and 4.0 per cent over a 12 month period. In August 2001 the indicator was 3.8 per cent below the level of a year earlier. This was, of course, before the events of 11 September. The comparisons between the leading indicator and OECD manufacturing production suggest that the recent falls in the indicator are suggestive of a fall in manufacturing output of up to 5.0 per cent by the end of 2001, compared to activity levels at the end of 2000.

Along with the downgrade in estimates for economic growth in 2001 are downgrades in projections for 2002. Economic growth for the United States for 2002 is currently being projected at around 1.0 per cent, albeit with a recovery commencing in mid 2002. World growth for 2002 is, at this stage, likely to be as low as this year. That is, between 1.0 and 1.5 per cent. More disturbingly, in terms of competitive pressures being imposed on the Australian manufacturing sector, is that there is a strong probability that world trade will fall in 2002 after a 3.0 per cent rise in 2001. Import pressure will be intense, in general, and for steel products in particular.

During this time the conditions of economic recovery will be put in place. These conditions will include:

(i) the removal of the overhang of excess investments in communications and information technology infrastructure;

(ii) household and company balance sheet restructure with sustainable savings ratio achieved and the stabilisation of debt to income ratios; and

(iii) recovery in equity markets driven by more realistic price earnings ratios and net worth evaluations of companies.

Accordingly post 2003, the base scenario has sustained world growth re-emerging.

The projection for GDP growth rates for Australia's major trading partners is in the 1.0 to 1.5 per cent range over the next couple of years. The major reason for this is that China is projected to maintain a growth rate of at least 6 per cent per annum. This level of major trading partners' GDP growth rate, however, is consistent with an Australian volume export growth rate of between -1 and 1 per cent per annum.

Risks

A major risk over the next two years is a sharp decline in United States equity prices. On the market value to net work indicator United States equity prices are as over-valued now as in September 1929. A large wealth loss on top of a very weak economy would plunge the world into a five to six year period of very low growth. In other words a depression.

Figure 8.2: Growth in OECD leading indicator

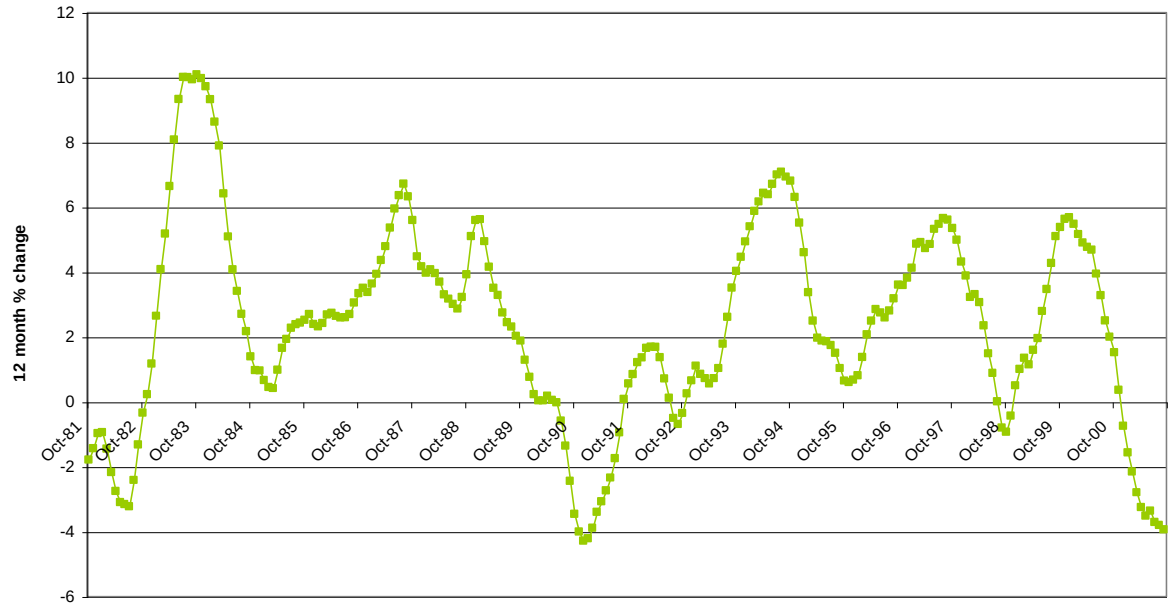
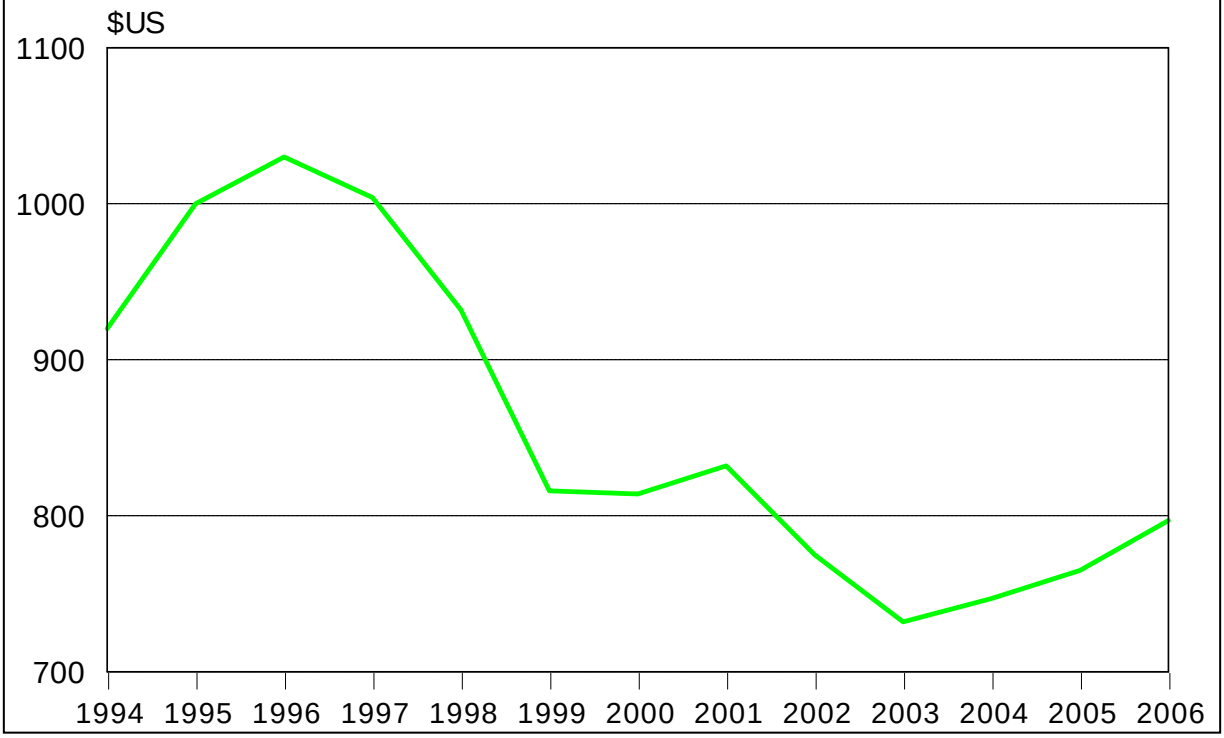


Figure 8.3: OECD indicators

8.2 Commodity prices

Figure 8.4 Total $US commodity prices



Commodity prices were adversely affected by the Asian crisis with rural prices in US$ prices falling by 21 per cent over the 1998 and 1999 fiscal years and non-rural prices falling by 18 per cent.

Over the past two fiscal years there was a partial recovery in rural prices with a 10 per cent gain. Non-rural prices stabilised.

The weakening of the world economy will result in a resumption in the fall in commodity prices over the next three years. The gains in rural prices over the past two years will be eliminated, while non-rural prices are projected to fall by a further 12 per cent.

The Australian terms of trade will decline. However, the decline will be cushioned by substantial falls in the prices of advanced technology products.

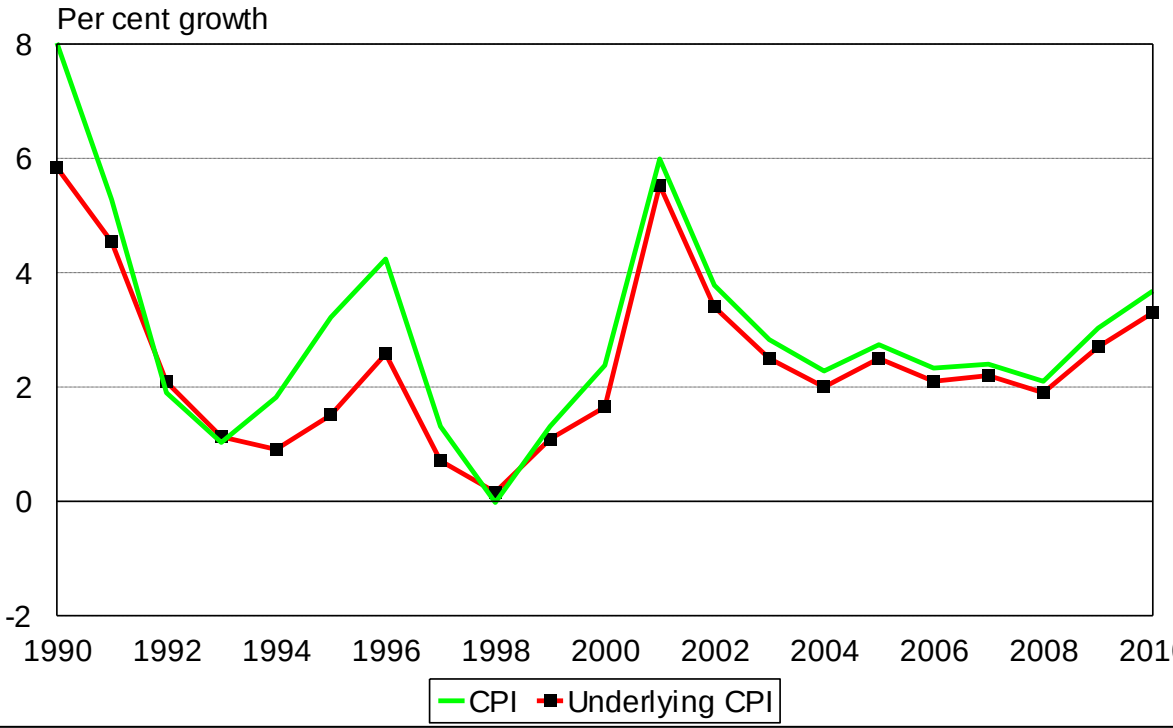
Even with world recovery post 2003, by 2006 Australian commodity prices (in US$ terms) and the terms of trade will be lower than levels that prevailed in 1996. That is, before the Asian crisis.

In late October $US commodity prices (weighted by world usage not Australian exports) were near their 25 year lows. Copper, zinc, cotton, nickel and oil have all lost more than 15 per cent in prices over the past year.

On current production levels the world zinc surplus will reach 500,000 tonnes in 2002, while the copper surplus could be well in excess of 500,000 tonnes.

8.3 Consumer prices

Figure 8.5 Consumer price index



Excluding the impact of the GST, the rate of increase in the consumer price index for 2000-01 was around 3.4 per cent. For 2001-02 the rate of CPI increase is expected to be above the 3 per cent benchmark. This is due to:

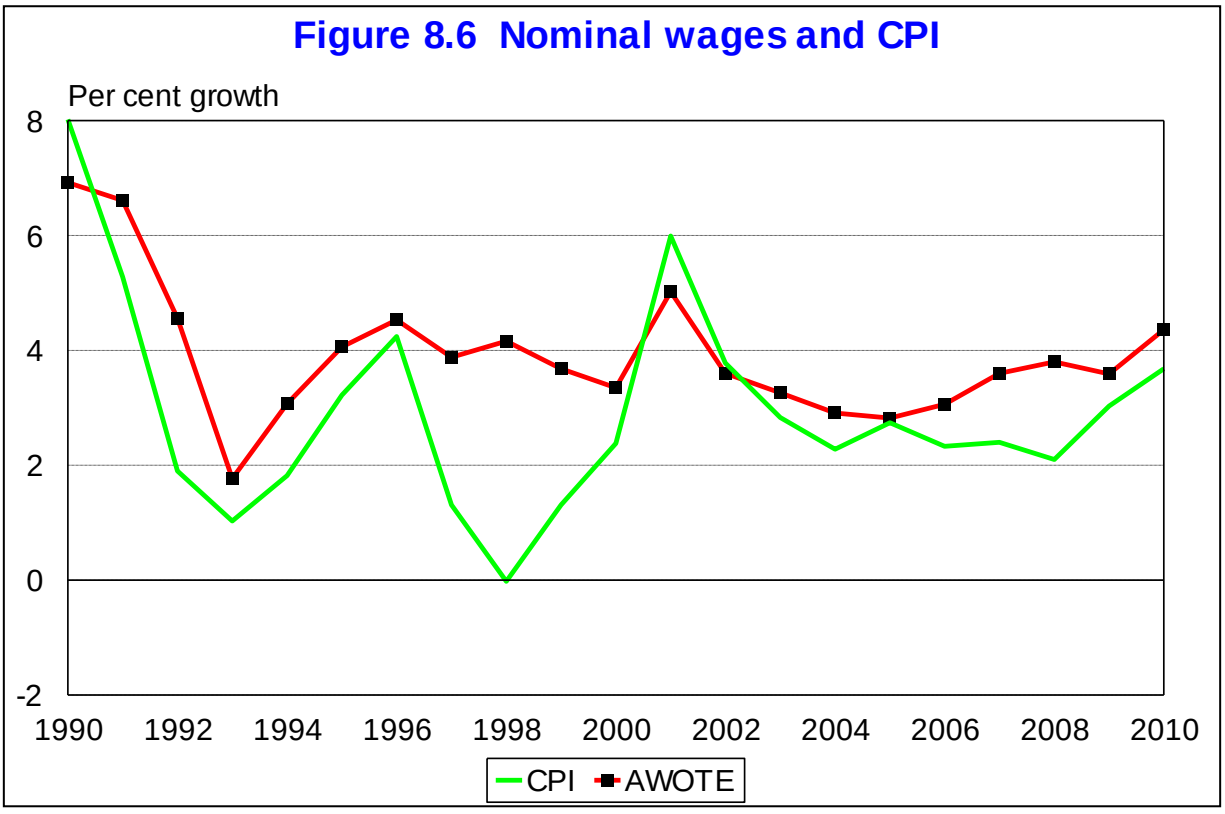
- lower rates of productivity growth due to lower rates of GDP growth compared to the 1998-2000 period;
- a further pass on of increased costs arising from the devaluation of the Australian dollar over the 2000-01 year; and
- attempts to restore profit margins caused by current weak economic conditions.

Also contributing to the maintenance of inflationary pressure will be the unwinding of some of the price benefits of microeconomic reform in the aviation and electricity sectors.

CPI growth outcomes, however, should fall to the 2 to 3 per cent range for most of the rest of the projection period due to a decline in wage pressure, an acceleration in the substitution of part time employment for full time employment and outsourcing.

Only towards the end of the projection period will inflationary pressure re-emerge as growth accelerates, profit margins more fully recover and wage pressures intensify.

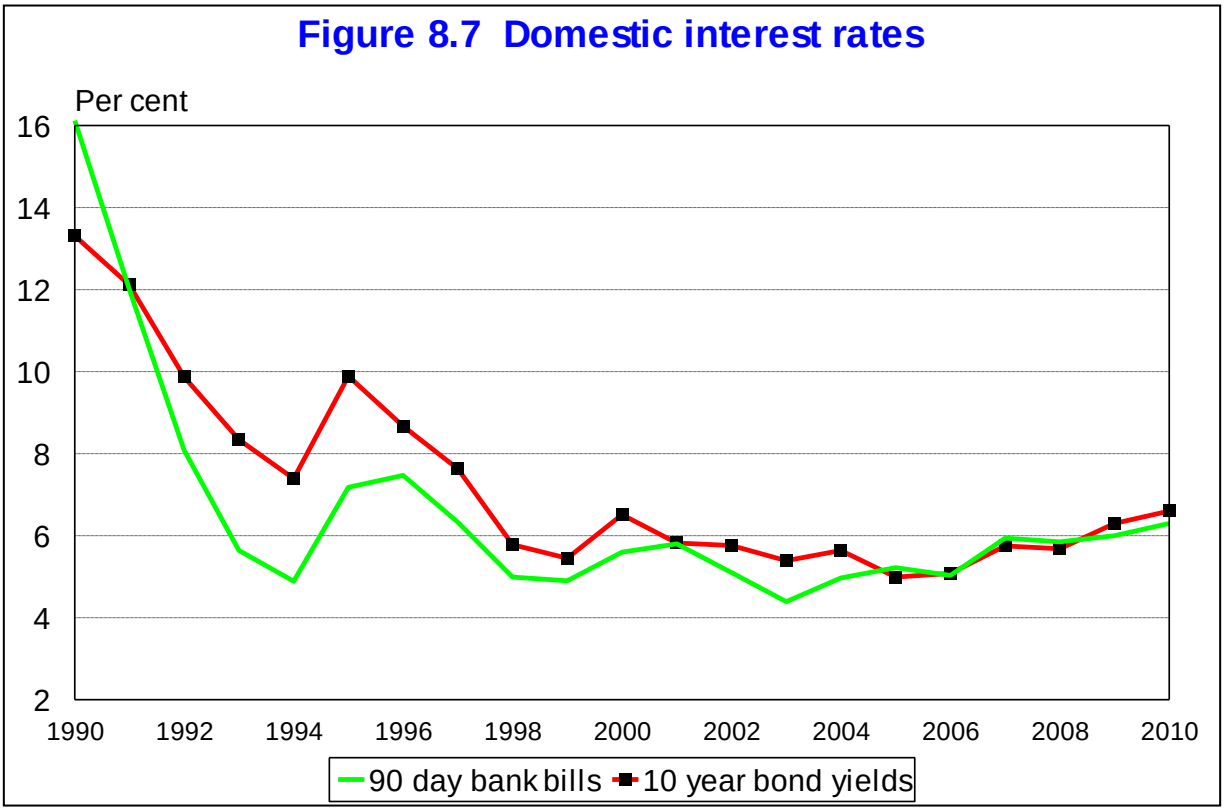
8.4 Wages and CPI



The sharp reduction in Australian economic growth over the past year prevented a wages inflation spiral from developing as a result of the introduction of the GST. As a result, for much of the projection period, the rate of growth of average earnings is expected to be in the 3 to 4 per cent range. For 2003 and 2004, average earnings growth is expected to be around 3 per cent due to soft labour market conditions.

A continued soft labour market does not preclude that eventually upward pressure will be imposed on wages. This is because the longer retrenched workers are out of employment, the greater the skills degrade and the less threat they are to the employed. Secondly, the softer the labour market, the less the training and hiring of young employees, and the greater the longer run supply contraction in employable skilled labour.

8.5 Domestic interest rates



Further easing in United States interest rates can be expected over the September-October 2001 period, with some flow-on to Australian rates. However, the authorities will have difficulty in significantly lowering interest rates from current levels.

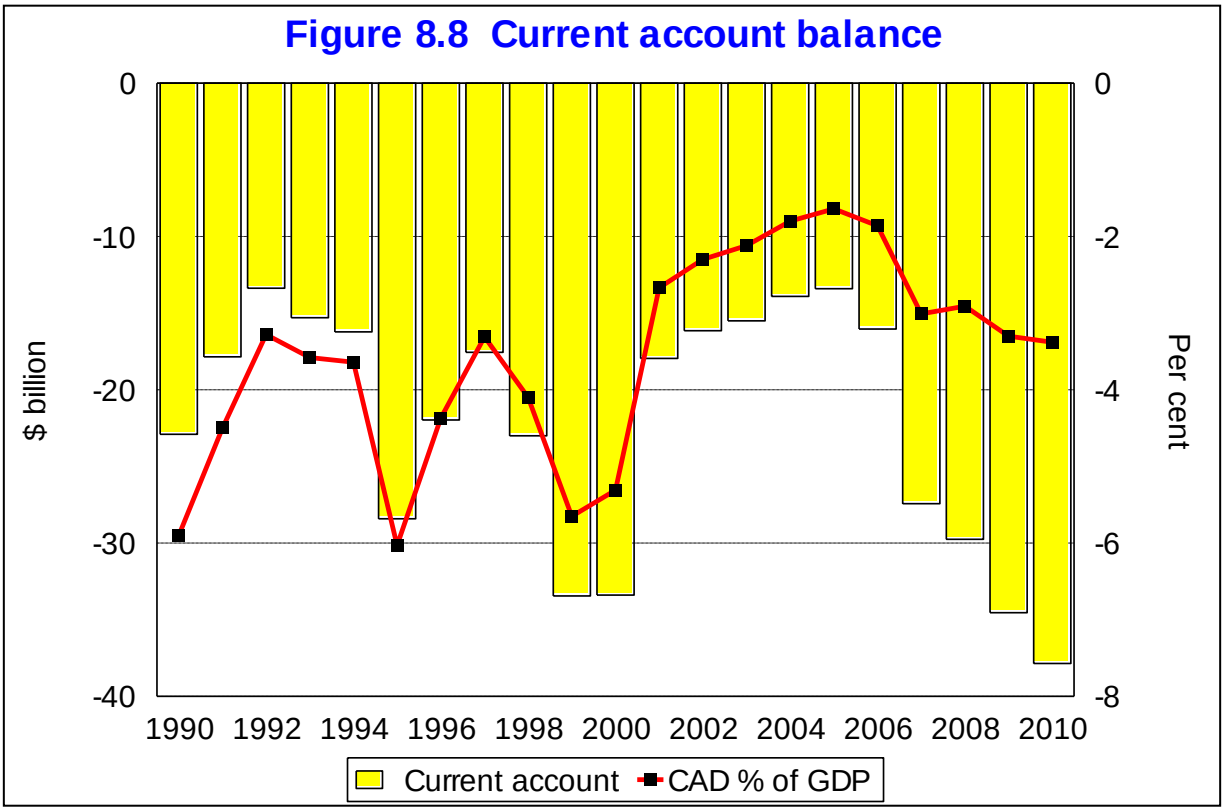
Firstly, it will further reinforce the current house price boom. This boom will invariably end. However, the longer the boom the greater will be the debt overhang and negative wealth effects which may prevent any sustainable Australian recovery until well into the projection period.

Secondly, Australia remains vulnerable on the balance of payments front. Although the current account deficit has declined, it is still high by world standards. More importantly, Australia has one of the highest net short term foreign debt to reserve ratios in the world. Australia is highly vulnerable to an exchange rate crisis. Too low domestic interest rates may well trigger such a crisis. This projection assumes that a major exchange rate crisis is avoided.

On the positive side, the subdued world economic outlook will enable Australia to maintain interest rates in the 4.5 to 5.0 per cent range for a lengthy period. Provided a balance of payments crisis is avoided, upward interest rate pressure will re-emerge only from 2004 onwards.

Under a low scenario Australia experiences a balance of payments crisis sometime over the next 18 months which increases interest rates by between 1.5 and 2.0 percentage points, compared to the base case. This would deliver zero growth to Australia over the 2002 and 2003 fiscal years.

8.6 Current account deficit

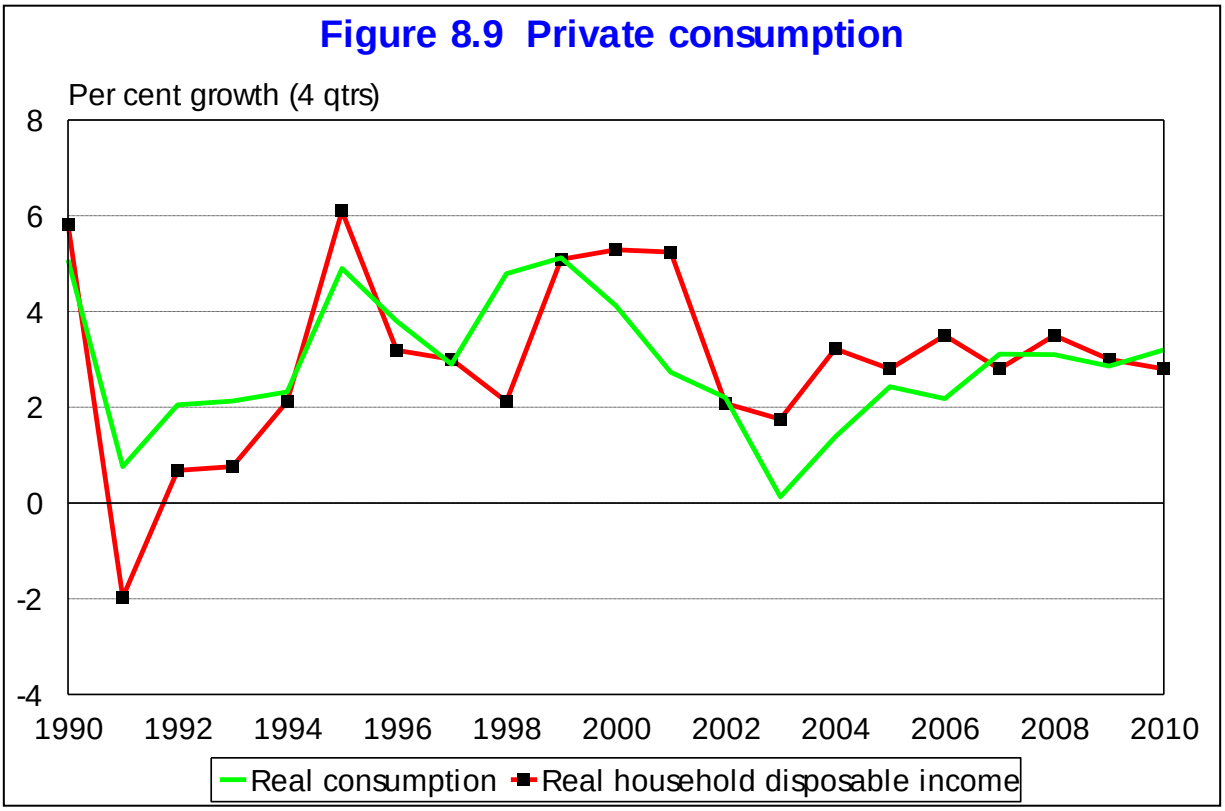


Although the current account deficit is now around 3 per cent of GDP, it is expected that the current account deficit will be between 3 and 4 per cent of GDP over the next three years. This will be caused by:

- the slowing world economy reducing export growth rates;
- the slowing world economy reducing the terms of trade; and
- the devaluation of the exchange rate increasing debt service costs.

Post 2004 the current account deficit is expected to return to the 4 to 5 per cent range when expressed as a per cent of GDP. The current impact on the current account deficit has been driven by falls in investment (as a per cent of GDP) and stocks. When general recovery resumes, investment and stocks will recover significantly as a per cent of GDP. This will impose significant upward pressure on the current account deficit, more than offsetting the impact of improved terms of trade and export volume growth.

8.7 Consumption expenditure



Despite the weaker economy, household disposable income grew strongly in 2000-01. The major explanation for this was the income tax cuts. Personal expenditure also grew relatively strongly with households electing to spend rather than save the income boost from the tax reductions. That is, household savings remained low.

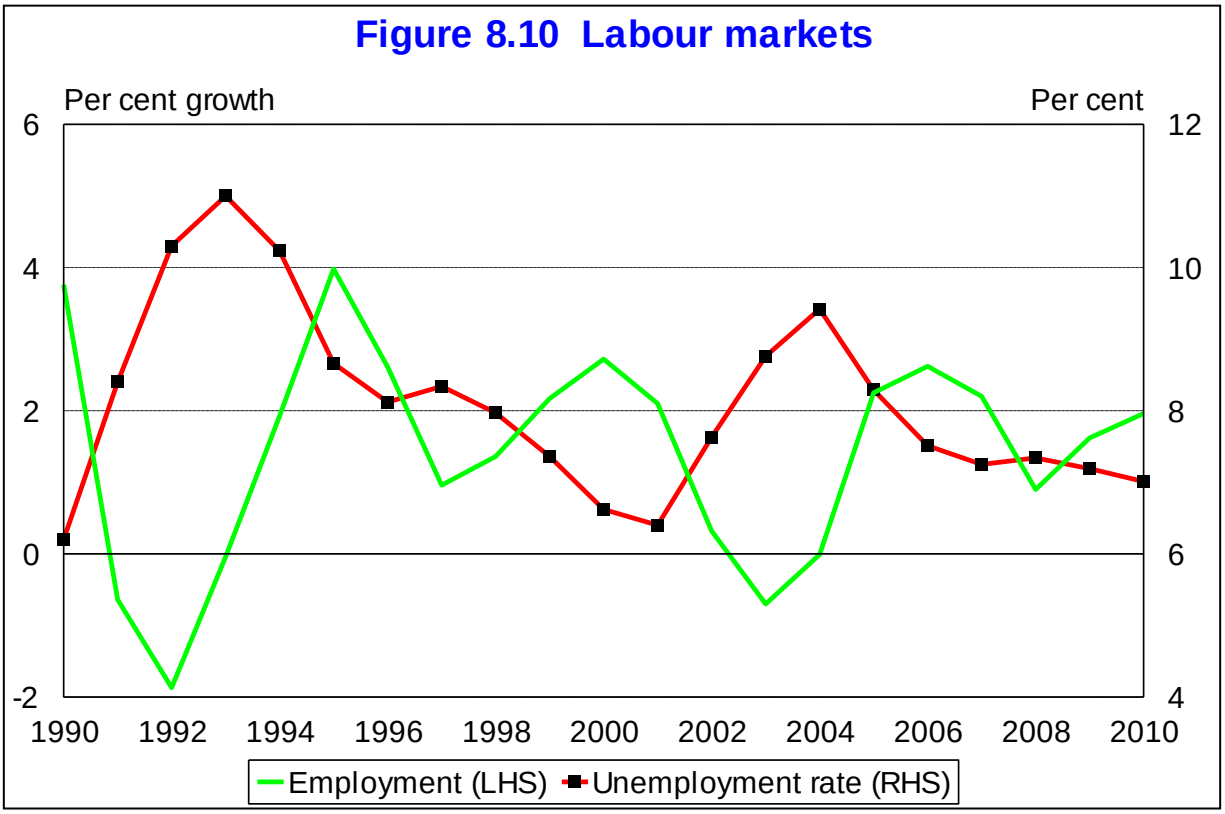
Australia's low household savings ratios cannot continue for much longer. Falling equity prices during 2001-02 and falling house prices over 2002-03 will impose negative wealth effects and discourage household borrowings for consumption.

Household borrowing for consumption will be strongly curtailed in any case from the fact that the household debt service ratio (interest plus repayments to household discretionary income) is now at historically high levels of 25 per cent. The recent and projected lowering of interest rates will give a breathing space and allow sustainable consumption growth to be maintained for another year. However, this will require further borrowings which will be further aggravated by the borrowings associated with the current home price boom.

Rising debt service costs and rising unemployment rates by the middle of 2002 will impose downward pressure on consumption expenditure growth. This will be further aggravated by rising interest rates from 2004. As a result, the average annual growth rate in private consumption expenditure over the 2003 to 2006 period is only likely to be between 0.5 and 1.0 percentage points higher than the population growth rate.

The good news from this scenario is that sustainable household savings ratios of around 6 per cent will be regained by the second half of the projection period. The next decade will be the period when Australian households will stop borrowing to spend on consumption expenditure.

8.8 Labour markets



Due to changed statistical measures which has increased the measured (if not the underlying actual) rate of productivity growth, Australia now needs a GDP growth of between 2.5 and 3.0 per cent to produce an underlying increase in employment. The projected outlook for GDP growth means that over the next two years there is a downward pressure on employment levels, especially if measured in full time equivalent terms.

Over 2001-02 the employment level is projected to be stable before falling by 0.5 to 1.0 per cent in 2002-03. The overall result is that employment levels are projected to be stable between June 2000 and the end of 2003.

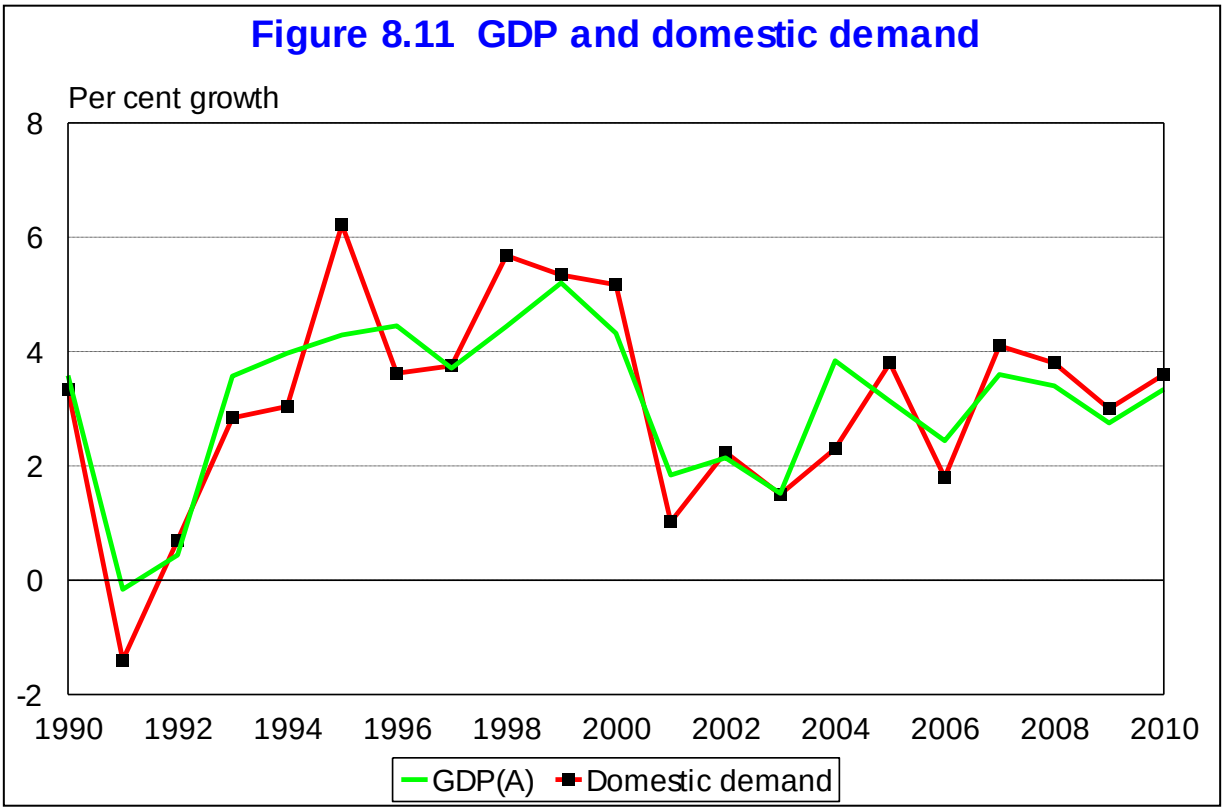
By the middle of 2004 employment levels are projected to commence growing strongly.

It could well be that actual employment levels will be higher than the projected levels. However, this outcome (provided the GDP projection proves accurate) would be the result of an acceleration in the rate of part time employment formation compared to the existing trends.

Given the encouragement in recent years for unemployment and other social security beneficiaries to engage in some part time work without significantly endangering entitlements, the measured unemployment rate will not increase as fast as in the past for given rates of employment decline. Accordingly, the level of measured unemployment is likely to be held to the 7.5 to 8.5 per cent range.

Over the second half of the projection period the exit of the first wave of baby boomers from the workforce will enable the unemployment rate to be held at around 7 per cent.

8.9 Gross domestic product



For the 2001-02 fiscal year, the rate of GDP growth will be retarded by a:

- decline in stock formation; and
- a decline in the contribution of net exports,

to growth, compared to the 2000-01 fiscal year. However, the recovery in dwelling activity and a lower negative contribution from other construction, compared to 2000-01, is likely to produce a GDP growth rate near 2 per cent for 2001-02.

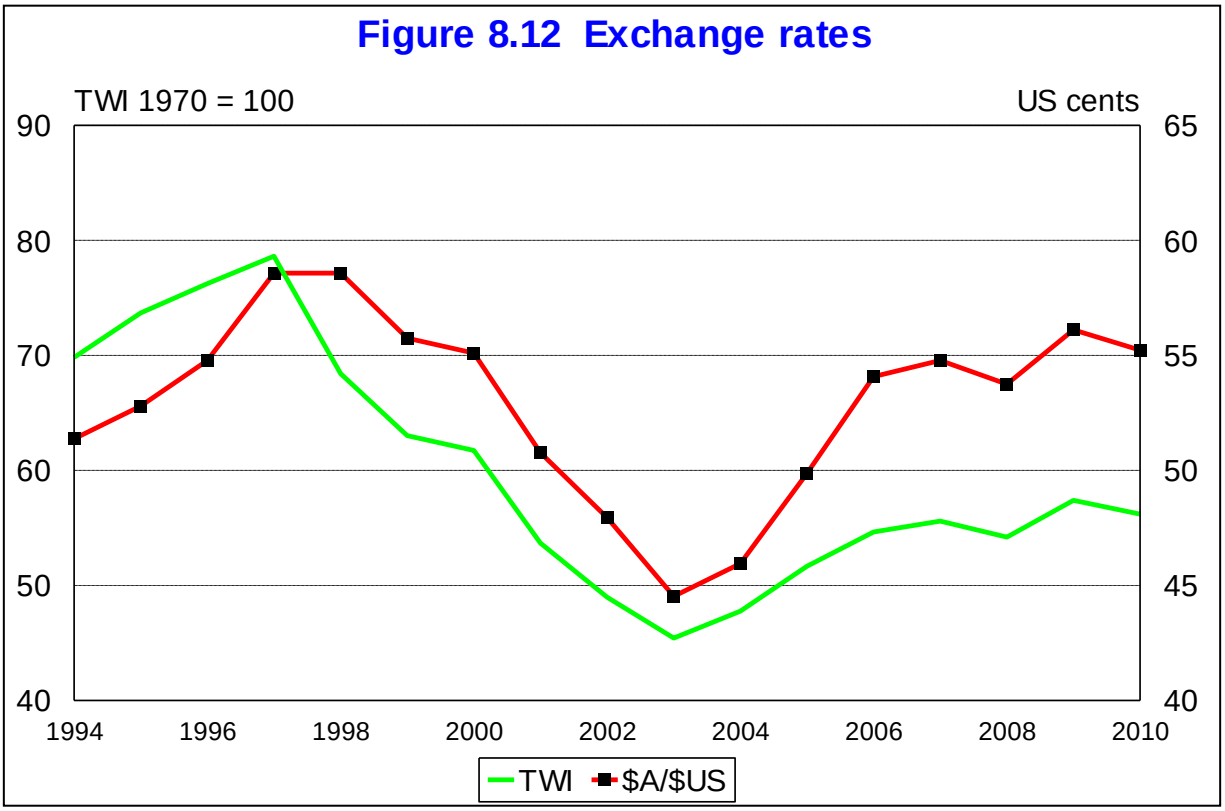
By the 2002-03 fiscal year the downward pressure on household consumption expenditures and the full impact of the current downturn in the world economy on Australian export growth is likely to result in Australia's GDP growth at best continuing to be held at the 2 per cent benchmark level.

The general recovery post 2003 will result in Australia's GDP growth returning to the 3 to 4 per cent range for the following two years. The constraints on consumption expenditure will prevent a sustained GDP growth rate in excess of 4 per cent.

The recovery in GDP growth is also being driven by a significant contribution from public sector consumption and investment expenditures.

It should be noted that given the current uncertainty and weakness in the world economy, the probability that the actual GDP growth outcome over the next two years will lie closer to the low scenario than the base projection is not insignificant.

8.10 Exchange rates



The projected appreciation of the euro against the US$ is between 10 and 20 per cent over the next two years. However, due to falling commodity prices and increased import competition for Australia's medium technology manufacturing sector from Asian economies, will force downward pressure on the Australian trade weighted index. The Australian trade weighted index is projected to decline by 10 per cent from current levels by the middle of 2003.

This expected deceleration in the trade weighted index will mean that the $A/$US rate will also decline from current levels. The trough in the $A/$US exchange rate is expected to be around 45 cents by the end of 2002. After that date recovery in the world economy will drive a recovery in the Australian exchange rates. By the end of the projection period the Australian $US exchange rate is projected to be around 54 cents. However, the recovery in the $A/$US rate post 2004 is, to a significant extent, driven by the strengthening in the euro and the yen relative to the $US. The TWI is projected to remain weak for much of the projection period.

Table 8.1 Major economic aggregates: financial year averages (annual per cent rate of change)

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Demand formation											
Private consumption	3.8	2.9	4.8	5.1	4.1	2.7	2.2	0.1	1.4	2.4	2.2
Business investment	13.2	14.4	12.5	-0.6	5.4	-8.9	-10.0	-3.3	4.5	17.3	7.7
of which equipment investment	9.8	13.7	9.4	-1.1	8.1	0.5	-7.6	-5.2	2.1	16.5	5.2
of which building investment	19.9	15.7	18.0	0.1	1.1	-25.0	-15.4	1.5	10.2	18.9	13.1
Housing	-12.5	0.7	19.0	7.6	13.7	-20.5	9.5	-0.2	-0.2	4.2	4.1
Public expenditure	2.5	0.8	1.6	6.8	4.7	2.8	6.3	3.8	3.2	2.0	1.7
Stocks	-0.7	-0.2	0.2	0.8	-0.4	0.0	-0.6	-0.1	0.5	0.2	0.2
Total exports	10.2	10.5	3.7	2.0	9.3	7.2	1.2	3.7	5.6	3.4	2.9
Total imports	4.0	9.9	9.7	4.8	12.5	-1.4	-3.8	-0.4	3.2	7.5	6.7
Trade net contribution to growth	1.1	0.1	-1.2	-0.6	-0.8	1.7	1.1	0.8	0.6	-0.8	-0.8
GDP	4.4	3.7	4.4	5.2	4.3	1.8	2.1	1.5	3.8	3.1	2.4
External sector											
Current account deficit ($B)	-22.0	-17.6	-23.0	-33.5	-33.4	-18.0	-16.1	-15.5	-13.9	-13.4	-16.0
CAD as per cent of GDP	-4.4	-3.3	-4.1	-5.7	-5.3	-2.7	-2.3	-2.1	-1.8	-1.6	-1.9
$US Commodity prices	1030	1004	932	816	814	832	775	732	747	765	797
Terms of trade											
Net foreign % of GDP	38.3	38.4	40.1	39.3	40.2	45.8	45.8	47.5	45.5	43.0	41.9
Exchange rates											
$US/$A	76.2	78.6	68.4	63.0	61.7	53.7	49.0	45.4	47.8	51.7	54.6
Trade weighted index	54.8	58.6	58.6	55.8	55.1	50.8	48.0	44.5	46.0	49.9	54.1
Labour market and inflation											
Employment	2.6	1.0	1.4	2.2	2.7	2.1	0.3	-0.7	0.0	2.2	2.6
Unemployment rate (%)	8.1	8.3	8.0	7.4	6.6	6.4	7.6	8.8	9.4	8.3	7.5
Civilian population	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.4	1.3	1.4
Average weekly earnings	4.5	3.9	4.2	3.7	3.3	5.0	3.6	3.3	2.9	2.8	3.1
Capacity utilisation	79.8	80.0	80.2	80.8	81.5	80.7	81.0	80.0	80.1	81.2	81.7
CPI	4.2	1.3	0.0	1.3	2.4	6.0	3.8	2.8	2.3	2.7	2.3
Interest rates											
90 day bank bill (%)	7.5	6.3	5.0	4.9	5.6	5.8	5.1	4.4	5.0	5.2	5.0
10 year bond rate (%)	8.7	7.6	5.8	5.4	6.5	5.8	5.8	5.4	5.6	5.0	5.1

9. Australian regions and the new learning economy

The global economy has fundamentally changed over the past decade with its rush to global free trade. However, one fundamental truth remains: world economic growth is constrained by world savings and technological change. This means that similarity of average incomes in all countries cannot be achieved without a decline in relative living standards of high income economies as the low income economies gain increased market access, especially for low to medium technology products. To withstand this challenge, high income economies like Australia can no longer, in the longer term, rely on political and trade barriers to defend their high incomes. The only solution was to use the social and physical infrastructure advantages of high income economies to accelerate the rate of technological change and to compete on the basis of a higher capacity to innovate.

In turn, the capacity to innovate is a function of the quality of the learning economy for a country. As a result of globalisation the learning economy moved to the centre of policy focus.

9.1 The modern learning economy: the regional dimension

In response to the need for a high level innovative economy, the concept of a learning economy has changed. It no longer simply means educational activity. It now means the quantity and quality of the totality of learning, including the learning that takes place between and within firms, research institutions and all other institutions in a region that are involved in the economic development process.

Basically innovation and competitiveness require effective knowledge creation. Effective knowledge creation requires an enabling context. The region is a core factor in knowledge creation because knowledge is dynamic and based on human action. How humans react depends on their situation and their inter-relationship with other humans. Human relationships are boundaries by space, that is by the bounded of the effective regional area that they operate in.

The second reason why the region is important to knowledge creation is that knowledge creation requires both codified information (which now, thanks to the information revolution, is available to all) and tacit knowledge. Tacit knowledge:

- is generally specific to a local physical attribute or unique experience;
- cannot be easily codified; and therefore
- is implemented by the application of the skills of the regional workforce.

In an age where codified knowledge is available to all, tacit knowledge and the ability to create new knowledge by combining existing codified and tacit knowledge is what creates the potential for a competitive edge.

It is potential only. For competitive success the availability of knowledge will only lead to competitive success if the learning capacity of a region is such as to ensure that knowledge can be absorbed and implemented in an innovative fashion.

9.2 The OECD study: measuring learning capacity and performance

The OECD reference study for this report is "*Cities and Regions in the New Learning Economy*", Paris 2001. The two core questions that the study addressed were:

(i) how to measure the degree of learning commitment by a region; and

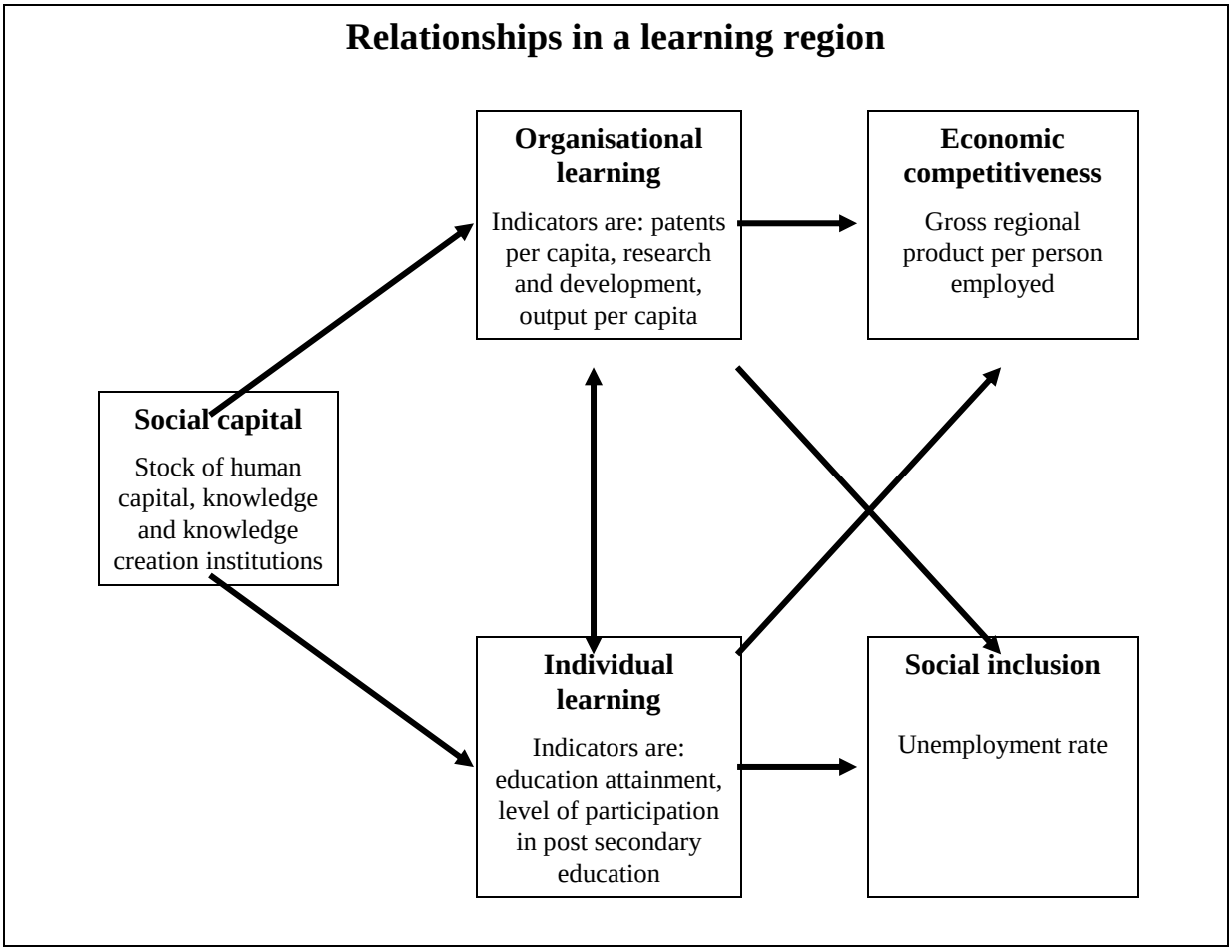
(ii) whether there is a positive relationship between a learning commitment and socioeconomic outcomes.

In order to measure learning commitment the OECD segmented learning into two types:

- organisational learning; and
- individual learning.

There are two necessary conditions for learning to occur. They are:

- individuals must be equipped or skilled to create or adopt knowledge (individual learning); and
- organisational learning must reflect the commitment of the firms and enterprises where individuals work to create knowledge.



To measure the degree of organisational commitment to learning, the OECD suggests:

(i) patents per capita; and

(ii) research and development expenditure.

Measures to represent the degree of individual learning commitment would consist of:

(i) enrolments in tertiary institutions; and

(ii) educational attainment in the workforce.

The appropriate performance indicators, the OECD suggests, should be:

(i) the quantity and quality of economic activity; and

(ii) the degree of social inclusion.

The actual indicators selected by the OECD to reflect these factors are:

(i) gross regional product per capita; and

(ii) the unemployment rate.

9.3 The OECD findings

The OECD carried out correlation analysis across 180 European Union regions. The findings were:

(i) a strong positive correlation between gross regional product per capita and secondary educational attainment ($R^2 = 0.56$);

(ii) a relatively weak correlation between tertiary education attainment and economic performance ($R^2 = 0.27$);

(iii) a strong correlation between R and D expenditures and patent applications per capita ($R^2 = 0.81$);

(iv) a strong correlation between GRP per capita and patent application per capita ($R^2 = 0.61$);

(v) a strong correlation between R&D expenditures per capita and GRP per capita ($R^2 = 0.66$);

(vi) a strong correlation between patent applications per capita and secondary education attainment ($R^2 = 0.58$);

(vii) a moderate correlation between patent applications per capita and tertiary education attainment ($R^2 = 0.35$); and

(viii) a relatively weak correlation between unemployment rate and secondary education attainment ($R^2 = 0.28$).

The conclusions of the OECD analysis were:

(i) education attainment (that is individual learning) exerts a relatively weak influence towards lowering social exclusion;

(ii) there is a strong relationship between organisational (patents and R&D) learning and economic growth;

(iii) the strong relationship between education attainment and patents suggests that the main influence of individual learning is via its role in strengthening the performance of organisational learning.

9.4 The NIEIR Australian results

The OECD results have been duplicated for Australia using the State of the Regions database. Figure 9.1 shows the correlation results between education attainment and patent applications per 1,000 capita, or what is referred to below as patent intensity. Education attainment is the part of the population with a tertiary qualification. The individual tertiary categories are weighted to reflect differentials in productivity as measured by relative wage rates.

The results show a high correlation between education attainment and patent intensity. The correlation coefficient is 0.54. The impact, however, is non-linear. Up to a 20 per cent education attainment level there is little impact on patent intensity which is around 1 per 1,000 capita over a decade. A doubling of the tertiary education attainment ratio from 20 to 40 per cent triples the patent intensity. This is, increases patent intensity from 1 to 3 per 1,000 capita over a decade.

The results from Figure 9.7 are the most important from the analysis. The figure shows the correlation between economic activity and patent application per capita. In order to remove the distortions created by mining activity, non-mining gross regional product per non-mining person employed is the selected economic activity indicator. The correlation is high at 0.72. An increase in patent applications per 1,000 population from 1 to 2 per 1,000 population over a decade is associated with an increase in gross non-mining regional product per person employed from $46,000 to $70,000. Patent activity of 3 per capita over a decade is associated with a productivity level of just under $90,000 in 1996 prices.

The direction of causation can go in either direction. But what can be stated firmly is that a high level of patent activity is essential to at least maintain a high level of productivity as measured by gross non-mining regional product per person employed. That is, strong organisational knowledge is essential for at least the maintenance for sustained successful economic outcomes.

Another strong relationship is given in Figure 9.2, which shows a strong non-linear correlation between the per cent of the population enrolled at universities and patent intensity. Again, the major patent intensity response is for an enrolment level of between 4 and 8 per cent.

The Australian relationships are stronger than the OECD results in two areas. From Figure 9.19, there is a stronger (negative) correlation between tertiary education attainment and unemployment or social exclusion than in the OECD study. The R^2 is 0.38. Education attainment is highly correlated with reductions in the unemployment rate for tertiary education attainment percentages of between 20 and 40 per cent. Within this range the effective unemployment rate declines from 10 per cent to 2 per cent. Individual learning is more strongly associated with social inclusion than in OECD Europe.

The other area where the Australian results are stronger is in the relationship between productivity and educational attainment, Figure 9.9. The correlation coefficient is 0.33.

Where the Australian results are substantially inferior to the OECD study results is in R and D supply (that is, R and D industry output or ANZSIC 781 output) by region. There is only weak correlation between R and D supply and the productivity and unemployment indicators. Moreover, there is no relationship between R and D demand and R and D supply as shown in Figure 9.14. (R and D demand is obtained by applying the 1998 Australian R and D expenditure intensity coefficient by industry to the appropriate industry outputs by region.)

The important inference from these results is that Australia is not obtaining the benefits from R and D expenditures that would be expected from overseas precedent, because either/or:

(i) there is a mis-match between the location of R and D infrastructure and the demand for R and D;

(ii) government and university R and D has not been linked to either short or long run industry requirements;

(iii) there is a low level of connectiveness between R and D institutions and their region of location.

All the R and D supply correlations are poor. For example from Figure 9.13, the correlation coefficient between productivity and R and D supply per person employed has a correlation coefficient of 0.12.

In terms of the other figures:

(i) there is a weak correlation between R and D supply and university enrolments (Figure 9.11);

(ii) there is a very weak relationship between patents and R and D supply (Figure 9.10);

(iii) there is a strong relationship between global knowledge occupations in a region and university enrolments (Figure 9.5);

(iv) there is a moderate relationship between symbolic analysts occupations in the regional industry structure and university enrolments (Figure 9.6); and

(v) there is a good relationship between education attainment and global knowledge occupations available in the region (Figure 9.4).

9.5 Conclusion

The conclusion is that from the Australian data:

(i) the strength of commitment of a region to being a knowledge region is strongly linked to good economic outcomes;

(ii) organisational learning as reflected in patent activity is strongly linked to good regional economic outcomes;

(iii) the level of tertiary education attainment is linked to good economic outcomes in terms of higher productivity and lower unemployment; and

(iv) R and D supply activity is performing poorly in influencing positive economic outcomes.

Figure 9.1 : Educational Attainment vs Patents

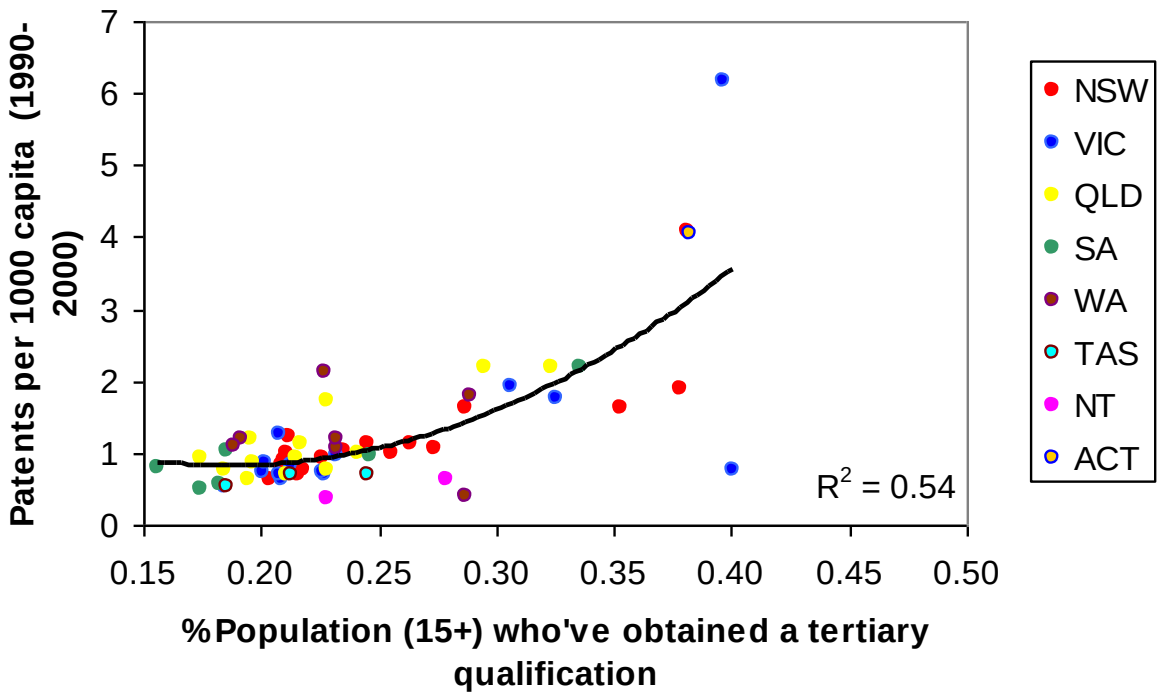


Figure 9.2: University Attendees vs Patents

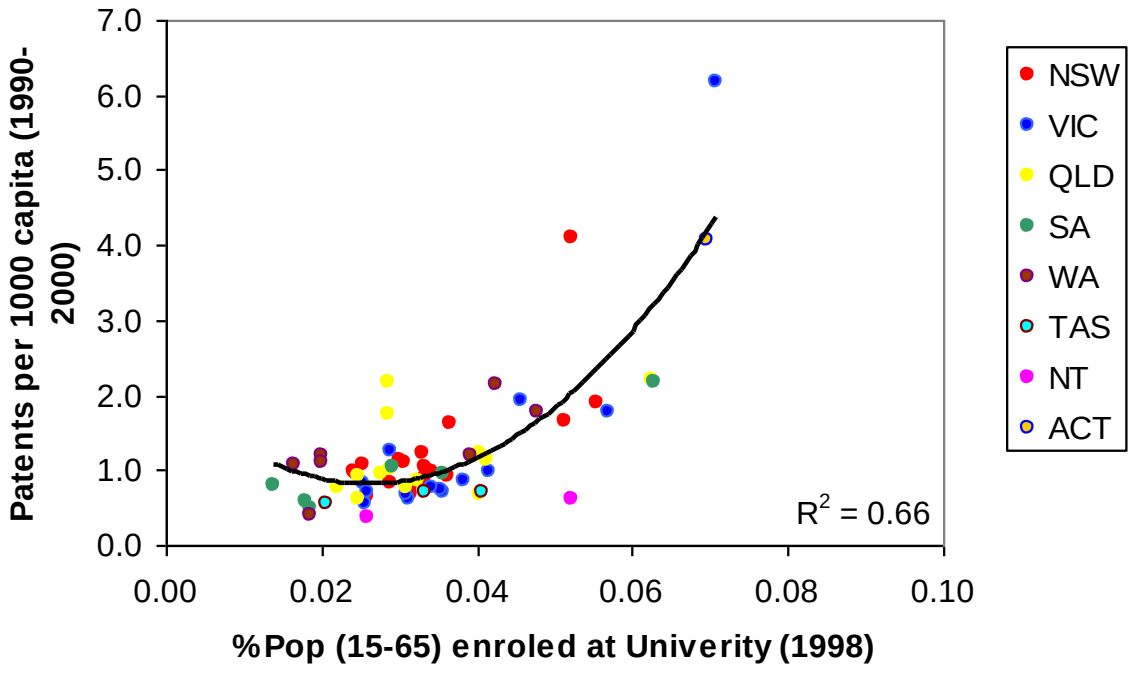


Figure 9.3: Global knowledge capability vs ratio of knowledge workers to routine workers

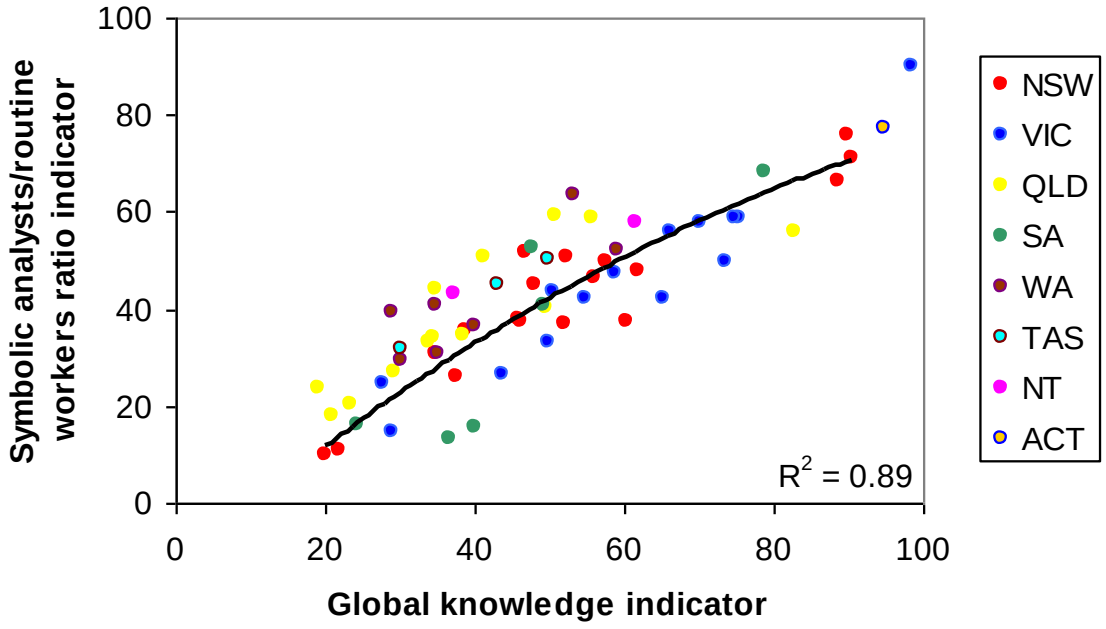


Figure 9.4: Educational Attainment vs Global Knowledge

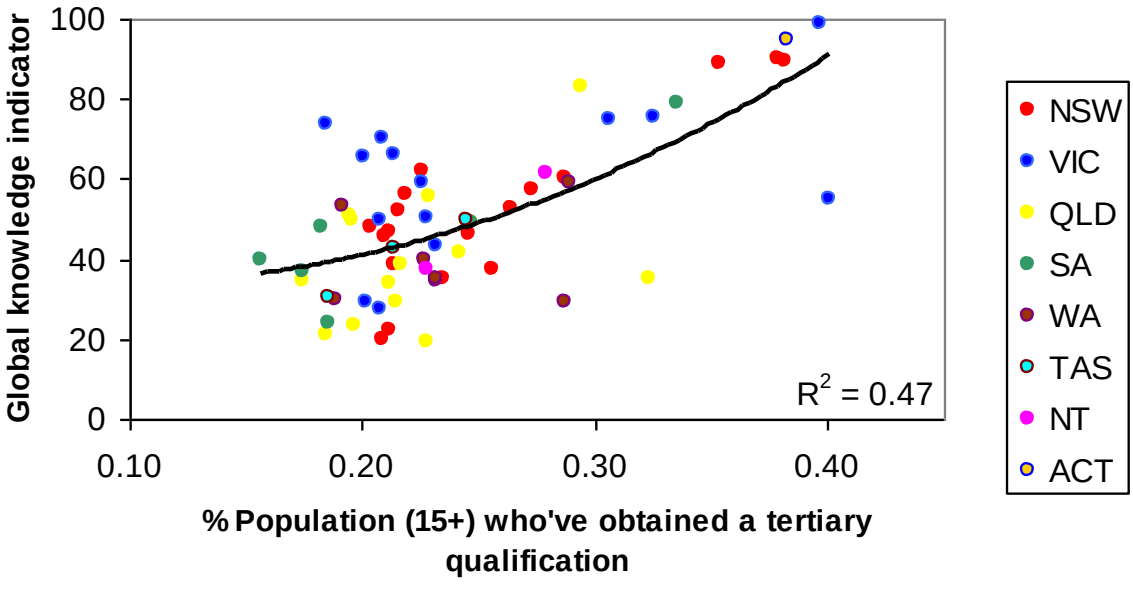


Figure 9.5: Global Knowledge vs University Attendees

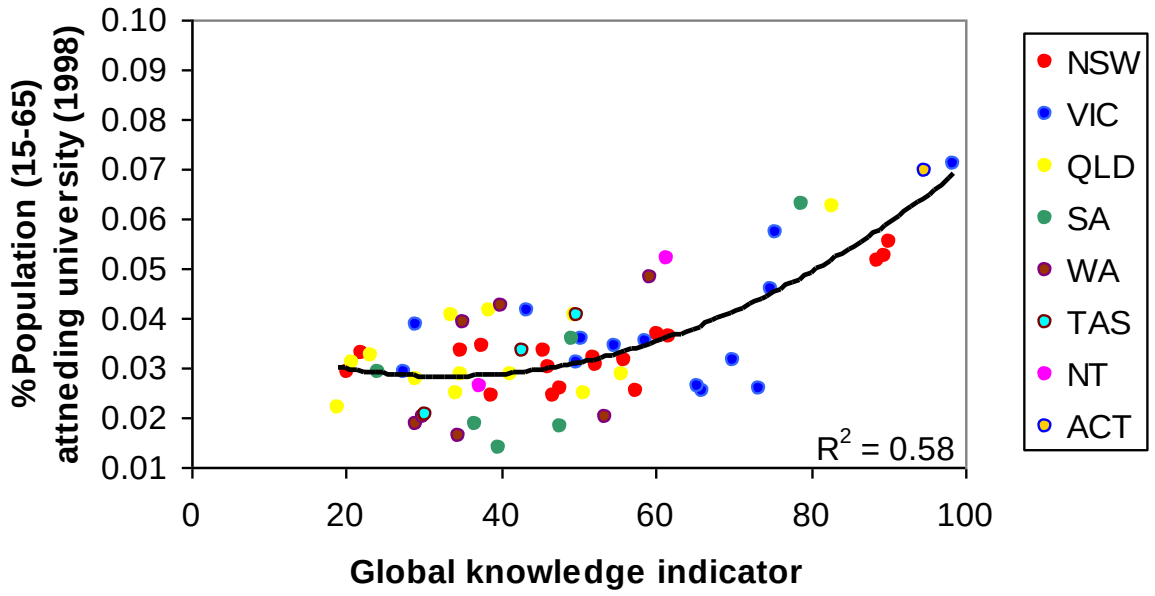


Figure 9.6: Symbolic Analysts/Routine Workers Ratio vs University Attendees

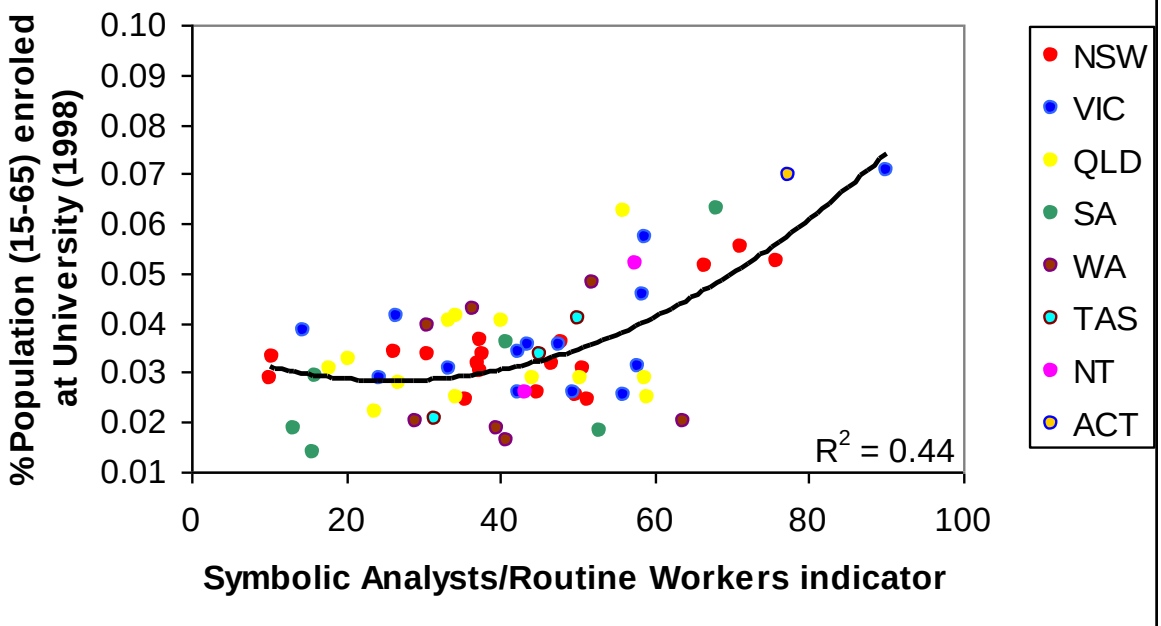


Figure 9.7: GRP (minus mining) per person employed vs Patents

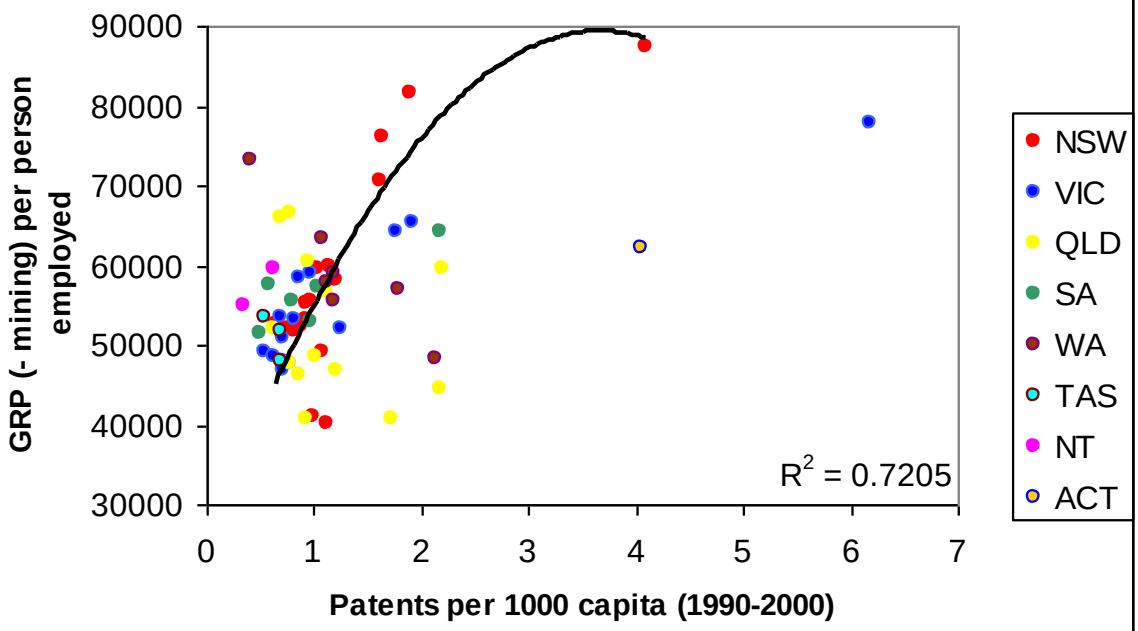


Figure 9.8: GRP per resident vs Patents per capita

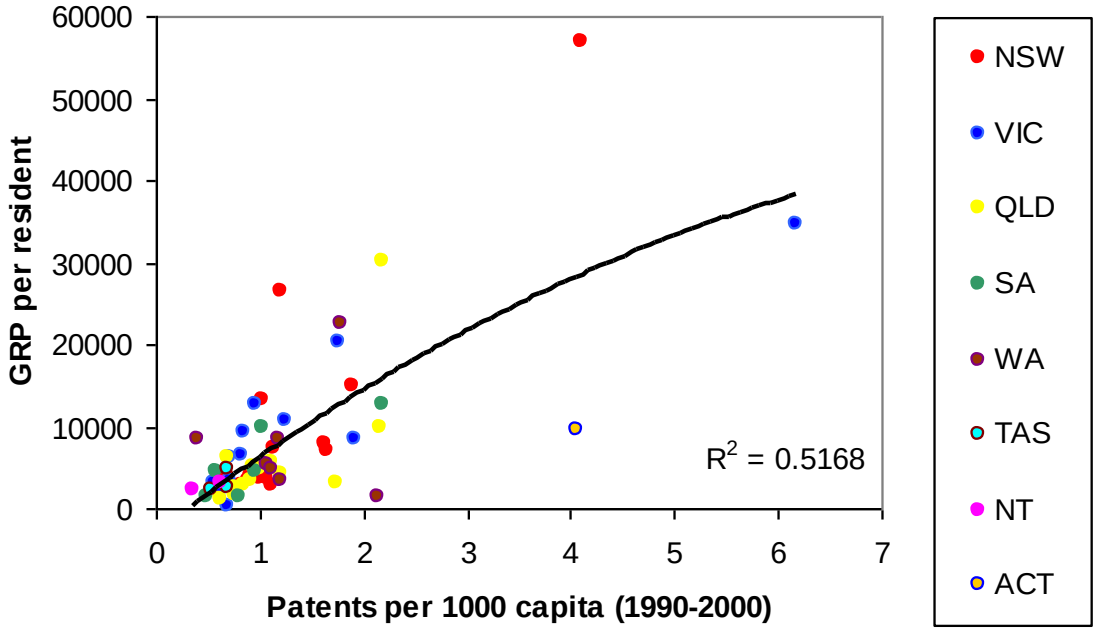


Figure 9.9: GRP (minus mining) per person employed vs Educational Attainment

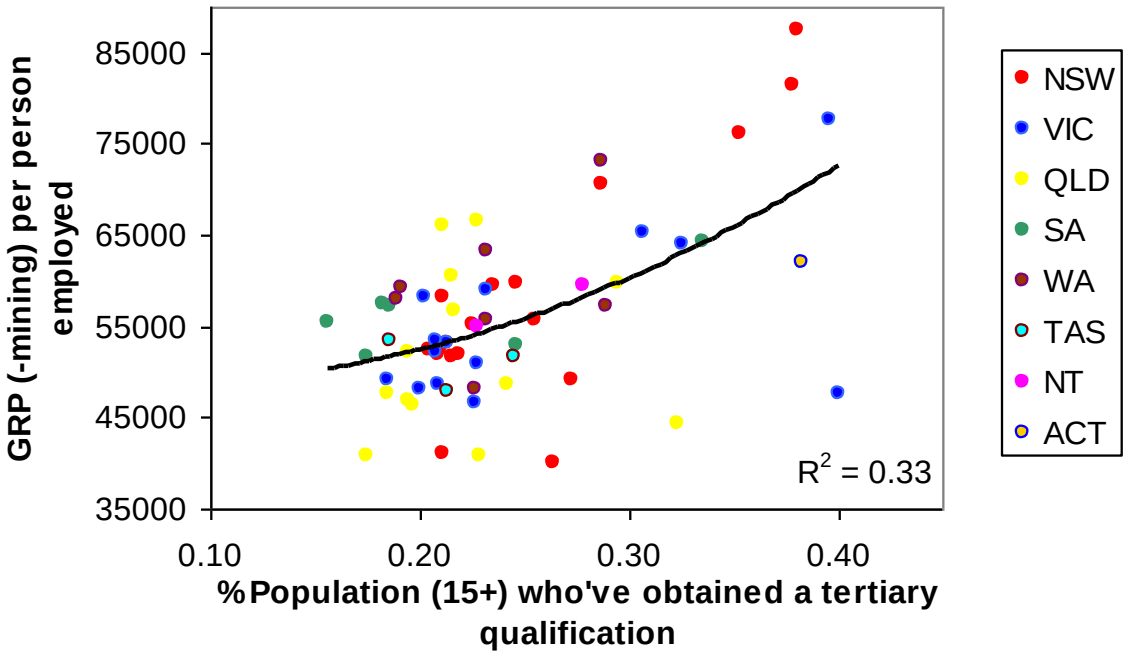


Figure 9.10: R&D Supply vs Patents

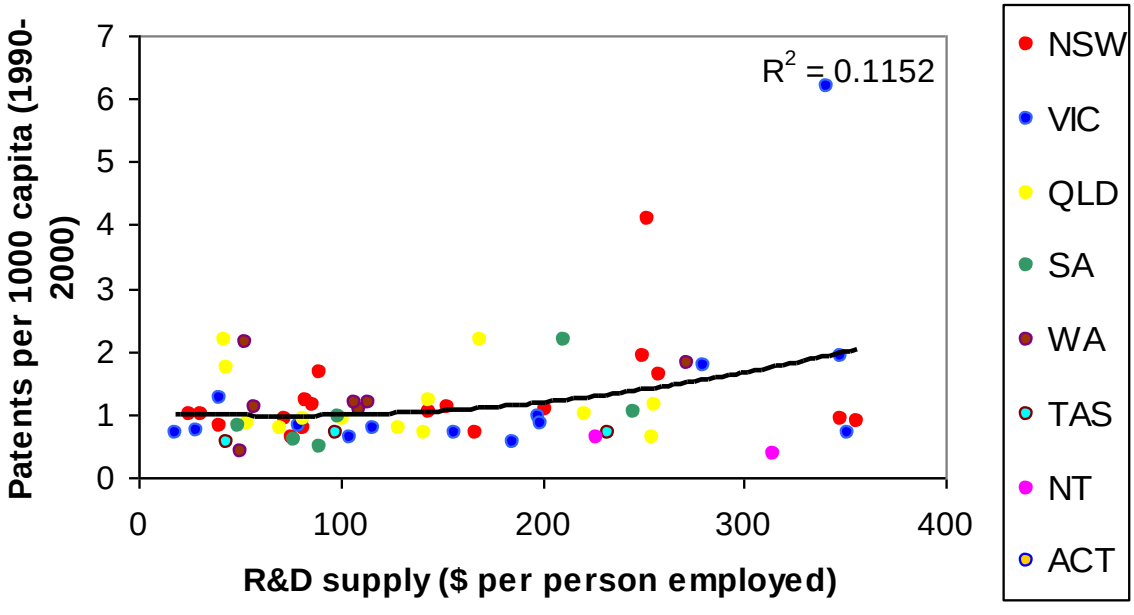


Figure 9.11: R&D Supply vs University Attendees

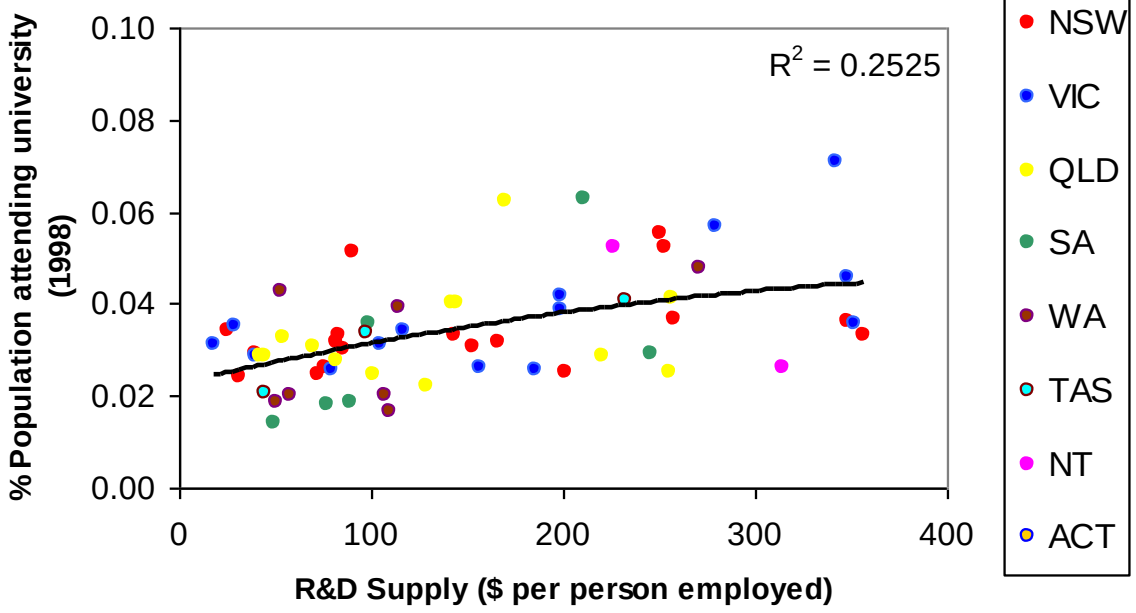


Figure 9.12: GRP (minus mining) per person employed vs R&D Demand

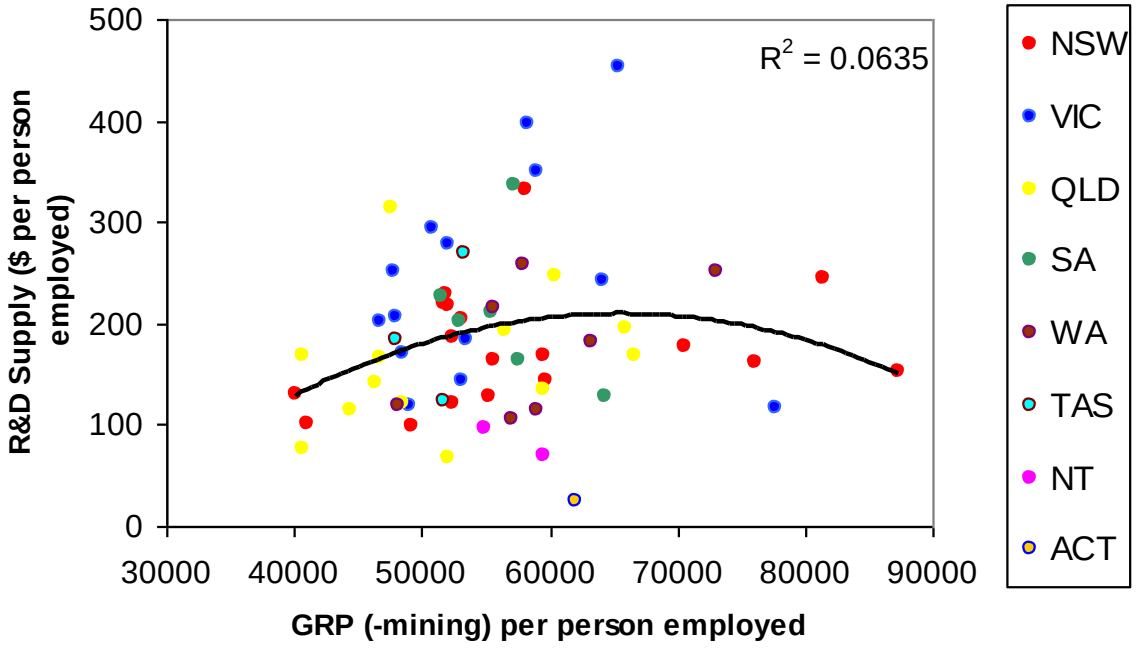


Figure 9.13: GRP (minus mining) per person employed vs R&D Supply

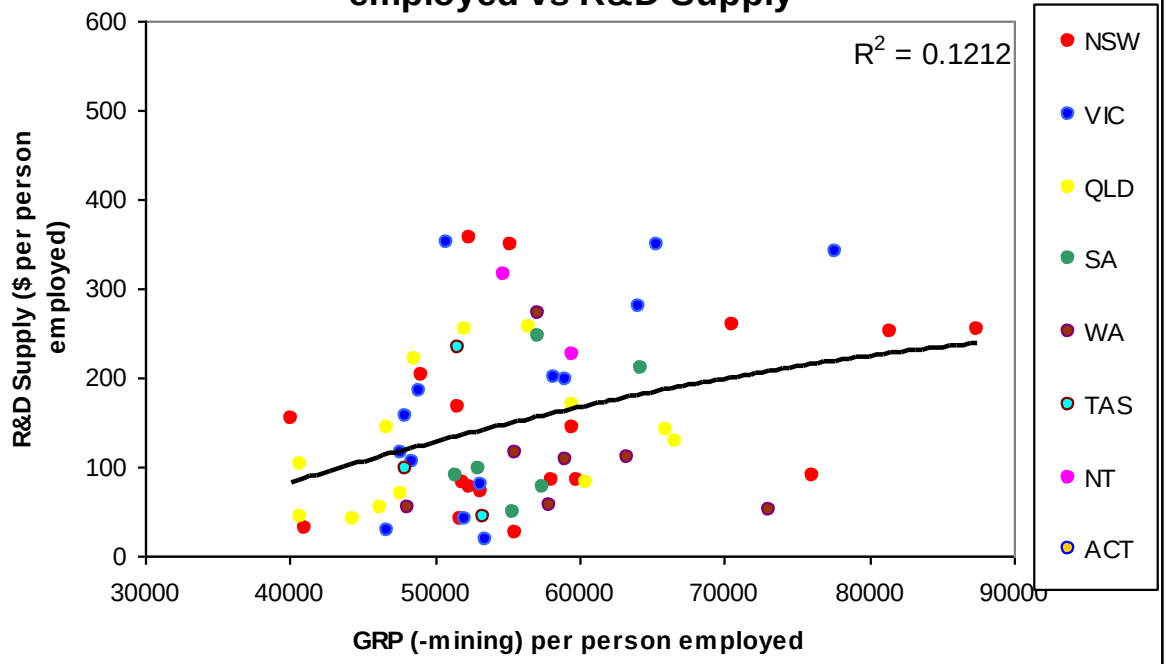


Figure 9.14: R&D Demand Rank vs R&D Supply Rank

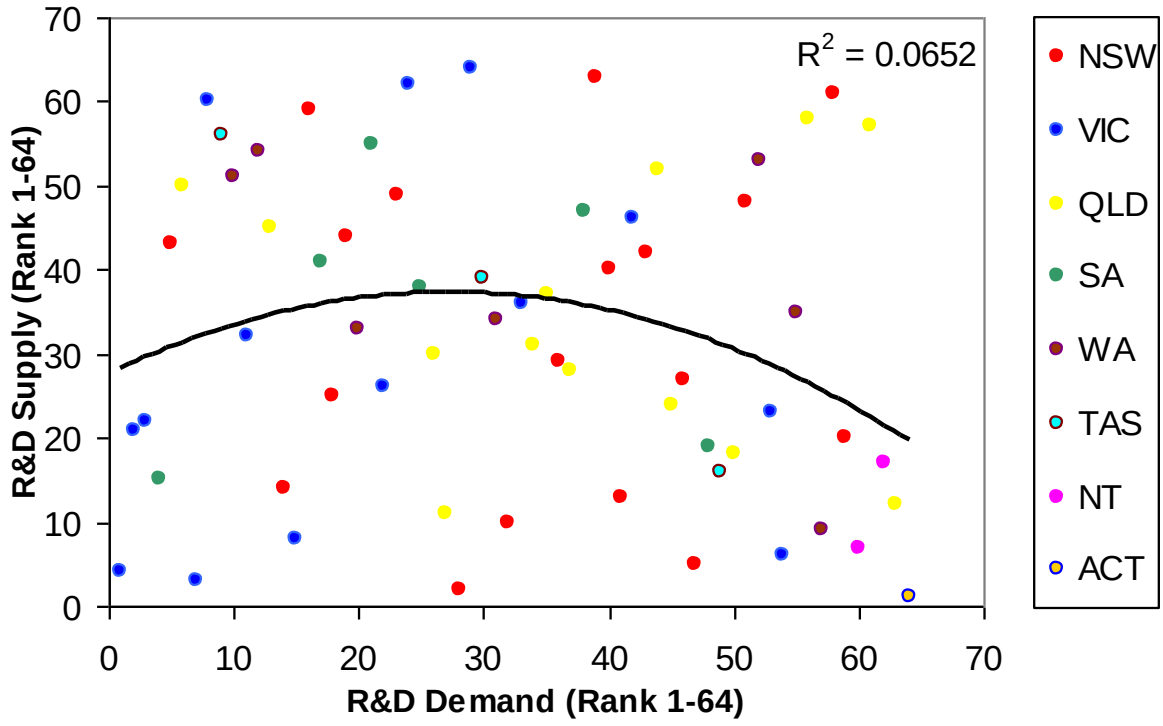


Figure 9.15: Unemployment vs R&D Demand

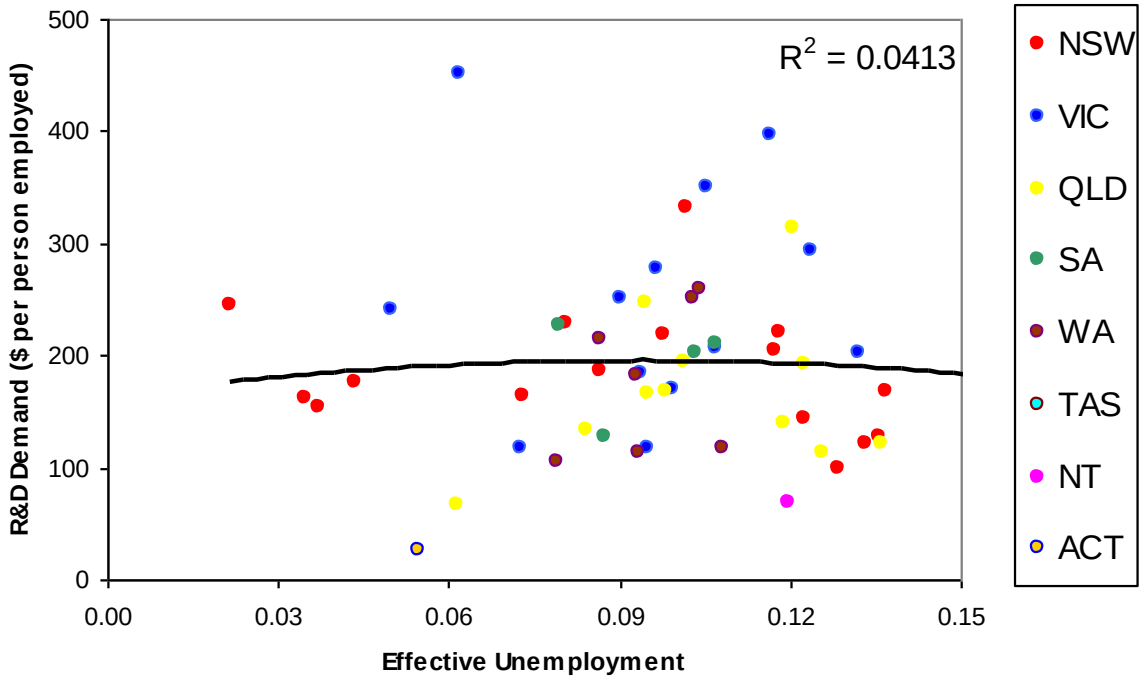


Figure 9.16: Unemployment vs R&D Supply

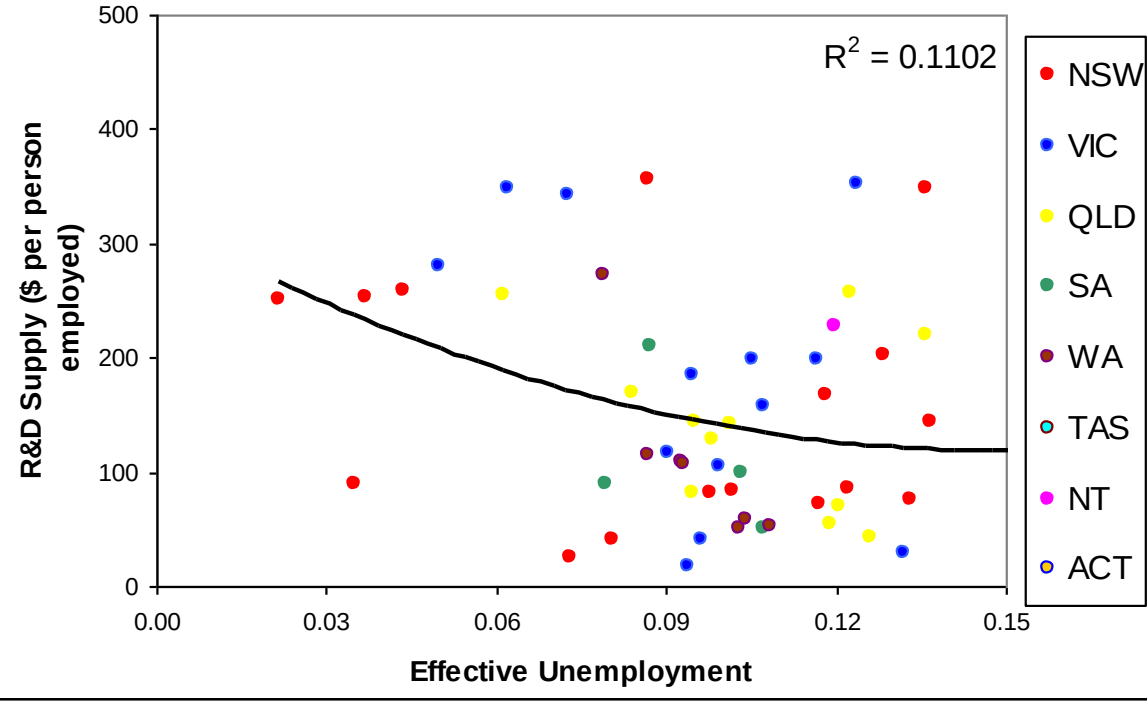


Figure 9.17: Unemployment vs R&D Supply

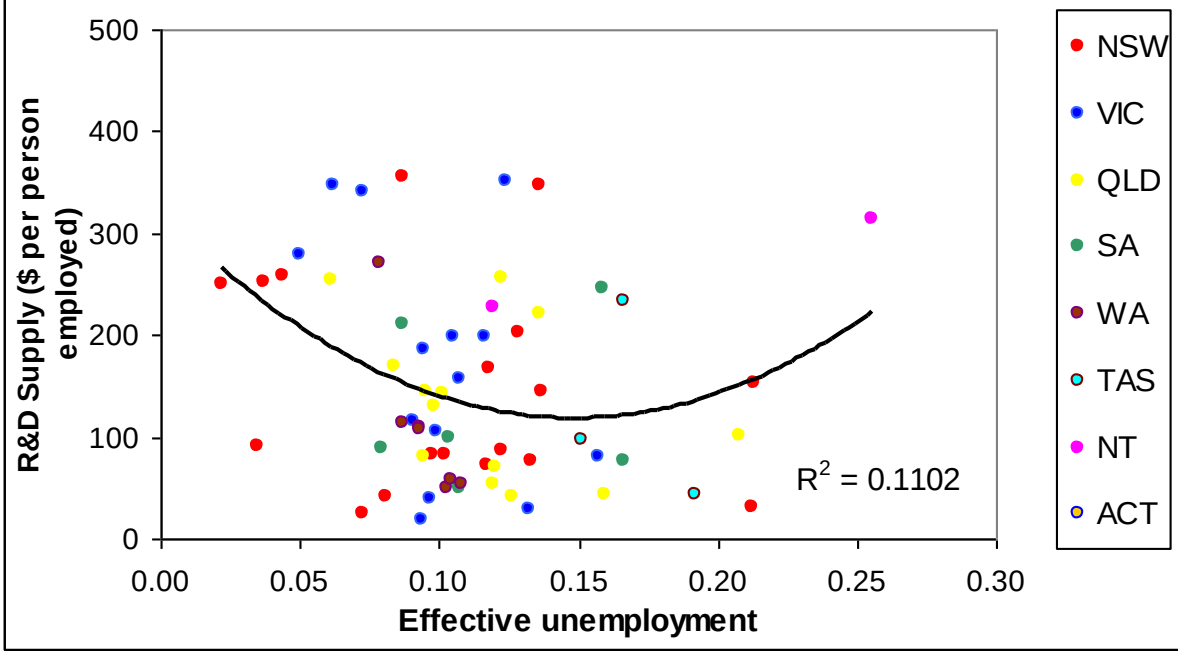


Figure 9.18: Unemployment vs R&D Demand

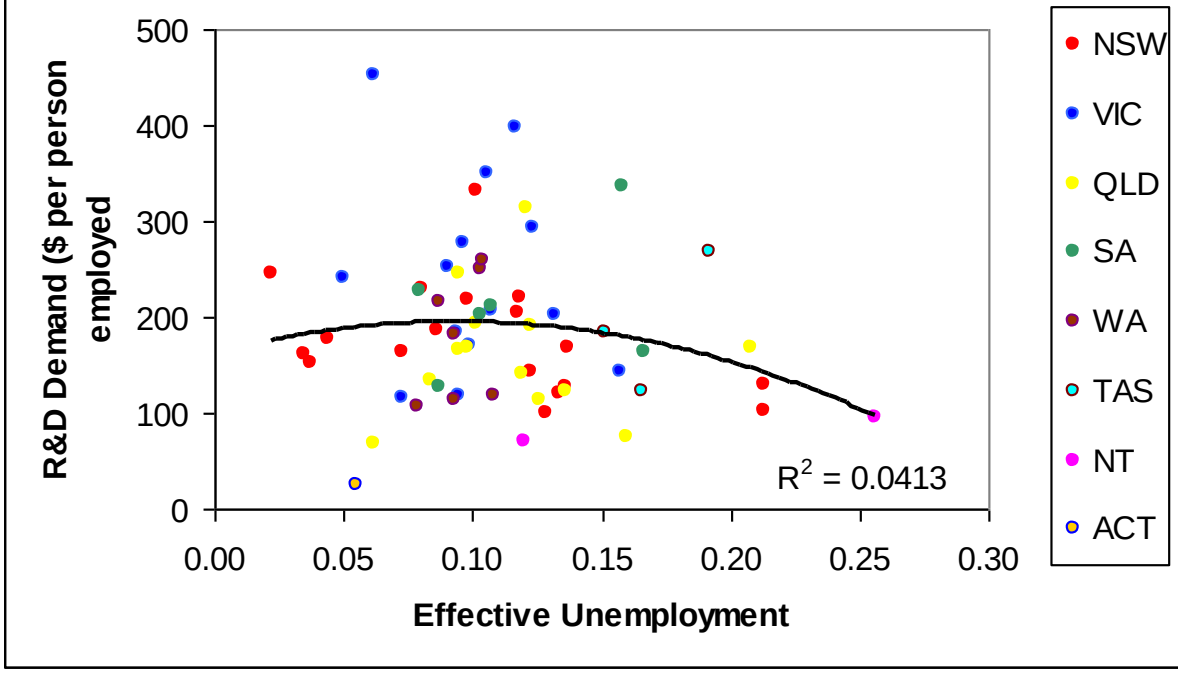
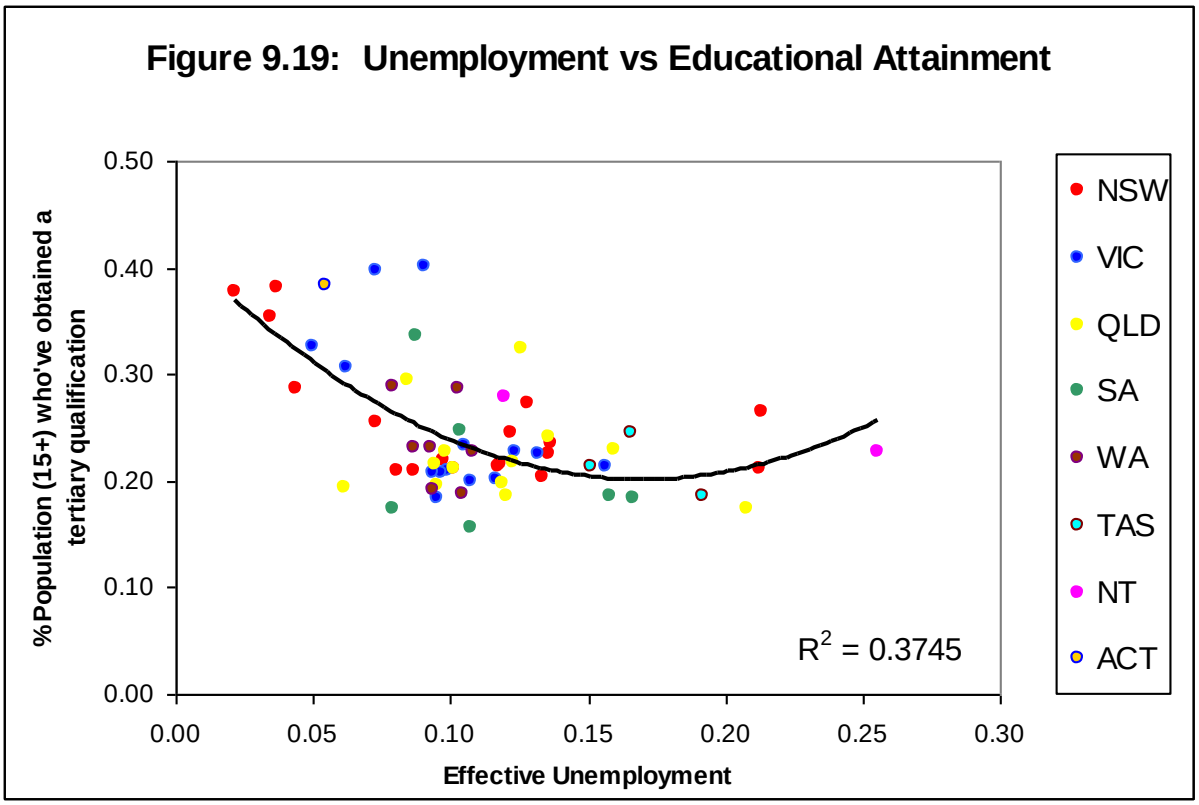


Figure 9.19: Unemployment vs Educational Attainment



10. Regional knowledge-based economies: Australian case studies

To consider in more detail how Australian regions are responding to the challenges of the knowledge-based economy, nine case studies were selected. Some of the case studies use SOR boundaries and others are sub-regions of amalgamations of SOR regions. The case studies are designed to be representative of the different types of regions and we have selected four rural (including one provincial city), two lifestyle, one production sub-region, one combined core and dispersed region and one combined production and dispersed region. Each one follows a format that considers their economic profile, industry dynamics, strategies and policies, knowledge-based initiatives including skills and organisational learning. The results demonstrate that there is a high level of commitment and innovation in developing and implementing strategies for the knowledge-based economy.

The nine case studies are:

Gippsland

Gold Coast

New England North West NSW

Northern Tasmania

Northern Adelaide

South Western Perth

Greater Western Sydney

Wide Bay Burnett

Ballarat

10.1 Gippsland

10.1.1 Introduction

Gippsland incorporates five[44] Local Government Areas (LGA's) in eastern Victoria. The area has long been recognised as one of the State's major 'regions', but it is only relatively recently that Gippsland has been delineated as an incorporated area requiring targeted regional economic development initiatives.

Delineation of the region occurred in 1995 when Gippsland Development Ltd (GDL) was established in recognition of the economic interdependence of Gippsland's component sub-regions and industries. GDL provides a framework within which key regional stakeholders can work together to facilitate the future economic development of Gippsland. It acts as a catalyst for linking the efforts of the various different levels of government, the private sector, local training providers and other regional organisations.

[44] Bass Coast Shire is also considered to be part of Gippsland by some organisations, but it is not a member of the regional development organisation and has therefore been left out of this case study. However, some of the statistics presented in this document relate to the ABS statistical division of Gippsland, which does incorporate Bass Coast.

10.1.2 Regional overview

Gippsland covers approximately 41,500 square kilometres at an average density of around 5.32 persons per square kilometre. This is considerably lower that the State average of 21 persons per square kilometre. However, there is considerable variation in population density across Gippsland. The Shire of East Gippsland averages just under 2 persons per square kilometre, but the municipality of La Trobe has more than 50 persons per square kilometre.

Gippsland currently accounts for approximately 4.5% of Victoria's total population and around 16% of the non-metropolitan population. The La Trobe Valley represents the region's major conglomeration of people, accounting for around one third of Gippsland's population despite the fact that it only represents 3.4% of total land area.

Overall, the population of Gippsland is expected to grow relatively little during the next decade. The projected population growth the region between 2001 and 2011 is around 3,500 or 0.16% per annum (Table 10.1). The State of Victoria is expected to grow by 0.7% per annum during the same period.

Table 10.1 Gippsland population change 2001-06

Area	Population 2001	% of Vic	Population 2011	% of Vic	Ave Annual Change 2001-2011
Baw Baw	35,986	0.8%	38,059	0.7%	0.6%
East Gippsland	40,644	0.9%	42,490	0.8%	0.4%
La Trobe	70,673	1.5%	70,848	1.4%	0.0%
South Gippsland	26,136	0.5%	26,378	0.5%	0.1%
Wellington	42,473	0.9%	41,585	0.8%	-0.2%
Total Gippsland	215,912	4.5%	219,360	4.3%	0.2%
Victoria	**4,770,414**	**100.0%**	**5,099,070**	**100.0%**	**0.7%**

Source: DOI, 2000.

10.1.3 Economic Development

Traditionally, Gippsland's economy has been underpinned by coal oil and gas mining, energy production, engineering, agriculture, forestry and fishing. More recently, the region has developed strengths in tourism and education.

Restructuring of Victoria's electricity industry over the last decade has seen a dramatic decline in the number of people employed in mining and energy production activities. Changes in commodity prices, production processes and lifestyle preferences have also seen the number of workers engaged in agricultural activities decline in recent years. Similarly, the forestry and fishing industries have also experienced declining employment rates.

Overall, the number of people employed in Gippsland dropped by more than 20,000 between 1991 and 2000, a decline of around 2.03% per annum. The official unemployment rate in the region jumped from 7.2% to 10.5% over the same period, however, it is estimated that the effective unemployment rate in Gippsland was actually closer to 16.2%. in 2000.[45]

The dramatic restructuring of Gippsland's traditional industries has generated strong demand for re-training and up-skilling services in the region. However, education facilities in Gippsland not only play a crucial role in helping workers shift into alternative industries, they are also developing as new industry in their own right. The Gippsland campus of Monash University is currently developing programs designed to attract international and extra-regional students. Similarly, the Energy Education Australia (EEA) consortium is developing educational products that it is marketing throughout Australia and South East Asia.

Gippsland's relative proximity to Melbourne and its abundant rural and natural scenery are also facilitating the development of the region's tourism industry. Linkages with the growing education sector are also being established through programs such as McMillan College's Bachelor of Applied Science which has specialised in tourism, eco-tourism and hospitality management.

The restructuring of Gippsland's traditional industries has seen the region's total economic output decline significantly over the last ten years. In 1991 Gross Regional Product (GRP including dwellings) in Gippsland was around $7,912.2 million[46]. By 1998 this had dropped to $6,485.4 representing an average annual decline of 2.8% over the period.[47]

Household incomes in Gippsland tend to be lower than Victorian averages. More than one quarter of households in Gippsland are have weekly incomes of less than $300 whereas the figure for Victoria is around 19%. There is also a lower proportion of high income households in Gippsland. Only 15.7% of households in the region have weekly incomes in excess of $1,500. Overall, Victoria has more than 24% of households with incomes above this threshold.

Table 10.2 Gippsland Gross Household Incomes 1996

Weekly Income	No. H/holds	% H/holds	Vic % H/holds
Neg/Nil	402	0.7%	0.7%
$1-119	546	1.0%	0.8%
$120-299	12,638	23.4%	17.5%
$300-499	10,546	19.5%	15.9%
$500-699	7,414	13.7%	13.5%
$700-999	7,901	14.6%	16.1%
$1,000-1,499	5,719	10.6%	14.5%
$1,500-$1,999	1,642	3.0%	5.2%
$2,000+	1,120	2.1%	4.8%
Not stated/other	6,099	11.3%	11.0%
Total	**54,027**	**100.0%**	**100.0%**

Source: ABS Census information.

45 National Economics, 2000

46 Figures cited are $1998

47 National Economics, 2000

10.1.4 Organisational Learning

Industry dynamics

Major elements of Gippsland's industry structure are as follows[48]:

- Retail trade; agriculture forestry and fishing; manufacturing; and health and community services are the key employment sectors in the region.
- Gippsland has a significantly higher proportion of people employed in agriculture, forestry and fishing than Victoria overall (~8.5% higher). The region also has a greater proportion of people employed in electricity, gas and water supply (~3.8% higher), but employment in this sector declined significantly (12%) between 1986 and 1996.
- Although manufacturing employs a significant number of people in Gippsland, proportionally this sector is smaller than it is in Victoria overall (~5.6% smaller).
- Employment in property and business services grew from 3% to 6.4% between 1986 and 1996, but this sector still accounts for a relatively low proportion of jobs in comparison to the State average (~3.5% lower).

Little information is currently available regarding Gippsland's 'readiness for the new economy'. However Monash University's business incubator, GREEN inc., has recently conducted an IT skills audit and analysis of the region. The results of this study should be available in early 2002.

Regional policy

Various organisations are involved in the formulation of economic development strategies for Gippsland. These include:

- Gippsland Development;
- Team Gippsland;
- The 5 municipal councils in the region;
- Regional Development Victoria; and
- the recently established Local Learning and Education Networks (LLENs) in South Gippsland/Bass Coast, Baw Baw/La Trobe, East Gippsland/Wellington.

Gippsland Development Ltd (GDL) is the principal regional development agency in the area. GDL is a non profit, public company comprising representatives from government, the business community, post secondary education and training institutes and other regional organisations. It is supported by the participating municipalities, the private sector and works closely with the State and Federal governments to facilitate the future economic development of the region.[49]

Team Gippsland is an initiative of Gippsland Development. It primarily functions as an information network for businesses and individuals who are interested in regional development issues in Gippsland. It provides targeted information services to various industry sectors in the region and also promotes and markets Gippsland's products and expertise outside the region.

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[48] Australian Bureau of Statistics

[49] http://www.gdl.com.au/AboutGDL/Default.asp

Table 10.3 Gippsland Employment Profile, 1996

Industry	No. Persons Employed	%	% Vic
Agriculture, Forestry and Fishing	6,831	12%	4%
Mining	392	1%	0%
Manufacturing	5,908	11%	16%
Electricity, Gas and Water Supply	2,483	4%	1%
Construction	3,925	7%	6%
Wholesale Trade	2,498	5%	6%
Retail Trade	7,956	14%	14%
Accommodation, Cafes and Restaurants	2,112	4%	4%
Transport and Storage	1,447	3%	4%
Communication Services	772	1%	2%
Finance and Insurance	1,695	3%	4%
Property and Business Services	3,546	6%	10%
Government Administration and Defence	1,921	3%	4%
Education	4,440	8%	7%
Health and Community Services	4,735	9%	9%
Cultural and Recreational Services	940	2%	2%
Personal and Other Services	1,811	3%	3%
Non-classifiable economic units	738	1%	2%
Not stated	1,041	2%	2%
Total	**55,191**	**100%**	**100%**

Each of the five municipalities that are members of the GDL organisation also operate economic development strategies. Generally, the initiatives outlined in these strategies focus on the need to boost local employment opportunities, retain and encourage traditional industries (agriculture and mining) and foster the development of new industry sectors based on the rural and natural assets of the region, particularly tourism. Education initiatives designed to broaden career options particularly in the areas of technological, cultural and health services are also a common theme.[50]

Regional Development Victoria, or Business Victoria as it is commonly known, is the State government agency charged with the responsibility of developing policy for regional development and delivering programs to enhance economic and infrastructure development, investment attraction, job creation and community development in regional and rural Victoria.[51]

The Victorian Government has also recently established the Local Learning and Employment Network (LLEN) program. The LLENs are intended to foster community linkages by allowing any individual or organisation with an interest in post compulsory education, training and employment to be a member of the network.

Gippsland has three LLENs. The LLEN program is also guided by a policy framework which is specifically oriented towards the development of education and learning in regional areas such as Gippsland. Because the LLEN program has only been operating for the last six months, the individual LLENs in Gippsland are yet to develop specific localised policy frameworks. However , when developed, these localised policies are likely to draw upon the recommendations of the *Kirby Report* which reviewed post compulsory education and training pathways in Victoria.

The report emphasises the importance of coherent and outwards looking policy frameworks, greater collaboration and integration between providers, stronger linkages between education and training,

50 See Spiller Gibbins Swan et.al., 1996 for a brief summary of the economic development strategies of each council..

51 http://www.dsd.vic.gov.au/web/dsrd/dsrdsite.nsf/dsrd

industry, other government agencies and the community, and a more seamless system. In particular it highlighted the importance of partnership between government and communities and the development of local responses and cooperation in meeting the diverse needs of communities.[52]

Each LLEN has a Committee of Management that represents this wider membership with committee members being drawn from each the following:

- Schools; both Government and Non-Government
- Training and Further Education (TAFE) Colleges or Universities with TAFE sectors
- Adult and Community Education organisations
- Other education and training organisations including private registered training organisation, universities and group training companies
- Trade Unions, Peak Trade Union organisations, Regional Trade Union organisations
- Employers/Peak employer organisations/regional employer organisations and employment agencies
- Local Government
- Other Community Agencies and organisations including Commonwealth and State government departments, Adult, Community and Further Education Regional Councils, regional Youth Committees, Area Consultative Committees
- Koorie organisations, Peak Koorie agencies and Regional Koorie organisations
- Community Members (individuals not organisations).

Regional Economic Development Strategy – Key 'Learning' Objectives

Gippsland Development Limited (GDL) produced a regional economic strategy[53] in 1996. This document continues to provide the primary framework for regional economic development initiatives. The strategy identified a series of actions and initiatives to facilitate economic development. These fall into 4 categories:

- Developing competitive industry sectors;
- Regional co-operation and global perspective;
- Developing capacity of the region to perform; and
- Promotion and Marketing.

The last two of these categories include specific education and learning objectives. That is, they aim to improve Gippsland's performance by developing its human and physical infrastructure, and to attract investment, technology, skills and wealth.[54]

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52 http://www.llen.vic.gov.au/llen/about/policy.htm

53 See Spiller Gibbins Swan, 1996

54 Spiller Gibbins Swan et.al., 1999

R&D, education institutions and industry services

Gippsland is home to the Churchill campus of Monash University. This facility currently has approximately 2,000 students studying at the campus and a further 5,500 are studying through distance education. Eight of Monash's ten faculties are represented at the Gippsland Campus: Art and Design, Arts, Business and Economics, Education, Education, Engineering, Information Technology, Science and Medicine, Nursing and Health Sciences. The University's research and development activities are co-ordinated via the Gippsland Research and Information Service (GRIS). GRIS commenced trading in October 1997 as a not for profit regional information service, jointly owned by the La Trobe City, Bass Coast, Baw Baw, East Gippsland and South Gippsland Shire Councils. It was first established in 1982 by GIAE academics and in 1989 it became part of Monash University following amalgamations with GIAE. Business, Economics and Information Technology are the major areas of research at the Gippsland Campus. Specific research centres include:

- Centre for Gippsland Studies;
- Research Unit on Work and Communications Futures;
- Gippsland Centre for Environmental Science;
- Centre for Rural Communities;
- Centre for Applied Research and Development;
- Centre for Multimedia and Hypermedia Research;
- Centre for Electronic Commerce;
- Gippsland Regional Economic and Environmental Network (GREEN); and
- The School of Rural Health.

The defining features of the Monash Gippsland campus are its extensive involvement in distance education across the local region and across Australia and its ongoing commitment to multi sectoral educational facilities. The University has recently announced the development of the Gippsland Integrated Learning Centre (GILC) which will built at Churchill, on the Monash Gippsland campus. GILC is a $12m education centre that was announced in May 2001 as part of the Victorian government initiatives to improve education outcomes in the Gippsland. The partners in the development are Monash University, Kurnai College Morwell, Gippsland TAFE and Gippsland Group Training. GILC will offer a range of ground-breaking educational pathways and programs to up to 750 secondary students as well as TAFE and adults.[55]

Vocational Education and Training

Two TAFE colleges provide vocational education and training in Gippsland: Central Gippsland Institute of TAFE and East Gippsland Institute of TAFE. Central Gippsland TAFE (GippsTAFE) operates a Business Development Unit (BDU) which focuses specifically on the development of customised training services for local business and industry. The BDU also offers a range of consultancy services including:

- Mentoring for the development of training plans;
- Development of distance learning packages
- Identification of current workplace competencies
- Skills audits and training needs analyses

55 Hambly, 2000

- International training, translation and facilitation services
- Student and business exchanges between China and Gippsland.

The Business Development Unit also maintains alliances and partnerships with other training providers such as, ETTA Training and SMART training to ensure a co-ordinated and professional approach to industry training in the region.[56]

East Gippsland Institute of TAFE operates a commercial business unit called South East Australian Training Services. This unit specialises in the provision of competency based vocational education and training services to local industries. These training services have been utilised by companies in the following industry sectors:

- Oil & Gas
- Process Manufacturing
- Food Processing
- Correctional Services
- Forestry & Timber
- Federal, State & Local Government
- Defence Services
- Construction/Engineering
- Agriculture
- Natural Resources & Environment

South East Australian Training Services specialises in:

- Skills audits and training needs analyses for the workplace
- Reviews and development of competency based training systems
- Development of enterprise competency standards
- Alignment of enterprise competency standards with national qualifications
- Development of learning/assessment strategies to integrate training within the workplace
- Project management of community based development programs
- Occupational Health & Safety (including Workcover approved courses)

The Gippsland Regional Economic and Environmental Network Inc. (GREEN) is a small business incubator affiliated with Monash University. The objective of this organisation is to aid the development of environmentally responsible high tech business in the region. GREEN was involved in the development of the highly successful Messenger Pty Ltd a web site authoring and hosting service based in Churchill. GREEN also provides a regional data service 'gippsland.com' and is currently involved in IT skills audit of workers in the Gippsland region.

[56] http://www.gippstafe.vic.edu.au/default.html

10.1.5 Individual Learning

The number of primary school students in Gippsland has grown moderately in recent times. In the decade between 1986 and 1996 the number of children attending primary level schools rose from 15,771 to 16,461.

By contrast, the number of secondary students in Gippsland declined between the 1986 and 1996 censuses. In 1986 there were 12,124 people attending a secondary school and by 1996 this figure had dropped to 11,693.

Attendance at TAFE and University's has increased steadily in Gippsland. In 1986 there were 2,308 people attending TAFE and by 1996 this had risen to 2,660. University enrolment has increased relatively rapidly during the same period, increasing from 1,662 to 3,123.

Qualification levels in Gippsland improved considerably between 1986 and 1996. The proportion of qualified people in the region holding a bachelor degree or higher increased from 10.6% to 12.7% over this period. In particular, the level of people with a bachelor degree increased by from 8% to 16.7% and those with undergraduate or associate diploma's rose from 12% to 19.3% of the qualified population. The proportion of people with basic vocational qualifications declined from 20.4% to 9.8% over the same period.

However, while education levels have increased substantially in Gippsland, the region's population is still poorly qualified relative to Victorian State averages. For example, Gippsland has almost 11% fewer people with a bachelor degree and 13% more people with skilled vocational qualifications.

Table 10.4 Educational Attainment of Qualified Person (15+ years) Gippsland, 1996

Qualification	No. Persons	%	Vic %
Higher degree	645	2.1%	4.4%
Postgraduate diploma	1363	4.5%	5.5%
Bachelor degree	5055	16.7%	27.4%
Total Undergraduate & Associate diploma	5866	19.3%	19.9%
Skilled vocational qualification	13770	45.4%	32.4%
Basic vocational qualification	2959	9.8%	8.1%
Inadequately described	664	2.2%	2.4%
Total	**30322**	**100.0%**	**100.0%**

Note: Percentages given are with 'not state' responses excluded.
Source: ABS Census data

Gippsland has relatively few workers that are involved in knowledge based industries and high proportions low skilled service and routine workers. The National Economics *Your Place* database estimates only 13.4% of workers in Gippsland are employed as 'symbolic analysts' or knowledge workers. This is low in comparison to the figures for other 'resource based regions' such as Darwin (24.4%) the Pilbara-Kimberly (17.7%) and North West Queensland (15.4%). Gippsland's performance is particularly poor relative to regions like Inner Melbourne (35%) and Global Sydney (35.5%).

10.2 Gold Coast Region

10.2.1 Introduction

The Gold Coast region is located in the south east corner of Queensland and includes Gold Coast City, Beaudesert Shire, Logan City, Redlands Shire. Some documentation also includes the Tweed Shire (in New South Wales) as part of the Gold Coast Region as it is a logical extension in economic development terms. However for the purposes of this case study the Gold Coast Region will only include the Local Government Areas in Queensland, unless otherwise stated.

10.2.2 Regional overview

The Gold Coast Region consists of 6,300 square kilometres, extending from a coastal strip (Pacific Ocean) into a hinterland which encompasses components of the Great Dividing Range. The population density is 145 people per square kilometre, which is significantly higher density than Queensland at 2 persons per square kilometre.

The Gold Coast region had a population of 792,511 in June 1999, half of which is situated in the Local Government Area of the Gold Coast City[57]. Additionally, it should be noted that the region attracts significantly high visitor numbers, and these are not included in the population counts.

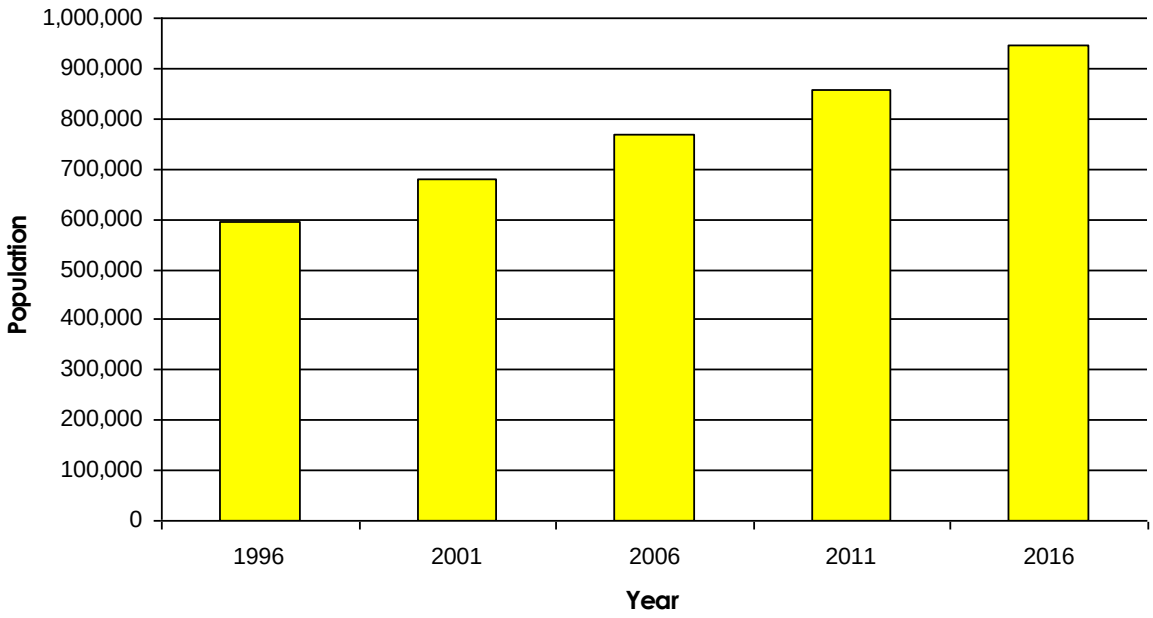
Gold Coast City has grown at 6% p.a. compounded over the last fifty years with rates declining slightly in the 1990s. The city has recorded a significantly faster growth rate than any other city in Queensland. It grew by approximately 20,000 people in 1988-99 and peaked between 1992 and 1995 with an increase of 30,000 per year. The Local Government Areas in the region have had strong growth with Logan and Redlands having their strongest growth in the 70s and 80s. However growth rates are beginning to slow, particularly in Logan. Beaudesert started growing in 1980s and is continuing to grow rapidly. The graph shows the Gold coast region is predicted to increase to just under one million in 2016.

The second graph below shows the Local Governments predicted growth rates in the region between 1996 and 2016 in comparison to Queensland and South East Queensland.

Beaudesert is predicted to have the highest percentage growth between 1996 and 2016 (2.8%). Redlands, Gold Coast City and Beaudesert are all predicted to have higher rates of growth than South East Queensland and Queensland as a whole.

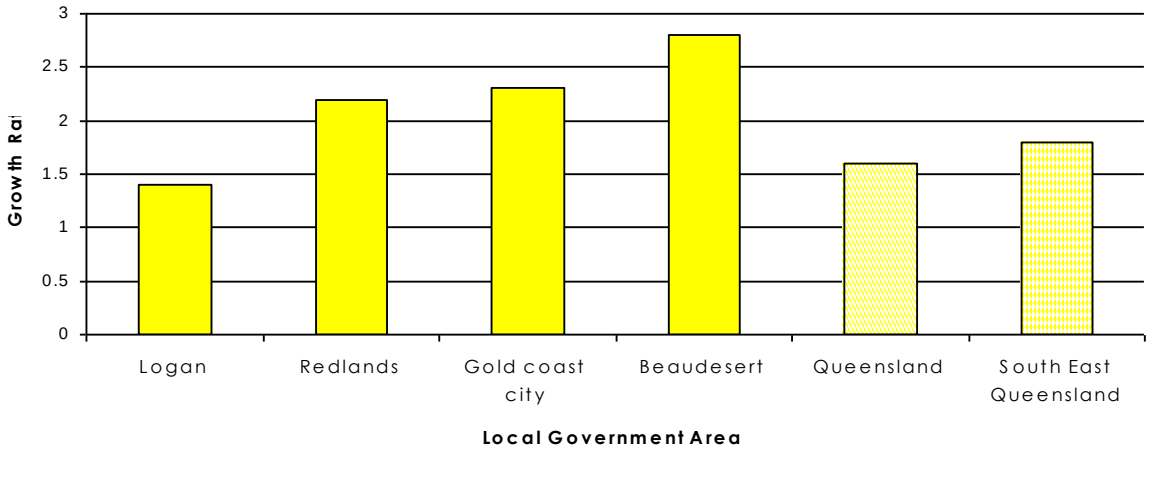
[57] (CEDA, 2000).

Figure 10.1: Population Projections for the Gold Coast Region 1996-2016



Source: OESR, Regional Economic Report: Gold Coast City, April, 2001.

Figure 10.2: Predicted Growth Rate Between 1996 and 2016 for the Gold Coast LGA compared with Queensland



Source: OESR, Regional Economic Report: Gold coast City, April 2001

Population growth in South East Queensland is driven by interstate migration but increasingly by international migration. International migration is expected to remain strong. There is a long term movement of people in the southern states to the north states into areas such as the Gold Coast.

The age profile of the Gold coast region is similar to Queensland overall. The Gold Coast City has a substantially higher proportion of older people than Logan or Beaudesert which have a higher number of younger working age people. The high number of older people on the Gold coast is likely to be due to the attractiveness of Gold coast to retirees.

However there is evidence that the Gold coast is attracting younger and mobile people seeking employment and business opportunities[58]

10.2.3 Economic Development

The major contributors to economy by local government area are as follows:

- **Gold coast City**: Property and Business services, retail trade and construction:
- **Beaudesert Shire**: Agriculture, construction, Property and Business Services
- **Redland Shire**: Construction, property and business services, retail trade
- **Logan Shire**: retail trade, construction, property and business services.

Gold Coast is internationally recognised as one of Australia's primary tourist destinations for its climate, beaches, themed entertainment and night life. The City also accommodates a large proportion of the Southern Corridor's growing population. The strength of the City's construction industry and the recreation, personal and professional services and retail trade sectors reflects the large population base and the ever increasing tourist numbers to the area.

The availability of sufficient tracts of land, heavy industry zoning and good highway access has resulted in the area becoming a major large scale manufacturing centre. The area around Beenleigh, Yatala and Stapylton in particular, is the focus of large scale manufacturing in the Gold Coast. Gold Coast also boasts a significant education sector, housing two of the region's major tertiary institutions, Bond University and Griffith University.

Logan forms part of Brisbane's orbit with almost 60% of the City's working population commuting to the capital city to work each day. Logan's strength lies in its manufacturing sector, focused mainly on small scale manufacturing activities such as machinery and equipment manufacturing, metal fabrication, wood products and furniture, paper and paper products manufacture etc. Other significant areas of economic activity include property and business services, retailing and education. Logan's wholesale trade sector is also strong given its proximity to businesses and retailers.

Redland, traditionally known for its role as a 'market garden' to Brisbane is undergoing a rapid transformation from a rural Shire into an outlying suburb of Brisbane. A rise in population levels has seen many of the small farms giving the Shire its rural feel being replaced with residential subdivisions. Nevertheless, Redland's agricultural sector is still significant, in particular with the growth of certain niche industries. The poultry industry is the largest contributor to agricultural turnover in the Shire and the flower industry has grown in importance over the last five years.

[58] (CEDA, 2000).

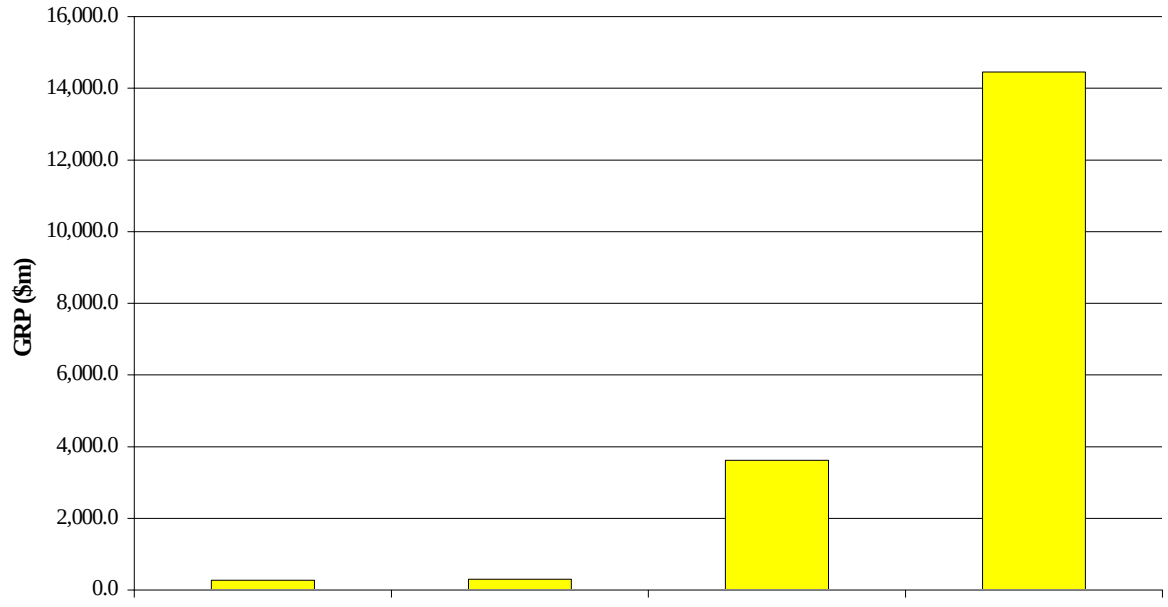
With a general shift away from agriculture, Redland is now placing greater focus on opportunities for recreation, leisure and tourism based activities. In particular, eco-tourism and bayside day trips associated with North Stradbroke Island provide major opportunities for the Shire. Other potential growth areas in the Shire include 'clean/green' manufacturing, information and knowledge based industry and small business development given the attraction of the Shire as a place in which to work and live.

Beaudesert provides a mixture of rural and urban lifestyles with a number of rural-residential dormitory areas being established. Much of the industrial activity of the Shire relates to its rural strengths with a vibrant processing base being established, centred around Bromelton. Major activities include meat, gelatine and leather processing.

Tourism provides another of the Shire's strengths with eco-tourism experiences offered at Tamborine Mountain and Lamington National Park. Eco-tourism and education oriented tourism provides a focus for future development in the Beaudesert Shire. The Shire is also a major exporter of education services with Kooralbyn International School and Hills International School providing education at both the primary and secondary levels to overseas students (SGS, 1996)

The Gold Coast City's natural attractions have positioned tourism as the major driver of economic growth. The Gold Coast City economy is also dependant on logistics that service population growth (eg property & business services, manufacture of building material etc.

Figure 10.3: Gold Coast Region Gross Regional Product – Output



Source: ALGA, Your Place NIEIR,2000

Figure 3 above clearly shows the contribution the services sector makes to the regions economy. A major contributor to this sector in the construction industry which accounts for 30% of the value of the states total building approvals[59]. Tourism and retailing are also a major component of the services sector.

The Australian Taxation Office indicates average incomes for the local government areas in the Gold coast region:

- Gold Coast City taxable income: $28,538
- Logan City taxable income is $28,355
- Beaudesert Shire taxable income is $25,853
- Redland Shire taxable income is $31,123 (CEDA).

The total labour force in June 1999 was 397,056 or 50.10% of the population (CEDA). The table below shows the major industry employment sectors in each local government area.

Table 10.5 Employment strengths by local government in industry

Logan	Gold coast City	Beaudesert	Redland
• retail • wholesale • and communication services	• Manufacturing • construction • retail • Wholesale • Accomodation, Café and Retaurants • Finance and Insurance • Property and Business Services • Health and Community Services • Cultural and Recreational Services • Personal and other services	• Agriculture • Construction • Transport	• retail, • wholesale, • property and business services • construction • education • health and community services • Personal and other services

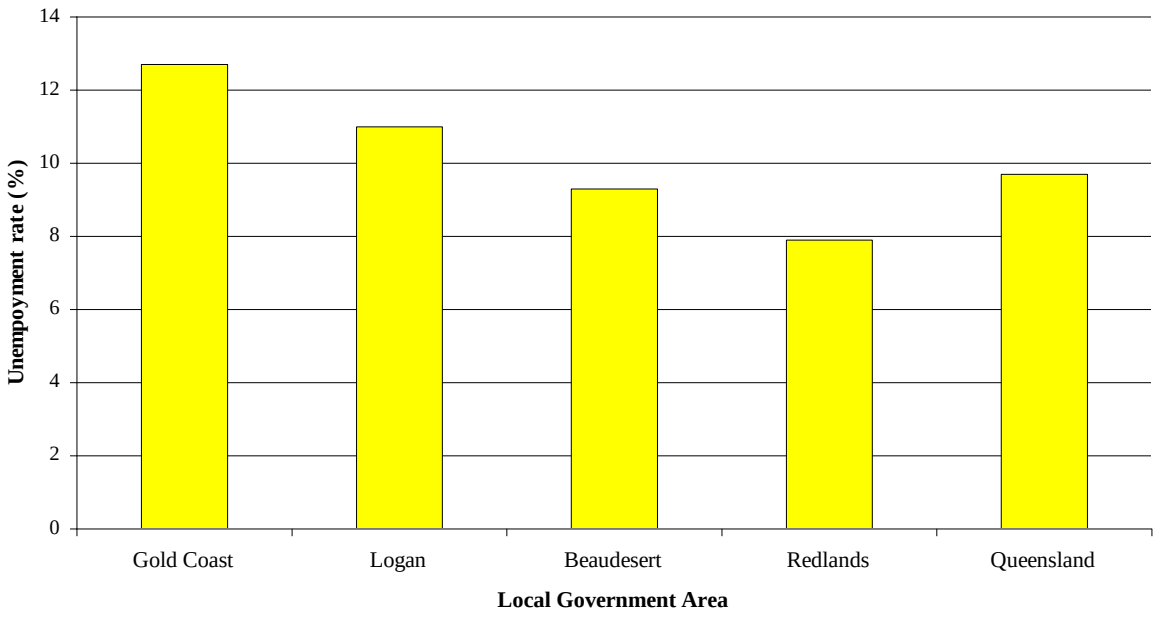
Source: CEDA, 2000.

The unemployment rates in Gold Coast Region are on average one or two points higher than Brisbane and the rest of Queensland. The graph below shows Logan (12.7%) and Gold Coast City (11%) have higher unemployment rates than the rest of Queensland (9.7%) in 1996. Beaudesert and Redlands have lower unemployment rates which is likely to be because many of the residents travel to Brisbane and Gold Coast for employment or take advantage of the extent of agriculture opportunities in these area.[60]

[59] (CEDA, 2000)

[60] (CEDA, 2000).

Figure 10.4: Unemployment Rate in 1996 by Local Government



Source: OESR, Regional Profiles August 2000, Gold Coast and Logan Region

Skills

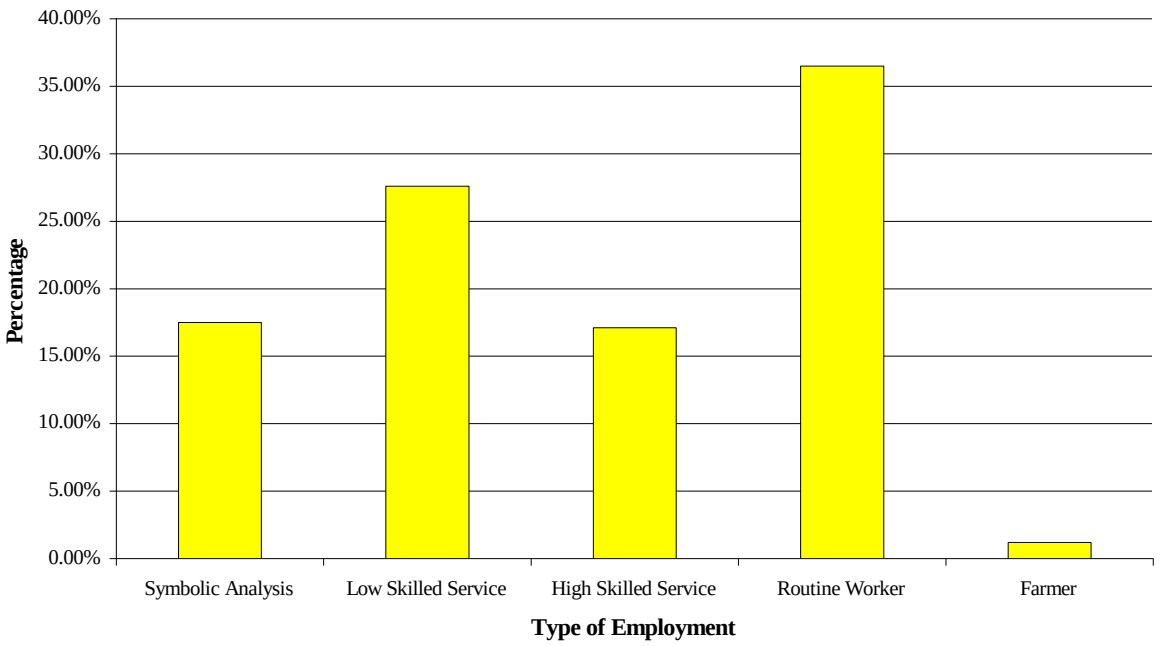
A low portion of the workforce in the Gold coast region have managerial, administrative and professional skills. There is a high proportion with skills in sales and service areas. The graph below shows the symbolic analysts and high skills services workforce is relatively low compared with the percentage in the routine worker category.

10.2.4 Organisational Learning

A report by from the Committee for Economic Development of Australia (CEDA) suggested the growth industries in the Gold Coast region are:

- Communication and information technology
- Education, training and technology development industries
- Biotechnology and Genomics
- Marine industries
- Niche General Manufacturing
- Film and Multi-media
- Niche tourism
- Agriculture and Equestrian based industries
- Home Based Business
- Food and Beverage industries.

Figure 10.5: Gold Coast Employment Breakdown in 1996



Source: NIEIR State of the regions 2000.

The majority of industry clustering and 'learning related' developments or proposals are located in Gold Coast City. A summary of these development is as follows:

- Pacific Innovation Corridor. This policy on clustering of related firms and industries sees the development of high speed low cost communications infrastructure. Gold coast City council, Universities, Boeing and Power Tel are investigating the possibility of fully integrating a communications network that utilises fibre optic cabling to Brisbane.
- Expansion of the River Marine Precinct. This is defined cluster of major marine related industries including boat manufacturing, located at Coomera. Its continued expansion is helping to attract boat building associated industries.
- Coolongatta/Tweed airport industrial precinct is being planned. This will be located on 100 hectares including land in the vicinity of the airport.
- Varsity Central at Bond University in Robina in Gold Coast City is a high technology business park designed to attract telecommunications companies.
- The Bromelton Industrial Area in Beaudesert. This is a 100 acre development for major industry.
- The town of Yatala in Gold Coast City Council has a modern manufacturing and distribution cluster.
- Gold Coast City has provided assistance and support to clusters including boat building, food processing and information and technology. In the future the Council plans to develop clustering in Automotive manufacturing, medical/aged care and Bio technology.

- A centre for Biomolecular Research and drug discovery at the Gold Coast campus of Griffith university is being investigated.[61]

There are emerging links between the region's education sector and other industries, in particular, engineering, information technology and communications, bio-technology and the film and television industry.

With such a strong international focus an opportunity exists to build upon this strength and further the export of educational services, particularly to the Asia-Pacific region but also to the rest of Australia, as synergies between technology and education open up new markets. Technological advances such as interactive video conferencing, multi-media and the Internet now permit the delivery of education services via the 'Information Super Highway'. Further to this, there is an opportunity in the region to develop links between the education sector and the region's emerging communications and information technology and film and multi-media industries

10.2.5 Regional Policy

There are several key development organisations in the Gold coast region, including:

- Gold Coast Area Consultative Commitee
- Southern Regional Organisation of councils (SouthROC)
- Southern Corridor Regional Economic Development Organisation (SCREDO)
- The Gold Coast Education and Training Network. This is a non profit incorporated association supporting the education and training industry on the Gold coast. The network currently comprises 108 education and training organisations from the region. There goal is to position the Gold coast as the preferred destination for education and training. This is carried out by numerous promotion and advertising exercises nationally and internationally such as newsletters as journal advertisements, various seminars by high profile speakers and representations internationally under the 'Study Gold Coast' banner.

10.2.6 Regional Economic Development Strategy – Key 'Learning' Objectives

The major regional policy in the Gold Coast region, that incorporates learning objectives, is the *Draft Gold Coast 2010: Economic Development Strategy*. The major initiative of this strategy is development of the Pacific Innovation Corridor which promotes clustering of industry, business and education sectors in defined precincts.

The strategy opens with a challenge, followed by a vision and then fundamentals. One of the fundamentals that Gold Coast sees as important for economic development is to create a 'learning city'. GCCC recognises the importance of life long learning as a core element of economic development.

Priorities listed in the strategy are to:

- Create a culture within the Gold Coast and industries that values life long learning.
- Strengthen links between education and industry.
- Establish a competitive advantage for Gold Coast individuals and businesses by access to online information.
- Increase the provision of research and development in the city.

[61] (GCCC, 2001).

- Investigate opportunities such as an IT centre for excellence.
- Recognise and celebrate best practice teaching and learning.

The strategy aims to make the Gold coast an 'innovative city'. The priorities for this are:

- To increase research and development output in universities, other Research facilities and individual firms.
- To value and support entrepreneurial skills.
- Create strong linkages between industry, individual firms, universities and other education and training providers.
- Support planning of Griffith University Knowledge Precinct, Griffith university Technology Park and Robina/Bond University/Varsity lakes area.

The economic development strategy also presents key industry action agendas with particular attention placed on ways to encourage research and development, education, industry/education clustering, partnerships and cooperation, support for education institutions and other learning region concepts.

The action agenda on 'education and training' demands an outcome of world class standards of excellence and also lists ways to achieve this by providing better linkages between education and training providers and industry, and attracting public and private investment for support of facilities such as the Griffith University centre for Biomolecular Science and Drug discovery.

The Pacific Innovation Corridor is an industry clustering, development and employment strategy. It is based on utilising a critical mass of related firms and industries, the availability of high speed low cost communication and the potential to harness the city's base of highly skilled employees. The corridor consists of ten specific geographic precincts with different clustering advantages. The Draft GCCC Economic development strategy lists Learning, innovation, investment, cooperation, export and marketing outcomes and actions needed to establish the precincts. The precincts are:

- A key metropolitan centre at Beenleigh. This cluster is promoted as providing mixed industry, business and government and agricultural services. It has key business services for the nearby Yatala Enterprise Centre
- Advanced design manufacturing and distribution cluster at Yatala. This has potential to cluster similar enterprises and support services. Is to be a key transport hub and components manufacturer.
- Marine Industry and Leisure at Coomera. Proposals are to extend the existing Marine manufacturing Precinct.
- Film and interactive media at Oxenford. This cluster is intended to develop film and studio production clusters around major theme parks such as Movie World.
- Medical, education, technology and business centre at Southport. This is 'nurturing' the growth of the health and medical industry cluster, centred on the Gold coast Hospital and Griffith university. A Griffith university centre for Biomolecular Science and drug discovery and technology park for innovation and research based activities is to be established in this precinct.
- World Class environment at Nerang which has mixed business and industry, distribution and government services
- International Tourism and business at surfers paradise. This a cluster of tourism leisure, entertainment, exhibitions and conventions.

- Technology, educational and medical at Robina. This area is to be a information and communication technology cluster and high tech incubator with companies including Austar, AAPT, Compaq, Powertel and Bond University. There is also potential for connection with Bond university and research and medical activities at St Vincents hospital.
- Leisure, professional, mixed business and industry at Burleigh is a clustering of professional services, mixed business and surfing and youth culture.
- Tourism, trade and medical at Coolangatta. This provides a link between the airport, a transport hub and mixed industry.[62]

These precincts are used as a key marketing tool to communicate to international and national business the competitive advantage of locating in an industry precinct in the Pacific Innovation Corridor.

10.2.7 R&D, educational institutions and industry services

The major education institutions are located within Gold Coast City. People living in Logan, Beaudesert and Redlands are likely to travel to utilise the Brisbane institutions as well as the Gold Coast for education. As proposed in Councils draft economic development strategy the GCCC is particularly keen to support the advancement of innovation and knowledge based industries. The Gold coast institutions are:

- Griffith University (GU), which has the largest enrolment levels and campuses at Logan and Gold Coast. GU holds courses in tourism and hospitality management, engineering , health sciences, education and information technology.
- Bond University which has strengths in Law, business and Information Technology.
- Southern Cross University campus at Coolangatta offers courses in business and management.
- Central Queensland University
- Cooperative research centre for sustainable tourism
- Griffith university's centre for coastal management
- A range of education and training institutions including Gold Coast institute of TAFE

The Gold Coast is readily developing its information and technology centre. Strong links are being developed between Griffith University and Bond University with technology and communications industries (CEDA, 2000).

There is evidence of the institutions sharing resources by links being developed between Griffith University, Logan TAFE and Logan hospital to enhance vocational training.

Overall there is a major push to attract international students. The links between technology and education are strengthening , with help from GCCC Pacific Innovation Corridor and also film, television and multi-media industries are increasing

The region has a competitive advantage in the export of education services overseas and synergies between education and technological development provides opportunities for new products and markets.

[62] (GCCC, 2001).

10.2.8 Individual Learning

The table below demonstrates that the majority of the Gold Coast region has a similar portion of people who had have completed further education as the rest of Queensland, with the exception of Logan which is substantially lower at 34.8%.

Table 10.6 Number of people with further education qualifications in Gold Coast Region

	Degree or higher	Diploma	Vocational	Total	Total population 15 years and over	Percent with qual.
Gold Coast	19,317	15,680	44,267	120,162	305,203	39.4%
Logan	5,938	5,037	16,839	40,227	115,662	34.8%
Beaudesert	2,002	1,699	5,519	12,873	34,604	37.2%
Redlands	5,227	4,473	11,926	29,482	75,826	38.9%
Gold coast Region	32,484	26,889	78,551	202,744	531,295	37.6%
Queensland	223,202	139,818	353,617	1,013,771	2,636,560	38.5%

Source: OESR, Regional Profiles – Brisbane and Moreton Region – April 1999

10.3 New England North Western NSW

10.3.1 Introduction

The New England North West (NE-NW) Region extends from a boundary with the Hunter Region in the south to the Queensland border in the north. To the east the region is bordered by the Mid-North Coast and Richmond Tweed Statistical Divisons. To the west the region borders the North Western Statistical Division[63].

The topography of the New England North West region of New South Wales consists of plateau areas of the New England Tablelands and black soil country of the North West Slopes and Plains. The western slopes comprise undulating country that flattens westwards and becomes the Western Plains. Altitudes vary from 1200 metres in significant areas of the tablelands to fewer than 200 metres for most of the plains.

10.3.2 Regional overview

The geographic area of the region was recorded at 98,606 square kilometres. Urban settlement is characterised by a network of small to medium sized towns that are relatively evenly distributed throughout the region. Based on our population figures for 2000 the region had a population density of 1.75 persons per square kilometre.

The region's population was recorded at 175,580 at the last census (1996). This represents 3% of the population of New South Wales. At that time the New England North West region had a larger proportion of young families and fewer retired people than other regions of the State. As shown in the table below the population of the region grew between 1981 and 1991, however there has been in decline since this period. Our estimates of population change between 1993 and 2000 indicate that the population declined by around 0.90% per annum. The region is experiencing a decline in population in smaller centres and a loss of employment in agriculture.

Table 10.7 New England North West, Population and Labour Force Trends

	1981	1986	1991	1996
Population	174,242	177,307	181,378	175,580
Labour Force	70,647	68,786	71,021	70,193
Employed Residents	70,645	68,786	71,019	70,191
Unemployment	5174	8893	10,140	8,358
Unemployment Rate	6.8%	11.4%	12.5%	10.6%

Source: Australian Bureau of Statistics and National Economics

Unlike many other regions in Australia the population is not aging and, commensurately, the proportion of young people in the population is increasing. The area is also home to around 10,000 indigenous people, who have generally experienced long term problems in gaining access to good jobs in the labour market.

[63] The regions consists of 19 local government areas: Barraba; Bingara; Gunnedah; Manilla; Nundle; Parry; Quirrindi; Tamworth; Yallaroi; Armidale-Dumaresq; Glen Innes; Guyra; Inverell; Severn; Tenterfield; Uralla; Walcha; Moree Plains and Narrabi.

10.3.3 Economic Development

The regional economy evolved around its natural resource base. Agriculture is a major industry in the region, with 12% of the total land area used for agricultural purposes. However, the region is more diversified structure than most rural areas in Australia. Significant areas of employment by industry in the region are:

- Agriculture;
- Education and Health
- Retail Trade;
- Manufacturing and
- Construction and Business Services.

Compared to the State average there are high proportions of workers in agriculture and a lower proportion in manufacturing and business services. There is a high proportion of professional workers, compared to most rural areas, reflecting the education, training and research activities undertaken in the region.

The region is the State's largest exporter of raw wool and manufacturing turnover represents 1.5% of the manufacturing turnover of New South Wales. The retail trade sector is a significant employer throughout the region and the region's education industry and research and development enterprises have provided opportunities for employment. The health sector is also a significant employer in the region.

There are a number of new and emerging industries in the region that are being promoted. These include aquaculture; horticulture; wine production, equine industries; tourism and intensive agriculture.

The regional has experienced decline and jobs losses in some traditional industries including forestry, abattoirs and mining.

10.3.4 Organisational Learning

There are a number of emerging clusters and networks in the region.

AgriPark Pty Ltd is developing an agribusiness park at Moree. Construction is predicted to generate around 30 jobs per year and the completed facility is expected to support up to 100 jobs.

The objectives of the development are to provide storage, processing, bulk transport, and packaging facilities for agribusiness in Northern NSW and Southern Queensland. The integrated development aims to enable regional agribusiness to value-add, utilise economies of scale and scope, alongside loading and packaging infrastructure.

Regional stakeholders suggest that the region is set to become a regional hub for technology, telecommunications and aerospace.

A number of far northern towns in the region are involved in networks and partnerships with organisations in Queensland. Regional stakeholders suggest there are many opportunities for engendering stronger cross-border relationships – for example tapping into the Brisbane/Gold Coast Tourism market and taking advantage of employment and/or training schemes available in another State. At present the NSW Premiers Department is working with border councils to examine a number of policy issues including social issues and responses to emergency events.

The Department of State and Regional Development (DSRD) has supported a Regional Export Advisers Network to assist regional business to overcome barriers to export. At present an export adviser is located in Tamworth. The objective of this program is to increase participation in international markets through direct sales and through partnerships with overseas buyers using licensing, joint ventures and business networks.

Another business network in the region is the NE-NW Forestry Investment Group. This group has received funding from the Department of Agriculture, Forestry and Fisheries and the DSRD and is responsible for developing a market driven investment orientated approach to forestry in the region.

The region has been involved a number of initiatives to enhance its readiness for the knowledge-based economy. These initiatives include:

- Successful tendering for a Community Technology Centre (funded through Networking the Nation Funds). The Community Technology Centre (CTC), in the region, is located in Walcha. The CTCs are computer enabled multi-purpose facilities that will generally provide access to Internet connected computers as well as providing printers, video and teleconferencing facilities, and e-commerce incubator facilities.
- NE-NW Telecommunications Audit – The NE-NW Area Consultative Committee commissioned an audit of telecommunications services and facilities, access to services and providers; to establish benchmarks; to assess community expectations and to identify critical gaps.
- Northern Inland Online – This is a project of the NE-NW Regional Development Board. There have been a number of stages in the project with the first stage involving the establishment of a regional web-site and development of a Work for the Dole Scheme component for the project that involved unemployed locals adding local content to the site. The second stage of the project has involved (a) providing funds for skills development programs through ACE ; (b) providing communities with local call access charges and (c) implementing NEIT.
- The open learning access centre, based in Tamworth is a centre established for more than three years as a partnership involving local government (Tamworth City Council), New England Health Service, Department of Education and Training and the New England Institute of TAFE. It works as a facility and communications hub that offers access to a range of electronic media, including on-line links, telegraphics, audio and video conferencing. Since opening the OLAC has been used by students, Council, business and others from the community. For example the OLAC's technology has enabled Woolworths' staff from all over the region to take on a retail traineeship. The TAFE has used the centre for its Flexilink program for delivering courses to a network of sites across the New England region. Tamworth City Council has used OLAC to deliver a number of profeesional development programs and carry out job interviews via video conference.
- A proposal to develop a multi-purpose learning centre in Glen Innes to encourage continuous learning in the community and access to a range of education and training providers. In part, this proposal is a response to the greater centralisation of post-secondary educational facilities in the region.

10.3.5 Regional Policy

There are a number of organisations involved in regional development in the NE-NW region. These organisations include:

- New England-North West Area Consultative Committee;
- New England-North West Regional Development Board;
- New England Local Government Group;

- Northern Area Regional Organisation of Councils;
- Chambers of Commerce;
- Business Enterprise Centres;
- Tamworth Development Corporation;
- Premiers Department Regional Coordination Program;
- Big Sky Country Regional Tourism Organisation.

At present there is no Regional Economic Development Plan/Strategy for the region. However, there have been a number of regional planning workshops held in the region in recent years. There have also been a range of projects undertaken that have focused on skills and training priorities in the region. A number of major planning and priorities activities are profiled below.

The Department of Urban Affairs and Planning is undertaking a regional planning exercise for the region. This is being conducted in partnership with local councils, other state agencies, local communities and the business sector. Last year sub-regional meetings were held with key stakeholders, including the conduct of a business forum in Tamworth. This will result in the production of a regional plan – concentrating on urban affairs and planning issues.

The region is involved with developing a Regional Priorities Framework (funded by Rural Plan Funds – Department of Transport and Regional Services) that aims to establish a strategic plan and process that will assist in guiding regional development activities. The document highlights the key priorities and activities in regional development throughout the region. The process of collecting the information and establishing better communication between stakeholder organisations is a key outcome of a Rural Plan Project.

The region has also recently hosted a pilot project of the Department of Transport and Regional Services – Regional Forums Australia Program. The aim of this forum was to identify solutions for key regional issues.

The New England North West Area Consultative Committee and the New England North West Regional Development Board have engaged consultants to conduct a regional industry skills analysis project for the region. This project, being conducted by National Economics, involves the collection and interpretation of employment, training and skills data from regional organisations. The Skills Analysis Project is intended to assist in developing strategies for employment growth and skills development and in promoting these to industry, community and government. The data will be used to identify:

- Industry growth patterns;
- industry clusters;
- skill gaps;
- employment recruitment;
- training provision and needs.

10.3.6 R&D, educational institutions and Industry Services

Stakeholders have stated that educational institutions and organisations must work together to promote diverse learning opportunities.

The University of New England is the major provider of undergraduate and postgraduate courses in the region. UNE is also a major provider of distance education and hosts a number of cooperative

research centres. Major research centres at UNE that have former key interactions with regional stakeholders include:

- Livestock Industries Institute;
- Agricultural Business Research Institute;
- Cooperative Reseach Centre (CRC) for Premium Quality Wool;
- CRC for Beef Cattle Quality;
- Cotton CRC
- George Aitken Wool Laboratory;
- Neil Yeates Meat Research Laboratory
- Centre for Agriculture and Resource Economics;
- Institute for Rural Futures and
- UNESCO Centre for Bio-Regional Resource Management.

UNE runs a number of properties for commercial scale grazing experiments including:

- Tullimba Research Feedlot;
- Kirby Property;
- Lauredale Farm;
- MacMillan Farm.

The University has also secured funds for community access centres at Quirindi, Gunnedah and Coonabarabran due to start in 2003. Through the federally funded scheme UNE Access Centres will be established in Gunnedah, Quirindi, Narrabri, Moree, Inverell, Tenterfield, Glen Innes, Boggabilla and Coonabarabran equipped with computer workstations, printers and scanners, and high speed satellite/ISDN linksto connect to the Internet and network with the University. The UNE predicts that there will be great demand for access to online learning materials from UNE in addition to other modes of flexible learning. According to UNE "schools are increasingly look for providing their good Year 12 students with the opportunity to enrol in first-year university subjects. Communities want to stop the brain drain and keep young people in their communities but enable them to participate in higher education."

10.3.7 Vocational education and training

The New England Institute of TAFE operates a range of campuses in the region. The TAFE delivers courses in fields including: Agriculture, IT, Biological Science, Tourism, Small Business, Retail; Community Services; Clothing Production; automotive, welding. There are also a number of specific courses including gemstone faceting; cotton production, broad acre agriculture, livestock and crop production.

The TAFE also operates the Armidale Rural Skills Centre that is designed to provide experience and qualifications to people who want to work on the land or in the agribusiness sector. The centre offers a wide selection of rural related certificate and diploma courses.

British Aerospace Flight Training College BAE SYSTEMS Flight Training Australia - Tamworth is a professional flying training college specialising in military pilot training. The College currently conducts training for the Australian Army, Navy and Air Force as well as the Republic of Singapore Air Force.

10.3.8 Individual Learning

The region has been selected to be involved in a Rural Communities Leadership Program, a joint initiative between NE-NW Regional Development Board, NSW Premiers and the Benevolent Society. This program is aimed at providing people with a commitment to social justice issues an experiential learning program that will assist them to help their communities with regional development issues.

In the past 15 years (1981-1996) there have been large changes in the major occupational categories in which the workforce was employed. These changes are highlighted in the table below.

Table 10.8 Workers by occupation, 1981-1996, New England – North West Region

Occupation	**1981**	**1996**
Managers	16,093 (23%)	11,910 (17%)
Professionals/Paraprofessionals	9,907 (14%)	17,436 (25%)
Tradespersons	9,163 (13%)	8,622 (12%)
Clerks and Sales	16,629 (24%)	17,886 (25%)
Operator/Labourer	18,788 (27%)	14,300 (20%)
Sub-Total	**70,580**	**70,154**

Source: Australian Bureau of Statistics

As shown in the table above there has been a decline in the proportion of the workforce in occupations that are classified as management positions, there has also been a decline in the proportion employed as Labourers and Related professions. Conversely, there has been a significant increase in the number and proportion of workers employed in the professional and paraprofessional occupations.

The region boasts excellent facilities for all major sports. The Northern Inland Academy of Sports provides training programs and competition opportunities for talented young athletes from throughout the region. Entertainment and special events include the Country Music Festival (Tamworth), the Wool Expo (Armidale), Australian Bush Music Festival (Glen Innes) and Ag-Quip (Gunnedah).

10.4 Northern Tasmania

10.4.1 Introduction

Northern Tasmania extends from Flinders Island in the north to the areas of Ross in the south. Northern Tasmania, is bounded on the east by the coast and to the west by the Western Tiers and the areas of Cressy and Deloraine. Typically, this region is referred to as Northern Tasmania and/or the Northern Region.

The region is also known as the Northern Tasmania Statistical Division, a definition used by the Australian Bureau of Statistics (ABS), that approximates the 63 telephone area code and includes eight local government areas – Break O'Day; Dorset; Flinders; George Town; Launceston; Meander Valley; North Midlands and West Tamar.

10.4.2 Regional overview

Northern Tasmania has an area of 20,700 square kilometres, which accounts for 30% of the State's land mass. The 1996 Census indicates that Northern Tasmania had a population of 129,764 or 28% of the Tasmanian population. Northern Tasmania population was 132,900 in 2000. This translates to a population growth of around 2% between 1996 and 2000. In general, Tasmania's population growth comes principally from a natural increase of about 3,000 per annum, as the relatively low level of migration to the State has been offset by a net movement of people out of Tasmania. In 2000 the region had a population density of 6.4 persons per square kilometre.

About 74 per cent of people in Northern Tasmania live in the Tamar Valley (the Greater Launceston Statistical Subdivision), although the northern municipalities experienced the largest percentage increases in population between 1991 and 1996. In 1996 the median age of the population was 34 years, and over the past 25 years the region has experienced an ageing population profile largely due to a long-term decline in the birth rate.

Over the past twenty years there have been significant changes in the composition of the workforce in Northern Tasmania. Over the period between 1976 and 1996 community services has grown from 15% of the workforce to 20%. This reflects the growth in medical services and in education through the University of Tasmania and the Australian Maritime College. Further, whilst the region has a strong manufacturing base as a share of the workforce, it has declined from 21% in 1976 to 15% in 1996.

The traditional core economy of Northern Tasmania has been manufacturing, agriculture and tourism. The core industries are generally based around a range of natural advantages such as energy, timber resources, grazing and cropping lands and the natural environment. The number of people employed in Northern Tasmania's traditional core economy sectors of manufacturing and agriculture is declining due to a number of factors – in particular the long term weakening in the terms of trade. Nevertheless, regional stakeholders[64] have reported that the existing cores will remain the main economic generators and most investment is expected to come from these businesses.

[64] Northern Tasmanian Regional Development Board, 1999, Economic and Demographic Profile of Northern Tasmania.

Northern Tasmania has found it challenging to attract new core industries – particularly due to the small size of the Tasmanian market and costs associated with maintaining links with the core metropolitan regions[65]. The emerging industries and value-adding opportunities in the region are reported to be associated with value-added food: aquaculture; wine; value added forest products; tourism and education. Wholesale and retail trade are major employers, in the region, accounting for between 20 to 25% of total employment over the past 20 years.

At the 1996 census 51.5% of the working aged population in Northern Tasmania were employed. This compares with rates of 52.5% and 56% for Tasmania and Australia respectively. At this time 11% of the population was officially recorded by the ABS as unemployed. Measuring unemployment in the region, using DEWRSB data, suggests that the employment situation has shown an improvement since September quarter 1997 and was recorded at 7.9% in December quarter 1999, this was below the corresponding rate for Tasmania. In 2000 National Economics recorded an employment growth rate, from 1991 to 2000, of 1.10% per annum. The labour force participation rate in Northern Tasmania has displayed high volatility over the past decade – with a range between 57% and 63%. These participation rates are 'at best' at least a couple of percentage points below the national average and up to six per cent below 'at worst'. Overall, the employment data for the Northern Region over the last decade shows a flat trend and compares poorly to the national averages that have been on a rising trend.

In 1998 the Gross Regional Product (GRP) for Northern Tasmania was $2,534.6 million. Between 1991 and 1998 we estimated that GRP in the region had increased by 1.6% per annum, which was the slowest rate of the twenty-one rural based regions.

At the last census the median family income in Northern Tasmania was $26,104 per annum. This was 21% lower than the Australian median family income of $33,020. The median income in the urban areas is around $27,000 per annum. The income in rural areas is lower with an average of around $24,000.

10.4.3 Regional Policy

At a state level, the industry development initiatives of the Department of State Development have three main foci. The first focus is on the state's competitive natural advantages – particularly in resource development areas. In this area the government is committed to the delivery of infrastructure and investment conditions to encourage industry to take up opportunities for further multi-stage processing of resources. The second focus is on the manufacturing and processing sectors and the third focus is on emerging industries – including the Information Technology and Telecommunications sector; Communications and Aquaculture industries.

As a state, Tasmania is targeting Information Technology, Telecommunications and Communications as emerging and future growth industries. Tasmania has gained $40 million in funds - the *Intelligent Island Program* – sourced from money raised through the part sale of Telstra. The Tasmanian government has also granted a payroll tax exemption for IT firms and the Department of State Development has an IT Industry Development Program that provides assistance to IT firms to improve the technical skills and business management base of their employment. Additional recent initiatives include the establishment of the Information Technology Industry Council that has been established to engage industry in planning and developing an IT Industry action plan and the development of a website for the IT industry. Further developments in this area have included the conduct of the ITC&AT Industry Audit and the development of a number of regional learning partnerships. The focus on IT&T and the emphasis on partnership arrangements at a state level has also flowed through to and brought specific development programs to Northern Tasmania.

65 The Tasmanian Freight Equalisation Scheme assists in alleviating the comparative interstate freight cost disadvantage incurred by shippers of eligible non-bulk goods to and from Tasmania by sea.

The Tasmanian Electronic Commerce Centre (TECC) represents one piece of IT infrastructure that operates as a partnership. The TECC is a joint initiative of the Tasmanian Government and the University of Tasmania. The centres, including one located in Northern Tasmania (Launceston), offer education and awareness programs and industry forums. The centres also provide project and seed funding to applicant businesses, and initiates demonstration partnerships and networks across industry sectors. The mission of TECC is to accelerate the profitable participation of Tasmanian businesses in the online economy. The TECC has a number of initiatives designed to support its work towards this mission:

- EC Aware – introductory seminars on electronic commerce;
- EC Ready – a forthcoming program to provide business access to consultants who can help identify electronic needs and opportunities for SMEs;
- Online Outcomes – A set of TECC products and services that focus on assisting businesses to investigate their Internet opportunities and develop an effective business Web site.

There are a number of agencies and organisations that have been established specifically to promote regional development in Northern Tasmania. Principal organisations include: Northern Tasmanian Regional Development Board (Business North); the Northern Tasmanian Municipal Organisation, Tasmanian Employment Advisory Council and Chambers of Commerce. Stakeholders in the region have asserted that strong local leadership among business executives, regional leaders and development agencies is critical to the success of the local region.

Business North is the trading name for the Northern Tasmanian Regional Development Board. The stated role of Business North is to "lobby for and coordinate initiatives with individuals, businesses, Government and other organisations for the economic benefit of the Northern Tasmanian region."

The Board was established in December 1992 as a community based non-profit organisation. The Board is a company limited by guarantee and has a broad membership from which a Board of Directors is elected. Additional invited directors are selected by the Board to ensure coverage of all areas of business.

The Board has recently been involved in a number of initiatives in the areas of Education and Training, IT&T and regional monitoring. Examples of these projects include:

- Working with representatives of the forest industry, education, and the furniture industry to achieve a $460,000 Commonwealth grant to establish the Australian School of Fine Furniture (ASFF) in Launceston.
- Business North is actively involved in the development of information technology with the Tasmanian Community Network and the Tasmanian Electronic Commerce Centre. The Board is currently involved in the Tasmanian Broadband Network Project to deliver, voice, data and internet services to businesses and residential customers in Northern Tasmania.
- Business North maintains an economic and demographic profile of Northern Tasmania directed at potential stakeholders in the region.
- Business North runs between 6-8 business seminars per annum that are driven by specific industry needs.

The Tasmanian Employment Advisory Council (TEAC) is an Area Consultative Committee (ACC) established and funded under the Commonwealth Department of Employment, Workplace Relations and Small Business (DEWRSB). The primary function of TEAC is to provide a regional link between Commonwealth Government employment policy and local communities. TEAC is also responsible for providing direct feedback to the ministers on regional issues affecting employment and economic well-being. Therefore, TEAC is responsible for establishing networks to improve communication, linkages, co-operation and co-ordination between business, community groups, government organisations and other key players in employment and training at the regional level.

TEAC brings together people from business, industry, community and other local groups working together to improve opportunities for unemployed people and to promote regional industry development.

TEAC is a member of a group known as **Launceston Workplace Learning** which aims to co-ordinate all vocational education and training in the greater Launceston region. An important first step in this process was to conduct a training audit of businesses in the Launceston region to determine what their training needs were and what were the issues affecting their decision to be involved in workplace training or not. This training audit involved the conduct of over 600 surveys with local businesses.

Regional Stakeholders have noted that Northern Tasmania's economy typically seems to cycle about a trend line that, roughly speaking, has been flat for years. Business North states "the challenge now is to lift off this trajectory…now that we have a rising trend firmly established, the challenge is to maintain the momentum….this will require Northern Tasmania to design, develop and implement a highly focused and market friendly regional economic strategy."

In 2000 Business North indicated that an appropriate approach to regional economic development (strategy) was to be based on 'enhancing competitive assets'. These enhancement policies are seen, by stakeholders, to include identifying competitive strengths, gathering data about them, creating searchable databases, reserving and protecting unique features, improving access to them and marketing them. This approach will seek justify all projects that are funded, proposed or applied for through a direct reference/linkage to the region's competitive strengths. For example, the Department of Primary Industry and Fisheries (DPIE) conducted one recent initiative that has helped to identify competitive strengths in agriculture. This involved mapping land in the region and surveying the region's capacity to support a range of cropping and pastoral activities on a long-term sustainable basis. This data is to be integrated with the computerised Land Information System Tasmania with the intention that potential investors can match up land capabilities with cadastral, topographical, water supply, planning, drainage, power supply and other key features.

This enhancement strategy approach appears to focus more on existing strengths than on the skills and learning initiatives required to create and build future strengths. This does not specifically focus on the development of a learning region – particularly in terms of how to create active community based learning programs and responsive learning institutions.

Conversely, Launceston, the main population and administrative city in the region, has a strong strategic focus on learning and innovation. Launceston City Council has adopted the following community vision statement "Launceston: Our City of Learning and Innovation Open to the World." There are three parts to the vision statement:

- Launceston, Our City – the word 'our' is used to create a sense of working together, ownership and responsibility.
- Learning and Innovation – Stakeholders state that lifelong learning and the intellectual capital of a community is a key strength for future growth and development. Stakeholders also state that 'new and creative ways of doing things must be part of the future'.
- Open to the World – Stakeholders state that Launceston needs to be outgoing, confident and welcoming – part of the global community.

The *Launceston City Council 2010 Strategic Plan* identifies a set of future directions for the community - including major priority areas for Council and key objectives and actions within these future directions. Education and Research are identified as priority areas. Major objectives established including:

- Assisting in the development and expansion of education and research;
- encouraging cooperation amongst education sectors;

- helping promote education and training opportunities for all age groups; and
- to help develop Launceston as a City of Learning.

A number of other developments have helped build the area's learning infrastructure. For instance, Launceston College in association with others including the University of Tasmania's School of Information Systems is developing an extension program for high school students to work with local businesses on e-commerce projects. A working group, involving the Tasmanian Electronic Commerce Centre, the School of Information Systems and others, is also developing an electronic commerce VET course.

To support the vision statement contained in the strategic plan Launceston City Council has recently established an action research project on learning communities and has established an education consultative committee that has representation from local education institutions, although business and community groups are not currently involved.

10.4.4 Organisational Learning

There is a traditional perception and assumption that the Tasmanian economy is stagnant and that young, bright and/or ambitious people have to leave in order to pursue a career. At the same time, industries in Northern Tasmania, particularly in the emerging industry areas, have noted difficulty in finding suitable people. Skill shortages in a number of high-tech industries have been identified, although this is a worldwide problem that is facing these industries. In Northern Tasmania there is an identified need to make a significant investment in business and management skills in order to access new and emerging markets. In 1998 the Tasmanian Industry Audits identified that limited access to suitably qualified and skilled labour was a constraint to business growth. There have been a number of projects, with a strong emphasis on skills development, that have been initiated to address this situation including:

- Tasmania Natural Gas Project;
- IT Skills Hub;
- Textile, Clothing and Footwear;
- Incat.

10.4.5 Industry dynamics

The most significant employment areas in manufacturing are wood, wood products and furniture and basic metal products. There are also a number of food manufacturers in the region. There are seven manufacturers, from a range of industries in the region, that each employ over 200 people. These companies export most of their production and are located in the region for a range of reasons including the competitive price of electricity; natural resources, and strong agricultural and livestock sectors.

Tourism is also an important part of the region's economy. According to Tourism Tasmania[66] approximately 340,000 visitors per annum visit Launceston, this is around 60% of all visitors to Tasmania.

Northern Tasmania has a strong agricultural base with a significant proportion of the State's sheep, dairy cattle, beef cattle and pig livestock in the region. Additionally, vegetable production accounts for 13% of total agricultural production, with potatoes reported as the single largest crop. The gross

[66] Tasmanian Visitor Survey, Tourism Tasmania.

value of the region's rural production was estimated to be $22.8 million – which was 34% of the State total.

Industry Networks and Clusters

Business 'Networks' in Northern Tasmania function at both the business and social scale, meaning that businesses in rural communities are often involved in both industry groups and community/sporting clubs were there is frequent social and business interaction. Northern Tasmania is also the location of one of the nation's oldest Chamber of Commerce – with Launceston Chamber being established in 1894. The Chamber has around 300 members from the Greater Launceston Area. Business North and the Tasmania Employment Advisory Council also host and facilitate networking functions.

In conjunction with the funding that has been made available for IT&T initiatives, a number of Virtual and Electronic Networks have been developed in Northern Tasmania. These networks have been developed in response to identified areas of need or strength and have been made possible through government funding. For instance, the Tasmanian Community Network (TCN) is a community project promoting the use of information and communication technologies in Tasmania – which has received funding for four years under the Networking the Nation program. The TCN works with and has formed partnerships with other funded IT projects in various regions of Tasmania.

A recent partnership and cluster development initiative in Northern Tasmania involved Business North, the Tasmanian Community Network and major industries. These participants collaborated on a project to undertake an IT Business Cluster Planning Strategy. This project developed an environment for Tasmanian IT businesses to form consortia and provided major customers and local businesses with effective and competitive sources of IT products and services. A number of consortia were formed and have successfully tendered for large Tasmanian projects. As a result of this strategy there is an IT Cluster currently operating – centred on Launceston.

There are a number of industry concentrations/clusters that exist in the region, including:

- Heavy Industrial Cluster at Bell Bay –particularly networked through the Mining Industry Association and the Tasmanian Heavy Industry Association
- Forest Industry Cluster – networked through the Tasmanian Forest Industry Association;
- Gateway Tasmania – This is a regional tourism marketing body that coordinates functions such as marketing, booking and promotions in the region.

At local government level, specific 'networking' projects have been supported including:

- Northern Tasmanian Municipal Organisation – this has involved the development of an IT Strategy for the region as a whole; aggregated buying power for goods and services; access to government services online for all community members in the region, and online information, news and events;
- Meander Valley Online (Tourism Portal)– This began as a joint initiative of online access centres in the Meander Valley Municipality to develop a promotional and e-commerce strategy for the tourism industry, council and will extend to all businesses and the community. Presently, tourism operators are also encouraged to participate through the creation of their own low cost web-page. This has also involved education institutions, tourism associations, Telstra, Tasmanian Community Network and business representation.

Vocational education and training (VET) networks that have been strengthened in the region. These VET networks include:

- "Networkers" – This is a VET coordinating body that has been established in Launceston. This reportedly provides a focus for VET and brings together providers, businesses and government organisations to facilitate the development of VET provision in the region. Networkers functions as a central node with multiple networks and is reported to play a strategic role in developing programs with employment outcomes in mind.
- VET in Schools Network – This is a voluntary association between three schools to pool resources and run a joint VET program. The schools have also established connections with a local Skills Centre and have begun planning to establish a Registered Training Organisation (RTO). The intention of establishing the RTO is to service industry needs.

Preparing for the knowledge based economy

In 1998 Tasmania had the lowest national rate of usage and slowest take-up rate for Information Technology. Around 8% of Tasmanian households had home Internet access, compared with 13.5% of all Australian households. Equity and Access to Information Technology are further issues that must be addressed in Tasmania. This view is supported by the recent Tasmania 2010 Forum that concluded "even just locally, there are significant risks if large sections of the Tasmania community do not become information literate as employment opportunities, social and commercial services become increasingly information based." This may already be occurring with a recent survey in the Northern Tasmanian suburbs found that approximately 85% of students in a school located in a middle-income area had a computer at home, compared with only 5% of those located in a nearby lower-income area.

A number of programs have been launched in Tasmania to address the challenges of low IT take-up and use. Initiatives that have been launched or provide services in Northern Tasmania include:

Tasmanian Communities Online Project The aim of this initiative is to accelerate the uptake of information technology by people living in rural and regional Tasmania through the establishment of sixty-three Online Access Centres providing access to and training in the use of computers and the Internet. The Online Access Centres in Northern Tasmania have been involved in most projects the TCN have prepared, such as IT Awareness Initiatives and have entered partnerships to coordinate additional electronic projects in the region. The goals of the initiative are to:

- Promote opportunities for individuals and business to use online information and communications technology. This goal is commensurate with Tasmanian and Commonwealth government regional development initiatives.
- Promote microbusiness use of new technology, especially internet-based marketing and distribution channels and e-commerce.
- Promote regional development in Tasmania through enhancing access to government services and providing assistance to community groups and agencies to use and exploit new technologies.
- Provide opportunities for community-business partnerships including co-location of Centres with existing government and community agencies.
- Enhance life-long learning through provision of community access to online educational programs (including access to TAFE, university, private-sector and other third-party courses).

eLaunceston was initiated as a research project of Telstra's Research Laboratories that aimed to better understand the factors that motivate people to use the Internet with a focus on access to local content. Telstra, the Launceston community and key stakeholders then worked together to develop eLaunceston – a community portal providing community calender, community notices, newsletters, chat facility, information, news, stories, links to regional web-sites.

10.4.6 Individual Learning

At the 1996 Census the number of people with educational qualifications in Northern Tasmania (34.2 per cent) was slightly below the Tasmanian average of 35.6% and was also below the national average of 39.9 per cent. At this time 5 per cent of Northern Tasmanian's held a University degree or higher qualifications compared to 6 per cent for Tasmania and 8 per cent for Australia. In other words sixty six per cent of Northern Tasmania's population had no post-secondary qualification, compared with sixty per cent nationally.

Launceston City Council boasts that the city has the highest participation in Adult Education per head of population in the nation. In the past decade there has been a noted increase in the level of university participation in the region – particularly in the urban centres such as Launceston. This is likely to be related to the student profile of the University of Tasmania (Launceston), where 70% of students, in 2000, were recorded as originating from an urban/suburban areas. There has also been a growth in attendance at TAFE across the region, although there has been a decline in the proportion of the population with basic vocational qualifications and an increase in the proportion with skilled vocational qualifications.

Northern Tasmania has a lower proportion of 'knowledge based' jobs than many other regions in Australia. In aggregate there is a higher concentration of lower skilled and qualified workers and fewer workers employed in growth industries and occupations: professionals, para-professionals, managers, technologists and community sector workers. However, compared with other 'rural based regions' the region has a high proportion of symbolic analysts[67].

R&D, educational institutions and industry services

Launceston is the location of the principal educational institutions in the region including TAFE, the University of Tasmania; Australian Underwater Training School and the Australian Maritime College. Research and Development facilities in the region include:

- The Australian Maritime Engineering Cooperative Research Centre (Australian Maritime College);
- The Cooperative Research Centre for Aquaculture (University of Tasmania)
- Department of Primary Industries, Water and Environment's Mt Pleasant Laboratories.

University of Tasmania

The Launceston campus is located around 10 minutes from the city centre and the University reports that the campus has particular research and teaching strengths. The campus has a strong national reputation in aquaculture and has developed degree programmes in e-commerce and the information economy. Further, programmes in health sciences have been developed in response to the emerging employment opportunities in the rapidly growing health sector. Interpretation, heritage, wilderness and business management are the core themes for tourism studies centred in Launceston. The University reports that "a culture of innovation and creativity drives studies in education, design and the arts". The University, at Launceston, is also starting a Degree course in Entrepreneurship supported by the Department of State Development and Business North.

[67] Examples include research scientists, specialist managers, engineers, technologists, building and construction managers, office managers, accountants, researchers, lawyers, architects etc.

Stakeholders have indicated that the University is demonstrating its commitment to the region through new programs and appointments in areas such as environmental studies and tourism that are consistent with the industry profile of the area.

In terms of major initiatives that specific community outreach outcomes the University Department of Rural Health (UDRH) has developed a network of rural hospital and community-based learning environments dedicated to rural health teaching, learning, and research. A network of Rural Health Teaching Sites (RHTS) is being established to provide opportunities for education and health in rural communities. Current RHTS locations in Northern Tasmania include at Scottsdale, Flinders Island and St.Marys. The RHTS provide:

- Rural clinical placement;
- rural health professionals experienced in offering clinical education and guidance;
- rural clinical practice;
- accommodation; and
- information and communication technologies.

Australian Maritime College

The Australian Maritime College (AMC) has a strong international reputation for excellence in maritime education, training and research. The College has a campus at Newnham and a campus and four training vessels at Beauty Point at the head of the Tamar River. Courses are offered in fisheries, ecology, marine resource management, naval architecture, maritime business, ocean engineering and marine and offshore systems.

The AMC is Australia's only national institution of higher education established to provide education and training for people in the maritime industries. The college company, AMC Search Ltd, exists to provide training, consultancy and research.

TAFE

TAFE Tasmania has restructured and became a statutory authority within the Education portfolio. According to stakeholders this has resulted in a period of uncertainty in TAFE and temporary loss of momentum.

TAFE operates a number of campuses in Northern Tasmania – including Launceston City; Wellington Square Campus; Alanvale Campus and Drysdale Campus. TAFE also operates a number of Adult Education Centres in the region. These facilities function under a General Manager for Northern Tasmanian TAFE. In partnership with industry, TAFE Tasmania has established a centre of excellence in interactive multi-media technology.

Table 10.9 provides information on student enrolments in TAFEs in the Northern Region in 1998.

Table 10.9 Student enrolments in TAFEs – Northern Region, 198		
Program	**Number of Students - North Region of TAFE**	**Total TAFE Students Tasmania**
Natural Resources	567	3416
Automotive and Engineering	1028	2423
Construction, Printing and Textiles	567	2861
Drysdale	954	3359
Metals and Electrical	887	3961
Office Administration and IT	2392	7545
Management and Accounting	1040	4174
Community and Health	501	2171
Access Learning and Languages	1693	6946
Applied Design	342	801
Total	**9471**	**37657**

Telstra B-e Labroratory

Northern Tasmania is also home of the joint Federal Government and Teltsra B-eLab, Australia's first multimedia laboratory. The facility has also been involved in the launching of the nation's first regionally based ecommerce market place, Tasmania Business Online.

There has been a significant increase in the number of Group Training Companies operating in Northern Tasmania in recent years. Large Group Training Companies include Launceston Group Training Company and Northern Group Training (NTG). NTG is a major provider of education, training and employment services and directly employs trainees and apprentices that work in business (i.e. employees are hired out to businesses). There has also been an increase to delivery of VET in schools programs.

Launceston Business Incubator Centre

The Centre has a focus on assisting IT business with the potential to reach global markets. A significant mass has now developed and forms a model for many other communities.

10.4.7 Social capital

A survey that was conducted in 2000, of a small town in Northern Tasmania, identified a high level of participation in local organisations. The results of the survey indicated:

- Over 70% of small business owners belong to one or more non-business groups in the community – in particular there was strong membership in sporting organisations and groups for young people.
- Around 45% of businesses were involved in a formal business, industry and/or professional group.
- Around 70% of businesses were involved in informal ‘business related’ groups.

- Around 50% of businesses that participate in (formal and/or informal) business related groups cite cooperation with other businesses for mutual benefit as an outcome of their group membership. Further, around 30% stated they gained new ideas from their groups; a similar proportion stated that they learn of business trends through involvement in the group.
- Approximately one third of businesses in the community belong to a business related group external to the community – this was particularly prevalent for businesses with customers outside the community. Further, around 45% of business had attended seminars, conferences, workshops or training activities outside the community.

10.5 City of Playford, SA – A case study of cluster building

10.5.1 Background

The City of Playford forms part of North and Western Adelaide, a region covering an area of 784 square kilometers and a population of 510,000 people, and accounting for 70 per cent of South Australia's manufacturing output[68]. Playford is located in the north of the region and covers an area of 344.5 kilometres and contains a population of 65,000.

Manufacturing is the main driver for development. Major industries in the region include the automotive, engineering, electronics, information technology, defence, plastics, food processing and horticulture industries. On the downside, there is significant adjustment pressure on firms and the region continues to experience high unemployment. The region's infrastructure underpinned growth in industrial activities. The demand for skilled workers spurred population growth. This in turn increased demand for construction, household goods, retailing and community services. With the slowdown in manufacturing, the region began the search for a new driver of industrial growth. The primary focus has been on modernisation of manufacturing, forming industry networks and clusters, attracting high technology industries in information technologies and telecommunications, upgrading workforce skills, and growing and new niche opportunities in agriculture and horticulture.

The development of the Playford was initially based on an economic development strategy in the 1940-50's to use state investment in housing and infrastructure as a lever to stimulate industrialisation. The government aggressively implemented policies to attract international manufacturing investment and public investment in Adelaide and South Australia. This included using the South Australian Housing Trust as a central policy instrument to provide good low cost housing for workers to moderate wages demands, tax incentives, infrastructure investment and immigration. The establishment of a major plant by General Motors Holden and location of the Commonwealth Government's munitions and machinery plants in the 1940's created the propulsive industries that accelerated the growth of industry clusters of suppliers around these industries.

This model worked extremely well up until the late 1970s. Since then increasing international competition and trade liberalisation spurred a massive change in manufacturing. Firms either restructured to become much leaner and more efficient or they went out of businesses. This restructuring brought about a major reduction in lower skilled workers or routine production workers. Global corporates such as GMH remain highly competitive but their smaller workforce is highly skilled and highly productive. The losers in this process have been lower skilled workers who have struggled to find jobs because there are fewer overall and because new jobs require highly skilled and experienced workers. As a result of this process, unemployment has become highly concentrated. The major challenge is that high unemployment has reproduced itself over generations. Young people cannot aspire to follow their parents into industrial jobs that no longer exist.

In parts of Playford the number of jobs taken by residents halved over the past 20 years. The decline is due to loss of jobs and resulting out-migration of resident workers. Around 29 per cent of workers are employed in manufacturing, which is arguable the highest proportion of any area in Australia. This proportion has declined slightly. The other important employers are wholesale and retail, community services and finance and business services. Significant job losses in the area have also occurred in defence. In formulating its new economic development strategy, the City of Playford decided to give priority to existing businesses and to build on their strengths rather than relying on

[68] This case study was prepared by Rodin Genoff, Economic Development Manager, City of Playford. References include: Rodin Genoff and Graeme Sheather (July 2001) **Industrial Renewal in Northern Adelaide: Building Regional Systems of Innovation**, Interim Report, City of Playford and Rod Brown and Rodin Genoff (2001) **Food for Thought. Action agendas to value add the food industry in regional South Australia, City of Playford** (This report can be ordered through the Australian Commonwealth Bookshop for A$25).

traditional business attraction approaches alone. The City of Playford is now recognized as a leading local government in the development of cluster initiatives. In 2001, National Economics and City of Playford organized an Industrial Cities Dialogue, to enable production regions to share experiences. The "Playford model" is now being looked at by others as a way forward.

10.5.2 Playford Industry clusters

In September 1999, the South Australian Treasurer, Hon. Rob Lucas, officially launched the City of Playford's Economic Plan, '*An Innovative City'*. At the heart of the strategy was an ambitious plan to develop new clusters, export markets, build on the region's innovation system, and thereby tap into the national innovation system.

The clustering activity commenced in November 1999. The aim was to employ clustering concepts to activate industrial renewal and address issues relating to the ongoing structural adjustment needs of the companies as well as community. Two industries – electronics/engineering and horticulture - are the initial focus.

Research and analysis

Working in partnership with Professor Graeme Sheather, Director of Manufacturing and Management at the University of Technology Sydney, practical methodologies were developed to measure enterprise best practice and supply chain performance as part of the cluster approach.

This industry intelligence was employed to create a number of networking and clustering initiatives in the region. New market and export development opportunities are in train, along with the prospect of facilitating technology diffusion amongst companies in the food processing and electronics sectors. Results of this work over the past twelve months have begun to yield important commercial breakthroughs.

Methodology

Playford's approach is based on understanding the dynamics of growth. This assists policymakers and development practitioners in asking industry the right questions and procuring the right data. With sophisticated industry intelligence, informed policy directions can be adopted to the benefit of firms. In summary, the cluster methodology involves:

1. Economic modelling.

2. Analysis of Technology Diffusion Clusters and industry mapping.

3. In-depth company interviews to assess best practice manufacturing, operational performance, and supply chain connectivity.

4. As interviews are undertaken, and industry leaders emerge, the process of cluster engagement is activated, which in turn assists industry practitioners to undertake further in-depth company interviews, leading to a further round of engagement. This process can best described as an action research approach to clustering.

5. Activating commercial opportunities.

The City of Playford's approach is to map actual "real time" input/output or buyer/supplier relationships and identify the strengths and collaborative nature of these supply chain arrangements. This information is then utilised to identify:

- Gaps within the industrial fabric.
- Opportunities for supply chain enhancement.
- Networking opportunities to build new products or services, and/or export markets.
- Links between the regional innovation system, and knowledge infrastructure, and national innovation system and global supply chains.
- Development of cluster opportunities based on the dynamics of growth and the competitive strength of that industry.

Playford's approach is to build connectivity through formal and informal local/regional business and community relationships, as commercial opportunities are explored to break into new markets leading to sustainable employment and investment opportunities. It is not about picking winners, but working with what you have.

10.5.3 Electronics/Engineering Cluster

The process was commenced with a series of targeted workshops, facilitated with the Electronics Industry Association (EIA). Resources were then marshalled to bring together those companies with a financial commitment to collaboration. The impetus included the loss of some key contracts because individual companies lacked the capability to bid for the contracts in question. They believe that clustering initiatives can generate new market and resource sharing opportunities.

10.5.4 Food Cluster

This initiative grew out of concern that while South Australia is a world-class producer of grains, vegetables and fruit, the level of further processing is relatively modest, and most of this processing is carried out interstate or in Adelaide. The issue was whether proactive steps could be taken, or to accept it as the natural order of things.

With the support of the Australian and SA governments, a program of work was formulated to address supply chain connectivity, value adding, export development and infrastructure. A related aim was to encourage inter-regional cooperation around targeted outcomes and a whole of government approach. While the City of Playford played a leadership in this process, the South Australian government's Food for the Future program greatly assisted in realising outcomes. The formal aims of the study were to:

- Develop strategies to build competitive advantage and critical mass in the horticulture and agrifood activities in four regions of SA.
- Identify existing or latent clusters of capability in industries/product areas.
- Identify constraints to the growth of these clusters - and develop collaborative strategies to overcome them.
- Explore investment and employment opportunities.
- Stimulate thinking about long-term growth possibilities and land use options.

The regions concerned were Virginia (and the Northern Adelaide Plains) and through an arc to the east to include the Adelaide Hills, the Barossa Valley and the Riverland. Each of these regions has a similarity in terms of:

- Major grain and fruit/vegetable crop production.
- Reasonably common transport infrastructure and employment pools.
- The need for the development of new industries.
- Pressure as a result of structural change and social dislocation.

The project took a different approach to the norm. The view was taken that to properly understand the dynamics in the four regions, a multi-layered snapshot was required - of the issues, the products, the economic and social infrastructure, the companies and the people that make up these economies. The nature of the spatial factors and inter-company arrangements that determine growth paths was of particular interest. Other aspects of the approach were:

- To wear out shoe leather by conducting one-on-one interviews with around 100 stakeholders, within and outside the regions concerned.
- To then synthesise their aspirations, ideas and complaints into reasonably straight-forward Action Agendas.
- To generate outcomes along the way, and to identify the people to progress the various agendas.
- To focus on collaborative outcomes – particularly to identify some of the bigger, long-term issues that companies acting individually cannot address.

10.5.5 Outcomes

Electronics/Engineering Cluster

The EIA estimates that once these clustering initiatives are developed, they could generate between $28 million and $57 million in additional revenue for these networked companies. The local electronics industry is experiencing growth in employment of 9% pa (EIA, 2000) – thus favourable market conditions exist to cluster these companies to grow market opportunities.

This project is being funded by the Adelaide Metropolitan Area Consultative Committee (the Commonwealth Government's regional employment development organisation), together with the City of Salisbury and the SA Department of Industry & Trade.

Food Cluster

The results of the analysis were provided in the report, 'Food for Thought' released at the Manufacturing Prosperity conference in July 2001. The study proposed 24 Action Agendas for consideration by stakeholders. Around half of these are currently being progressed. They include:

- Creation of a joint venture between three significant horticulture companies to develop export markets into Hong Kong and Singapore.
- A bio-security project to develop a best practice environment demonstration project linking activities across the supply chain with original equipment manufacturers and industrial designers.
- A major inter-regional road infrastructure initiative to facilitate improved movement of goods and people associated with the food and related industries, such as tourism.

- A greater understanding of the drivers of innovation in the food industry. This research is to be taken to the next stage, and further Commonwealth support has been secured for this purpose.

Other Action Agendas under various stages of progress are:

- A Land & Water Management Plan
- Water Efficiency Network
- Joint-sharing of construction costs to mains water supplies
- Electricity Performance Benchmarking
- Multi-modal transport hub
- Export Network
- Export Facilitator
- Regional Branding

Governance structures

A steering group comprising industry and government representatives was formed to guide the food cluster initiative. It was chaired by the CEO of a major food processor, and met seven times over the course of eighteen months. A range of other bodies – Virginia Horticulture Centre, Food for the Future, Barossa Food Group etc. – were co-opted to follow up on specific initiatives.

Success factors and issues

The major strength of Playford's approach is the significant investment in the collection and dissemination of industry intelligence. The gathering of data of this sort, together with quality analysis, is designed to raise companies' awareness of others around them, and to market the region's capabilities to investors and support agencies. Its annual Manufacturing Prosperity conference is a key plank in this strategy.

The City of Playford has also consistently emphasised a whole of government approach, and a culture of collaboration and partnership building with companies. This is expected to provide an environment conducive to clustering successes. The Commonwealth and State governments have been a consistent supporter, and this has facilitated the work.

Since the cluster initiatives are in their early stages, it is pertinent to also talk about potential success factors. One of these is the strong links to Adelaide's knowledge infrastructure – its universities, research establishments, service and engineering providers and the financial services sector. The knowledge infrastructure hubs of Technology Park and the Defence, Science and Technology Organisation (DSTO) are located nearby. A second success factor is likely to be the sophisticated local demand by the manufacturing sector. This will build the technological capabilities within and between industry sectors.

Impediments & problems

No major impediments have been encountered to date. Nevertheless there are issues that need to be addressed. These include:

- The identification and engagement of more private sector champions. The approach being taken is to allow the clustering activities to evolve at their own pace. However, there is a perceived need for certain Action Agendas to be driven harder in order to secure the expected outcomes. Unless this is done, the window for some of them will be missed. Much of the work is falling to council staff and consultants.
- The need for focussed action. Some of the Action Agendas have lost momentum due to stakeholders being dragged away on other tasks.

Future directions

Playford's cluster program has evolved from the ground-up, and its future directions will most likely be determined by similar processes. It is localised than the cluster agenda run by SA Business Vision 2010 program. For this reason, the two have happily co-existed, and considerable cooperation between the two agendas has been evidenced.

At the present time, Playford Council is looking to consolidate the Action Agendas developed in respect of food and electronics/engineering. This will involve dialogue and interaction with other cluster agendas in Australia and overseas – hence the City of Playford is very interested in pursuing the linking of clusters.

10.6 South West Urban System

10.6.1 Introduction

The South West Urban System (SWUS) is focused on the Perth/Bunbury axis and its immediate hinterland. Specifically, the SWUS is comprised of three sub-regions: metropolitan Perth, the Peel region and Greater Bunbury. It incorporates 36 Local Government Areas (LGA's) and currently houses nearly 80% of Western Australia's population.

The SWUS is WA's main region of economic activity. While the State's economy is underpinned by exports from primary industries that are generally located in non-urban areas, the production linked multipliers of this activity are largely focused on the SWUS, particularly metropolitan Perth. And, given the 'unbundling' of the value chain associated with globalisation and the new economy, this concentration is likely to become even more pronounced in the future. Strong population growth and the multipliers associated with consumption activity are also expected to further consolidate the role of the SWUS in Western Australia's economy.[69]

The South West Urban System was delineated as a 'region' in 1997 when the *State Planning Strategy*[70] suggested the need to study and develop a plan for metropolitan Perth and surrounding areas. The West Australian Planning Commission subsequently commissioned an ongoing series of studies entitled *The Future Perth Project*, which are intended to review Perth's strategic planning framework at three different levels: the Perth Central Area, the Perth Metropolitan Region and the South West Urban System.

The *South West Urban System Economy Study*[71] was the first of these reports to focus specifically on the SWUS and forms the basis of further studies that are currently underway. It is also the source of much of the material presented in this case study.

10.6.2 Regional overview

The SWUS covers approximately 11,000 square kilometres at an average density of around 133 persons per square kilometre. This compares to the State average of 0.72 persons per square kilometre.

While the average population density in the South West Urban System is considerably higher than other parts of the State, there is also significant variation between the sub-regions. Metropolitan Perth averages 249 persons per square kilometre, Peel 22 and Greater Bunbury 21. This variation reflects the fact that large portions of the Peel and Greater Bunbury regions are semi-rural in character.

The three sub-regions of the South West Urban System currently account for around 79.7% of Western Australia's total population. Metropolitan Perth is home to approximately 73%, while Peel and Greater Bunbury each house around 3%. Moreover, the combined populations of Peel and Greater Bunbury represent almost one quarter of WA's non metropolitan population.

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69 Spiller Gibbins Swan and National Economics, 2000

70 WAPC, 1997.

71 Spiller Gibbins Swan and National Economics, 2000.

The dominance of the SWUS as WA's primary population agglomeration is expected to increase in the future. Based on current trends, the West Australian Planning Commission anticipates that the majority of the State's population growth over the next thirty years will occur in the Perth/Bunbury axis.[72]

The table below shows key population statistics for each of the sub-regions in the SWUS. All three are expected to grow relatively quickly in the coming decade, but the Peel region in particular is projected to experience very strong growth.

Table 10.10 Key population statistics for each sub-region in the SWUS

Area	Population 2001	% of WA	Population 2011	% of WA	Ave Annual Change 2001-2011
Metropolitan Perth	1,410,000	73.1%	1,640,100	72.4%	1.5%
Peel	63,400	3.3%	91,300	4.0%	3.7%
Greater Bunbury	63,700	3.3%	77,900	3.4%	2.0%
Total SWUS	1,537,100	79.7%	1,809,300	79.9%	1.6%
TOTAL WA	**1,928,414**	**100.0%**	**2,264,763**	**100.0%**	**1.6%**

Source: WAPC, 2000.

10.6.3 Economic Development

Traditionally, Western Australia's economy has been sustained by exports of mineral and agricultural resources. However, in the last 20-30 years, the competitiveness of these industries has become increasingly linked to the specialist skills and business services available in the South West Urban System, particularly in metropolitan Perth. The value chains of these resource based industries are increasingly 'laced through' the metropolitan area.

Job stock changes in Perth between 1986 and 1996 highlight the growing importance of the metropolitan area as a source of advanced business services for the WA economy. ABS journey to work data shows that, aside from population driven employment, the bulk of the new jobs created in Perth over this decade were in 'information' or 'knowledge intensive' sectors. The key information economy jobs being generated include:

- Business services;
- Marketing and business management services;
- Legal and accounting services;
- Technical services;
- Post school education; and
- Computer services.[73]

[72] WAPC, 1999.

[73] Spiller Gibbins Swan (1999)

However, Perth's standing as a business service provider cannot be taken for granted. Analysis conducted by O'Connor (1999) shows that while Perth's share of national 'services to business jobs' increased from 7.75% in 1986 to 8.79% in 1998, this share has remained largely static since the mid '90's.[74] Moreover, changes associated with the 'New Economy' mean that local suppliers cannot simply rely on business generated by the resource based industries that have underwritten living standards in Western Australia to date. Improved communications technologies and more open markets mean that local service providers and input suppliers will face greater competition from similar organisations located in other Australian cities, and indeed around world.

The economies of the Peel and Greater Bunbury regions have tended to have a strong focus on primary industries. Bauxite and coal mining play a particularly important role, as do agriculture, forestry and fishing. Peel and Greater Bunbury have not developed 'New Economy' or 'knowledge' industries to the same extent as metropolitan Perth. This slower rate of development relates to a number of factors including: a smaller market for business services, a relatively poorly skilled labour force, limited access to research and development facilities, and a comparatively small pool of venture capital.

However, metro-linked regions like Peel and Greater Bunbury have the potential to benefit significantly from the production process changes wrought by globalisation. Ongoing improvements to the communications and transport infrastructure that link these regions to Perth will provide more and more workers with the opportunity (indeed the requirement) to split their time between city workplaces and a range of other work locations. While there is a tendency to overate the potential for full time telecommuting, it does seem likely that the effective metropolitan labour market will increase by orders of magnitude. This will allow Peel and Greater Bunbury, which were once wholly dependent upon a local resource base, to participate in the city's prosperity through residential consumption expenditure, day trip and getaway tourism, and the formation of high value added, high growth businesses based on the skills of the part-time telecommuters.

Peel and Greater Bunbury, in turn, have the potential to add to the global competitiveness of Perth and WA, by equipping the metropolitan area with a range of lifestyle options and therefore greater leverage in the attraction of enterprise households. The key factor in achieving this potential is the development of a strong education and skills base throughout the SWUS. All three subregions of the SWUS, but particularly Peel and Greater Bunbury, have relatively low education and skill levels when compared with other parts of Australia.[75]

Metropolitan Perth generates just under 63% of the total Western Australian gross output and it is particularly dominant in service industry output, accounting for over 80% total output in that sector (excluding transport). Perth also dominates the State's manufacturing industry, other than in natural resource processing industries which primarily occur in rural and remote parts of the State.

The Peel region generates 2.6% of the total Western Australian output, with 45% of this production being in the metals, mining and manufacturing industries.

Greater Bunbury generates around 4% of the State's total output and appears to have a relatively well balanced industry structure for a relatively small region. Its total regional output profile compares favourably with State averages.[76]

74 O'Connor, 1999

75 Spiller Gibbins Swan and National Economics, 2000.

76 National Economics, 2000

Average household incomes in the SWUS vary considerably between the three subregions. Given that Perth accounts for the majority of Western Australia's population, households living in the metropolitan have a very similar income profile to that Western Australia overall. Table 10.11 compares household income data for Perth with the State averages.

Households in the Peel region generally have lower incomes than the statewide averages for West Australia. Proportionally, Peel has considerably more households in low income brackets and less in high income brackets than WA as a whole (see Table 10.12).

Table 10.11 Metropolitan Perth Gross Household Incomes 1996

Weekly Income	No. H/holds	% H/holds	WA % H/holds
Neg/Nil	3,527	0.8%	0.8%
$1-119	3,630	0.8%	0.8%
$120-299	76,054	16.6%	16.7%
$300-499	70,561	15.4%	15.7%
$500-699	61,091	13.3%	13.3%
$700-999	74,837	16.3%	16.1%
$1,000-1,499	69,889	15.2%	15.0%
$1,500-$1,999	24,231	5.3%	5.1%
$2,000+	22,668	4.9%	4.9%
Not stated/other	51,961	11.3%	11.7%
Total	**458,449**	**100.0%**	**100.0%**

Source: Ministry of Planning based on ABS Census Information

Table 10.12 Peel[77] Gross Household Incomes 1996

Weekly Income	No. H/holds	% H/holds	WA % H/holds
Neg/Nil	169	0.7%	0.8%
$1-119	151	0.7%	0.8%
$120-299	4,899	21.6%	16.7%
$300-499	4,326	19.0%	15.7%
$500-699	2,756	12.1%	13.3%
$700-999	3,346	14.7%	16.1%
$1,000-1,499	2,891	12.7%	15.0%
$1,500-$1,999	799	3.5%	5.1%
$2,000+	568	2.5%	4.9%
Not stated/other	2,816	12.4%	11.7%
Total	**22,721**	**100.0%**	**100.0%**

Source: PDC (2000a) based on ABS Census information.

[77] Figures shows are for the jurisdiction of the Peel Development Commission (PDC) which covers a slightly larger area than the Peel subregion of SWUS.

Like metropolitan Perth, household incomes in Greater Bunbury tend to be relatively similar to West Australian averages. Greater Bunbury has a slightly lower proportion of low income earners, but it also has less households with higher incomes. As such, the middle income brackets account for a larger proportion of households in Greater Bunbury than in Western Australia overall.

Table 10.13 Greater Bunbury Gross Household Incomes 1996

Weekly Income	No. H/holds	% H/holds	WA % H/holds
Neg/Nil	75	0.4%	0.8%
$1-119	104	0.6%	0.8%
$120-299	3,193	17.0%	16.7%
$300-499	3,002	16.0%	15.7%
$500-699	2,631	14.0%	13.3%
$700-999	3,422	18.2%	16.1%
$1,000-1,499	2,954	15.7%	15.0%
$1,500-$1,999	815	4.3%	5.1%
$2,000+	601	3.2%	4.9%
Not stated/other	2,022	10.7%	11.7%
Total	**18,819**	**100.0%**	**100.0%**

Source: ABS Census information.

10.6.4 Organisational Learning

Industry dynamics

ABS Census information for the sub-regions of the SWUS urban system reveals the following about their industry structures:

- Perth has strengths in property and business services; wholesale and retail trade; manufacturing; and health and community services.
- Residents of Peel are primarily employed in wholesale and retail trade; education and community services and mining related manufacturing.
- Greater Bunbury has a relatively diverse employment structure with wholesale and retail trade; education, health and community services; manufacturing; agriculture, forestry and fishing; recreational personal and other services; finance, property and business services; and the construction industries all providing a significant number of jobs in Greater Bunbury.

Using National Economics YourPlace database, Perth rates reasonably well, especially in terms of indicators of 'readiness' for the new economy – 'knowledge driven growth potential', 'global knowledge flow' and 'life long learning'. However, the region's overall ratings are moderate. Time series trends suggest that metropolitan Perth holds a generally static position in the overall Australian rankings.

Peel rates strongly vis a vis Perth in respect of household prosperity potential, reflecting the diversity of the metro area and the high incidence of reasonably well off retirees in Mandurah. On all other indicators, Peel appears to be less favourably placed than Perth, especially the new economy indicators.

Greater Bunbury has a similar profile to Peel, but is slightly better placed in terms of its 'readiness' for the new economy.

10.6.5 Regional Policy

In 1996 the West Australian Government established the Regional Development Council and nine Regional Development Commissions to co-ordinate and promote economic and social development in regional areas of the State.

Two of the Regional Development Commissions have jurisdictions that include parts of the South West Urban System. The Peel Development Commission covers the Peel sub-region of the SWUS and the adjoining Shires of Boddington and Serpentine-Jarrahdale. The jurisdiction of South West Development Commission incorporates the four municipalities that make up Greater Bunbury, but it also covers another eight Local Government Areas in the State's south west.

The objectives of the Regional Development Commissions are to:

- Maximise job creation and improve career opportunities for people working in regional Western Australia;
- Develop and broaden each region's economic base;
- Identify infrastructure services to promote economic and social development;
- Identify and encourage regional investment;
- Provide information and advice to promote business development;
- Seek to ensure that regional government services are comparable to the metropolitan area; and
- Facilitate coordination between relevant statutory bodies and State government agencies.[78]

In addition to the Regional Development Council and Commissions, the recently established Department of Local Government and Regional Development is also likely to play an important role in the development of regional economic development policy in the SWUS. This Department combines the roles of the former Department of Local Government and the regional development functions previously undertaken by the Department of Commerce and Trade. The objectives of the new Department include:

- providing support and advice to organisations involved in the development of Western Australia and in building stronger communities;
- providing assistance, including funding, to enhance the development of regions and local governments;
- supporting individual and community capacity building, with particular emphasis on leadership and governance;
- encouraging devolution of decision making and service delivery to a regional and local level; and
- working towards equity of access to services across Western Australia.[79]

Currently, there is no specific economic development agency responsible for metropolitan Perth. Rather, this role is served by government authorities such as the Department of Industry and Technology (formerly Commerce and Trade) and various smaller organisations which deal with specific parts of the metropolitan area.

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78 http://www.regional.wa.gov.au/comms.asp

79 http://www.dlgrd.wa.gov.au/default.htm

Regional Economic Development Strategy – Key 'Learning' Objectives

The *Regional Development Policy for Western Australia*[80] provides the primary framework for economic development initiatives in the State. It sets out six broad level policy goals:

- Adaptive Communities.
- Enriched Lifestyles and Livelihoods.
- Developing Wealth and Employment.
- Developing Infrastructure.
- Environment and Natural Resource Management.
- Responsive Government.

To achieve these goals, the document suggests that a series of objectives and strategies will need to be pursued. Improving education and skill levels is one of the key themes that underpins these objectives and strategies. Of particular relevance are the following:

Develop skills

- Provide training in community development and management.
- Provide training in the use of technology.
- Provide skills to enable regional access to contracts.

Recognise the role of services as key factors in attracting and retaining people in regional areas

- Provide financial and non-financial incentives to attract and retain skilled people to the regions.
- Develop marketing and promotional material demonstrating the availability of quality education, training, health services and housing in regions.

Improve regional training and employment opportunities

- Ensure availability of skilled labour.
- Provide training to regional workforces.
- Review all government taxes on regional employment.
- Support for the development of industries which offer quality jobs and career opportunities.
- Support and encourage Aboriginal employment in public and private sector employment and provide specific education and training where appropriate.[81]

The newly formed Department of Industry and Technology also has a series of policy objectives (inherited from the Department of Commerce and Trade) which have a specific learning and skills orientation. These include:

- The provision of timely, quality economic, trade and commercial information.

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80 Regional Development Council, 2000

81 Regional Development Council, 2000

- Promotion of science and technology programs and collaboration.
- Co-ordination of government, industry and community efforts to make Western Australia a world-class information manager and user
- Support for regional businesses, community groups, educators and other groups to access contemporary information technology and telecommunications services.[82]

10.6.6 R&D, education industry services

The South West Urban System is home to the vast majority of Western Australia's education and training facilities.

All five of WA's universities have campuses in metropolitan Perth. Edith Cowan University also has a campus in Bunbury and Murdoch University has recently developed an 'Open Learning Centre' in collaboration with the Peel Campus of Challenger TAFE. This centre allows Murdoch University students living in the Peel region to access computing and library facilities at the TAFE Campus.

There are currently six TAFE colleges offering vocational education and training courses at campuses situated throughout the SWUS.

Around 550 private training organisations are registered with the WA Department of Training[83] and it is likely that the at least two thirds of these are situated in the SWUS.

Another major improvement to the region's telecommunications infrastructure is the proposal to link the Bunbury campus of Edith Cowan University to its other campuses via a high capacity microwave link or some other alternative (SWDC, 1999c: 10).

Bunbury has the most comprehensive educational facilities outside of metropolitan Perth. The South West Regional College of TAFE and the Bunbury campus of Edith Cowan University offer a variety of tertiary level courses. The two institutions continue to develop a close working relationship by sharing resources and offering opportunities for student articulation between the institutions (ECU, 1998: 30)

Preparing for the knowledge economy

A number of programs are being undertaken to encourage community awareness of information technology in the SWUS. For example, Bunbury hosted the inaugural Online Australia Summit in 1998 which showcased applications of information technology. The development of the 'My South West' portal, which highlights the capabilities of South West businesses, is another ongoing example of programs aimed at the development of information technology in the region (SWDC, 1999d).

The Peel region is also looking to enhance its profile in information technology. The secondary education facilities in Mandurah (Peel's main population centre) are currently undergoing a significant restructuring process which will involve the development of separate facilities for year 8-10 students and year 11-12 students. The two existing secondary schools will become middle schools catering for years 8-10 and a third middle school is due to be completed by the end of 2001. A new senior secondary college will also be completed in 2001 and provide the educational facilities for year 11 and 12 students in the City.

82 Department of Commerce and Trade, 2000

83 http://www.ntis.gov.au/cgi-bin/waxhtml/~ntis2/org.wxh?page=71&inputRef=31

The development of the senior secondary college in Mandurah is a joint initiative between the Education Department and the Challenger College of TAFE. The collaborative development will allow key facilities to be shared between the secondary and TAFE sectors thereby reducing costs and encouraging student articulation to higher education.[84]

It is envisioned that the new senior secondary/TAFE campus will specialise in education related to information technology. The provision of IT skills in the Peel population is considered to be an important element in the overall development of the region and links in with the objective of enhancing Peel's IT profile.[85]

As part of the push to improve educational facilities in the Peel region, there has been some discussion of establishing a microwave connection to the Peel region. Murdoch University, which already has a campus in Rockingham and was proposing to develop another in Mandurah, is now assessing the option of establishing a 'virtual campus' in Peel using a microwave link. This would allow Peel residents to undertake university level studies without having to regularly travel to Murdoch's main campus in the metropolitan area or to the secondary campus in Rockingham. If the virtual campus project were to be pursued, the development of a physical university campus in Peel could be delayed by up to 15 years.

A microwave connection to the Peel region would represent a dramatic improvement to the region's telecommunications infrastructure and would tie in with other strategies aimed at developing information technology industries in the region.

There are already a number of projects underway that aim to improve community awareness of information technology and also to enhance skill levels. For example, the Peel Rural Technology Centre provides Internet training for agricultural producers, businesses and rural community groups. The Peel Online strategy and Peel E-commerce Project are also intended to develop IT skills and knowledge in the local population.

An important initiative in the development of telecommunications/information infrastructure in the region has been the establishment of the Peel SISTEM, an online database that provides information about strategic development policies and projects in the region. SISTEM is an interactive database that allows community input and feedback which ensures that policies and strategies are continually revised and updated to reflect changing conditions and information. The establishment of Peel SISTEM demonstrates the increasing emphasis being placed on telecommunications/information technology infrastructure in the region as key element in future economic development of the region.

In 1996 it was estimated that 93% of Perth's primary school aged children lived within 2 kilometres of a primary school and ninety four percent of children aged 13-17 lived within 5 kilometres of a secondary school. While this is an impressive level of coverage, the number students has been growing at a faster rate than the capacity of metropolitan area's educational facilities. In 1986, the student to school ratio was 326 and by 1996 this had increased to 364 students per school. This ratio is around 1.8 times the figure for non metropolitan areas of the State.[86] Overcrowding is an on-going problem in Perth's schools.

[84] PDC, 2000

[85] Styants, 2000

[86] WAPC, 1999

In the Peel region of the SWUS, the number of primary and secondary school students has increased strongly in recent times. In 1986 there were 3,163 students attending primary schools. By 1996 this number had increased to 4,261 (an 83% increase). Secondary student numbers over the same period increased by 63% from 2,036 to 2,312..[87]

Primary and secondary student numbers in Greater Bunbury have also grown strongly in recent times. There were approximately 4,676 children attending primary schools in 1986 and 6,568 in 1996 (40% growth). The number of secondary students rose from 2,870 to 3,456; an increase of around 20%.

Tertiary education

Student numbers at WA's universities increased dramatically in the decade between 1986 and 1996. In fact, the number of university students increased by 75% during that period whereas the population of Perth only grew by 29%.[88] This partly reflects a higher proportion of the population attending university, but it is also a result of increasing numbers of international students attending Perth's universities.

The Peel and Greater Bunbury components of the SWUS have also seen growth in university student numbers. In 1986 only 177 people in Peel were attending university; by 1996 the number had increased to 242. Greater Bunbury has tended to have higher numbers of university students due to the presence of the Edith Cowan campus. In 1986 Greater Bunbury had 433 university students and by 1996 this had increased to 902.

The overall number of full-time student enrolments at TAFE institutions in the metropolitan area increased from 25,649 in 1986 to 36,419 in 1996.[89] In Peel, TAFE enrolments rose from 402 to 973 and in Greater Bunbury the figures were 1,129 and 1,693 respectively.

The patterns of individual learning in each of the subregions of the SWUS are probably best illustrated by data on the educational attainment levels of the population. Overall, education levels in the Western Australian labour force have improved considerably in recent times. In 1986 only 15% of the population (15+ years) with a qualification had a bachelor degree or higher (not stated responses excluded). By 1996 this figure had more than doubled to 31%. Similarly, the proportion of qualified people with undergraduate or associate diplomas has increased from 11.5% in 1986 to 19.6% in 1996. The proportion of people with only basic vocational qualifications has dropped from 25.5% to 10%.[90]

Educational levels in Metropolitan Perth are slightly higher that the State averages. In 1996 nearly 34% of qualified people in Perth held a bachelor degree or higher, 20% held an undergraduate or associate diploma, while there was a lower proportion of people in Perth with vocational qualifications.

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87 ABS Census data

88 WAPC, 1999

89 WAPC, 2000

90 WAPC, 1999

Table 10.14 Educational Attainment of Qualified Persons (15+ years), Western Australia 1986, 1991 and 1996, and Perth 1996

Qualification	WA			Perth
	1986	1991	1996	1996
Bachelor degree or higher	15.21%	25.49%	31.16%	33.63%
Undergraduate & associate diploma	11.51%	20.14%	19.58%	20.00%
Skilled vocational	33.68%	38.93%	36.06%	33.49%
Basic vocational	25.51%	12.39%	10.02%	9.58%
Inadequately described	14.10%	3.05%	3.17%	3.31%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Education levels in Peel are significantly lower than the State averages. Only 17% of qualified people in Peel have a bachelor degree or higher and the region has a particularly high proportion of workers who hold skilled vocational qualifications.

Table 10.15 Education Attainment of Qualified People (15+ years) Peel, 1996

Qualification	No. Persons	%*	WA %
Bachelor degree or higher	1,618	17.2%	31.2%
Undergraduate & associate diploma	1,587	16.9%	19.6%
Skilled vocational	4,877	51.8%	36.1%
Basic vocational	1,015	10.8%	10.0%
Inadequately described	320	3.4%	3.2%
Total	**9,417**	**100.0%**	**100.0%**

Note * Percentages given are with 'not stated' responses excluded.
Source: ABS Census data

Greater Bunbury also has relatively low education levels in comparison to the State averages. Only 22% of people with a qualification hold a bachelor degree or higher; this compares to 31% for Western Australia overall. Greater Bunbury also has a relatively high number of people with vocational qualifications with around 57% holding skilled or basic vocational qualifications

Table 10.16 Education Attainment of Qualified People (15+ years) Greater Bunbury, 1996

Qualification	No. Persons	%*	WA %
Bachelor degree or higher	2,392	21.6%	31.2%
Undergraduate & associate diploma	2,041	18.5%	19.6%
Skilled vocational	4,866	44.0%	36.1%
Basic vocational	1,470	13.3%	10.0%
Inadequately described	288	2.6%	3.2%
Total	**11,057**	**100.0%**	**100.0%**

Note: * Percentages given are with 'not stated' responses excluded.
Source: ABS Census data

10.7 Greater Western Sydney

10.7.1 Introduction

Western Sydney is part of the Sydney Metropolitan Area. The status as a 'region' was reportedly[91] first applied in 1973 when the Commonwealth Government established the organisation that later became known as the Western Sydney Regional Organisation of Councils. In 1978 a regional radio station undertook a survey of people in its proposed broadcast area, based on the survey, it named and marketed the region as Sydney's Greater West. The later definition of Greater Western Sydney (GWS), consisting of 14 Local Government Areas[92] has come to be accepted by most organisations, including government departments. According to the GWS Economic Development Board[93] the economic region of Greater Western Sydney was delineated in the 1992 to help manage the rapid expansion of the metropolitan area to the west of Sydney. The economic development statement of 1992 suggested that the economic issues facing the region could not be resolved effectively from outside and that the community should have a representative body to advise government on the needs of the region as a whole. The status of Western Sydney as a region has also extended to the creation of a ministerial portfolio with a Minister for Western Sydney under the current state government.

10.7.2 Regional overview

GWS has a physical size of 8934 km^2, with a population density of 177 persons per square kilometre. This compares with a density for the Rest of Sydney of 320 persons per square kilometres[94], which highlights the semi rural nature of parts of the region and the inclusion of the World Heritage listed Blue Mountains National Park in the region.

As of the 1996 Census, GWS had a population of 1,640,612, representing 25% of NSW's population and 9% of Australia's population. The region is experiencing strong population growth. For example between 1991 and 1996, the population of GWS grew by 7%, compared to the Rest of Sydney (6%) and NSW (5%). The GWS population is projected to grow by 5.8% between 1996 and 2001 and by 4.9% between 2001 and 2006.

The population of Greater Western Sydney is one of the youngest in Australia with a median age of 31 years. This compares to higher median ages for the Rest Sydney (36 years) and NSW (34 yrs).

GWS (35%) has a higher level of overseas-born residents than does NSW (30%). The level of overseas-born residents for the Rest of Sydney (36%) demonstrates that in terms of first generation immigrants, the level for GWS is similar to the Rest of Sydney level and above the NSW Level.

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91 Mossfield, 1999.

92 Auburn, Bankstown, Baulkham Hills, Blacktown, Blue Mountains, Camden, Campbelltown, Fairfield, Liverpool, Parramatta, Penrith and Wollondilly.

93 Greater Western Sydney Industry Strategy, 1999, Greater Western Sydney Economic Development Board and Diana Gibbs and Partners with Charlton West Associates.

94 Australian BureRegional Population Growth, Australia, 1997).

10.7.3 Economic Development

The economic transformation of GWS over the 2nd half of the 20th century was a major economic and social achievement. In the immediate post second world war period, much of the region remained undeveloped. The area was characterised by small service centres, pockets of industrial activity, a relatively small population, market gardens and agricultural establishments.

Australian industrialisation in the 1950s and 1960s created the opportunity to stimulate job growth in GWS. The embryo of industry clusters emerged in GWS – chemicals at Parramatta-Auburn; processed foods in the western corridor; automobile components and transport and mining equipment in Fairfield; electrical and telecommunications industries in Moorebank and glass and plastics at Campbelltown. In the 1970s and 1980s industrial companies were attracted to GWS by cheap, serviced land, good transport links and access to an abundant industrial labour force. The Sydney Production Zone, covering much of GWS, became and remains the premier industrial location in Sydney. However, from the mid 1970's employment growth in manufacturing began to slow. Fuelled by growing import penetration, structural change and infrastructure improvements GWS become a strategic location for transport, distribution and warehousing activities.

Gross regional output is around $53 billion, which represents 8% of national income. Employment growth has also been significant – with the number of jobs in Western Sydney growing from 358,000 in 1991 to 419,000 in 1996. However, regional stakeholders have identified the need for employment to grow rapidly to meet population growth and the requirement for more high skilled/high paid jobs for residents of the region. In 1998 employment concentrations were found in Property and Business Services; Education; Retail Trade, Construction and Manufacturing. There are also emerging strengths in Medical and Health; Tourism and back office functions.

10.7.4 Organisational Learning

The region has a number of emerging industry clusters. A number of these networks/clusters are run and have evolved as a direct result of industry involvement including the:

- Greater Western Sydney Tourism Network (Tourism West);
- Sport, Recreation and Related and Construction Networks in Penrith LGA;
- Greater Western Sydney Business Connection;
- Artswest Foundation;
- Liverpool and Region Network.
- Bankstown Industry Network (emerging).

There are also a number of emerging clusters/networks that are being driven by government, although the private sector are also strongly involved. These include:

- The proposed BioHub at Westmead, driven by the Office of Western Sydney in collaboration with bio-medical researchers and industry.
- A strengthened Legal Precinct in Parramatta
- High Technology Precincts – proposed at Moorebank & Blacktown (Wonderland).
- Western Sydney Information Technology Cluster;
- Home-Based Business Network (Blacktown-Baulkham Hills).

Primarily, these clusters are emerging or currently function as loose associations of firms and institutions. In the past, there has been little evidence of a strong culture of interchange and exchange of information and knowledge or cooperation and competition – characterised by trust and reciprocity - between firms. A high priority of these initiatives is to foster business social capital as the basis for innovation.

Preparing for the knowledge based economy

A recent survey[95] of the use of new technology in GWS business indicates that basic and secondary applications (such as accounting, payroll, word processing) are used frequently and more commonly in regional firms, compared to national firms. Conversely, firms in general were not found to be major uses of primary technology applications such as sales, marketing, distribution and ordering. The results from this survey suggest that GWS is in the early stages of the evolutionary process towards maturity with new technology. However, firms in the region have started on 'a journey to undergo the transformation' toward more advanced applications. Further, the study team suggested that the lack of computer literacy and IT skills are the dominant factors hindering progress.

10.7.5 Regional Policy

There are a number of regional 'government' organisations that serve Greater Western Sydney. These organisations include the Greater Western Sydney Economic Board; the Office of Western Sydney; Western Sydney Regional Organisation of Councils (WSROC) and Macarthur Regional Organisation of Councils (MACROC). A number of NSW Government Agencies also have regional coordination offices including NSW Premiers and the Department of Urban Affairs and Planning.

The Greater Western Sydney Economic Development Board (GWSEDB) was formed in 1992 to "focus on regional coordination and cooperation for economic development". The mission of the GWSEDB is to "further business and employment opportunities in Greater Western Sydney through regional cohesion, innovation and ongoing economic development". More recently the functions of the organisation have been split with the GWSEDB remaining as a stakeholder committee and a new business assistance organisation being created - the Parramatta Business Centre (PBC). The PBC is specifically designed to assist small to medium sized enterprises wanting to establish, expand or relocate to GWS and surrounding areas. The PBC offers access to advice, expertise and experience through the Centre's team of business development managers. The consolidated GWSEDB has commissioned and taken responsibility for implementing regional economic development strategies in GWS. There have been two major recent economic development strategies for the region – an Industry Strategy in 1999 and a Transport and Planning Strategy in 2000.

The Office of Western Sydney (OWS) operates with the purpose of offering strategic advice to government on Western Sydney issues. The mission statement also indicates that OWS will provide strategic leadership for the region, and develop and drive innovative regional initiatives.

The OWS has developed a range of initiatives to stimulate jobs and investment, accelerate the IT agenda, and provide an integrated regional approach to environmental issues. These initiatives include:

- The Western Sydney Industry Awards;
- The Advancing IT in Western Sydney Industry Programs;
- Australia's Bio-Hub;

[95] University of Western Sydney, Greater Western Sydney Information Technology Audit, 2000.

- The Western Sydney Environment Strategy;
- Corporate Partners for Change;
- The Western Sydney Arts Strategy;
- The Western Sydney Budget Statement
- Initiatives for Women in Western Sydney
- Environmental Strategy of the region.

WSROC and MACROC are regional organisations (of member councils) and have work programme areas and projects that they present, prepare and implement on behalf of member councils.

The consultants[96] preparing the GWS Industry Development Strategy state that there are many different organisations in GWS and many different goals being pursued. This has led to the formation of many powerful organisations with different objectives. The consultants state "although many of the groups have similar objectives there appears to be no single expression of objectives that is accepted as the regional objective, requiring regional leadership."

Regional Economic Development Strategy – Key 'Learning' Objectives

The dominant objective of the GWS Industry Development Strategy is to secure the growth of employment for the population of the region. The strategy acknowledges that given the present skills profile of the labour force the achievement of the economic development objectives needs to be staged over time.

The GWSEDB has undertaken or is currently implementing a number of projects that are aimed at providing the initial impetus for implementing the strategy.

The key actions identified in the industry development strategy involve:

- Develop alliances with regional education institutions;
- Develop community value of higher education;
- Raise the skills profile of existing workforce;
- Provide trained workforce for investors;
- Raise technical skills of new workforce entrants;
- Raise the education/lifestyle image of the region

Particular projects currently being driven by the GWSEDB include:

Labour Force Skills Project A proposed labour force skills audit and training package model – initially within Penrith and Blacktown- as an industry attraction and retention tool.

Bio- Technology Industry Investment Strategy This project has identified the need to develop health service research and training facilities capable of building commercial associations with global bioscience and technology companies that lead to investment in local facilities.

[96] Dianna Gibbs and Partners with Charlton West Associates.

Information Technology in Manufacturing Business at Macarthur The project recognises a low level of technology application in small and medium business and is funding a pilot project involving the application of IT across small manufacturing businesses featuring employment, training and work placement outcomes for the students from the University of Western Sydney and the Western Sydney and South Western Sydney TAFEs.

10.7.6 R&D, educational institutions and industry services

The University of Western Sydney (UWS) is emerging as an important provider of education services to Western Sydney residents. Two TAFE institutes deliver VET courses throughout the region and the private training sector is small but growing. Innovative projects include the Nirimba campus, which provides for co-habitation for university, vocational and secondary education. Regional business chambers are active in training. A number of councils - including Penrith and Fairfield - have been engaged in projects to strengthen business networks and to encourage the diffusion of technologies and organisational innovations to local businesses.

The UWS has a number of formal commitments to regional engagement. This has included industry partnership schemes, cooperative programs, industry fellowships, campus councils consisting of local stakeholders and industry/university interaction programs such as the Technology Awareness Program. The University also has a number of early entry schemes for local students, and has access/entrance arrangements with the Western Sydney Institute of TAFE. The UWS has received around $5 million, from the Commonwealth Government, for the creation and development of a Greater Western Sydney Learning Network. UWS describes the project as an exciting innovation in higher education delivery that will enable the University to provide access to its services at up to 100 sites in Western Sydney. The purpose of which is to improve opportunities for study and life long learning in the region.

Western Sydney Institute of TAFE and South Western Sydney Institute of TAFE provide a primary source of VET training in the region. The TAFEs have developed a number of specialist training centres – although these are not restricted to local students. The TAFEs have also developed and maintain a number of training initiative and partnerships with regional firms.

Other New Economy and Innovative Programs

Business Mentoring and Business Information and Services, particulary for small business, in the region is provided through a number of Business Enterprises Centres/Business Assistance Centres. There are also a number of notable options for learning with new technology, including the Unisys Centre of Excellence for E-Business Facility. The private sector, education institutions and government are partners in this venture. This facility provides:

- Education through seminars, workshops, demonstrations etc
- Work experience for students;
- An environment to conduct commercially focussed research;
- Facilitation of networking by hosting events and meetings
- Demonstrating commercial innovation and best practice.

10.7.7 Individual Learning

GWS has a growing educational marketplace and the youthful population will both ensure that the sector continues to grow and place continued demands on existing facilities.

Despite having a smaller population than the Rest of Sydney, Greater Western Sydney (166,934) has a higher number of students attending Infants/Primary School than the Rest of Sydney (165,735). Currently, far more residents in the 15-19 Demographic in the Rest of Sydney access Post-Secondary Education (270.66 persons per thousand) than is the case in GWS (250.77 persons per thousand).

The Region is also serviced by local Community and TAFE Colleges, as well as by the University of Western Sydney. However, Greater Western Sydney Region has a relatively low Higher Education Participation Rate (58.88 persons per thousand) when compared to the Rest of Sydney (88.85 persons per thousand) and NSW (56.93%).

GWS has a lower proportion of 'knowledge based' jobs than many other LGAs. In aggregate there is a higher concentration of lower skilled and qualified workers and fewer workers employed in growth industries and occupations: professionals, para-professionals, managers, technologists and community sector workers. Particular, local government areas in Western Sydney are also experiencing low participation rates (around 55%) which may suggest there are a large number of discouraged workers. However, over the period of 1991 – 1996 the number of unemployed people in GWS declined from 74,000 to 56,500. This is a considerable achievement given the continuous growth of the GWS workforce over this period. This may also be related to the major commitment to upgrading qualifications, by GWS households, over the decade 1986-1996. The proportion of the resident workforce with tertiary qualifications doubled in some areas and tripled in others over the decade.

National Economics[97] estimates that around 20,000 jobs in GWS are knowledge based, or around 4% of the total. In comparison knowledge workers comprise around 19% of North Sydney's workforce and 18% of Sydney's (LGA) workforce, respectively.

There is a key challenge for GWS to increase the number of highly skilled knowledge based jobs in the region and improve access to these jobs for highly skilled workers in the region. This could involve transforming the key employment centres in knowledge based centres and making the region more attractive for knowledge based workers to live in the region.

Despite the successes in GWS there is significant investment is required in knowledge infrastructure, particularly in innovative models to improve the quality of education and training. The region has a significant deficit in IT skills and jobs. Local education and training institutions can't keep pace with demand for "new" economy training in the IT&T areas. A stronger involvement of higher education institutions is required, particularly those with research and educational capabilities in the emerging high technology industries.

[97] National Economics and DEM, **GWS Planning and Transport Vision Statement,** GWSEDB, 2000

10.8 Wide Bay Burnett

10.8.1 Introduction

Wide Bay Burnett is a statistical division on the east coast of Queensland, just north of the Moreton division. The region occupies about 3% of the total area of Queensland and includes 21 local governments. Its prominent natural features are, the Mary and Burnett Rivers, Fraser Island, a coastal plain and a hinterland that stretches to the beginning of the Great dividing Range The centres in the region creating significant population growth centres are Hervey Bay, Maryborough, Gympie and Kingaroy.

10.8.2 Regional overview

The Wide Bay Burnett Region covers 52,404 square kilometres with a population density of 4.5 persons for every square kilometre. This can be compared with Queensland which has a population density of 2 persons per square Kilometre.

The Wide bay Burnett Area estimated population at June, 2000 was 234,751 persons or 6.6 per cent of Queensland.[98] The average annual growth rate for the Wide Bay Burnett region was 1.3 per cent between June 1995 and June 2000, slowing to annual growth rate of 1.1 % between 1998 and 1999 and then 0.9% between June 1999 and June 2000 (OESR,2001). The 1999 to 2000 growth rate is significantly lower in comparison with the Queensland which recorded a 1.7% growth over the same period.

In relation to growth by the Shire, the northern most coastal shire of Miriam Vale recorded the highest amount of growth between 1999 and 2000 (3.1 per cent), followed by Burnett, which includes Bundaberg (2.6%). The other coastal areas of Tiaro (2.2%) and Harvey Bay (2.1%) also recorded high rates of growth.

The population of the region is concentrated in the three major centres of Bundaberg, Maryborough and Gympie. Bundaberg, in Burnett Shire has traditionally been the major centre for the surrounding Hinterland. At June 30, 2000 the city had a fifth (18.9%) of the region's population. This was closely followed by Hervey Bay City, with 18.3 per cent (OESR, 2001). A significant proportion of the population growth is from net in-migration flows. The highest migration in flows between 1991 and 1996 were to the coastal areas of Hervey Bay (4,087), Burnett (1,981), Cooloola (1,279) and Bundaberg (1,070) (CEDA,2000).

The high migration in-flows to the coastal areas is mainly a result of the attractiveness of the region to retirees due to climate and lifestyle, especially Hervey Bay. This is reinforced by the age structure of the population which shows a relatively high number of people between 50 and 80. In contrast there is a low number of people between the ages of 15-29. The younger generation are leaving the region to find employment opportunities or higher education.

The attraction of employment in fruit picking and the area's tourism value also creates high levels of migration.

[98] . (OESR, 2001).

10.8.3 Economic development

The Wide Bay Burnett area has traditionally grown from opportunities in primary production, helped by the climate and topography of the region. The major growth sectors were sugar cane (eg Bundaberg Sugar), beef production and a thriving dairy industry. The recent downturn in the dairying industry and trouble in the agriculture sectors has seen a shift towards diversification and value added activities.

The natural environment has recently begun to provide more opportunities for tourism and recreation lifestyles, particularly at Fraser Island and Hervey Bay.

Recent improvement in communications via a community based Wide Bay Network has provided opportunities for business to expand and the area to attract new industries. The high quality infrastructure available is attracting international interest in the Wide Bay area due to the quality and cost effectiveness of the Information Technology and communications infrastructure. According to a report on the region by CEDA (2000) this trend is likely to continue.

The Governments Statisticians Office estimates the Wide Bay Burnett Gross Regional Product to be $2,266 million between 1989-90 and $3,22 million between 1994 and 1995. This average annual growth of the Gross Regional Product (7.3%), is higher than the Brisbane Moreton statistical division at 6.5% and total Queensland at 6%.

High unemployment continues to be a major problem in the region. In March 2000 the unemployment rate was 13.8% compared with the Queensland average of 8.6%. Youth unemployment (15 – 19 years) was high at 24 per cent. The highest rates of unemployment were in the Shires of Bundaberg City (14.4%), Hervey Bay (16.5%) and Burnett (14.4%) (CEDA, 2000)

Table 10.17 Unemployment rate by age in Wide Bay-Burnett and Queensland

Age	Wide Bay Burnett	Queensland
15-19	1,815 (24.1%)	24,007 (19.2%)
20-24	2,009 (21.7%)	29,438 (14.7%)
25-54	8,438 (13.2%)	86,313 (7.8%)
55-64	1,312 (14.3%)	11,144 (8.9%)
Total	13,649 (14.9%)	151,717 (9.6%)

Source: ABS Labour Force Survey, April 2000

Table 10.18 Employment status in Wide Bay-Burnett and Queensland

Employment Status	Wide Bay-Burnett Region	Queensland
Employed Full-time	64,800 (67.8%)	1,210,600 (72.1%)
Employed Part-time	30,800 (32.2%)	468,100 (27.9%)
Total	95,600	1,678,700

Source: ABS Labour Force Survey, April 2000.

The work force in the region has a higher percentage of part time employment (32.2%) than the rest of Queensland (27.9%). Regional industry is dominated by agriculture, retail, manufacturing, construction sectors and increasingly services such as education, health and community services and accommodation. The region has a significantly lower concentration of property and business, health and community services, wholesale and trade and transport and storage than Queensland.

10.8.4 Organisational Learning

The Queensland Department of State Development identified growth sectors in its *Wide Bay Burnett Industry Study Planning Strategy*. These growth areas, shown in table below, were concentrated in the Wide Bay Coastal area where the highest population growth is occurring.

Table 10.19 Department of State Development identified Growth Areas

Wide Bay Sub regions	Growth Sectors
Bundaberg – (includes Bundaberg City – Burnett Shire, Miriam Vale shire, Kolan Shire, Isis Shire	finance, Insurance & property Services, education, health and community services, Accom, cafes and Restaurants, Wholesale and retail trade
Maryborough/Hervey Bay (includes Maryborough City- Hervey Bay, Tiaro Shire, Woocoo Shire	Wholesale and retail Trade, Health and community Services, Accommodation, cafes and restaurants, finance, insurance and property services, education
Cooloola (including – Cooloola Shire (Gympie)	Manufacturing, finance, insurance and property services, Health and community services, Accommodation cafes and restaurants, Construction, Wholesale and Retail Trade.

Source: DSD "Wide Bay Burnett industry Planning Strategy' Feb 2000.

Some of the best examples of Industry clustering in the Wide Bay Burnett Region are centred around the Information Technology industry. The Wide Bay 2020 project, identified a need for a community communication network to succeed in attracting the new knowledge economy. This lead to the establishment of Wide Bay net, a digital network that utilises bulk purchasing and aggregation to lower telecommunications costs. The network, distributed to the 10 local governments of WB2020, is recognised as a system to promote better links between business, government and the community and facilitate network clustering. There are several other examples of clustering and industry learning projects/developments in the region including:

Information Technology

- Internet access programs such as South Burnett on line, Cherbourg Community Access Program and the Burnett inland IT strategy. The Burnett inland IT strategy is a strategy to link the 11 inland Shires of the Wide Bay Burnett to the WideBay.net service.
- The North Burnett Business, education and Communication centres.
- The establishment of INDELTA, a Wide Bay Research and Development centre on the University of Southern Queensland's Hervey bay campus. The role of this centre is to develop IT based industries and provide access to professional and technical assistance.
- Hervey Bay City is to striving to expand its range of network capabilities by creating a Knowledge, Information and Technology Zone (KITZ). The elements of the proposal are the:

- Establishment of a Wide Bay Information Technology Research and and Development centre;
- Incubation and office facilities for enterprises and call centres;
- A Technopark on industrial land near the Hervey Bay Airport

Industry and Business Clusters

- A Bundaberg Industrial Park. Current investigations into the feasibility of establishing a Food industry Park. This analysis is looking at the co-location of a transport interchange, cold and dry storage facilities, packing , processing and other support industries.
- The Maryborough Sugar mill co-generation plant is to be located in a cluster with the Sugar Mill and an industrial estate for supporting industries (CEDA, 2000).
- A multi million dollar floriculture complex is proposed in Eidsvold Shire. This will propagate native hardwood trees for plantation (CEDA, 2000).
- In Kingaroy Shire there the expansion of the regional service centre will involve a cluster of all major retailers, non government and government agencies, high schools, TAFE and a University of South Queensland campus. A conference centre is also proposed for the centre of town (CEDA, 2000).

Education

- In Isis Shire farmers are learning to use e-commerce for marketing rather than using the service provided by development boards.
- In Maryborough education services are expanding and attracting higher numbers of international students.
- In Tiaro shire there is a proposed joint venture with the University of Queensland to establish a 1.5 hectare geoplasm site in Tiaro. This is for research into endangered and all species of the Macadamia.

Tourism

- In Gayndah Shire there are projects in conjunction with state agencies to provide training and opportunities to develop tourism potential.
- In Tiaro shire an extensive recreation park is to be established in Bauple. This will link the cultural centre, museum and proposed USQ centre for historical learning.

The Wide Bay Burnett region has made significant advances in the provision of communications infrastructure. Every resident in the Wide Bay 2020 area and inland Burnett area is now able to gain access to the Internet and a regional information system. The regional information system in the Wide Bay 2020 area provides an interactive mapping feature, a business directory and a page with useful community documents. The regions education institutions have the potential to utilise these new technologies to increase education service provision in the region.

10.8.5 Regional policy

The key regional Development/ Employment organisations are:

- Cooloola regional development Bureau.
- Kingaroy district development association

- Wide Bay Burnett Organisation of Councils
- Wide Bay 2020 Regional Planning Advisory committee
- Wide Bay Area Consultative committee
- Burnett Inland economic Development Organisation

The key regional tourism development organisations are:

- Bundaberg District Tourism and Development Board
- Fraser Coast South Burnett Regional Tourism Board.
- Hervey bay tourism and development Bureau (These three aim at development of tourism and employment opportunities)

Wide Bay Burnett Area Consultative Committee (WBACC)

The WBACC role is to provide a connection between the Commonwealth Government, business and local communities so as to generate opportunities for jobs, business success and regional economic growth (WBBACC, 2001). The WBBACC follows the charter for the national network of Area Consultative Committees. The priorities include establishing partnerships between business, government and the community and establishment of a communication channel to support this.

Wide Bay 2020

The most comprehensive regional planning undertaken in the region is the Wide Bay 2020 Regional Plan for Growth Framework. This joint state and commonwealth government regional plan focuses on the 10 coastal shires in the Wide Bay Burnett region. These local governments, which include the major centres of the Wide Bay Burnett region, are experiencing the highest population and employment growth. The framework focuses on learning objectives as part of its quest for sustainable growth by economic development and in provision of human services and community facilities. A summary of the major points from the policies and actions in relation to 'learning' are as follows.

10.8.6 Economic development

There are three policies to achieve an objective of sustainable economic development. The first policy is to generate employment and build on the regions competitive advantages by:

- developing regional economic development plans for subregions of Bundaberg/Burnett, Hervey Bay/Maryborough and Gympie to establish them as major business and service centres. So far a report has been prepared on the economics of the three regions;
- encouraging the *potential for economic growth in the agricultural sector by supporting agricultural research.* This is being achieved by the Department of Primary industries research and development into the feasibility and economic potential of emerging industries;
- fostering *industries which complement and build upon existing business, skill and best practices.*

The second policy is to ensure major economic activities are *encouraged to co-locate to maximise the benefits of clustering, synergies and provision of infrastructure.* The actions suggest that it is desirable to locate high employment generators next to major urban centres and where there is a 'like' resource that is of benefit to the industry.

The third policy states that the growth in the supply of skilled labour should be encouraged and targeted towards better matching the skills of the labour force with employment opportunities in the region . The actions are to promote participation in industry specific traineeship programs aimed at youth and to improve the range of education and training opportunities to service growing industries. Progress on this policy has seen a $2.7 million extension to the Central Queensland Universities Bundaberg campus allowing the number of enrolments to double to 1400. Also progress has seen $1.064 million allocated for the refurbishment and consolidation of the existing Wide bay TAFE in Bundaberg[99].

Another action for the third policy is to improve links between local industry and training providers. The implementation has facilitated the creation of a Job pathways program that provides a link between schools and the workforce.

Provision of Human and Community Services

A policy in relation to community development is to have co-operative action between government, community in providing viable human and community services.

The proposed action is to develop a Further Education Plan for the human services sector for Wide bay. This deals with formal and informal training, including both preliminary training and ongoing professional development. An Education and Training Working group has been established which currently collates training needs and opportunities in the region. It furthers funding application through the community training 'Partnerships Program' run by the Department of Training and Further Education Office of Higher education. The working group is comprised of members representing community organisations, relevant government departments, education institutions and regional training providers.

WB2020 contributions to 'learning' in the region

The Wide Bay area is considered to be a 'lifestyle region' which has the opportunity for growth by attracting knowledge based industries of the global A major initiative of the Wide Bay 2020 project to improve its Information Technology and communication infrastructure to give the region a competitive advantage in attracting knowledge based industries. To do this several initiatives are being implemented:

Wide Bay Net

This is a regional data network that works by aggregating regional demand and bulk purchasing serving to lower telecommunications costs. This is Australia's first purpose built region wide telecommunications system that provides local call access for on-line services[100]. The concept of demand aggregation assists key business and industry activity by providing instant connectivity and facilitates local government cooperation on region wide issues. The project was funded by the Commonwealth 'Networking the Nation Fund' and is now fully commercialised. The infrastructure provides equable Internet access to all residents and information that can be coordinated through local government communication.

[99] (DLGP,2001).

[100] (CEDA, 2000)

The Wide Bay Human Services network provides a community organisation directory database, a documents page and an interactive mapping site (shared Vision document) to all residents and business in the region. Success of the project was proven recently by the interactive mapping site assisting a Belgium based firm on obtaining data on regional soils, climate and infrastructure for considerations for new crop trials. This initial access of information lead to the Belgium firm's decision to build a $250 million (300 job) chicory in the region.

Wide Bay Tel

This is a future project that will provide a regional community and industry partnership approach to gaining international best practice, regionally focused data and voice telecommunication services. The network will be managed and run by a not for profit telecommunications service retailer to provide lower cost telephony, enhanced data and Internet services to meet identified community and business needs.[101]

Burnett Inland Economic Development Organisation

This organisation covers the 11 inland local government areas not represented by the Wide bay 2020 regional planning initiative. The organisation represents predominantly agricultural endeavours with members whose intentions are to broaden the economic base and add value to existing resources.

One of their initiatives was to set up *Burnet.net* to connect with the Wide Bay network to provide Internet connection to all residents. There has been a combination of the Wide Bay 2020 and the Burnett Inland Information Technology Strategy (BIITS) to provide household access to on line services and training to all Wide Bay Burnett residents.

The Department of State Development

The Department of State development has begun to promote greater utilisation of education services by primary producers. It is encouraging education institutions to provide flexible delivery on subjects in areas of relevance to primary producers, including new product development, improved farm practice etc.

10.8.7 R&D, educational institutions and industry services

The Institute of TAFE is based at Bundaberg, Maryborough and Hervey Bay and has five campuses throughout the region.

There is approximately 2 000 local students enrolled in major university campuses in the region. The University of Southern Queensland has a campus in Hervey Bay and a second is to open in Kingaroy. Central Queensland University has a campus in Bundaberg and all universities provide distance education. The majority of education is provided on the to the individual basis and to a lesser extent some programs are aimed at businesses.

A substantial portion of the courses offered to locals are provided through distance education programs. The majority of tertiary students are mature age or study part time creating a demand for a flexible service. University courses focus on tourism and hospitality, education, nursing, multi-media, information technology and business commerce.

[101] (WPRAC,2001

Central Queensland University(CQU) has a campus in Bundaberg. It is the only university in the region to have specific facilities that it shares with the community such as microscopes and lab materials. The university has strategies to provide isolated people with delivery of education regardless of location. It is currently directing its research effort towards regional relevance and is combining this research with delivery of education to contribute to individual knowledge and regional economics.

CQU administers surveys in the community, via its centre for social research with outcomes aimed at improving communication in the region. It participates in regional seminars and conferences, undertakes research and development in collaboration with local businesses and some national firms. The university is involved in a project which is commercialising and licensing the technology behind non-invasive means of guaranteeing fruit is sweet.

The Wide Bay campus at University of Southern Queensland(USQ) in Hervey Bay provides short course seminars to local business and allows joint use of the library and equipment by the public, TAFE and school students.

The innovation zone and business monitoring centre for IT professionals is to be establish on campus in conjunction with Hervey Bay council. The university focuses on unemployment by providing appropriate skills-based degrees such as Nursing, education and Tourism. There has been a rapid increase in enrolments reinforcing that there is a demand for skilled people in the region.

USQ Works with Education Hervey Bay, Wide Basy Region Schools Districts, TAFE and the Australian Maritime Colledge. There are several other education programs in VET sector and group training companies. There is also a Bundaberg TAFE Fishing and Marine Training Centre.

10.8.8 Individual Learning

The table below shows the Wide Bay Burnett region has a lower percentage (33.1%) than Queensland (38.5%) of people with post school qualifications.

Table 10.20 Level of education qualifications in Wide Bay-Burnett

	Wide Bay Burnett region	Queensland
Basic Vocational	3,865	60,691
Skilled Vocational	19,325	292,926
Associate Diploma	2,616	58,733
Total persons with vocational qualifications and per cent of the 15 and older population	25,806 (14.8%)	412,350 (15%)
Degree or higher (includes undergraduate diploma)	12,526	304,287
Total persons with post-school qualifications and % of the 15 and over population	57,884 (33.1%)	1,013,771(38.5%)

Sources: DETIR, Wide Bay Burnett Labour Market Conditions, June 2000

The Wide Bay Burnett Region has high unemployment, a relatively low skill base and a low portion of school leavers who complete further education. However recently there has been a trend for more mature aged students, some who are mothers or farmers, which suggests an expectance by the community that learning is a lifelong process.

10.9 Ballarat

10.9.1 Introduction

The City of Ballarat is located in the Central Highlands region of Victoria approximately 110 kilometres north west of Melbourne. Ballarat is the third most populous municipality in regional Victoria having approximately 81,600 residents in 2001.[102]

The municipality of Ballarat was created on the 6 May 1994, following the amalgamation of the former City of Ballarat, Shire of Ballarat, Borough of Sebastopol, and parts of the Shires of Buninyong, Bungaree, Grenville and Ripon.

Historically, Ballarat was a major gold mining town, but more recently the city has developed a more diverse economy and it now functions as one of Victoria's key regional centres, providing a broad range of higher order services to a extensive rural hinterland.

10.9.2 Regional Overview

Ballarat covers approximately 740 square kilometres at average population density of around 110 persons per square kilometre. This compares with the overall Victorian population density of 21 persons per square kilometres and the population density of regional Victorian which is 5.95 persons per square kilometre

At present, Ballarat accounts for just under 2% of Victoria's total population and around 6.2% of Victoria's regional population.

As with most of regional Victoria, Ballarat is expected to grow only moderately over the next decade (0.4% per annum). By comparison, Victoria is expected to have an average annual growth rate of around 0.7%. However, the higher state-wide figure is primarily due to anticipated growth in metropolitan Melbourne

Table 10.21 Population Growth in Ballarat

Area	Population 2001	% of Vic	Population 2011	% of Vic	Ave Annual Change 2001-2011
Ballarat	81,594	1.7%	84,566	1.7%	0.4%
Regional Victoria	1,316,075	27.6%	1,367,751	26.8%	0.4%
TOTAL VICTORIA	**4,770,414**	**100.0%**	**5,099,070**	**100.0%**	**0.7%**

Source: DOI, 2000.

[102] DOI, 2000

10.9.3 Economic Development

As previously mentioned, Ballarat was traditionally a gold mining town and agricultural centre. During the twentieth century, the city developed strengths in manufacturing, retail trade and community and health services. More recently, the city has enhanced its profile in value added food processing, information technology, education and tourism.[103]

Industry restructuring in the agricultural and mining sectors over the last decade has had a relatively dramatic impact on unemployment levels in Ballarat. Throughout the 1990s the city tended to have higher levels of unemployment than both the State average and the non metropolitan average. In 1998, Ballarat's unemployment level was around 5.7% higher than Victoria and 4.8% higher than the regional Victoria. In more recent times, however, Ballarat has managed to reduce unemployment to levels which are more comparable to the State and regional Victorian averages.[104]

Table 10.22 Unemployment Rate (June Quarter)

Area	1998	1999	2000
Ballarat	13.8%	8.8%	8.1%
Non-metropolitan Victoria	9.0%	8.1%	7.6%
Victoria	8.1%	7.6%	6.6%

Source: DEWRSB Small Area Labour Market Statistics.

Ballarat's high levels of unemployment reflect the generalised rationalisation of services in regional Australia. Under direct exposure to international competition, public and private sector providers of services like banking, stock and property brokerage, education, health, legal advice, engineering design and maintenance etc. have been forced to reduce costs to remain competitive or viable. This has generally meant rationalisation into fewer distribution points and the substitution of technology for personalised service (e.g. call centres, ATM's in bank agencies etc).

This agglomeration of service and export related activity in regional centres such as Ballarat results in a drift of people from the rural hinterland in search of job opportunities. The population has in turn been followed by an increase in consumption-based services in the city. However, while Ballarat has benefited as a result of rationalisation – becoming a magnet for economic activity and people in the region – it has also had to contend with associated problems such as increasing concentrations of unemployment. [105]

[103] http://www.ballarat.vic.gov.au/econdev/mychoice/profile/intro.html

[104] http://www.ballarat.vic.gov.au/econdev/mychoice/profile/page15.html. All figures cited are for the June quarter and are not seasonally adjusted.

[105] Spiller Gibbins Swan, 2000

Table 10.23 Ballarat Gross Household Incomes 1996

Weekly Income	No. H/holds	% H/holds	Vic % H/holds
Neg/Nil	149	0.5%	0.7%
$1-119	249	0.9%	0.8%
$120-299	6,204	22.2%	17.5%
$300-499	5,392	19.3%	15.9%
$500-699	4,181	15.0%	13.5%
$700-999	4,286	15.3%	16.1%
$1,000-1,499	3,092	11.1%	14.5%
$1,500-$1,999	915	3.3%	5.2%
$2,000+	599	2.1%	4.8%
Not stated/other	2,882	10.3%	11.0%
Total	**27,949**	**100.0%**	**100.0%**

Source: ABS Census information.

Relative to Victorian averages, Ballarat households tend to have higher incomes. Only 19% of households in Ballarat have incomes of less than $300 per week. By comparison, 25% of Victorian households have incomes below this threshold. At the other end of the income spectrum, 24.2% of households in Ballarat have incomes in excess of $1,500 per week, while the State average is only 15%.

10.9.4 Organisational Learning

Industry dynamics

The key features of Ballarat's industry structure are as follows:

- Retail trade, manufacturing, and health and community services are the key employment sectors in the city. Ballarat has significantly higher proportions of people employed in all three of these sectors than both regional Victoria and the State overall.
- Ballarat has slightly higher proportions of people employed in education and personal and other services.
- Agriculture, forestry and fishing accounts for a significantly smaller share of employment in Ballarat than in other parts of regional Victoria.
- Employment growth in Ballarat has been particularly strong in property and business services (growth of 819 employees between 1986 and 1996); retail trade (660 extra employed); health and community services (577 extra employed) and accommodation cafés and restaurants (428 extra employed).

Table 10.24 Ballarat Employment Profile, 1996

Industry	No. Persons Employed	%	% Non Metro Vic	% Vic
Agriculture, forestry & fishing	531	1.8	12.4	3.9
Mining	93	0.3	0.5	0.3
Manufacturing	4,816	16.4	13.5	16.3
Electricity, gas & water	267	0.9	1.4	0.7
Construction	1,612	5.5	5.9	5.9
Wholesale trade	1,270	4.3	4.7	6.1
Retail trade	4,937	16.8	14.4	13.8
Accommodation, cafe's & restaurants	1,379	4.7	4.5	3.8
Transport & storage	817	2.8	3.3	3.9
Communication services	533	1.8	1.5	2.3
Finance & insurance	739	2.5	2.4	4.1
Property & business services	1,862	6.3	5.8	9.9
Government administration & defence	899	3.1	4.2	3.8
Education	2,675	9.1	7.5	7
Health & community services	4,044	13.8	9.9	9.3
Cultural & recreation services	917	3.1	1.7	2.4
Personal & other services	1,209	4.1	3.3	3.5
Not classified/not stated	809	2.8	3	3.2
Total	**29,409**	**100**	**100**	**100**

Preparing for the Knowledge based economy

Over the last decade Ballarat has emerged as one of Victoria's premier information technology hubs, particularly in the fields of interactive multimedia software, health sector IT and government and private sector outsourcing.

Ballarat boasts optical fibre, microwave radio and coaxial cable network linkages in a sophisticated communication network which supports both mobile and fixed site communication for voice and data between the City and locations throughout Australia and overseas. Ballarat is one of few regional cities in Australia with a Hybrid Fibre Optic/Coaxial (HFC) broadband telecommunications network. The network is provided by regional telco and infrastructure owner Neighbourhood Cable.[106]

The Ballarat Technology Park, which is situated on the campus of the University of Ballarat, specifically caters to the needs of firms engaged in information technology. The two main tenants of the Technology Park are IBM Global Services Australia and the Greenhill Enterprise Centre, which itself has a number of tenants oriented to the IT industry.

The City of Ballarat is embarking on a leading edge IT strategy to use information and communication technologies to improve the quality of life for its residents through an initiative called Ballarat Televillage. This strategy aims to ensure that both employers, their staff and the wider community have easy access to comprehensive and relevant IT training for business and personal development.

[106] http://www.ballarat.vic.gov.au/econdev/mychoice/profile/page34.html#4.13

10.9.5 Regional Policy

Business Ballarat is the City of Ballarat's economic development agency and is the primary organisation involved in the formulation, coordination and implementation of economic development initiatives in Ballarat.

Business Ballarat aims to increase the level of economic activity in Ballarat by the support and expanding existing businesses and attracting new business, investment and sustainable development to the City. Business Ballarat provides a range of business services to assist local businesses. These include:

- An advice and referrals service which provides access to various levels of government, export linkages, employer bodies, council approval processes and a range of other information and assistance.
- Coordination of key players to ensure the smooth, seamless progress of development projects.
- Assistance with trade shows, exhibitions and expos and the provision of promotional material about Ballarat (brochures, videos, etc).
- The formulation of statistical profiles and other information about the City.
- Strategic planning services to enable the identification of business development opportunities that build on Ballarat's competitive advantages, particularly in strategic industries such as manufacturing; food processing; information technology; education; retail; health services and tourism.[107]

Regional Development Victoria, or Business Victoria as it is commonly known, also plays a role in the economic development of regional cities such as Ballarat. Business Victoria is a State government agency which formulates broad level regional development policy and also coordinates programs of infrastructure development, investment attraction, job creation and community development in regional and rural Victoria.[108]

Ballarat is also the home of the Highlands Local Learning and Employment Network (LLEN), which covers Ballarat and the adjoining municipalities of Hepburn, Moorabool, Pyrenees and part of Golden Plains. The Highlands LLEN was established as part of Victorian Government's policy of education reform in the State. The LLEN program, which began in 2001, aims to enhance post secondary education networks by developing partnerships and linkages between the various individuals and organisations involved in post compulsory education, training and employment within the area covered by that LLEN. The LLEN program explicitly emphasises the need to move away from centralized decision making by government and a shift towards the empowerment by communities through local decision through partnerships.[109]

[107] http://www.ballarat.vic.gov.au/econdev/busball.html

[108] http://www.dsd.vic.gov.au/web/dsrd/dsrdsite.nsf/dsrd

[109] http://www.llen.vic.gov.au/llen/about/index.htm

Regional Economic Development Strategy – Key 'Learning' Objectives

Business Ballarat is responsible for developing and implementing the City's economic development strategy. This strategy aims to build on Ballarat's competitive strengths in the areas of information technology and telecommunications, manufacturing, food-processing and value-adding to the region's agricultural output, education and health, business and commerce.[110]

In keeping with its progressive IT programs, Ballarat has declared itself a 'Learning City'. It aims to develop a culture of lifelong learning in the region through initiatives such as the development of learning pathways from childhood through to adulthood and training programs to suit the needs of local industry.

Business Ballarat also maintains strong links with Ballarat Technology Park, the local universities and other education providers in the City acting as a conduit for interaction between local businesses and these organisations.

The Highlands LLEN has only been operating for the last six months and yet to develop a specific localised policy framework. However , when developed, this policy framework is likely to draw upon the recommendations of the *Kirby Report* which reviewed post compulsory education and training pathways in Victoria. This report emphasised the significance of coherent and outwards looking policy frameworks, greater collaboration between the various organisation involved in the delivery of education and the importance of partnership between government and communities and the development of local responses and cooperation in meeting the diverse needs of communities.[111]

10.9.6 R&D, education institutions and industry services

Ballarat offers a range of educational opportunities in both higher education and industry-specific forms.

The University of Ballarat offers undergraduate and graduate education, research and scholary community services to the region. The University evolved out of a merger between the School of Mines and Industries and the Ballarat and the Wimmera Institute of TAFE. It offers both higher education and TAFE courses.

Most schools within the TAFE and higher education divisions of the University have business development, marketing and consultancy capacities. There is also a Business Development Centre, which coordinates the marketing of the University's commercial capacities and expertise. The training alliance that the university maintains with Transfield is a key example of the commercial training programs offered by the University of Ballarat. The University coordinates skills training and education for Transfield employees across Australia.

The university is also home to the Ballarat Technology Park and the Greenhill Enterprise Centre. These facilities are both oriented towards the development of IT business in Ballarat. They operate programs such as the Virtual Business Incubator Network and the Ballarat Enterprise and Employment Fund (BEEF), which provides low cost start-up capital and working funds.

The Aquinas Campus of the Australian Catholic University is also situated in Ballarat. It undertakes teaching, research and scholarship in accordance with Christian principles and traditions.

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[110] http://www.ballarat.vic.gov.au/econdev/busball.html

[111] http://www.llen.vic.gov.au/llen/about/policy.htm

Ballarat operates a learning City Task Force involving five key members from the community and the business and education sectors. This task force has undertaken a strategic planning process to enhance learning and education in the city. The task force's strategy aims to:

- Strengthening the skills and knowledge of the workforce.
- Building stronger partnerships.
- Extending access to marginalised community members and groups by enhancing 'pro-learning' attitudes.
- Creating opportunities for social learning networks, in both institutional and community based activities in 'real' and 'virtual' environments.
- Developing information and communication technology skills.

10.9.7 Individual Learning

Attendance at primary schools in Ballarat grew by around 330 students between 1986 and 1996. By contrast, secondary school attendance dropped by 768 over the same period.

Enrolments at tertiary level education facilities in Ballarat have increased strongly in recent times. There were 701 more people attending TAFE in 1996 than in 1986 and attendance at universities increased by nearly 2,500 people.

Overall,. around 27% of Ballarat's population were attending an education institution at the time of the 1996 census. Compared to non-metropolitan Victoria and Victoria as a whole, this rate off attendance is relatively high (24.8% and 24.7% respectively). In particular Ballarat has a high proportion of its residents at university (5.1%), compared to non-metropolitan Victoria (2.2%) and Victoria (3.6%).

Table 10.25 Attendance at Educational Institutions, 1996

Type of institution	Ballarat		Non-metropolitan Victoria	Victoria
	No.	%	%	%
Pre-school	986	1.4	1.4	1.5
Primary school	7,584	9.9	10.7	9.8
Secondary school	6,025	7.9	8	6.8
TAFE	1,733	2.3	2	2.5
University	3,875	5.1	2.2	3.6
Other	363	0.5	0.4	0.6
Total attending	**20,570**	**26.9**	**24.8**	**24.7**

Source: ABS Census data

Compared to Victorian averages, Ballarat's residents are relatively poorly qualified. While 37.3% of qualified Victorians have a bachelor degree or higher, only 31.6% of people qualified people living in Ballarat hold these types of qualifications. In particular, Ballarat has a very low proportion of people with bachelor degrees relative to the State average (22.2% and 27.4% respectively).

However, while Ballarat's education levels are relatively low, the situation has improved considerably since 1986. In 1986 only 7.4% of Ballarat's qualified residents held a bachelor degree. The dramatic increase (15%) in the proportion of people with bachelor degrees has been accompanied by a concomitant rapid decline (29%) in the share of people only holding a basic vocational qualification.

Table 10.26 Educational Attainment of Qualified Persons (15+ years) Ballarat, 1996

Qualification	No. Persons	%	Vic %
Higher degree	518	3.2%	4.4%
Postgraduate diploma	992	6.1%	5.5%
Bachelor degree	3,596	22.2%	27.4%
Total Undergraduate & Associate diploma	3,425	21.2%	19.9%
Skilled vocational qualification	5,719	35.4%	32.4%
Basic vocational qualification	1,550	9.6%	8.1%
Inadequately described	377	2.3%	2.4%
Total	**16,177**	**100.0%**	**100.0%**

Note: Percentages given are with 'not stated' responses excluded.
Source: ABS Census data

Knowledge based jobs

Detailed information on the number of Ballarat residents working in knowledge industries was not available for this case study. However, the broad level occupational profile shown in the table below, does provide some indication of the city's performance in attracting and retaining 'new economy' workers.

Compared to regional Victoria overall, Ballarat has a relatively high proportion of professionals and associate professionals – occupational groupings that include knowledge based occupations. The other grouping that is also likely to contain knowledge workers – managers and administrators – is problematic because this classification also includes farmers. As a result, Ballarat appears to have significantly smaller proportion of managers and administrators in than regional Victoria.

Overall, Ballarat's occupation profile is very similar to Victoria's. While it is dangerous to generalise from this broad level information, it appears that the concentration of knowledge workers in Ballarat is comparable to other parts of the State.

Table 10.27 Occupation Profile Ballarat, 1996

Occupation	No. Persons	%	Non-metro Vic %	Vic %
Managers & Administrators (includes farmers)	1,915	6.5	14.0	9.5
Professionals	5,191	17.6	14.2	17.8
Associate professionals	3,556	12.1	11.4	11.4
Tradespersons and related workers	4,029	13.7	13.7	12.9
Advanced clerical & service workers	1,036	3.5	3.2	4.3
Intermediate clerical, sales & service workers	4,471	15.2	13.0	15.4
Intermediate production & transport workers	2,634	9.0	9.1	8.9
Elementary clerical, sales & service workers	3,159	10.7	8.6	8.9
Labourers & related workers	2,653	9.0	10.0	8.3
Non Stated/Inadequately described	769	2.6	2.8	2.7
Total	**29,413**	**100**	**100**	**100**

Source: ABS Census.

11. A framework for the regional knowledge-based economies

National policy priorities need to be established to transform Australia into a knowledge-based economy, characterised by industry and organisational innovation and continuous upgrading of research and workforce capabilities. Australia needs a quantum leap in our capacity to innovate if we are to succeed. This involves promoting the exchange of knowledge and ideas, nurturing creativity and excellence in research and building our knowledge infrastructure as a basis for the commercialisation of new products and services. This is essential if we are to accelerate economic growth and wealth creation opportunities. We need to establish a strong footing in some of the world's most rapidly growing industries and accelerate innovation in our existing industries.

Despite some outstanding case studies, the gap in educational attainment and knowledge-based jobs between regions is widening. Those regions with high education attainment and concentrations of knowledge-based industries are on a virtuous development cycle. Those with low education attainment and engaged in less knowledge-based activities will struggle in the knowledge-based economy. Their young people will leave, few well-paid jobs will be created, businesses will invest less and real incomes will fall. The regions falling behind need support. As documented in SOR reports, globalisation and the knowledge-based economy can accelerate economic growth but many of the benefits are concentrated geographically in the core metropolitan regions of our most globally competitive cities. If we are to succeed in the knowledge-based economy we need a strong national framework that enables all regions to attain their economic potential.

To better position Australian regions in the knowledge-based economy, a number of proposals are put forward.

- Regional knowledge-based economic strategies
- Industry cluster and network policies and programs
- Increasing investment in education, research and technological infrastructure.
- Community economic development strategies.
- A national framework through the Council of Australian Governments to achieve better coordination and cooperation between federal, state and local government to support local and regional knowledge-based initiatives
- Policies to increase investment in regional infrastructure and industry.
- A national Learning Communities Program targeted at Councils who are actively engaged in learning based initiatives.
- A regional benchmarking system.

11.1 Regional knowledge-based economic strategies

The economic future of all Australian regions depends on how they handle the transition to the knowledge-based economy. This involves the preparation of regional knowledge-based economic strategies setting out their visions, objectives and actions to better position their businesses and households to participate in and enjoy the benefits of the knowledge-based economy. They need to prepare regional knowledge-based strategies that meet their individual circumstances. They cannot simply be imported from elsewhere. This involves addressing a number of issues. How do they promote innovation in existing businesses and strengthen local industry networks? How do they improve knowledge exchange and tap new sources of knowledge? Is their research and educational infrastructure adequate? How can they mobilise resources from the private and public sector to

support innovative projects and programs that will facilitate the transition to the knowledge-based economy?

To a large extent the effectiveness depends on the level of commitment by regional organisations and households - as well as state and national initiatives - to strengthen the linkages between learning and economic outcomes. Shifting to the knowledge economy is not just about high tech jobs – although this is important. It also involves improving competitiveness of existing industries through better application of knowledge, and continuous upgrading of skills of the workforce. It also has a major bearing for the economic infrastructure system through the better utilisation of knowledge to find innovative solutions to major infrastructure challenges.

To be effective in the knowledge-based economy, the regional knowledge-based strategies must ensure:

- Research and educational infrastructure is promoting regional innovation and learning.
- Local businesses are linked with other complementary local businesses and are tapping relevant sources of knowledge from outside the region.
- They are meeting the rapidly growing demand for technical and professional skills, particularly in areas requiring information and communications technology skills.
- Telecommunications infrastructure – in terms of access, cost and capacity -is not an impediment to economic development.
- A commitment to organisational learning involving knowledge and information flows between regional agencies, government, educational institutions, councils and community.
- Residents and workers are engaged in continually acquiring new skills.
- Increasing the knowledge content of existing industries whilst building on existing skills and capabilities to attract new knowledge-based industries.
- Rapid absorption of useful innovations from elsewhere

11.2 Industry cluster and network policies and programs

The most successful regions in the global economy sustain their competitiveness through industry clusters and networks of firms. These networks constantly exchange knowledge and information, and promote learning. These regions have dense social networks and open labour markets, and this encourages cooperation, entrepreneurship and experimentation[112]. These regions can become highly specialised, but, because of their knowledge base, they can adapt quickly to changed circumstances. According to Phil Cooke[113], successful clusters at the regional level will:

- Contain actors that are more open, willing to exchange ideas, information and knowledge and engage in trustful interaction with others.
- Have an abundance of knowledge capital, financial capital and social capital which enables time for strategic thinking and action.
- Thrive on a high valuation of scientific knowledge.

[112] AnnaLee Saxenian, Regional Networks and Innovation in Silicon Valley and Route 128, in Zoltan J. Acs, Regional Innovation, Knowledge and Global Change, Pinter, London, 2000.

[113] Phil Cooke, Knowledge Economies – Clusters, learning and cooperative advantage, Routledge, London, 2001.

The proposition is that Australia should give more emphasis to industry policies that support the growth of competitive clusters at the regional level rather than supporting individual firms. These policies concentrate on initiatives that strengthen innovation within regions rather than supporting individual firms.

Australia does have a number of industry clusters. In higher technology, Macquarie Park, East Melbourne (based around Clayton) and North Adelaide are examples. We have successful clusters in the wine industry, dairying (in Victoria), sugar (North Queensland) and cotton (North West NSW). A number of lifestyle regions have tourist clusters, having infrastructure and services and a range of activities to support large numbers of visitors.

11.3 Increasing investment in education, research and technological infrastructure and knowledge infrastructure

Knowledge based institutions have an important role to play in promoting learning and knowledge transfer at the regional level. Regional universities and TAFE's have made a significant contribution to the expansion of human capital at the regional level. Many are actively undertaking collaborative projects with local industry and community. Representatives of educational institutions are becoming actively involved in regional economic development agencies, a reflection of the growing importance of education as regions must perform in the knowledge-based economy.

In general, however, initiatives tend to be fragmented and have mixed results. One of the major challenges is the responsiveness of educational institutions to regional needs. More emphasis needs to be given to targeting programs to meet the circumstances and priorities of local industry and households. Not all regions are suitable locations for high technology parks. Not all communities and regions have good access to higher education.

Major cuts in government expenditure and changes in funding formulas impede the contribution educational institutions can make to regional economic growth. The federal government has reduced funding for post-graduate places for regional universities. New funding formulas give higher priority to the "Group of 8" elite universities based on their research capabilities and publications.

Priority needs to be given to the role of research and educational institutions in organisational learning, or learning that takes place within and between organisations including firms, research and educational institutions and economic development agencies. Organisations learn through ongoing exchanges of knowledge and information with competitors, collaborators, suppliers, and customers and from knowledge-based institutions. More public resources will need to be transferred from physical capital to knowledge infrastructure.

Greater emphasis in funding needs to be given to the economic returns from investment in knowledge institutions at the regional level. Further, consideration should be given to providing incentives or increased funding to regional educational institutions that can demonstrate enhanced regional growth emanating from collaboration with industry and the community.

Strengthening industry training networks and technology diffusion services is part of the "soft" infrastructure required to support regional firms to improve competitiveness in the knowledge economy. Much of the attention should be given to expanding support for small medium enterprises engaged in continuous training.

A number of opportunities exist to strengthen industry extension services and training networks in the regions. A number of larger firms have sophisticated training infrastructure, personnel and systems. On the other hand, many SMEs lack in-house training resources and are looking for short-intensive training in particular areas.

11.4 Community economic development

Globalisation and the knowledge-based economy have resulted in marginalisation of some communities. With the decline of traditional industries, unemployment gets passed on from generation to generation. The formal education system doesn't provide the solutions and there are few local jobs.

A major contribution that councils can make to support the transition to the knowledge-based economy in these circumstances is to undertake initiatives designed to strengthen social capital in these localities. Communities with high levels of trust, tolerance and openness tend to be more innovative and productive compared with those where these attributes are lacking. Innovative businesses will tend to be more open to sharing knowledge, to "opening the books to others" and will bounce ideas of each other, even occasionally competitors.

Building social capital within communities with high unemployment can open new opportunities for community economic development, based on building on the assets of a community and putting in place support mechanisms for community-based action. This approach recognises that communities have a range of skills and assets that can generate new opportunities for jobs and learning. These strategies build on existing capabilities and are tailored to meet local circumstances. Hence, more resources may be put into establishing micro-businesses and upgrading skills rather than attracting global corporate investors.

A major priority is community-based initiatives to build the self-esteem and confidence of young people to enable them to actively and enthusiastically seek jobs, career options and continuous learning. Despite the difficulties, there are many innovative ways that young people can be supported to attain their potential. Many councils in Australia are undertaking innovative projects with young people, including support for start-up businesses (Onkaprainga), IT scholarships (Salisbury) and support for structured workplace learning (Fairfield).

The challenge is how to link community development with employment and training. Innovative approaches are needed at the community level to transform welfare dependent communities into learning communities. Local projects might include community employment programs to regenerate local open space and community centres, mentoring schemes between older unemployed workers and young people, and information technology training initiatives. The most important feature is the central role played by residents in designing and implementing strategies.

11.5 Coordination between federal, state and local government to support local and regional knowledge based initiatives

The three tiers of government should seek to develop an agreement on knowledge-based economies. The agreement should seek to establish a framework in relation to the design and implementation of regional economic development programs and initiatives that support the transition to the knowledge-based economy. Poor coordination between the three tiers of government impedes progress of major regional economic development initiatives. In the transition to the regional knowledge-based economy, we need both more interaction between stakeholders at the local and regional level **and** substantial improvements in integration between the three tiers of government.

The Council of Australian Governments, comprising the Prime Minister, Premiers and Chief Ministers, and the President of the Australian Local Government Association, is the appropriate forum to develop a national framework for regions to make the transition to the knowledge-based economy. COAG has provided national leadership on a number of issues impacting the regions including the National Action Plan for Salinity and Water Quality and Natural resource management.

The Agreement should confirm an important and active role for the three tiers of government to support communities and regions undergoing structural change, develop regional competencies to adapt to social and economic change, and to strengthen their capacity to sustain growth in the regional knowledge-based economy.

Some of the elements of an agreement would include:

- Improved coordination of industry, education, environment and regional policy.
- Strengthening partnerships to improve the integration of regional programs in order to maximise regional outcomes and to minimise duplication.
- Eligibility criteria for new regional development programs including those based on indicators of distress or disadvantage and those based on enhancing regional economic outcomes.
- Greater devolution of resources and responsibility to regional organisations and groupings of councils to identify and implement programs and projects that support the transition to the knowledge-based economy.
- Increasing investment in regional knowledge infrastructure and developing programs that provide incentives to research and educational institutions to strengthen linkages and knowledge transfer and exchanges with local industry and communities.
- Recognise local government as a central partner in regional development and identify its roles and responsibilities, as well as outlining evaluation and accountability procedures for government funds allocated to regional development.

11.6 Policies to increase investment in regional infrastructure and industry

There is a general consensus that we need to significantly increase investment in economic development in the regions. The question is how? Governments have to take the lead to ensure that regions are not starved of funds for economic development.

Some proposals include:

Establishment of a Regional Strategic Infrastructure Fund Such a fund would have responsibility invested in regional agencies to allocate priorities subject to rigorous accountability and evaluation procedures. The fund should be designed to provide seed capital for infrastructure projects and to lever private investment, with priority given to knowledge infrastructure.

Creation of Enterprise Zones Following initial work by Cowra Shire Council, the Institute of Chartered Accounts and the NSW Local Government and Shires Association have developed proposals to establish Enterprsie Zones in rural Australia as a means of increasing investment in distressed regions in terms of high unemployment or out-migration. Once designated as Enterprise Zones, these areas would be eligible for certain benefits, usually in the form of tax incentives, investment tax credits, credits for new jobs, credits for new equipment, and credits for property taxes.

Regional investment of super funds The rapid growth of super funds in Australia – around $458 billion – has the potential to have a major impact on regional economic development. The NSW Local Government and Shires Association has developed in own Regional Development Fund to support promising projects in regional Australia. Super funds are currently taxed at 15%. Consideration should be given to providing a further tax concession, say 10%, for venture capital investments in designated regional investments.

11.7 Learning Communities Program

Local government is a partner of regional education providers, firms, households and communities and must identify itself as a champion of the local knowledge-based economy. It must be prepared to undertake actions to support the transition to the knowledge-based economy. Some of the responsibilities and opportunities for local government include the following:

- Libraries and early childhood development centres will be important facilities in the learning communities of the future. Many local libraries are equipped with learning technology in advance of most local schools but they need urgent strengthening by local and central government support and cooperation.
- Opportunities exist to formalise learning partnerships and technology sharing agreements with local schools and other formal learning institutions. The role of early childhood centres in forming social competencies, group interaction and foundation learning skills will be increasingly valued. They are at the beginning of the lifelong learning chain. As well as their primary functions, libraries, museums and early childhood centres can play a crucial role as fundamental nodes within the community for the delivery of family and household support services and learning advice.
- Councils in many places are showing leadership by helping their communities face structural economic change and through the promotion of cooperative networks of firms, groups and institutions.

In the knowledge-based economy formal education is one element of a lifelong process of learning needed for resilient, competitive communities in all types of regions, urban and rural. The capacity to acquire new knowledge and skills, to adapt to continual change and to promote innovation are hallmarks of the knowledge-based economy. Local government can and should play a creative role in fostering active community based learning programs. Community based learning will be an important bridge to lifelong learning for people who are alienated from learning institutions as well as people lacking foundation learning skills. Active community based learning starts from the cultural values, aspirations and shared learning goals of community members, institutions and enterprises. It promotes access to ideas and research and development, information on innovation and knowledge flows, concentrated cooperative networks working collaboratively, and ongoing commitment to upgrade skills throughout the whole community and life stages, with multi level partnerships and agreed strategies.

Recognising that local and regional economic development is increasingly about developing local capabilities – human, social and technological – consideration should be given to establishing a Learning Communities Program. The aim of the program would be to enable local government to assist their communities and regions make a successful transition to the knowledge-based economy. Elements of the Learning Communities Program could include:

- Redevelopment of community assets to improve learning outcomes
- Establishment and management of community and local business networks
- Support for community economic and skills development strategies and network building
- Seed funding for expanded business skills in knowledge management
- Community initiatives to upgrade IT skills of residents.
- Coordination with expanded efforts by central government to expand investment analysis and promotion, with tax and social security support for ongoing lifelong learning, and for state development and cluster and strategic industry development and resource sustainability.

The multilevel program should mobilise resources, public, community and private, run pilot ventures, promote and disseminate evaluations and wide spread sharing of initiatives. Given its resource constraints, local government cannot act alone. The project would require funding support from Federal and state governments. Councils would deliver the program, with funds allocated on both a needs and a priority basis.

11.8 Regional benchmarks

An important step forward would be the development of socio-economic indicators and benchmarks that enables regions and the community to better assess how they are going, identify priorities and projects and evaluate outcomes. A national regional benchmarking system would enable Commonwealth and state governments to identify regions that are in distress, assess project proposals against targets and expected outcomes, and to evaluate project and program outcomes better at the regional level. A detailed set of indicators and benchmarks that is carefully updated and used would be a valuable tool for governments, councils and organisations to identify, coordinate, implement and monitor projects and programs. The project would include identification of key regional performance indicators and benchmark them. National Economics is developing a new regional benchmarking system on behalf of the ALGA, with support from the Commonwealth Government's Local Government Incentive Program. Results will be available early in 2002. This report has developed a number of preliminary indicators associated for knowledge-based economy and it is proposed that local government and regions should consider developing local and regional benchmarking systems. Some of the most important benchmarks relevant to general socio-economic well-being and the knowledge-based economy would include:

- Population and demographic change;
- Household and income growth and distribution;
- Investment trends in the local economy in industries with a high value content
- Number of local and regional job openings and forecasts for occupations with a skill base compatible with existing workforce;
- Employment growth per year in in the locality and the region.
- unemployment by occupation, age and gender;
- number of residents with secondary and tertiary qualifications;
- number of residents undertaking post-school training;
- number of students involved in structured workplace learning;
- number of firms involved in structured workplace learning.
- students involved in structured workplace learning compared to national average;
- trends in apprenticeships and trainees;
- number of households connected to the Internet;
- number of social capital brokers and organisations;
- social capital stock and audits;
- number of community based organisations and participation in local community based initiatives;
- membership of local business organisations and action based outcomes of business organisations;
- Number of patent applications
- R&D expenditure and take-up
- Surplus and deficits in knowledge-based jobs.

APPENDICES

Appendix 1
Knowledge Economies, Globalisation and Generative Growth: Implications for Policy

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Introduction

The title of this presentation captures two familiar, if often not well defined, concepts and one new one. As the paper progresses, texture will be added to definitions to be given shortly, by empirical cases of new kinds of localised economic growth occurring in unexpected places. It will be argued that, in varying ways, these cases mark responses to globalisation. These occur through the activation of knowledge-based creativity and interactive learning to innovate. In turn generative growth takes place in the spaces where innovative knowledge capabilities are applied. Interestingly, public policy has played a part in the processes to be discussed, though it is seldom comprehensive or hierarchical in its design or application. It will be argued that it is 'generative' in intent and implementation but that it's style is supportive or facilitative rather than determinate or directive. Policy too, is subject to knowledgeable and creative learning that develops policy capabilities. Some policy agencies are more conscious and attuned to the current premium placed on facilitating market transactions, particularly where markets have failed, or rather, not even entered the contest, as they so often do in less favoured regions and localities. Others, probably a majority, are struggling to absorb that 'market facilitating' message while balancing that against the imperatives of moderating the negative effects of market failure. But, it will be argued, to do either requires a new tool-kit, elements of which will create possibly troubling new demands upon the public purse, public policy and policy makers in equal measure.

'Knowledge Economies' reveal these new requirements particularly starkly because they represent something of an apotheosis of scarcity in a world where information and 'Information Societies' have never been more ubiquitous (Maskell et al., 1998). Moreover, their realisation as 'knowledge economies' wholly undermines confident predictions that the Internet spelt the 'end of geography' or the 'death of distance' to quote the title of Cairncross (1997). As we have discovered, it is all very well having the Human Genome on our desktop PCs, but it is something else to have the knowledge to do something useful with it. That kind of specialised knowledge exists only in a handful of places or less in most OECD economies, let alone the less developed countries. Genomics, like operating systems software, computer games software or 'digital asset management systems' that use 'worms' to locate multimedia resources (like video archive material) in 'digital warehouses', is archetypally a knowledge economy industry. This is due to its character of operating distantly from palpitating reality but closely to knowledge drawn from and ultimately, though indirectly, capable of and intended for human application. It has been described as creating productivity through *the action of knowledge upon knowledge* (Castells, 1996), rather than knowledge acting directly upon raw or processed materials. Hence, when the last man to be able to repeat perfectly, at speed and with precision, the full range of actions (including bit replacement) in manual machine tool drilling through a piece of inch-thick steel was replaced by CNC controlled equivalents, this was not 'craft economy' giving way to 'knowledge economy'. It was automation, but the key interaction remained knowledge upon material.

However, when CNC software improvements involve decoding and recoding using innovative applications from discoveries in 'artificial intelligence' to enhance the efficiency and productivity of the machine tool control system, that is a core knowledge economy activity.

That definition, drawn from the work of Manuel Castells, may still be open to debate in the way that until recently wrangles took place over whether or not 'Globalisation' was a meaningful concept (Hirst & Thompson, 1996; Ruigrok & Van Tulder, 1995; Cooke et al, 2000; Dunning, 2000). The new consensus is that it exists and is marked by a heightened organisational strength in the extensive and intensive dimensions. That is, production of goods and services, while asymmetrically distributed, is more deeply integrated for different stages of the value chain in a wider array of global locations than hitherto. These 'global value chains' as they are referred to are also more intensively embedded, with even R&D, once the least mobile part of the value chain, found beyond traditional redoubts. More and more, such links in the web of production may embed themselves in 'local value chains' or clusters. Hence it is the integration of widespread global value chains with intensive local value chains that are the defining characteristics of 'Globalisation'. Competitive advantage increasingly lies in firms, regions and countries coming to terms with these new realities, intensifying their direct and indirect capabilities for knowledge-intensive production, enhanced productivity, innovation and new firm formation that accompany integration of local and global value chains.

To a significant degree, the key characteristics of 'Generative Growth' are captured in the four capabilities just listed, but they do not exhaust them. Generative growth is diametrically different from 'redistributive growth', the style of incentivised and regulated movement of jobs and capital from locations where they were abundant to those where they were not. It is cognate to but less neoclassically restrictive than the concept of 'endogenous growth'. The latter, with its more realistic acceptance of realities like 'increasing returns' and 'imperfect knowledge' remains wedded to a notion of the satisficing individual consumer and a reductionism in its analysis of spatial development processes that even one of its main progenitors admits is 'simplistic' (Krugman, 2000).

Generative growth is evolutionary in conceptual origin, taking account of individual and collective learning by firms and among enterprise support agencies. It is interested in but critical of certain determinisms that otherwise evolutionist writers find sympathetic, like path dependence. In particular it is dissatisfied with non-explanations for economic phenomena like 'the effects of chance' as deployed by leading figures in the path dependence school (Arthur, 1994). Generative growth, such as these writers are interested in with Silicon Valley being a subject of special interest, is more akin to 'disruptive change' or 'punctuated evolution' as described by Schumpeter (1975). It occurs when firms 'swarm' around an innovation, usually in a clustered space, as a consequence of specialised knowledge application of the pure 'Knowledge Economy' kind, or the possibly more common application of 'Knowledge Upgrading' type. The former is exemplified in, say, a genomics cluster, the latter in a premium food or design-intensive textiles cluster of the kind we will explore in the third section of this paper. Generative growth often occurs where local and global value chains move into alignment. Accordingly they are the apotheosis of the effective operation in local space of key aspects of globalisation, like enhanced productivity, innovation and new firm formation. The policy trick is to be sufficiently knowledge-capable to anticipate such alignments. This is *par excellence* the province of the entrepreneur, a skill for the toolbox of the policy maker as *collective entrepreneur.*

In the sections that follow, lessons learned from the recent ICT, Internet and dot.coms business cycle, especially in Silicon Valley, will be disclosed. For a moment, the core factors of venture capital and management capability to commercialise laboratory knowledge became revealed clearly, perhaps for the first time, as the strikingly dynamic heart of generative growth in a globalising knowledge economy. Although the downside effects of this in time and space will not be examined as much here as elsewhere (Cooke, 2001a&b; 2002) they will be alluded to for their highly disequilibriating effects, caused by the geographical proximity associated with Schumpeterian swarming. For as well as positive dynamic externalitities such as early access to innovations, special investment expertise and cultural assets like 'swift trust' and 'gift exchange' relationships, there are negative spillovers like congestion, pollution, long working hours, workspace 'cubicles', uncertain compensation, high living costs and long commutes that moderate the attractiveness of the model. However, these negatives also

leave space for the judicious 'collective entrepreneur' to operate. Following this, there will be six case analyses representative of the pure and applied Knowledge Economy distinction made above, drawn from favoured and less favoured regions and countries. The final main section consists of an attempt to formulate a new policy theory with strategic intent to help equip policy makers for exploiting Generative Growth in Globalising Knowledge Economies. The methodology involves prioritising Linkage, Leverage and Learning through stimulating Regional Innovation and Learning Systems.

Learning from Innovation in Silicon Valley

Often commentators on the subject of Silicon Valley are fascinated by the technologies involved rather than the mundane matters of management, money and 'more legal details'. The most interesting, if painful, lessons learnt from the recent (i.e. up to March 2000 when the dot.com downturn began) concern the mode of organisation of the localised innovation process. It is now better understood that this process occurs through a chain reaction involving multiple intermediaries. It is now clearer who those intermediaries are and what services they provide (see Moon Lee et al., 2000; Kenney, 2000). Despite the major downturn in ICT in Silicon Valley as everywhere else through 2001, sufficient has been written about the processes fuelling the Internet communications boom for there now to be a reasonably clear picture of the most recent form taken by its 'innovation growth engine'. Summarising, we can say that the following are central institutional features:

- Basic research, knowledge generation and application capability of the kind normally found centred in advanced private research or leading edge public research laboratories. In Silicon Valley, exemplars are Xerox Palo Alto Research Centre (PARC) and Stanford University, PARC being less visible in the 1990s than earlier, and venture capital more visible in search and selection of innovation than before (see below),
- Venture capital is crucial as the means by which ideas that have been screened and selected are given a chance to fly as commercial products or services. Business angels are key at the initial stage; venture funding for second stage and stock market flotation. However, it is clear that finance is only part of the story and that the hands-on *management* skills that equity investors bring to firms in which they have invested is at least as important. This extends to cluster-building activity where portfolio firms are advised on, for example, local inter-trading,
- Law firms are important as gatekeepers, advising firms on appropriate investors, counsellors assisting entrepreneurs to access other services, and sources of contacts for many things ranging from recruitment to contract manufacturing. Many law firms practise relatively little *formal* law with technology businesses. Moreover they often take payment in equity rather than fees. They therefore constitute, as 'knowledgeable attorneys' a second source of external business know-how,
- Specialist consultants in business and technological services ranging from management accountants rather than simple auditing accountancy services, head hunting services and specialist engineering, software, new media, and regulatory advisers or property development services, including specialised public provision,
- A local value chain of firms that can conduct, for example, contract manufacturing, design and fabrication, and various fairly prosaic supplies like logistics, or exhibition organisation and specialised catering services (Bahrami & Evans, 2000).

It is notable that the overwhelming majority of these elements of the innovation support infrastructure are private. These intersperse and facilitate adhesion of the market-driven character of the cluster with forms of 'social capital' that draw on aspects of shared culture that are more collective than purely competitive. Although these may be rather more superficial than apologists for a highly 'communitarian' culture might wish to convey, nevertheless at least according to Micklethwait and Wooldridge (2000) they consist of the following norms:

- Tolerance of failure where a firm going bankrupt is seen as a learning process rather than a stigma for the entrepreneur in question,

- Tolerance of 'treachery' in the sense that entrepreneurs expect today's collaborator to be tomorrow's competitor, and quite likely the following day's partner again,
- Risk-seeking of a restless, 'hypercompetitive' kind where the aim is to develop disruptive innovation that, albeit temporarily, dominates the field and realises very large, rapid returns on investment,
- Reinvestment in the cluster, a 'civic interest' in bringing on new disruptive entrepreneurs and earning profits from 'angel' investments in the process,
- Meritocracy where due acknowledgement is given to the quality of knowledge, ideas and innovation rather than status group membership,
- Product obsession or a mentality that seeks continuous improvement and discounts excessive working time as the means to secure permanent innovation.

An interesting question is whether these survive the dot.com 'meltdown' and associated difficulties for the whole ITC sector, as it is clearly easier to adhere to benign conventions in good than bad economic times. Informed press reportage suggests that among entrepreneurs it does, but workers have borne the brunt of the recession as they did also the upturn, the difference being loss of the stock options incentive as share values plummeted. Thus in May, 2001 Guy Kawasaki, CEO of garage.com and former Apple Fellow and 'evangelist' of Apple to software developers in the 1980ssaw the downturn as 'a lull', while the vice-president of Intel Capital observed that '…. technology is like cabbage. When it gets old, it rots', meaning new investment will ultimately always be required. Moreover, it was claimed that a degree of seemliness had been restored to Valley culture by the downturn; ' Valley veterans…were offended by the orgy of greed and speculation of the dot.com frenzy. They are glad to see it gone. Amassing personal wealth has long been part of the Silicon Valley story. But it used to be a by-product of entrepreneurship, rather than its primary goal' (Kehoe, 2001, 22).

However the downside aspects of both the pre- and post-boom discontents of working life in the cluster need recalling. First, there is the 'wreckage of hundreds of start-up companies' and the human waste involved in 'a business culture in which jobs are tied to revenues'. These layoffs are structured so that the lower ranks are fired first. Even before the downturn occurred negatives like; difficult commutes, high living costs, pollution, working conditions involving 60-hour working weeks, tiny workspaces or 'cubicles', modest wages, and the routine nature of most work were compensated for by the anticipation of high returns from stock options. Once the value of these declined, sometimes to infinity, and the system of 'rating and ranking' workers on performance turned into a job-culling mechanism, the sacrifices no longer seemed worthwhile. In the first half of 2001, 107,000 persons were made redundant in California, compared to 14, 300 in the equivalent period of 2000 (Gardner, 2001).

What about two other key cluster institutions, venture capitalists and lawyers? Silicon Valley venture capitalists, according to observers were '…managing their portfolios differently, aggressively culling their weakest companies…. emphasising classic portfolio management techniques to diversify their risk, dividing their investments among companies in different industries at different stages of development and at different stages of risk' (Abrahams and Luce, 2001, 20). Hence, from indirectly promoting growth and clustering through specialisation in the upturn, most moved to risk-spreading diversification and cluster unbundling in the downturn. Not all were equally prone to this strategy, the largest and most successful, like Kleiner Perkins had bucked the trend by specialising investments in the one sub-sector that seemed immune, and the narrow field of optical networks. VantagePoint venture capitalist Alan Salzman said 'these sectors rotate. In the early 1990s it was biotech; then specialised retailing; next were the dot.coms; now it is optical networking. In any one year, the best fund will be a narrow one. Someone will always win the lottery' (Abrahams and Luce, 2001, 20).

Silicon Valley law firms also made redundancies in 2001, smaller in number than technology businesses, with the largest layoffs in the hundreds and most in the tens. But there was pessimism in the sense that litigation was anticipated because of investor claims that the upturn led to inadequacies in due diligence. Lawsuits by entrepreneurs and investors against lawyers with big equity stakes in start-ups (taken as payment for services in lieu of fees) were also anticipated. By contrast, there was

also optimism that the 'economy culture' would not fragment into a flood of litigation because the business model was welcomed by start-ups as saving some 'cash burn' while linking the interests of clients and attorneys more closely than the normal arm's length exchange relationship. In other words, both key elements in the innovation support infrastructure are sanguine about the robustness of the equity investment business model, recognise that the returns being realised in the upturn were unsustainable, and expect a return to the norm of well below the 40% per year at the height of the boom (Eaglesham, 2001,19). Views from the industry, unlike those from economists, reported by expert observers taking soundings at various points throughout 2001 were positive but chastened, pointing to '…. elements of the information technology revolution that are unfinished. These include the transition to broadband Internet access in homes and the computerised translation of languages. The optimists argue that such changes could spur a fresh wave of technology spending by companies and allow more efficient ways of working' (Luce and Kehoe, 2001, 20).

It has been argued thus far that a simple model of innovation whereby venture capital induces start-up businesses from research laboratories underpins the Silicon Valley cluster experience. However this is not the only generative growth model observable today. Of interest are those that mitigate the negative aspects just described while sustaining strong equity-based generative growth. Sweden offers a strong candidate that on the surface appears to combine the best of both worlds. However, as will be seen, we shall be critical of a key aspect of the knowledge economy development model applied in Sweden, but interested in a new version from Karlskrona's 'Telecom City', that may have overcome the problem of over-dependence on a few global firms and State subsidy in developing local value chains. In Sweden, a history of corporatism has been translated into a specific form of value chain animation involving 'national champions' partnering the state as the financier stimulating academic entrepreneurship from public universities. We can next turn to an assessment of this in light of future growth challenges comparing different ways of exploiting 'knowledge economies' where some initially have no 'national champions' as in the Israeli equity approach that adapts a Silicon Valley 'offshore' model to evolve initial stimulus by public venture capital when faced with market failure. Equally, others, like the striking arrival on the global fashion-design scene in the still lagging rural region of Galicia in Spain, build on local-global value chains in innovative ways. The Australian wine region of Barossa has some such affinities, as will be shown. We will contrast the hierarchical, corporate value chain approach of Sweden and the equity model pioneered in Silicon Valley against the more public, pure 'knowledge economy' entrepreneurship in Israel and the 'knowledge application' models in Galicia and Barossa. Our aim shall be to see which best serves the generative growth opportunity that is the centrepiece of 'knowledge economies' confronted with future challenges to regional development under conditions of globalisation.

Corporate-Led Academic Entrepreneurship in Sweden

Various pieces of national legislation in the 1980s gave Swedish universities a 'third task' academic entrepreneurship obligation, building upon even earlier government efforts to create their version, as near as they could, of the Silicon Valley generative growth phenomenon. Thus Kista, an industry science park since 1972 located between Stockholm and Uppsala, has Ericsson as the centrepiece, employing some 12,000 of the 29,000 on site. Mjärdevi science park at Linköping has Ericsson and Saab, while Ideon at Lund has AstraZeneca research laboratories employing some 1,200 R&D staff (Brown-Humes, 2001; Jones-Evans & Klofsten, 1997; Jonsson, 2001). This model, which also operates in Finland and from which Nokia has benefited, for example with text messaging, which was invented by a Finnish science park spinout firm, spreads risk for early stage firms who can learn rapidly about scientific leads and customer requirements, gaining contracts from both.

In Kista, Nokia has 300 employees and global lead firms like Microsoft, Intel, IBM, Sun, Novell, Adobe, Siemens, Oracle and Hewlett Packard are joined by some 400 mostly academic spinout SMEs. Arriving later than Ericsson and IBM were numerous academic research institutes like The Royal Institute of Technology, University of Stockholm, Swedish Institute of Computer Science, Swedish System Development Institute and Industrial Centre of Microelectronics. They interact as a system of innovation linked also through learning networks like Soft Center to other systems and software

science parks in Sweden and the US. Kista is, however, not a fully-fledged cluster because it is substantially vertically networked into Ericsson's global mobile telephony value chain, nor does it possess a full range of innovation support services on site. Although it is also experiencing the telecommunications downturn and Ericsson announced 1,000 redundancies for Kista in May 2001, it is not so badly affected as Silicon Valley because it was not dependent on Internet businesses and is far more of a services than manufacturing centre. Interestingly it has one of the lowest income spreads for engineers and programmers ($3 between high and low, compared to $20 in Japan and the US in 2000) as well as surprisingly low wage costs for such occupations ($24,000 and $22,000 compared to $68,000 and $ 64,000 in Japan and $60,000 and $54,000 per year in the US in 2000) in an otherwise high living cost economy. Comparatively generous welfare payments and working time legislation mean the stress factor is less than Silicon Valley for those laid off as well as those in employment in Kista. Thus Kista offers what appear to be superior social integration possibilities, reflecting Sweden's higher prioritisation of those aspects in the wider society. Despite this, it is worth noting that by 1998 European Venture Capital Association statistics showed Swedish venture capital investment as a percentage of GDP was third in Europe at 0.17%, behind only the UK (0.39%) and Netherlands (0.24%).

Being near Stockholm means that access to specialist investment and innovation support services in proximity to the science park is good, especially as there was, like elsewhere, a surge of venture capitalist firm formation in the late 1990s. Thus research into support for biomedical and polymer innovation in Sweden was able '…to identify only a handful of firms active in 1996-98, some of them foreign' (Braunerhjelm & Carlsson, 1999; Braunerhjelm, Carlsson, Cetindamar & Johansson, 2000; Carlsson, forthcoming) whereas by 1999 at least 93 such companies had been identified (Vinnova, 2001). The latter study notes also the substantial public venture capital funding from the likes of Nutek, the Swedish Business Development Agency, while the former studies compare the service rendered being limited to finance, compared to that in the US where venture capital supplies 'Money & Management' expertise. However, although Sweden has evolved a more socially inclusive form of enterprise culture, the geographical imbalances between core and periphery in the provision of equity investment remain to be addressed (Edlund, 2001). Thus despite the presence of a national innovation support organisation, Nutek, that understood the importance of finance to innovative firm formation, its public investment funds did not operate satisfactorily, especially in the regions. Learning from that experience, Nutek has been supplemented by a new Swedish Agency for Innovation Systems, Vinnova, one of whose key tasks is the building of regional and sectoral innovation support architectures, including innovation funding. The importance of private equity investment in this is recognised and, as we have seen, there has been a growth in size of the Swedish venture capital industry that should facilitate strengthening of regional venture capital.

An interesting modern development that breaks, to some extent, from the vertical, corporate model somewhat is that of Karlskrona's TelecomCity cluster. This is located in a peripheral, declining, former naval dockyard location in the south-east of Sweden. This city has been turned around from suffering population decrease, high unemployment and loss of college graduates at the beginning of the 1990s to a place that has generated 4,500 new, knowledge economy jobs at a rate of 600-700 a year and reversed the declining trend. The key features are fivefold:

- Leadership – three men, CEO Jan Kark, of local small firm EP Data (50% owned by Ericsson) specialising in telecom software, the new polytechnic director, Per Ericsson, and the local economic development head Tage Dolk came to agreement around the idea that IT could revive the local economy,
- Vision – with support from mayor Mats Johansson who accessed public resources and produced political backing for a common vision of TelecomCity, a strategic commitment to transform the city into a leading *international* centre for telecoms research and services.
- Cluster Drivers - the vision attracted Nordic Tel, Sweden's third mobile network, subsequently acquired by Vodafone, to set up its headquarters after winning its licence. Ericsson, Nokia, Sun and HP followed with research and service facilities.

- Networking – there is a division of labour among the different expert groups but an association, the TelecomCity Membership Association that strengthens business support and competence development. Telecoms education is a major specialisation in the college, including in-house training of employees. Start-up knowledge-based businesses are assisted by the city's economic development arm
- Social Environment – social inclusion, e.g. of youth in 'TelecomCity Club & Co' to add to enrich the living environment, not least because telecom software employees are in demand and highly mobile. Hence *homo sociologicus* is catered for.

Key to this narrative is the policy-enhancing observation that clustering need not be mysterious; it can be designed and built from new, in this case in less than ten years. Still questionable is how generative in terms of robust market-facing start-ups this cluster is, given there is greater reliance on public than private equity investment, and whether TelecomCity can attract that and other necessary marketised support services to ensure cluster sustainability.

An Equity Investment Model Implemented in Israel

We have seen that the Swedish approach to designing technology complexes by linking university research to corporate exploitation through subsidising spinout activity is a success up to a point. Large science parks filled with corporate research facilities, incubators, and new firms exist in both core and peripheral locations with employment approaching 30,000 in Kista near Stockholm. Other cases such as Karlskrona demonstrate the power of this model to actually shift regional path dependence totally in a relatively short period. Nor is the model confined to Sweden, having also been successfully implemented independently in Finland, with often highly peripheral regional growth in new economy sectors being induced by means of university research, science park spinouts, and an exacting customer like Nokia (see, for Oulu near the Arctic Circle, Jussila & Segerståhl, 1997). In every case, however, these are 'planned' initiatives with a rather hierarchical organisational structure in which large corporations like Ericsson, Saab, Nokia and Astra are of the first importance. Without these variably integrated value chains, public institutions like Nutek and universities would fail to create spinout synergies even with the aid of subsidies.

A model owing more to market processes, though not without either short-lived or indirect public sector influence before equity investment came swiftly on-stream is that responsible for the development of a globally successful software cluster in Israel. The specific location is Tel Aviv to Haifa, in the Herzliah Corridor where data security software predominates, an industry in Israel where employment grew from little above zero to many thousands in the 1990s (Teubal, 2000). In Israel the following process occurred. The model involves as a key theme the role of 'Silicon Valley offshore' but it is 'generative' because the crucial knowledge behind the core software technology was intrinsic to Israeli research and military applications. Hence, the software application was also indigenous, being in the data security niche, otherwise known as Internet 'firewalls'. For this the Weizmann Institute of Science was key as the invention source of what became a world standard encryption algorithm. Israelis then pioneered the technology, mainly in the Israel Defence Forces and Mossad, the security service. A combination of military downsizing following the Camp David accords in the early 1990s and an influx of post-Soviet refugee scientists and entrepreneurs led to first-mover entrepreneurs being former military personnel made redundant with scaling back of Israeli defence expenditure, second mover entrepreneurs being immigrants among whom technical labour was also abundant. First-mover firms specialised in anti-virus, software protection and encryption technologies and included Carmel Software, Iris, BRM and Eliashim. At this stage there was no venture capital in Israel. Funding for entrepreneurship was accessed through the Office of the Chief Scientist's Industrial R&D Fund supported by a 1984 R&D law that allowed 50% grants for commercial exploitation of scientific research. Firms like Algorithmic Research and NDS were set up in the emerging Herzliah Corridor.

A second development stage saw the emergence of 'firewall' firms (1990-96). With the arrival of the Internet in this period, demand for encryption engines mushroomed, and world-leader firms like Checkpoint, Memco and Aladdin were founded. At this time also (1991), the Israeli government set up a public venture capital firm called Yozma, which was instrumental in the evolution of the Israeli venture capital industry. Yozma was introduced in recognition of a key weakness in the Israeli system of innovation. It was perceived that without the substantial presence of a vehicle to stimulate the emergence of private venture capital there could be no breakthrough from old path dependence. Yozma was designed as fitting into the wider Business Sectors support structure in Israel with a specific brief. This was to fund through equity investment the clear demand from new security software firms, and strengthen connections with and promote the opportunities of investment to the US venture capital industry, especially that part most familiar with high technology, in Silicon Valley. This complemented incubation facilities, research institutes, universities, business associations and policy agencies that already existed. Lack of venture capital was the main barrier to innovation and providing conditions for supplying and augmenting it was a *strategic* innovation support decision in a context where a globally competitive window of opportunity was in danger of being closed off to Israeli businesses.

The third stage of development coincided with the privatisation in 1997 of Yozma. By that date the number of venture funds had risen in number from 1 to 70, many originating in the US, and some one billion dollars were available for start-up and later stage equity investment. As well as ties with the US venture capital industry becoming more pronounced, this was the point from which those that had reached the stage of making a successful initial public offering (IPO) began to be listed on Nasdaq, while US companies also acquired many non-IPO firms. This represented the fulfilment of two key strategic priorities articulated within Israel's system of innovation. As noted, one related to a perceived need to enhance the effectiveness with which firms moved from start-up to subsequent 'implementation' phases. The second imperative was to enhance the creation of global high technology firms. Firms also function as a cluster, with a specific security software sub-cluster. Of 19 such firms studied by Teubal, Avnimelech & Gayego (2000), 47% were in Tel Aviv, and 41% in Haifa. They comment that: ' The share of these companies in the overall information security sub-cluster is enormous and so is their impact on this ['firewalls'] sub-cluster (they are leading firms and even 'key agents' in the sub-cluster creation process)' (Teubal et al, 2000, 23).

Thus initiating a public equity investment vehicle to facilitate exploitation and commercialisation of an indigenous technology massively enhanced a model of 'generative' growth. A cluster with strong local and global value chain linkages as well as horizontal spillover and formal knowledge-exchange capabilities was established swiftly, in a breakthrough industry, in a spatial setting that had hitherto sustained basic research and transfer within the public realm (state military) but little spinout. However, as is noted in Teubal & von Tunzelmann (2000), if the successful Silicon Valley commercialisation process co-exists with significant poverty and social exclusion that they paraphrase as a 'High Tech & Homelessness' model, while Sweden limits the un-checked negative aspects of growth by social inclusion, then Israeli high tech clustering success seems to have been bought at the expense of serious social deterioration and something approaching civil war at home with horrific global implications abroad.

Localised Global Value Chain and Applied Knowledge Economy Clustering in Galicia, Spain

This is one of Spain's less favoured regions, located on the north-west Atlantic coast, sharing geographical and cultural similarities to the other Atlantic Celts further north. Remarkably, in a matter of ten years it has become Spain's leading fashion clothing production region with a globally successful retail outlet 'Zara', comparable to but already outstripping Benetton. Although the beginning of this development goes back to the 1980s, when a series of companies decided on a joint promotion disseminating the "Galician fashion" concept, causing what was called the "boom of Galician textile sector", this is not the whole explanation. Of greater importance has been the manner in which full establishment of the industry benefited from an improved financial regime from Spain

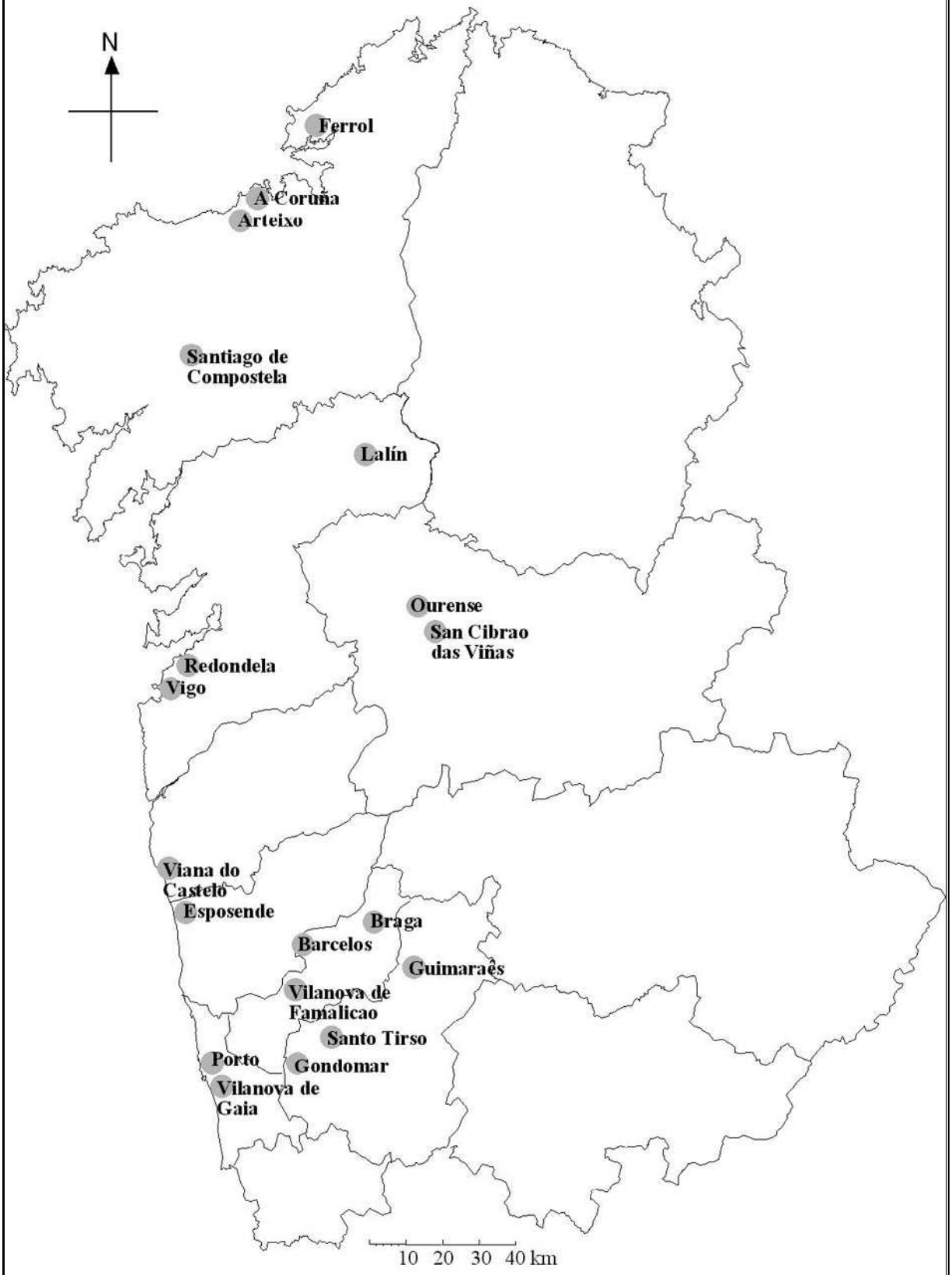
and the EU, stimulating greater competitiveness from the companies, their foreign marketing activities, managed cooperatively with serious planning and joint action. But even more important has been the rise to prominence of a regional group of designers of national and international reputation.

Most firms are small and medium-sized businesses leveraging their design knowledge and production flexibility to follow market trends. However, large companies, such as Grupo Inditex, Adolfo Dominguez, Caramelo, Mafecco, Lonia Textile, Florentino, and Knitting Goods Montoto have, through their buying strategies and links to global value chains dynamised the sector. The regional cluster rests on the co-existence of large firms in touch with national and global markets and small firms operating in localised production systems involving local value chains. The integration of local and global value chains seems to be the most important feature explaining rapid growth. This is also of importance to policymakers whose understanding of these processes needs to be flexible like the response of firms to market shifts.

The success of the Galician textile industry has particular relevance in light of the overall weakening of the sector in the European context due to strong competition from Asia pacific producers. However, the Galician textile industry is also distinctive compared to that of the rest of Spain. This difference involves revival or retention of the traditional connection between design and industrial production. These are fully integrated in Galician companies. Thus the Galician industry combines within firms and their supply system or local value chain creative front-line design and a production process that incorporates advanced technology. In the rest of the Spain it is frequently the case that celebrated international 'fame' designers lack the necessary productive structure to operate an internal value chain to market their projects. Inditex-Zara is a leading fashion producer founded in the city of La Coruña at the beginning of the 1960s. It began as a modest textile company, Confecciones Goa, established by Amancio Ortega. The firm integrates all essential processes for the final fashion product, from the basic processing of raw material and its later conversion into textile products, to their arrival at the Zara stores and other, different commercial branches. In this way, Inditex maintains competence over all activities that underpin its presence in the market.

Twelve years after Confecciones Goa first entered production, Amancio Ortega decided to open his first commercial establishment in 1979 in the centre of La Coruña, he called it Zara, the chain immediately appealed to Spanish consumers because it represented a radical innovation compared to the previous concept of fashion. For the first time, clothes accessible to most pockets and with innovative design were available for the public. Until then, design-intensive textile products were aimed only at the premium market. Thus one reason why the arrival of Zara was a real 'event' was that Inditex promoted it as a "democratisation of fashion". This combined with an interactive organisational innovation whereby each point of sale facilitated analysis of consumer tastes for later transmission to the design department of the group, where they could be translated into the next new fashion articles on the market.

GALICIA AND NORTH OF PORTUGAL
location of the main textile districts



Source: Instituto Galego de Estatistica and Instituto Nacional de Estatistica (Portugal)

This aspiration to meet a full range of consumer tastes is reflected in the commercial scope of Inditex whereby once a Zara chain has been fully established, the Group sets up other chains to meet demand from distinctive segments of the fashion market. Thus, whereas Zara supplies general fashion, Pull & Bear is a fashion chain catering for young men's clothes. Complementing this, Massimo Dutti establishments are oriented towards consumers with highest quality demand, while the Kiddy's Class chain sells children's quality clothes. Finally, Brettos is a chain of stores for young urban, professional women.

The production process begins with the reception and processing of raw material in the Group's Sabón industrial park in the municipality of Arteixo (La Coruña, see Map). From here, the cut pieces of fabric are subcontracted to supplier companies where they are sewn for their return to the factory, after which they receive the final finishing and are put through quality control. These subcontract supplier companies are spread throughout locations mapped above in Galicia and the north of Portugal. The Sabón distribution centre is where the orders of each store are received and global shipments are prepared. Company growth has depended on careful forecasting and monitoring of market trends based on high quality knowledge of customer demand preferences. This involves a mobile team of designers who travel periodically to the fashion capitals, monitoring design innovation and absorbing tacit knowledge concerning the design preferences of the main international designers. Innovation arises from the integration of tacit with codified knowledge provided by the processed customer preference data obtained at the point of sale in the stores. Armed with this mix of structured information the design department establishes the colours, fabrics and forms of the new articles. In 1999, the group had a turnover of US$1.6 billion, with profits of 153 million, and a total employment of 15,576 workers. Between 1999 and 2000, the group doubled its staff, the amount of business increased by 60%, net profit by 109%, and the group has opened 200 new stores worldwide.

This is clearly a fundamentally private enterprise in a milieu of like-minded fashion clothing enterprises that have targeted the 'quick fashion' market pioneered by the Italian fashion industry. Forecasting, monitoring, analysis and creative design knowledge are combined in a regional cluster that successfully links local and global value chains and has produced generative growth in a less favoured region. The role for policy has been facilitative, mainly subsidising early stage market studies and stimulating the integration of regional and international production and marketing networks, not least by constructing a major highway from La Coruña to Vigo through the heart of the production cluster.

Barossa: A Knowledge Application Cluster Linking Local and Global Value Chains, Upgrading and Diversifying as a Premium Food Resort

In recent league tables of competitiveness from the World Economic Forum and *knowledge economies* from OECD data, Australia does not feature in the world's top ten. However, as Table 1 shows Australia currently ranks fourteenth in the OECD-based ranking. Without absorbing space criticising the methodology (which, by treating FDI as an indicator of strength when it may be the opposite) this is a ranking among Germany, Japan, France and Italy on which, if politically desired and institutionally feasible progress can be built. One industry that has shown genearative growth is wine production. While this is categorised with 'farming' and 'routine' work in official and Reichian classifications, the growth of wine-production clusters in , for example, South Australia has relevance as a Knowledge Applications type of generative growth. This is especially important given the generally parlous state of agricultural employment in Australia in general and South Australia in particular. Modest employment growth of an estimated 20 employees per hundred acres of new vineyard. In southeastern South Australia this has caused a housing crisis with labour demand being met by increases in mobile home accommodation and an over-stretching of the rental housing market. Beer (2000) showed the southeastern wine production areas like Padtahway and Coonawarra increased employment by 2.5% 1990-2000. These growth estimates refer to direct labour demand, but account also has to be taken of associated demand when diversification takes place. Something of the kind is

currently occurring in Barossa. In Cooke et al. (2000) this was taken as an illustration of globally successful clustering in a rural setting primarily because of its 'knowledge economy' innovation in production processes. The Wolf Blass innovation regarding stainless steel maturation tanks is now an industry standard for consistency and quality, enabling mass-markets to be supplied with an initially premium standard product at an affordable price. The parallels with Galician fashion clothing are worthy of note here. Secondary innovations such as the toasting of oak chips to allow for oaked or unoaked variants, and the cost reduction from using oak veneer in barreling followed. The success of the technological innovation led to major increases in external demand for stainless steel containers, valves, control systems and sensors as well as internal demand for bottling plants, glass and corkage. In each case opportunities for supplier firms to become active in conducting business in proximity or from other locations in Australia were created.

Table 1 Knowledge Economies: Leading Twenty-Five

	Knowledge Economies: Country Rankings				
Rank	Country	Points	Rank	Country	Points
1	Switzerland	52	14	Australia	19
2	Sweden	44	15	Luxembourg	16
3	USA	40	16	Austria	15
4	Ireland	38	16	France	15
5	Netherlands	33	18	Denmark	13
6	Hungary	31	19	Norway	12
7	Belgium	29	20	Italy	10
7	Canada	29	21	Czechia	8
9	UK	28	22	Iceland	7
10	Finland	27	23	Poland	6
10	S. Korea	27	24	New Zealand	4
12	Germany	26	25	Portugal	1
13	Japan	20			

Source: *Financial Times*, 29/10/2001 based on OECD data www.oecd.org/sti/statistical-analysisN.B. Indicators: Knowledge-intensive Manufacturing & Services; Patents; Recent Labour Productivity Growth; Knowledge investment; IT spending; Venture Capital; FDI Manufacturing & services; Proportion of Foreign Students.

Of course, a key feature of the cluster's robustness is its linkage to the regional university where specialist courses in all aspects of oenology are available within easy reach. Educational 'export income' is also earned through attracting students from the rest of Australia and overseas. In addition to this 'learning' nexus, there is 'leverage' through the advertising budgets of the marketing corporations but there is also cluster promotion through the activities of the Barossa Regional Development Agency (BREDA). But it is the 'linkage' from this local value chain through producer-driven global value chains like those managed by Southcorp, owners of the likes of Hardy and Orlando, or buyer driven value chains like the large retail chains of Safeway, Tesco and Wal-Mart that ensure maximum exposure of this quality product overseas that has ensured South Australia now exports more than half the Australian wine shipped abroad. Despite strong integration into global value chains this centre of generative growth retains historical-cultural linkages locally and the associated trust and reputational trading that is associated with embeddedness of that particular kind. Hence, Australia shows receptivity to the generative growth, knowledge economy mode of cluster activity. This is assisting the diversification of the cluster with linkage to other value chains such as national and international tourism whether in the major gourmet cuisine resort hotel and convention cemtre industry that is springing up, or the celebrity chef and ingredients cafes like that of Maggie Beer, populariser of 'verjuice' cuisine, making the cluster self-sustaining. That major innovation with global impact should come from agriculture is testimony that 'knowledge economies' do not begin and

end with computing and software, important though both are as inputs to this particular generative growth cluster.

Regional Innovation & Learning Systems: a New Approach to Regional Foresight

We have now reached a point where, by analysis of four very different cases of 'generative growth' through varieties of 'knowledge economy' cluster, each of which is fully linked to appropriate global value chains, we can consider how this knowledge assists evolving regional economic development policies to capture susch advantage for other existing or potential growth industries. 'Technology Foresight' has become a widely practised way of attempting to think strategically about future development trajectories. It is clear that we do not particularly advocate going down policy theoretic routeways marked 'path dependence', especially where to do so may only be a policy of managed decline. More positively, the cases discussed bear witness to the promise of a policy approach based on a switch towards generative rather than redistributive growth. This helps us escape from the 'iron cage' of technological determinism, whereby what we have been must always constrain us to what we will forever be. Despite a strong and socially inclusive tradition of redistribution, which it retains, Sweden shows the organisational capability to reject path dependence of the narrow kind, as the case of regional trajectory switching from Karlskrona, in particular, testifies. But we have commented on the extent to which even that success involved supply chain entrepreneurship reliant on national corporate customers and publicly subsidised entrepreneurship, sometimes academic. It is questionable whether generative growth can avoid this, especially where 'applied knowledge economies' are involved. So, while it is arguable that it is a new form of redistributive growth, as public policy inevitably must, to some extent, entail, it is possibly only where 'pure knowledge economies' cause multinationals to be very wary about harming the goose that lays the golden eggs that redistributive growth occurs with retention of, at least scientific, value chain control. Traditional redistributive policies, it will be recalled, seldom brought sustainable generative growth to regions, which is one of the reasons why it has been abandoned as a general policy theory in most advanced economies. But how to stimulate generative growth, especially in less favoured settings? The answer lies in the formation of Regional Innovation and Learning Systems (RILS). At the core of these are the sources of basic research that may have great potential, presently unrealised, for exploitation and commercialisation as marketed innovations sold through buyer or producer-driven global value chains (Gereffi, 1999). Local value chains or clusters are a key means of transforming basic science through entrepreneurship and equity investment of the 'Money & Management' variety, as is shown by the examples of Silicon Valley and Herzliah in Israel. It is also found in Less Developed Country settings like Bangalore and Hyderabad in India (Balasubramanyam & Balasubramanyam, 2000).

In Table 2, a stylised presentation is shown of the move in policy theory that has accompanied the shift away from linear 'planning' models of state-led intervention. Over recent time, there have been two moves. The first was a that towards regional innovation, which brought a stronger emphasis from the sub-national, mainly regional level of intervention as animator of a public–private process of interactive and mainly incremental learning-based innovation (Edquist, 1997). This has provided a model which embodies elements of weak foresight that have to be substantially strengthened at regional level in the third move, which is towards knowledge-based clusters, in need of and benefiting from, localised governance with markets much more to the fore as drivers of the potentially radical innovation process.

To clarify the basic argument, the paper presents an explication that is more cursory than ideally required, but a fuller version exists in a sister paper (Cooke, 2001a). In brief, the task is to establish conditions in Less Favoured Regions (LFRs) where new kinds of breakout from negative path dependence under conditions of 'hypercompetition' may occur. Of importance from the foregoing are elements of Linkage of value chains, Leverage of underused assets and Learning of good, ideally best practice. Regional *foresight* is embodied in a more conscious institutional 'envisioning' process backed up by institutional learning and monitoring capabilities. These must be linked to public resources to boost the quality and quantity of fundamental research in regional sectors that justify it. A

formalised model and model documentation is developed in outline below. The key element is integration of innovation and learning (for catch-up) in a Regional Innovation and Learning System (RILS). The difference between learning systems and innovation systems is equivalent to that between the *learner* and the *tutor* in a pedagogic setting. Thus far it has not been entirely clear what learning in the institutional setting of a regional or locally clustering economy or sector seeking to integrate with global value chains actually means.

Table 2 Evolving Policy Governance and Action Emphases for LFR Projects

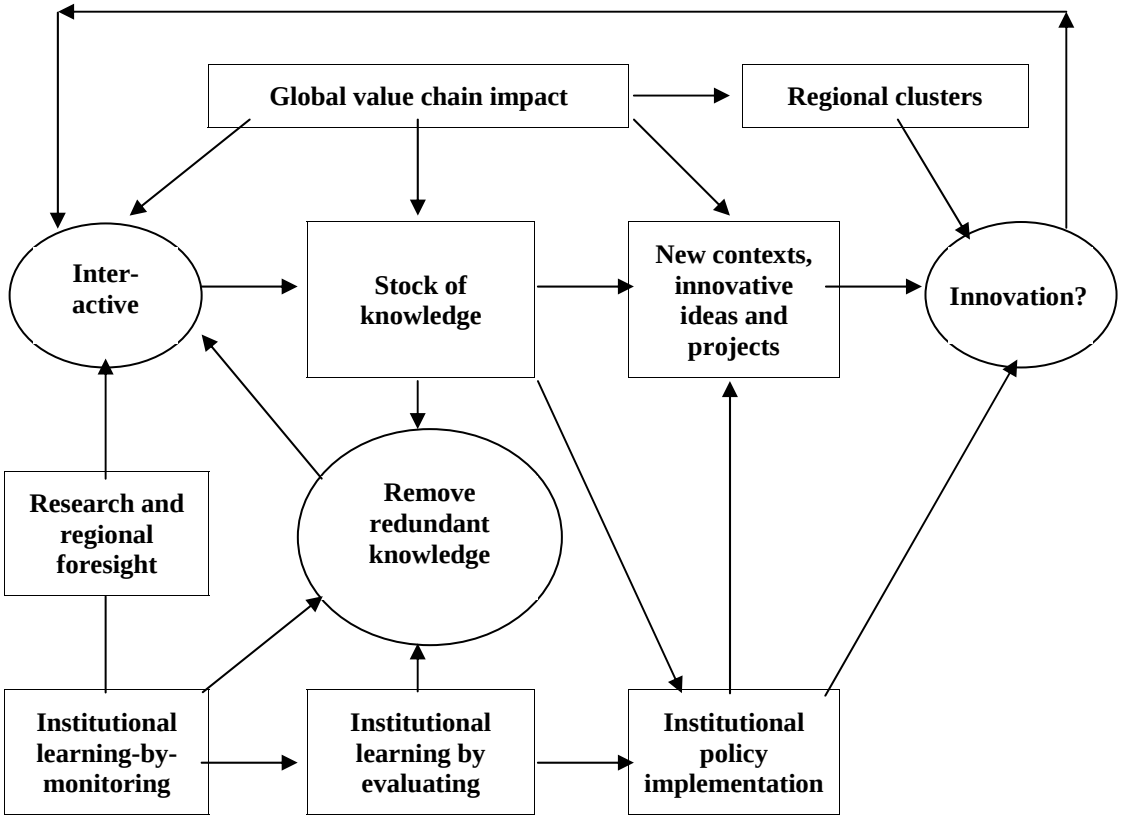
Policy action	Investment project	Innovation	Clustering
Example	Hydro scheme	Supplier upgrading	Inter-trading
Initiation	Government	TNCs	Market
Lead funding	State/Multilateral	MLG/TNC	Local
Regional R&D	Contractor	TNC	Local associative
Innovation	Incremental	Interactive learning	Breakthrough learning
Specialisation	Sector-specific	Global value chains	Local value chains
Regional cooperation	Low	Medium	High
Coordination	State	Governance network	Market/Associative

Note: MLG = Multi-Level Governance; TNC = Trans-National Corporation; VC = Venture Capital.

It is crucial not to equate it simply with the acquisition of more information. As argued in Cooke & Morgan (1998) a crucial reason why this is wrong is that our experiences are neither repeated perfectly nor experienced in the same way by different actors in separate settings. Learning, like innovation is interactive, and institutional learning involves interaction between knowledge brought to a situation and understanding of what is new about the situation. Hence the transaction costs of learning are greater the less the level of previous learning and vice-versa. So learning, like innovation, has to be a continuous, vision-guided, cumulative monitoring and evaluation process that can be defined as: *improvement in capability to acquire and adapt vision-guided knowledge*, and institutional learning as *improvement in an institution's capabilities to monitor, evaluate and implement vision-guided knowledge.* According to Johnson (1992) these are necessary prerequisites to an ultimate condition where *interactive learning*, by searching, exploring and producing, leads to an institutional capability to stimulate innovative ideas and projects that, through processes of selection, lead to actual innovation. But that is a long-term aim requiring the embedding of a collective learning capability in the externalised *milieu* of the regional cluster and the global value chain (see Fig.3).

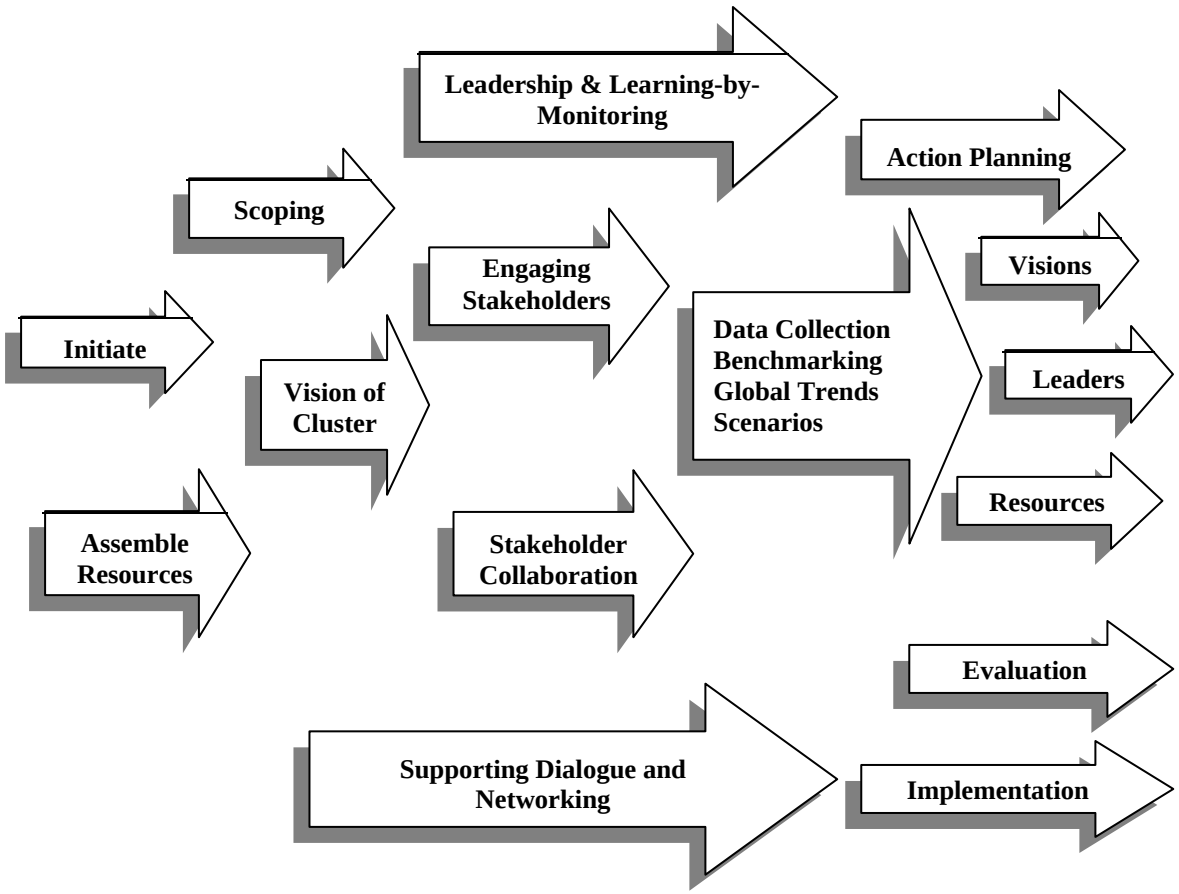
Thus a position is reached where it is clear that an institutional structure requires putting in place at local regional level that can promote the aim of generating interactive learning among LFR firms and institutions, global value chains and knowledge centres elsewhere in the world. This can best be realised not by attempting generic network linkage, but by developing a *sectorally* focused approach. In doing this, it is important to recognise the difficulty of building from a zero base of activity. Thus identification of potential sectoral bases upon which to build is a prerequisite. This can be a value chain that is ubiquitous like the food or apparel industry, processing of raw materials rather than export of feedstocks, or it may be built around a pre-existing enclave of consumer goods, like electronics, ICT, software, engineering components or systems and pharmaceuticals, as we have seen. This focuses the *monitoring* and *evaluating* elements of the interactive learning process because it places emphasis on certain relevant, key industries and completes the application of the Regional Innovation and Learning System (RILS).

Figure 3: An interactive Learning System for LFR Knowledge Enhancement



The final step in the application of a sectorally focused RILS is to outline the policy process. This is different from the 'plan, programme, budget' methodology typical of the hierarchical, top-down and linear planning approach traditionally espoused by economic development agencies. It can be described as a 'vision, monitor and manage' approach much more in accord with the Linkage, Leverage, & Learning philosophy explicitly pursued in the interactive, non-linear innovation systems model. It is entirely complementary to a *sectoral* development of linkage from regional clusters to global value chains and is founded on a learning and innovation perspective that informs RILS thinking. One methodology is described in Fig. 4, which draws on a Porter-inspired policy model implemented by Scottish Enterprise. The first step is an *initiation* phase, conducted at the political-policy formulation interface. It involves public and private organizations and actors of consequence to the strategy in question, in this case enhancing learning and innovation capability by linking to global value chains through building knowledge-driven regional clusters. Next come two parallel steps, one of which is a *scoping* exercise, in which the range of serious candidate sectors for development of a regional clustering and global value chain policy is determined, and the other requires the assembly of necessary *resources* to achieve objectives. This latter activity involves pooling of funds and personnel from a variety of public and non-public sources of consequence to the strategy in question. This leads to a *visioning* process where the desired state is clearly envisioned in relation to existing assets, linkage possibilities and learning requirements. At this point, stakeholders from business, trade associations, knowledge centres, intermediaries like 'agents', consultants, investors and lawyers, as well as specialist government agencies are assembled, encouraged to engage with the process and collaborate with each other. From this process of networking, *leadership* must emerge and a monitoring process be set in motion relating the vision to internal and external realities supported by the governance and learning support system. At this point, not before, statistical exercises, benchmarking, and scenario building in relation to global trends are conducted.

Figure 4: Sectoral Policy for Regional Custering in Global Value Chains (After Scottish Enterprise, see Cooke 2001b)



Following this, actions are planned and implemented, drawing down appropriate and justified resources. Thereafter, implementation is *evaluated*, foresight visions are updated, further resources are mobilised and new leaders identified to take the process forward. This, in short, is the RILS in action, focused on a sectoral linkage target, proactively mobilising and leveraging indigenous assets and engaging in a learning process to strengthen regional clusters to integrate with global value chains.

Finally, why might the widespread adoption of a regional innovation systems approach integrated with a learning economy perspective help moderate the discontents of marketised 'hire-and-fire', overwork, and other diseconomies of agglomeration associated with high growth but low social inclusion often found in leading new economy clusters. There are three reasons for this: regionalisation, governance, and social capital. It is highly evident, though implicit in this paper (but see Cooke, 2002), that the new economy generates clusters that exist in a high degree of spatial disequilibrium. This is caused by the principle of comparative advantage whereby under liberal trading conditions the most competitive producers specialise sectorally and spatially. They do so sectorally as comparative and competitive advantage generate internal scale economies; they do so spatially as spillover effects generate external scale economies. Over-development turns these into diseconomies of agglomeration because of insufficient competition from elsewhere. Implementing RILSs assists the reduction of scale diseconomies and improves net welfare by *regionalising* generative growth.

Governance enables firms and other actors of consequence to evolve microconstitutions of industrial order, moderating cutthroat competition, anticipating possible downturns and how to deal with them, and enables localised agreements to be reached on effective and efficient ways of working. Governance may involve third parties organising the provision of collective goods such as common

purchasing and common training facilities. Numerous examples from Telecom Corridor in Dallas, Texas to the Formula 1 Motor Sport cluster in Oxfordshire have benefited from improvements in local skills provision animated through chambers of commerce or training agencies (Cooke, 2002), Finally, *social capital*, meaning trustful, reciprocal networking through professional, civic and cultural associations is a means of securing full civic engagement and sharing of common problems and issues Outcomes possibly requiring solidaristic action to lower exploitative conditions in industries and localities where individualised employment contracts may ensue. Social capital development will open up the lack of transparency that lies at the heart of many workplace discontents. These derive from the social and regional disequilibria that are a common feature of 'breakthrough economies' based on knowledge-driven clusters.

Conclusions

In this paper, it has been argued that globalisation poses major problems for regional development and a new policy theory embodying a new regionalised intelligence and envisioning procedure needs to be put in place that is superior to established 'technology' foresight methods. Central to this is the regionalisation of the 'breakthrough' that occurred first in Silicon Valley but which remained hidden because observers were dazzled by the technology rather than the more mundane organisational model that underpinned the recurring *generative* growth of that cluster. Globalisation heightens, through processes of 'hypercompetition', the demand for innovation from 'knowledge economies' that take the form of clusters. In this way global value chains are linked to local value chains as the key mechanism by which globalisation works. Clusters are poles of spillover and marketised knowledge that is transformed from its raw state on the laboratory bench by the risk-seeking activities of entrepreneurs, equity investors and 'knowledgeable attorneys', consultants and various other intermediaries, including some from the public sector.

The key to regional development based on generative growth from innovation is to replicate the fundamentals of the organisational model of the cluster, not to seek to copy the technology as the old, mistaken policy theory led policy makers to try and usually fail to do. In Sweden, a different and more socially benign model of technology-led growth in concentrated local areas has been pursued with some success. Technology-based activities have been induced in proximity to corporate and university research, and entrepreneurship has ensued. In at least one case, over a thirty-year period, some 30,000 jobs were located in one such pole, at Kista near Stockholm. Smaller successes for the approach taken are found in some other locations, and evidence of 'regional breakthrough' completely away from previous 'old economy' path dependence has been achieved at Karlskrona's Telecom City. But this is redistributive transforming into generative growth that is more likely to be robustly sustainable under normal market conditions. In Galicia, we saw a lagging rural region becoming a world leader in a design-intensive clustering process led by the vision of 'a democratisation of fashion', something that resonates somewhat with the evolution of Barossa into a globally competitive local value chain now diversifying into gourmet cuisine tourism.

Regions must build regional innovation and learning systems by embedding important regional foresight, institutional monitoring, evaluating and learning capabilities, and sectoral resource targeting upon specific knowledge economies. This means evolving towards a well-supported basic research and commercialisation model that attracts Schumpeterian 'swarming' by venture capitalists and other necessary intermediaries that incubate and support innovation. This is the generative growth model as operated in Silicon Valley where extremely rapid innovation of this kind occurs, sometimes recklessly, as we have seen, and without care for the social consequences. Israel is operating a 'Silicon Valley offshore' model but with insufficient concern for social conflicts that may be exacerbated by the successful import of 'Americanism' in its cluster-building strategy. Sweden has an honourable record of social inclusion and the rapid development of an equity investment model that, as in many European countries, does not spread far from the centres of financial power. Both Galicia and Barossa have implanted generative growth in rural areas. Now is the time to grasp the opportunity to implant Regional Innovation and Learning Systems with sectoral focus and research-led entrepreneurship, bolstered by a substantial market for innovation support, to show that generative growth does not have

to mean social and regional disequilibrium and polarisation. The prize is competitive success combined with social harmony in an increasingly hypercompetitive and heartless, 'High Tech with Homelessness' economic world governed by globalisation.

References

Abrahams, P. & Luce, E. (2001) No Exit, **Financial Times**, February 26, 20

Arthur, B. (1994) **Increasing Returns and Path Dependence in the Economy**, Ann Arbor, Michigan University Press

Bahrami, H. & Evans, S. (2000) Flexible Recycling and High Technology Entrepreneurship, in M. Kenney (ed.) **Understanding Silicon Valley**, Stanford, Stanford University Press

Balasubramanyam, V. & Balasubramanyam, A. (2000) The software cluster in Bangalore, in Dunning, J. (ed.) **Regions, Globalization, and the Knowledge-Based Economy**, Oxford, Oxford University Press

Beer, A. (2000) On Wine, Rent and Regions, School of Geography, Flinders University, Adelaide (mimeo)

Braunerhjelm, P. and B. Carlsson (1999) Industry clusters in Ohio and Sweden 1975-1995, **Small Business Economics** 12, 279-93

Braunerhjelm, P., B. Carlsson, D. Cetindamar, and D. Johansson. (2000) The Old and New: The Evolution of Polymer and Biomedical Clusters in Ohio and Sweden, **Journal of Evolutionary Economics** 10, 471-88

Brown-Humes, C. (2001) Hiring Winter Sends a Chill to Sweden's High Tech Heart, **Financial Times**, May 10, 11

Cairncross, F. (1997) **The Death of Distance**, Boston, Harard Business School Press

Carlsson, B. (forthcoming) Institutions, entrepreneurship, and growth: biomedicine and polymers in Sweden and Ohio, **Small Business Economics**

Castells, M. (1996) **The Rise of the Network Society**, Oxford, Blackwell

Cooke, P. (2001a) Regional Innovation and Learning Systems, Clusters, and Local and Global Value Chains, Paper for International Workshop on '*Innovation Clusters and Interregional Competition'*, Kiel Institute of World Economics, Institute for Regional Research, Kiel University, 12-13 November 2001

Cooke, P. (2001b) Biotechnology Clusters in the UK: lessons from localisation in the commercialisation of science, **Small Business Economics**, 17, 43-59

Cooke, P. (2002) Knowledge Economies: Clusters, Learning and Cooperative Advantage**, London, Routledge**

Cooke, P. & Morgan, K. (1998) The Associational Economy, Oxford, Oxford University Press

Cooke, P., Uranga, M. & Etxebarria, G. (1998) Regional Systems of Innovation: an Evolutionary Perspective, Environment and Planning A, 30, 1563-1584

Cooke, P., Boekholt, P. & Tödtling, F. (2000) The Governance of Innovation in Europe, London, Pinter

Cooke, P. & Schienstock, G. (20000) Structural Competitiveness and Learning Regions, Enterprise and Innovation Management Studies, 1, 265-280

Cooke, P., Roper, S., & Wylie, P. (2001) Regional Innovation Strategy for Northern Ireland, Belfast, Northern Ireland Economic Council

Dunning, J. (ed.) (2000) Regions, Globalization, and the Knowledge-Based Economy, Oxford, Oxford University Press

Eaglesham, J. (2001) Still Confident of Their Case, **Financial Times,** September 10, 19

Edlund, S. (2001) Science, Regions and Clusters; the VINNOVA Pilot Strategy, Paper to Øforsk Seminar *'Science and Regions'*, Mölle, Sweden, June 19-20

Edquist, C. (1997) **Systems of Innovation**, London, Pinter

Gardner, D. (2001) Dotcommers Hunt for Alternative Jobs, **Financial Times**, June 27, 14

Gereffi, G. (1999) International Trade and Industrial Upgrading in the Apparel Commodity chain, **Journal of International Economics**, 48, 37-70

Hirst, P. & Thompson, P. (1996) **The Globalizarion Question**, Cambridge, Polity

Johnson, B. (1992) Institutional Learning, in B. Lundvall (ed.) **Regional Systems of**

Jones-Evans, D. & Klofsten, M. (1997) Universities and Local Economic Development, **European Planning Studies**, 5, 77-94

Jonsson, O. (2001) Innovation Processes and Proximity – the Importance of a Regional Milieu, Paper to Øforsk Seminar *'Science and Regions'* Mölle, Sweden, June 19-20

Jussila, H. & Segerståhl, B. (1997) Technology Centres as Business Environments in Small Cities, **European Planning Studies**, 5, 371-384

Kehoe, L. (2001) Valley Retains Its Spirit, **Financial Times**, 9 May, 20

Kenney, M. (ed.) (2000) **Understanding Silicon Valley: the Anatomy of an Entrepreneurial Region**, Stanford, Stanford University Press

Krugman, P. (2000) Where in the World is the 'New Economic Geography'? in G. Clark, M. Feldman, & M. Gertler (eds.) **The Oxford Handbook of Economic Geography**, Oxford, Oxford University Press

Luce, E. & Kehoe, L. (2001) A Dip in Silicon Valley, **Financial Times**, April 19, 20

Maskell,P. et al. (1998) **Competitiveness, Localised Learning and Regional Development**, London, Routledge

Micklethwait, J. & Wooldridge, A. (2000) **For a Perfect Economy**, London, William Heinemann

Moon Lee, C. (2000) **The Silicon Valley Edge: a Habitat for Innovation and Entrepreneurship**, Stanford, Stanford University Press

Schumpeter, J. (1975) **Capitalism, Socialism & Democracy**, New York, Harper

Teubal, M. (2000) The systems perspective to innovation and technology policy: theory and selected topics, (mimeo)

Teubal, M., Avnimelech, G. & Gayego, A. (2000) The Israeli software industry: analysis of the information security sector, Proceedings DRUID Summer Conference on **The Learning Economy – Firms, Regions and Nation Specific Institutions**, Aalborg, Danish Research Unit for Industrial Dynamics

Teubal, M. & Von Tunzelmann, N. (2000) Varieties of Capitalism and Policy Reform (mimeo)

VINNOVA (2001) **The Swedish Biotechnology Innovation System**, Stockholm, VINNOVA.

Appendix 2
New boundaries – an explanation

A2.1 A note on regional boundaries

At previous State of the Regions conferences Australia has been divided into 58 regions plus four unincorporated areas. These unincorporated areas were kept separate because the regions were built up from local government areas.

Two prior judgements were made in defining the regions.

- regions should end at state/territory boundaries; and
- regions should not split local government areas.

Both these judgements reflected the intended use of the data by local and state planning agencies. In addition, an effort was made to follow boundaries established by state planning agencies, and also to respect, as far as possible, the statistical division boundaries established by the ABS. However, to keep the number of regions manageable and to avoid definition of regions with very small populations where some of the indicators might not be statistically reliable, ABS and state planning regions were sometimes amalgamated. Within metropolitan areas, National Economics exercised greater discretion to group LGAs on the basis of similarity of socio-economic structure rather than planning or ABS regions.

The resulting regional areas varied:

- in population from 1278000 (Sydney production region) down to 31000 (Southern NT);
- in GRP from $58 bn (Global Sydney) down to $0.8 bn (Southern NT); and
- in employment, from 586000 (Sydney production region) down to 14000 (Southern NT).

For the present report, regional boundaries were reviewed while maintaining the above principles, with the exception that unincorporated areas were included in the relevant region. The following changes were adopted.

New South Wales

Unincorporated NSW was included in the Far and North West. (This is not entirely appropriate: Lord Howe Island is included in Unincorporated NSW).

The previous North Coast was split into the Mid North Coast and Richmond/Tweed to reflect NSW planning regions.

The previous Murray-Murrumbidgee was split into Murray and Murrumbidgee to reflect NSW planning regions.

Wingecarribee shire was switched from Outer SW Sydney to Illawarra to reflect NSW planning regioins.

There was no change in metropolitan Sydney apart from minor re-naming.

The least satisfactory of the resulting regions, from a regional affinity point of view, is Far and North West, which stretches from Mudgee to Tibooburra. This comprises two planning regions, of which Far West has too small a population to stand on its own account. The solution has been to add it to the adjacent planning region with which it has most affinity. An alternative, which would have involved splitting planning regions, would have been to split the North West into plains, which would have formed a region with the Far West, and add the area round Mudgee to Central West.

There is also a case for switching Marrickville and Canterbury from Mid West Sydney to the Inner West. Though these two LGAs are, or at least were, known for their manufacturing, they resemble the Inner West in that they were developed in the first half of the last century, unlike the rest of Mid West Sydney which is mostly post-war.

Australian Capital Territory

No change. Respect for state/territory boundaries precludes the recognition of a greater Canberra urban area.

Victoria

The previous Golden Region was split into Barwon, based on Geelong, and Central Highlands, based on Ballarat, to reflect state planning practice.

Unincorporated Victoria (basically French Island) was included in Gippsland.

There was no change in metropolitan Melbourne.

Queensland

Central Queensland was split into Fitzroy and pastoral Central Queensland, with the boundary more or less at the Drummond Range, to reflect state planning regions.

Darling Downs/SW Queensland was split, more or less at the current agricultural/pastoral boundary (recognising that this boundary has shifted westwards in recent decades), again to reflect state planning regions. The resulting agricultural region is larger than the Darling Downs and has accordingly been named the Agricultural SW.

These two splits resulted in recognition of two sparsely-populated pastoral zones, which were amalgamated as the Queensland Pastoral region.

The previous North Brisbane was split into the Sunshine Coast and a new, smaller North Brisbane.

Other regions remained the same, though with minor re-naming.

South Australia

The three SA rural regions remained essentially the same, apart from the incorporation of unincorporated SA into Eyre and Yorke. Kangaroo Island was also switched to Eyre and Yorke on affinity grounds.

Boundaries in the Adelaide metropolitan area were rearranged on affinity grounds. There are still three regions, comprising:

- Adelaide central: the City of Adelaide, its immediate northern suburbs, and its eastern and southern suburbs up to the hills face, including Glenelg;
- Adelaide plains, comprising the strip from West Torrens to Light and Mallala; and
- Outer Adelaide, comprising the hill suburbs and resorts from the Barossa to the Fleurieu Peninsula.

These boundaries are experimental, and comment is sought.

While the SA Murraylands and the South East constitute distinctive regions (within the constraint of state boundaries), it must be admitted that Eyre and Yorke is an uneasy amalgam of:

- Eyre Peninsula and the West Coast;
- the Iron Triangle;
- rural Yorke Peninsula and the mid and upper North;
- the SA Outback; and
- Kangaroo island.

It might be desirable to split the region, but the trouble is that the components are all rather too small to stand by themselves. Two possible splits might be:

- the agricultural areas split from the Iron Triangle and the Outback (which would result in a region in three pieces separated by Spencer Gulf); or
- the Iron Triangle split from all the rest (which would maintain the geographic continuity between Eyre Peninsula and the Upper North, but only rather artificially via the outback areas).

Once again comment is sought.

Western Australia

Rural boundaries have been re-organised to reflect state planning regions. Because planning regions in WA have small populations each National Economics region includes two or three state regions. The new regions are as follows.

- Pilbara/Kimberley: as before
- Gascoyne/Midlands/Goldfields: the northern past of the previous Midlands/Central WA, plus the former SE WA.
- Wheat Belt/Great Southern: the southern part of the previous Midlands/Central WA, and the Eastern part of the previous Southern WA.
- Peel/South West: the western part of the previous Southern WA, plus Serpentine-Jarrahdale.

Metropolitan Perth, previously divided into two regions north and south of the Swan river, is now divided into three regions:

- Perth Central, being relatively old-established LGAs on both sides of the Swan River. Despite their affinity with the Outer South, Fremantle and East Fremantle have been included with Perth Central on the ground of age of development, and their provision, to a degree, of central-place functions to the whole metropolitan area;

- Perth Outer North, being the new suburbs to the north, but swinging round to take in Swan and Mundaring; and
- Perth Outer South, being the new suburbs south of Fremantle, and including Melville, Canning and Kalamunda.

Except within Perth the above boundaries accord with WA planning boundaries. On affinity grounds National Economics was tempted to depart from these boundaries and include the area round Geraldton and Ravensthorpe/Esperance in the wheat belt, but decided that congruence with the state planning regions was more important. It is also possible that economic growth will render more splits possible, eg between Mandurah and the SW.

Tasmania

The previous three regions have not been altered. However, Mersey-Lyell has been renamed North West, mainly because non-Tasmanians do not seem capable of spelling its name properly.

Northern Territory

National Economics has followed the lead of the Commonwealth Electoral Commissioner and split the NT into two parts:

- the group of contiguous incorporated areas centred on Darwin; and
- the rest of the Territory, comprising the unincorporated area and the isolated incorporated areas. This large region could have been called the rest of the NT, but following the electoral commissioner it will be referred to as Lingiari.

2.2 Regional classification

The regions resulting from these boundary changes can be included within the established classification as follows.

Core metropolitan regions

ACT
Adelaide Central
Brisbane City
Darwin
Melbourne Inner
Perth Central
Global Sydney
Sydney Inner West
Tasmania South

Dispersed metropolitan regions

Adelaide Outer
Brisbane North
Melbourne East
Melbourne South
Melbourne West (should be production?)
Melbourne Westernport (should be production?)
Perth Outer North
Perth Outer South
NSW Central Coast
Sydney Outer North
Sydney Outer SW
Sydney Outer W
Sydney South

Production regions

Adelaide Plains
NSW Hunter
NSW Illawarra
Melbourne North (also west? Also Westernport?)
Qld West Moreton
Sydney Mid West

(Possibly WA Mandurah/SW, or if boundaries are re-drawn a combination of Mandurah and outer S Perth; Barwon Vic also has claims)

Resource-based regions

NT Lingiari

Qld Kimberley

(Note: Qld SW pastoral is the only one of these regions which does not have much mineral production; if lack of mineral production, rather than remoteness, is the guiding characteristic, it goes in with rural. I feel that Gippsland is a severe misclassification; it is only there because of lots of oil and gas output, which will be transient and generates very few jobs. Mackay is somewhat the same; the coal mines are in the hinterland and do not amount to much in job generation. In SA, splitting Iron Triangle/Outback from Eyre and Yorke would create a candidate region.)

Lifestyle regions

Qld Far North
Qld Gold Coast
Qld Sunshine Coast
Qld Wide Bay-Burnett (though this is quite rural)
NSW Richmond/Tweed
NSW Manning/Macleay/Clarence

Rural based (and remote) regions

NSW Central W
NSW Far and NW
NSW Murray
NSW Murrumbidgee
NSW North
NSW SE
Qld Agricultural SW
Qld Fitzroy (has some claim to be a production region)
Qld North
SA Eyre and Yorke
SA Murraylands
SA SE
Tasmania N
Tasmania NW
Vic Barwon
Vic Central Highlands (has some claim to be lifestyle)
Vic Goulburn
Vic Loddon
Vic Mallee-Wimmera
Vic Ovens-Hume
Vic West
WA Mandurah/SW
WA Wheat belt/Great Southern

2.3 Regional indicators

This section provides an explanation and exposition into 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 terms 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 Regions regions, with 1 being the best.

Population and Labour Force

Population: Residential population by region is derived from the *ABS Census* for 1991 and 1996. For 1998 population is gleaned from the *ABS estimated resident population* series (ERP). In Census years the population is collected as at June 30. This convention is used in the ERP 1998 series. The 2001 population figure comes from preliminary ERP data released by the ABS.

Households: The number of Households per region is available from the *ABS Census* for 1991 and 1996. The difficulty is estimating this number for the inter-Census years. The ABS 2001 Census will not be available until 2002, so an estimation procedure is necessary for the 1998 and 2001 levels.

From the 1996 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 1996 an over estimation will occur. This is because of 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, Workplace Relations and Small Business* (DEWRSB). 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.

The average DEWRSB 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 (NE) measure of employment. It is the workforce as defined by NE, minus the estimated NE 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 (i.e. at a level greater than population growth), youth allowance as a non student and an estimate of students on youth allowance who are unemployed and undertaking compulsory training etc. This latter measure is based on demographic trends and microsimulation.

Structural unemployment: This is a measure of the level of long term unemployed. It includes everyone on disability support pensions, 50 per cent of people from a non-English speaking background on newstart allowance, 20 per cent of people on single parents benefits and all people on the mature age allowance.

This measure excludes people on newstart allowance 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, Workplace Relations and Small Business* (DEWRSB). 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

The flow of funds analysis undertaken by NIEIR is a detailed attempt to capture the wealth building forces at work in the regional economy. The measures 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 the 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.

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 biggest problems that actively updated benchmarks related to the household have 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 is 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 the two years, 1999 and 2001. In addition, a ranking of the growth in the net flow of funds between the two periods 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 and provisional estimates for 2001.

Wages, salaries and farm income

This measure is in part derived from the 1998/99 Taxation Statistics. The taxation statistics present a total income for a region as well as a number of the sub-components. The wages and salaries components are explicitly provided. In order to balance to national accounts these amounts are rescaled to state control totals. As with all information collected from taxation Statistics the data is converted from postcode definitions to ABS regions using the 1999 Postcode to Statistical Local Area concordance provide by the ABS. The change in income between 1999 and 2001 is based on employment and income trends at the local levels, and further benchmarked to state control totals.

Farm income cannot be derived using the declared taxable income from primary production as a guide. Due to problems of declaration and substantial carried forward of farm losses this is not a completely accurate guide to total income. 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. The upturn in the farm sector since 1999 has been captured using industry specific factors, state control totals and local employment trends.

Income Tax: This total 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 figure is based on reported taxation statistics. The 2001 figure has been adjusted by state control totals.

There is a shortfall in the methodology because the regional differences in the impact of the tax cuts have not be adequately incorporated. As the incidence of the tax cut is disproportionately beneficial to higher income earners, in terms of the total tax cut received this will tend to underestimate the positive impacts of the cuts in the wealthier areas. The bias therefore tends to reduce the regional variation in year 2001. The order of the bias however, is likely to be less than 1% of the net flow of funds.

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 both years are based on recipient data.

This measure does not include the income derived from Department of Veterans Affairs (DVA) benefits. This amount is not included in the accounts.

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 are derived from Taxation Statistics. The changes in this value to 2001 can only be derived from State Accounts control totals and as such each region within a state will have the same growth rate to 2001. Whilst this is a shortfall in the methodology, the important differences in the interest and dividends stream that are worth considering occur between regions rather than through time.

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 such 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 2001 reflects the continued strong growth in household debt throughout 1999 and 2000.

Net property income: Net property income is derived from Taxation Statistics, and balance to state control totals. This small measure cannot be updated at the local levels and hence National Economics relies on state trends to derive the 2001 estimates.

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 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

General

GRP (excluding mining) per person employed: This is a measure of gross regional product, 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 for both value added and employment. This is due to the distorting effects mining can have on GRP per employee figures. Take the LGA of Ashburton in Western Australia, for example. Petroleum and metal ore mining dominate local industry. Together these industries produce approximately $2 billion in value added and total employment in the area is 3700. This gives a GRP per employee figure of $0.5 million. This makes the region the most productive in Australia. This GRP measure is designed to capture the regions all round performance so any aberrations caused by mining activity have been removed.

Patent applications per 1000 people: This indicator measures the number of patent applications from business and individuals over a ten-year period. It is a cumulative sum from 1990 to 2000, expressed as the number of patents per 1000 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 could 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.

Tertiary degree attainment: This is a measure of the level of post secondary education attained by the population. It is for the year 1996 as this was the *ABS Census* year and provides a detailed insight into educational attainment, which is unparalleled since.

The Census provided information of the different types of degrees undertaken. They are weighted to derive a measure of degree attainment that incorporates course difficulty and duration.

A bachelor degree from university is given a score of 1. The following courses are included, with the appropriate weights in brackets. Masters and PhD's (1.5), post graduate diploma (1.2), undergraduate diploma (0.8), undergraduate associate diploma (0.8), associate diploma (0.5), skilled vocational training (0.6) and basic vocational training (0.3).

These weights are applied to the regions resident's educational attainment levels and multiplied through. This value is then divided by the number of residents over 15 to produce a per person estimate. This makes for ease of comparison between regions.

University enrolments: This measures the level of university enrolments as a percentage of the population over 15 years old for 1998. The Department of Education, Employment and Training and Youth Affairs provided this data. It includes enrolments in all courses offered by registered universities.

Global knowledge workers: 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 score out of 100.

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

Skills sustainability: This indicator measures the potential for growth based on the ratio of symbolic analysts to routine workers. This measures the skill base of the workers in a region and produces a score from 0 to 100.

Symbolic analysts workers are basically those whose occupation requires a university qualification. These include accountants, journalists and managers. Routine workers are those who generally perform a specific task from day to day which does not require a high skill level. Such occupations are factory workers, retail staff and cleaners. The higher this ratio the more likely is future growth, as the occupations which symbolic analysts are employed in are expected to significantly outperform employment growth for routine workers.

Construction

Building approvals per capita: This measures the increase in dwelling approvals by region over the period 1998-2001. The approvals data is for the number of new dwellings and excludes additions and alterations. The data is collected for the years 1998, 1999, 2000 and 2001 and summed. So the value is a cumulative sum. This is divided by the residential population in the base year 1998 to produce a value

Commercial floor space per capita: This measures the increase in the value of commercial floor space over the period 1998-2001. Commercial construction includes, offices, shops, factories, entertainment and recreation facilities, health care and educational facilities. This data is provided by the ABS and measures additions to commercial floor space.

The data is collected for the years 1998, 1999, 2000 and 2001 and summed. So the value is a cumulative sum. This is divided by the residential population in the base year 1998 to produce a value.

Research and development

This measures estimates the levels of supply and demand for research and development by region for 1998. These levels are then placed in a per employee basis for ease of comparisons.

The Australian and New Zealand Standard Industrial Classification (ANZSIC) category of 781 measures the level of research and development. This category is defined as scientific research and includes business units engaged in undertaking research in agricultural, biological, physical or social sciences. Some of the primary activities of units engaged in this field include medical research, food research, research farm operations, industrial research and economic research institutes.

Supply of these activities is provided from National Economics regional modelling databases. It contains detailed industry information on employment, turnover and value added by region. Therefore those regions with units engaged in the ANZSIC category 781 make up the supply equation. Demand for these services, however is more difficult to obtain.

To impute demand for research and development the *ABS input-output tables* for 1998 have to be used. These tables make it possible to estimate demand for category 781 by industry. For example, the manufacturing of computer products may require a large research and development component. Conversely, the construction industry may utilise little input from research and development facilities.

Once the demand for research and development by industry is estimated the next step is to analyse a regions industry. From the National Economics regional modelling database the industry structure by region is known. When the demand matrix is multiplied by the regions industry make up a measure for demand is derived.

The regional values for demand and supply for 1998 are then divided by employment levels to produce the measure. This is to make regional comparisons more valid.

Social

High income families: This indicator is designed to estimate the number of children who are growing up in a relatively wealth environment. This measure is based on household income. It is expressed as a per cent of all households with families divided by the number that are deemed wealthy.

Firstly an estimate of the number of households with dependant children less than 15 years old, or with dependant students less than 15 needs to be measured. These households can include either couples or single parents. The *ABS Census* provides this information for 1996. To age this data to 2001 National Economics uses household microsimulation. This produces an estimate of households with dependant children for 2001.

With the stock of households that have dependant children known, the next step is to produce a measure of wealth for these households so they can be categorised. The measure chosen was eligibility for the family allowance payment, which is based on household income levels. The eligibility for this payment cuts out at a certain income level. Depending on the number of children in 2001 this level is approximately $80,000.

Therefore for this measure those who aren't receiving these payments are considered relatively wealthy. These payments act as a proxy for wealth. There are limitations with this measure, such as the various definitions of income used to access eligibility and modelling the structural change in households since the Census. However, even in light of these problems, this indicator provides good insight into the financial status of families.

Benefits as net flow of funds: as described above benefits are payments by Centrelink including Community Development Employment Programs (accessed mainly by indigenous communities) and exclude payments from the Department of Veterans Affairs.

These are expressed as a percent of the net flow of funds. This concept is developed elsewhere. Regions with a high score have a high dependency on social security income.

Occupational balance

For the State of the Regions report National Economics has developed specific measures to calculate the occupational structure of the regional economy. There are two drivers of occupational structure and these are the types of occupations held by the residents and the type of occupations demanded by local industry. On a regional level imbalance in these two have major impacts on economic development. National Economics has tried to measure these imbalances and present the results in a clear and concise manner.

Occupational data is sourced from the Australian Bureau of Statistics (ABS). This data comes in the form of the Australian Standard Classification of Occupations (ASCO). Under this format occupations are classified into 443 individual groups. These encompass some very specific occupations such as, primary school teachers, roof plumbers and commodities traders. The difficulty with the data is presenting it in a useful and meaningful fashion.

It idea behind this analysis is bring to the fore a regions strengths and weaknesses in regards to the higher skilled occupations. These are generally occupations that require some form of post secondary qualification. In this analysis the occupations include managers, information technology workers, high level business services personnel, health professionals, scientific and university personnel and the associated high level occupations that support these professions. The table below provides a breakdown of the specific occupational groups National Economics have selected. It is also accompanied with a figure to highlight the occupations prevalence among all occupations. In total the high level occupations selected account for 21.5 per cent of all occupations.

These types of occupations generally provide above average income levels. Also the contribution of these occupations to an industries turnover is relatively higher than other employees. That is, these occupations play a greater role in value creation for the industries that employ them. Without these high level professionals a regions industry must source their input from outside. This is a form of import and a leakage in the value creation chain. Conversely if a region is deficient in occupational skills business retention and attraction is more difficult.

Occupational forecasts for the higher skilled groups are growing at the fastest rates. This is because the industries that employ these professions are likely to outperform the national average. Take for example, IT professionals. The increasing mechanisation of the workplace and the explosion in information economics will ensure employees with these occupations are increasingly in demand.

The analysis draws together residential ASCO information with industry demand for occupations data. The residential ASCO information is provided by the ABS and is available for 1996 in its entirety. This information was gleaned from the Census of the same year. The more difficult data set to acquire is demand for occupations by industry. The ABS provides the matrix on a state by state basis. With this matrix it is possible to determine the proportion of each occupation needed to produce a unit of industry output. For example, to produce one million dollars worth of steel these occupations may be required in the following proportions, production manager (15 per cent), miners (25 per cent), machine operators (15 per cent), factory labourers (20 per cent), process engineers (10 per cent), cleaners (3 per cent), truck drivers (5 per cent), accountants (2 per cent) and so on until the proportions sum to 100.

This information can be used at the state level where state production totals are known. However, using this information at the regional level requires a detailed breakdown of industry structure at the 4 digit Australian and New Zealand Standard Industrial Classification level (ANZSIC). This covers over 400 industries and is necessary when using the occupational matrix, which is specified at the same level of detail.

National Economics uses its regional economic models at the 4 digit ANZSIC industry classification, which primarily operate at the Local Government Area (LGA) level, to estimate occupational demand. For each state the occupational matrix is applied to the industry structure at the LGA level to produce occupations demanded. This can then be compared against residents occupations to identify any deficits or surpluses.

In the inner city areas deficits in occupations can largely be explained by the journey to work phenomenon. This is where employees travel from outside the region to work in its industry. This is certainly very prevalent in inner city areas, but as the region moves away from the CBD this effect diminishes. A deficit in the inner city areas that can be explained by journey to work still means that the high income earned by the individuals in these occupations is not spent locally. This represents a leakage of value added created by a regions industry.

Occupational classifications	
Name	Per cent of total occupations
General managers	0.8
Construction managers	0.6
Trade & wholesale managers	0.1
Manufacturers	0.3
Company secretaries & finance managers	0.5
Human Resource Managers	0.3
Engineering & process managers	0.1
Production managers	0.5
Supply & Distribution managers	0.2
Information technology managers	0.2
Sales & marketing managers	0.8
Planning managers	0.1
Health services managers	0.1
Science building & engineering professionals	1.7
Accountants	1.3
Sales & marketing professionals	0.4
Computing professionals	1.1
Miscellaneous business and information professionals	1.2
Medical practioners	0.6
Specialist medical professionals	0.4
Higher education teachers	0.4
Legal professionals	0.5
Economists	0.0
Town planners	0.0
Graphic designers	0.3
Film, music and media professionals	0.5
Medical & science technical officers	0.5
Building & engineering assoc professionals	1.1
Finance associated professionals	0.7
Project & office managers	1.9
Computing support technicians	0.3
Ambulance and paramedics	0.1
Secretaries& personal assistants	2.6
Advanced clerical and service workers	1.3
Desktop publishers	0.0

2.4 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

Local Government Area	Region
Berri and Barmera (DC)	SA Murraylands
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

Local Government Area	Region
Burnside (C)	Adelaide Central
Burwood (A)	Sydney Inner West
Busselton (S)	WA Peel-South West
Byron (A)	NSW Richond-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 Westport
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

Local Government Area	Region
Collie (S)	WA Peel-South West
Conargo (A)	NSW Murray
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

Local Government Area	Region
Douglas (S)	QLD Far North
Dowerin (S)	WA Wheatbelt-Great Southern
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

Local Government Area	Region
Golden Plains (S)	VIC Barwon
Goomalling (S)	WA Wheatbelt-Great Southern
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

Local Government Area	Region
Inverell (A)	NSW North
Ipswich (C)	QLD West Moreton
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

Local Government Area	Region
Lane Cove (A)	Global Sydney
Latrobe (M)	TAS North West
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

Local Government Area	Region
Mildura (RC)	VIC Mallee-Wimmera
Millmerran (S)	QLD Agricultural SW
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

Local Government Area	Region
Nanango (S)	QLD Wide Bay-Burnett
Nannup (S)	WA Peel-South West
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 (T)	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

Local Government Area	Region
Playford (C)	Adelaide Plains
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

Local Government Area	Region
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
Ulmarra (A)	NSW Mid North Coast
Unincorporated ACT	ACT

Local Government Area	Region
Unincorporated NSW	NSW Far and North West
Unincorporated NT	NT Lingiari
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

2.5 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 (T)
Global Sydney	Botany Bay (C)
	Hunter's Hill (A)
	Lane Cove (A)
	Mosman (A)
	North Sydney (A)
	Randwick (C)
	Ryde (C)
	South Sydney (C)

Region	Local Government Area
	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 Westport	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 Richond-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)

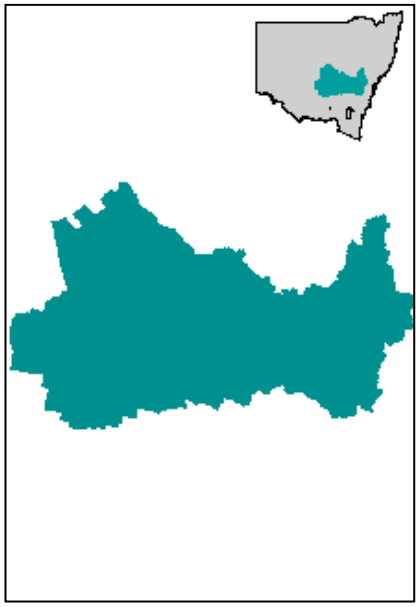
Region	Local Government Area
	Tambellup (S)
	Tammin (S)
	Toodyay (S)
	Trayning (S)
	Victoria Plains (S)
	Wagin (S)
	Wandering (S)
	West Arthur (S)
	Westonia (S)
	Wickepin (S)
	Williams (S)
	Wongan-Ballidu (S)
	Woodanilling (S)
	Wyalkatchem (S)
	Yilgarn (S)
	York (S)

Appendix 3

Regional indicators

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 in Lachlan Shire. 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 in Lachlan Shire. 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.



Major centres:

Lithgow, Bathurst, Orange

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	172,790		174,174		0.3
No. households	64,115		66,725		1.3
Workforce	84,811	49.1	82,540	47.4	-0.9
Employment	76,376		72,799		-1.6
Unemployment	8,434	9.9	9,741	11.8	4.9
Structural U/E	11,478	13.8	13,116	14.8	4.5
DEWRSB U/E	4,747	5.8	3,609	4.5	-8.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,362	13,653	2,447	14,049	1.8
Taxes paid	521	3,012	529	3,038	0.8
GST paid			224	1,285	
Benefits	390	2,253	421	2,415	3.9
Business income	293	1,694	302	1,735	1.6
Interest/dividends	80	465	88	507	4.8
Interest paid	216	1,251	297	1,708	17.3
Net property income	5	28	6	32	8.7
Net flow of funds	2,392	13,831	2,213	12,708	-3.8
Rank		46		47	52

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	181	Computing professionals	-465
Secretaries & personal assist.	147	Project & office managers	-451
Adv. clerical & service workers	58	Accountants	-317
Ambulance & paramedics	34	Misc. business & info. prof.	-310
Building & engineer. assoc. prof.	30	Sales & marketing managers	-295

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	51,674	44
Patent applications per 1,000 people	0.7	54
Tertiary degree attainment	0.22	37
University enrolments 1998	3.2	33
Global workers/100	52	26
Skill sustainability/100	37	41

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	15.2	48
Commercial floor space per capita (1998-2001)	1.1	44

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	166.6	25
Demand (1998)	220.4	18

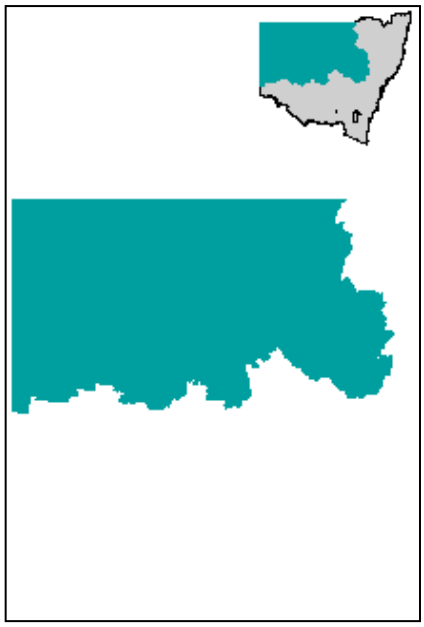
SOCIAL

	Value	Rank
High income families -%	17.5	18
Social benefits as a % of net flow of funds	19.0	46

NSW Far and North West

The Far and North West puts together two NSW planning regions, mainly because the Far West does not have sufficient population to stand on its own for current purposes. 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 to the north and immediate west of Dubbo are mostly under the plough, with wheat still important but other crops such as cotton also grown.
- 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, at Cobar and Broken Hill.



Major centres:

Dubbo, Broken Hill

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	142,092		141,275		-0.2
No. households	53,932		55,376		0.9
Workforce	68,328	48.1	66,561	47.1	-0.9
Employment	58.812		57,354		-0.8
Unemployment	9,515	13.9	9,208	13.8	-1.1
Structural U/E	12,774	19.3	13,660	18.5	2.3
DEWRSB U/E	4,844	7.3	3,940	6.1	-6.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,764	12,551	1,876	13,387	3.1
Taxes paid	376	2,675	382	2,726	0.8
GST paid			174	1,238	
Benefits	367	2,608	383	2,734	2.2
Business income	236	1,676	243	1,731	1.5
Interest/dividends	60	428	66	472	4.9
Interest paid	165	1,176	229	1,631	17.6
Net property income	5	35	6	42	8.7
Net flow of funds	1,890	13,448	1,789	12,771	-2.7
Rank		51		46	43

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Ambulance & Paramedics	69	Project & office managers	-592
Construction managers	47	Computing professionals	-447
Build. & engineer. Assoc. prof.	45	Misc. business & info. prof.	-418
Desktop publishers	-7	Science build & engineer. Prof.	-404
Economists	-14	Accountants	-318

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	52,470	38
Patent applications per 1,000 people	0.6	55
Tertiary degree attainment	0.20	49
University enrolments 1998	2.6	48
Global workers/100	48	30
Skill sustainability/100	45	29

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	10.2	58
Commercial floor space per capita (1998-2001)	0.8	53

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	76.3	48
Demand (1998)	121.1	51

SOCIAL

	Value	Rank
High income families -%	15.3	30
Social benefits as a % of net flow of funds	21.4	53

NSW Hunter

The Hunter region centres on the City of Newcastle, though the peripheral location of the city centre means that retail and other city centre functions have been considerably decentralised. For the best part of two centuries the region has been known for coal mining, and this continues to feed a vigorous export trade through the Port of Newcastle. However, with the closure of the steelworks the region's identity as a centre of manufacturing is less secure, and parts of the region like Port Stephens and Pokolbin are perhaps best thought of as extensions of the North Coast; hobby farm and retirement areas related directly to Sydney.

Major centres:

Newcastle, Maitland, Singleton

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	567,302		582,793		0.9
No. households	217,737		230,235		1.9
Workforce	265,842	46.9	288,185	49.4	2.7
Employment	231,861		248,762		2.4
Unemployment	33,981	12.8	39,423	13.7	5.1
Structural U/E	44,350	17.1	52,061	16.6	5.5
DEWRSB U/E	24,485	9.4	24,496	8.8	0.0

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	8,348	14,608	9,718	16,674	7.9
Taxes paid	2,016	3,528	2,048	3,514	0.8
GST paid			796	1,366	
Benefits	1,493	2,612	1,683	2,889	6.2
Business income	924	1,617	964	1,654	2.2
Interest/dividends	284	497	314	538	5.1
Interest paid	685	1,198	920	1,578	15.9
Net property income	8	14	10	16	8.7
Net flow of funds	8,355	14,620	8,925	15,314	3.4
Rank		30		22	13

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Build. & engineer. Assoc. prof.	1,139	Computing professionals	-1203
Secretaries & personal assist.	772	Project & office managers	-1082
Science build. & engineer. Prof.	326	Misc. business & info. prof.	-797
Medical & science tech. officers	92	Accountants	-752
Ambulance & paramedics	71	Sales & marketing managers	-727

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,550	17
Patent applications per 1,000 people	1.0	26
Tertiary degree attainment	0.24	23
University enrolments 1998	3.3	29
Global workers/100	35	47
Skill sustainability/100	31	50

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	22.1	24
Commercial floor space per capita (1998-2001)	1.4	36

RESEARCH & DEVELOPMENT

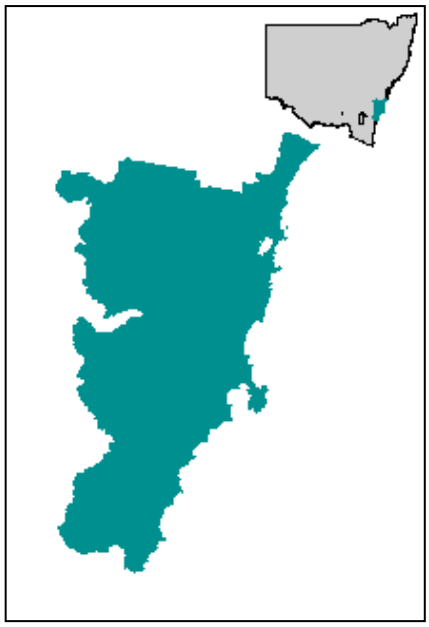
	Value ($)	Rank
Supply (1998)	143.6	29
Demand (1998)	167.8	36

SOCIAL

	Value	Rank
High income families -%	16.2	22
Social benefits as a % of net flow of funds	18.9	45

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 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 a long-established hobby farm area.



Major centres:

Wollongong, Nowra

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	380,660		394,109		1.2
No. households	143,178		152,312		2.1
Workforce	181,585	47.7	191,923	48.7	1.9
Employment	160,490		168,455		1.6
Unemployment	21,095	11.6	23,468	12.2	3.6
Structural U/E	29,884	16.6	32,208	15.5	2.5
DEWRSB U/E	19,558	11.6	13,003	6.9	-12.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	5,516	14,343	6,257	15,875	6.5
Taxes paid	1,328	3,454	1,349	3,424	0.8
GST paid			521	1,321	
Benefits	954	2,480	1,054	2,676	5.1
Business income	625	1,625	651	1,652	2.1
Interest/dividends	209	544	231	585	5.0
Interest paid	458	1,192	617	1,566	16.0
Net property income	7	19	9	22	8.7
Net flow of funds	5,525	14,366	5,715	14,500	1.7
Rank		36		35	28

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	815	Project & office managers	-427
Science build. & engineer. Prof.	721	Sales & marketing managers	-328
Build. & engineer. Assoc. prof.	523	Computing professionals	-238
Production managers	107	Accountants	-238
Ambulance & paramedics	106	Sales & marketing professionals	-144

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,776	15
Patent applications per 1,000 people	1.1	20
Tertiary degree attainment	0.25	19
University enrolments 1998	3.0	38
Global workers/100	46	34
Skill sustainability/100	38	39

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	24.1	18
Commercial floor space per capita (1998-2001)	0.6	62

RESEARCH & DEVELOPMENT

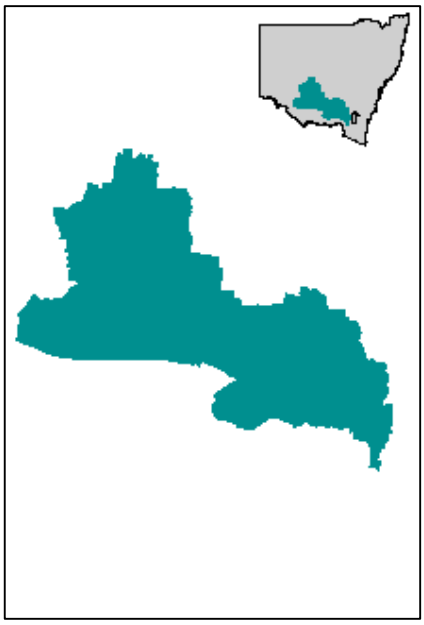
	Value ($)	Rank
Supply (1998)	85.9	42
Demand (1998)	143.5	43

SOCIAL

	Value	Rank
High income families -%	17.9	17
Social benefits as a % of net flow of funds	18.5	44

NSW Murrumbidgee

The Murrumbidgee planning region of NSW is similar to the Murray region: it comprises a strip of LGAs running east-west more or less along its namesake river from the ACT border to Hay. 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. East of Wagga lies high rainfall pastoral country with expanding 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	Average annualised growth rate
Population	149,039		149,549		0.1
No. households	54,052		56,025		1.2
Workforce	74,351	49.9	77,644	51.9	1.5
Employment	68,297		70,921		1.3
Unemployment	6,053	8.1	6,723	8.7	3.6
Structural U/E	8,904	12.1	9,600	11.6	2.5
DEWRSB U/E	4,950	6.7	4,377	5.8	-4.0

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,164	14,563	2,438	16,304	6.1
Taxes paid	454	3,055	461	3,084	0.8
GST paid			185	1,234	
Benefits	304	2,044	325	2,175	3.5
Business income	247	1,665	255	1,703	1.4
Interest/dividends	79	535	87	584	4.8
Interest paid	183	1,233	253	1,689	17.4
Net property income	9	57	10	67	8.7
Net flow of funds	2,166	14,577	2,217	14,826	1.2
Rank		34		26	22

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	79	Project & office managers	-377
Finance assoc. professionals	43	Computing professionals	-371
Ambulance & paramedics	34	Sales & marketing managers	-266
Medical & science technical officers	29	Accountants	-175
Health services managers	(2)	Misc. business & info. prof.	-153

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	52,354	39
Patent applications per 1,000 people	0.9	37
Tertiary degree attainment	0.21	45
University enrolments 1998	3.3	30
Global workers/100	46	35
Skill sustainability/100	38	38

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	13.3	55
Commercial floor space per capita (1998-2001)	1.2	41

RESEARCH & DEVELOPMENT

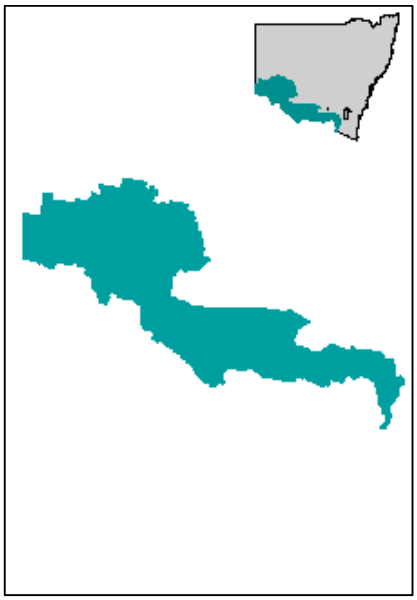
	Value ($)	Rank
Supply (1998)	356.0	2
Demand (1998)	186.6	28

SOCIAL

	Value	Rank
High income families -%	16.8	20
Social benefits as a % of net flow of funds	14.7	24

NSW Murray

The Murray planning region of NSW comprises a strip running from the edge of the Snowy Mountains to the SA border, with steadily diminishing rainfall as one travels west. The hilly area east of Albury is high-rainfall pastoral country (beef and fat lambs rather than dairy) with gradually expanding timber plantations. Between Albury and the Shire of Murray the strip comprises classic wheat/sheep country, now diversifying. In the Western part of the strip there are several irrigation areas—Coleambally and Wakool are known their rice, but the NSW districts 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	Average annualised growth rate
Population	111,406		110,671		-0.2
No. households	42,367		44,104		1.3
Workforce	57,043	51.2	58,822	53.2	1.0
Employment	51,038		53,070		1.3
Unemployment	6,005	10.5	5,752	9.8	-1.4
Structural U/E	6,965	12.6	7,739	12.4	3.6
DEWRSB U/E	4,214	7.4	3,567	6.2	-5.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,528	13,830	1,727	15,604	6.3
Taxes paid	316	2,861	321	2,901	0.8
GST paid			140	1,261	
Benefits	250	2,267	275	2,484	4.8
Business income	194	1,758	199	1,800	1.3
Interest/dividends	57	514	63	566	5.0
Interest paid	144	1,301	199	1,800	17.7
Net property income	6	50	7	59	8.7
Net flow of funds	1,575	14,256	1,610	14,551	1.1
Rank		39		33	18

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	74	Computing professionals	-224
Ambulance & paramedics	28	Project & office managers	-221
Finance assoc. professionals	13	Misc. business & info prof.	-184
Specialist medical professionals	8	Higher education teachers	-135
Town planners	(0)	Sales & marketing managers	-103

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	51,997	42
Patent applications per 1,000 people	0.8	46
Tertiary degree attainment	0.22	35
University enrolments 1998	3.2	34
Global workers/100	56	20
Skill sustainability/100	47	27

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	15.7	46
Commercial floor space per capita (1998-2001)	1.3	38

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	82.2	44
Demand (1998)	217.8	19

SOCIAL

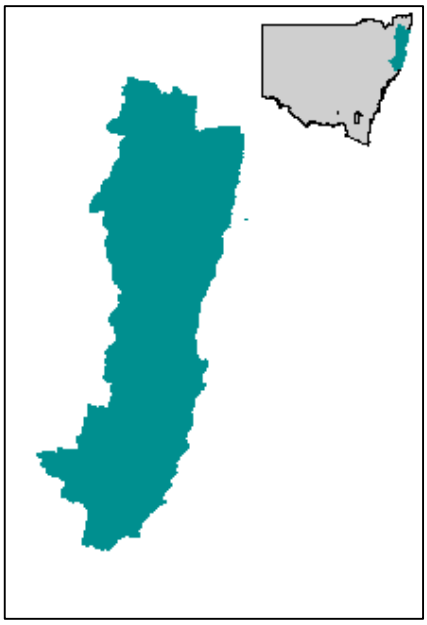
	Value	Rank
High income families -%	6.0	55
Social benefits as a % of net flow of funds	17.1	38

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	Average annualised growth rate
Population	268,379		275,964		0.9
No. households	107,475		114,004		2.0
Workforce	114,431	42.6	113,689	41.2	-0.2
Employment	92,963		89,522		-1.2
Unemployment	21,468	18.8	24,167	21.3	4.0
Structural U/E	26,288	23.5	30,566	24.0	5.2
DEWRSB U/E	13,594	12.2	11,788	10.8	-4.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,635	9,748	2,621	9,496	-0.3
Taxes paid	553	2,046	562	2,036	0.8
GST paid			336	1,217	
Benefits	832	3,079	934	3,386	5.9
Business income	342	1,265	349	1,266	1.1
Interest/dividends	118	437	128	465	4.3
Interest paid	259	958	366	1,326	18.9
Net property income	12	46	15	53	8.7
Net flow of funds	3,128	11,571	2,784	10,089	-5.7
Rank		64		63	56

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	178	Project & office managers	-620
Manufacturers	122	Computing professionals	-551
Secretaries & personal assistants	72	Misc. business & info. prof.	-461
Town planners	31	Higher education teachers	-436
Ambulance & paramedics	28	Accountants	-397

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	41,014	61
Patent applications per 1,000 people	1.0	29
Tertiary degree attainment	0.21	44
University enrolments 1998	2.4	55
Global workers/100	47	33
Skill sustainability/100	51	18

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	24.4	17
Commercial floor space per capita (1998-2001)	0.7	57

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	30.9	61
Demand (1998)	101.2	58

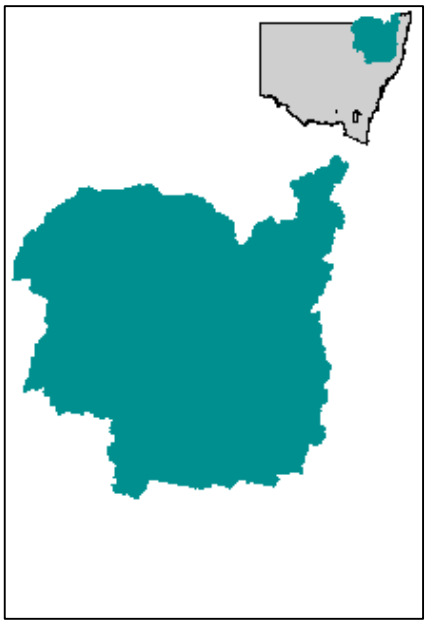
SOCIAL

	Value	Rank
High income families -%	1.0	61
Social benefits as a % of net flow of funds	33.6	64

NSW North

The NSW North comprises three distinct sub-regions.

- Tamworth is the centre for a mixed farming area.
- The New England sub-region is a high plateau, devoted mainly to pasture for beef and wool. Armidale stands out as an academic centre.
- Narrabri and Moree Plains Shires comprise black-soil country which is farmed quite intensively. Crops include wheat, sorghum and cotton.



Major centres:

Tamworth, Armidale, Moree

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	175,883		173,810		-0.4
No. households	65,586		67,131		0.8
Workforce	87,963	50.0	86,109	49.5	-0.7
Employment	76,491		74,772		-0.8
Unemployment	11,471	13.0	11,337	13.2	-0.4
Structural U/E	13,224	15.6	14,467	15.6	3.0
DEWRSB U/E	5.720	6.7	4,775	5.9	-5.8

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,273	13,023	2,414	13,887	3.0
Taxes paid	473	2,710	480	2,764	0.8
GST paid			215	1,237	
Benefits	415	2,380	451	2,593	4.2
Business income	284	1,629	292	1,681	1.4
Interest/dividends	95	546	105	603	4.9
Interest paid	182	1,044	291	1,676	26.4
Net property income	11	62	13	74	8.7
Net flow of funds	2,424	13,886	2,288	13,161	-2.9
Rank		44		44	46

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	211	Project & office managers	-458
Construction managers	199	Computing professionals	-425
Medical & science technical officers	77	Misc. business & info. prof.	-368
Ambulance & paramedics	40	Sales & marketing managers	-270
Manufacturers	37	Accountants	-198

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	55,224	31
Patent applications per 1,000 people	0.9	35
Tertiary degree attainment	0.23	32
University enrolments 1998	3.6	22
Global workers/100	62	15
Skill sustainability/100	48	25

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	8.8	61
Commercial floor space per capita (1998-2001)	0.9	50

RESEARCH & DEVELOPMENT

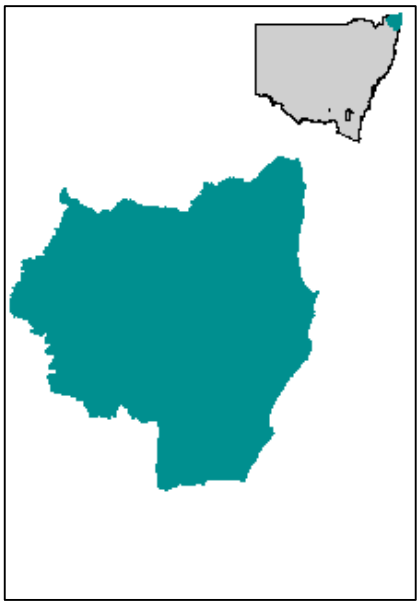
	Value ($)	Rank
Supply (1998)	347.8	5
Demand (1998)	128.1	47

SOCIAL

	Value	Rank
High income families -%	13.4	33
Social benefits as a % of net flow of funds	19.7	49

NSW Richmond-Tweed

Until its discovery by 1960s dropouts, tourists and retirement developers, Richmond/Tweed consisted of pockets of fertile agricultural land interspersed between scrubby hills. 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; it is beyond commuting range of any major job centre.



Major centres:

Lismore, Tweed Heads

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	206,753		212,895		1.0
No. households	84,240		88,628		1.7
Workforce	91,750	44.4	91,161	42.8	-0.2
Employment	72,795		71,729		-0.5
Unemployment	18,954	20.7	19,432	21.3	0.8
Structural U/E	21,428	24.0	23,582	23.3	3.2
DEWRSB U/E	12,484	14.0	10,536	12.1	-5.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,059	9,860	2,104	9,884	1.1
Taxes paid	436	2,088	443	2,080	0.8
GST paid			267	1,252	
Benefits	615	2,947	675	3,171	4.7
Business income	274	1,312	280	1,314	1.1
Interest/dividends	100	481	110	515	4.4
Interest paid	200	957	299	1,406	22.4
Net property income	10	46	11	53	8.7
Net flow of funds	2,422	11,601	2,171	10,198	-5.3
Rank		63		62	56

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Manufacturers	118	Project & office managers	-439
Advanced clerical & service workers	72	Computing professionals	-418
Construction managers	48	Misc. business & info. prof.	-313
Trade & wholesale managers	46	Accountants	-297
Ambulance & paramedics	38	Sales & marketing managers	-241

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	40,061	64
Patent applications per 1,000 people	1.1	22
Tertiary degree attainment	0.26	16
University enrolments 1998	3.1	37
Global workers/100	52	25
Skill sustainability/100	51	19

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	21.3	28
Commercial floor space per capita (1998-2001)	0.7	58

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	152.9	27
Demand (1998)	130.7	46

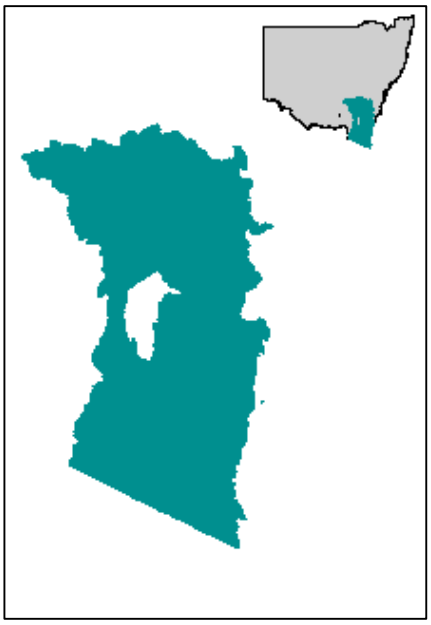
SOCIAL

	Value	Rank
High income families -%	1.0	61
Social benefits as a % of net flow of funds	31.1	63

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, but now it divides between the Canberra hobby-farm belt and Sydney's winter playground in Snowy River Shire.
- An area of 'slopes' country in Boorowa, Harden and Young Shires. 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	Average annualised growth rate
Population	180,594		185,443		0.9
No. households	71,996		76,563		2.1
Workforce	96,933	53.7	88,097	47.5	-3.1
Employment	89,381		76,793		-4.9
Unemployment	7,553	7.8	11,303	12.8	14.4
Structural U/E	10,710	11.2	14,683	15.5	11.1
DEWRSB U/E	7,937	8.4	6,364	7.5	-7.1

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,401	13,252	2,203	11,878	-4.2
Taxes paid	533	2,939	541	2,917	0.8
GST paid			248	1,340	
Benefits	403	2,226	469	2,528	7.8
Business income	304	1,676	313	1,687	1.5
Interest/dividends	100	554	110	595	4.9
Interest paid	241	1,331	329	1,776	16.8
Net property income	8	43	9	49	8.7
Net flow of funds	2,442	13,479	1,985	10,705	-9.8
Rank		50		61	63

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	176	Higher education teachers	-205
Construction managers	169	Accountants	-169
Planning managers	146	Computing professionals	-131
Finance assoc. professionals	120	Sales & marketing managers	-130
Advanced clerical & service workers	102	Sales & marketing professionals	-91

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	49,156	47
Patent applications per 1,000 people	1.1	24
Tertiary degree attainment	0.27	15
University enrolments 1998	2.5	51
Global workers/100	58	19
Skill sustainability/100	50	22

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	25.4	16
Commercial floor space per capita (1998-2001)	0.7	60

RESEARCH & DEVELOPMENT

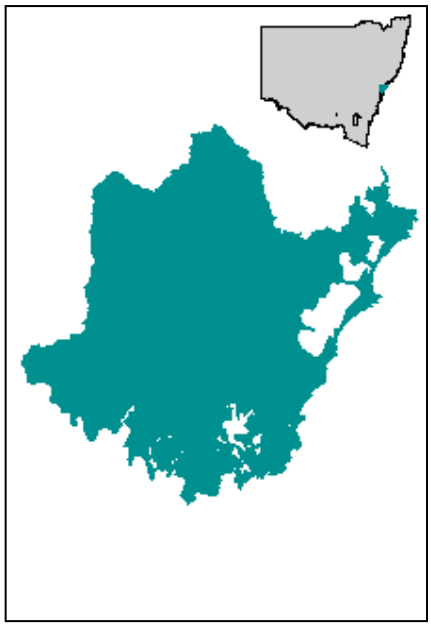
	Value ($)	Rank
Supply (1998)	201.7	20
Demand (1998)	99.5	59

SOCIAL

	Value	Rank
High income families -%	12.8	36
Social benefits as a % of net flow of funds	23.6	57

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.



Major centres:

Gosford, Wyong, The Entrance

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	281,251		296,620		1.8
No. households	108,769		117,468		2.6
Workforce	119,776	42.6	122,890	41.4	0.9
Employment	106,798		108,487		0.5
Unemployment	12,978	10.8	14,402	11.7	3.5
Structural U/E	19,578	16.5	21,517	15.8	3.2
DEWRSB U/E	9,629	8.1	8,980	7.4	-2.3

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	3,939	13,733	4,253	14,338	3.9
Taxes paid	931	3,247	946	3,189	0.8
GST paid			403	1,358	
Benefits	727	2,535	800	2,697	4.9
Business income	436	1,519	451	1,522	1.8
Interest/dividends	150	524	165	556	4.8
Interest paid	349	1,217	465	1,567	15.4
Net property income	5	17	6	19	8.7
Net flow of funds	3,976	13,864	3,861	13,017	-1.5
Rank		45		45	48

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	1,416	Higher education teachers	-259
Building & engineer. Assoc. prof.	643	Medical practitioners	-46
Advanced clerical & service workers	359	Planning managers	-12
Finance assoc. professionals	224	Legal professionals	-11
Science building & engineering prof.	148	Economists	-8

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	53,144	36
Patent applications per 1,000 people	0.9	33
Tertiary degree attainment	0.21	41
University enrolments 1998	2.5	54
Global workers/100	39	41
Skill sustainability/100	36	43

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	31.1	9
Commercial floor space per capita (1998-2001)	1.1	42

RESEARCH & DEVELOPMENT

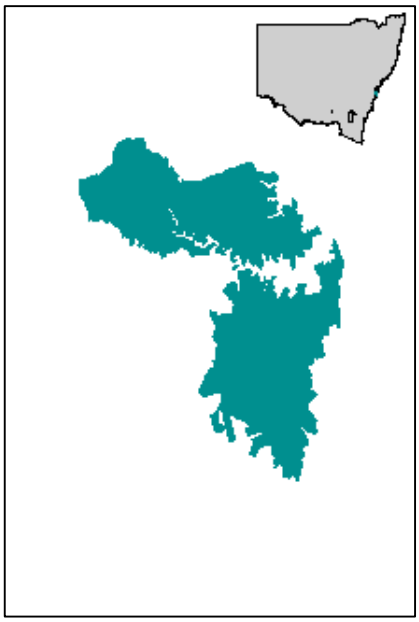
	Value ($)	Rank
Supply (1998)	72.2	49
Demand (1998)	203.4	23

SOCIAL

	Value	Rank
High income families -%	11.9	42
Social benefits as a % of net flow of funds	20.7	52

Global Sydney

Global Sydney comprises the CBD, the inner North Shore (parts of which have long been high-status suburbs, parts of which were once low-status suburbs but have gentrified, and all of which has been invaded by city centre functions), the eastern suburbs (of which much the same can be said) and the inner southern suburbs (parts of which 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	Average annualised growth rate
Population	669,986		694,086		1.2
No. households	282,535		300,049		2.0
Workforce	372,242	55.6	363,113	52.3	-0.8
Employment	350,376		349,660		-0.1
Unemployment	21,866	5.9	13,454	3.7	-14.9
Structural U/E	32,458	8.8	28,294	7.4	-4.5
DEWRSB U/E	16,277	4.4	12,740	3.5	-7.8

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	15,828	23,291	18,409	26,523	7.8
Taxes paid	4,811	7,079	4,887	7,041	0.8
GST paid			1,303	1,877	
Benefits	954	1,404	986	1,421	1.7
Business income	2,241	3,298	2,520	3,631	6.0
Interest/dividends	1,479	2,176	1,656	2,386	5.8
Interest paid	1,085	1,596	1,550	2,233	19.6
Net property income	155	228	184	264	8.7
Net flow of funds	14,762	21,722	16,016	23,074	4.2
Rank		1		3	8

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Medical practitioners	935	Secretaries & personal assistants	-8,989
Sales & marketing professionals	181	Advanced clerical & service workers	-7,788
Economists	(40)	Project & office managers	-7,347
Health services managers	(44)	Accountants	-6,807
Higher education teachers	(53)	Finance assoc. professionals	-6,508

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	87,396	1
Patent applications per 1,000 people	4.1	2
Tertiary degree attainment	0.38	3
University enrolments 1998	5.2	8
Global workers/100	90	4
Skill sustainability/100	76	3

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	26.2	15
Commercial floor space per capita (1998-2001)	4.9	2

RESEARCH & DEVELOPMENT

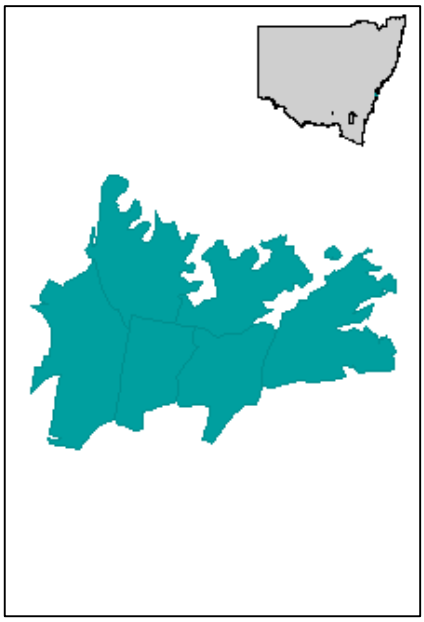
	Value ($)	Rank
Supply (1998)	252.9	13
Demand (1998)	153.0	41

SOCIAL

	Value	Rank
High income families -%	51.9	2
Social benefits as a % of net flow of funds	6.2	3

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. Traditionally lower to middle in socio-economic status (with Strathfield a bit more pretentious in the days of servants and mansions), it 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	Average annualised growth rate
Population	220,524		227,564		1.1
No. households	86,413		91,160		1.8
Workforce	116,878	53.0	135,056	59.3	4.9
Employment	110,487		130,360		5.7
Unemployment	6,392	5.5	4,696	3.5	-9.8
Structural U/E	11,912	10.2	10,884	7.7	-3.0
DEWRSB U/E	3,312	2.8	3,780	2.8	4.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	4,352	19,586	5,849	25,702	15.9
Taxes paid	1,207	5,430	1,226	5,386	0.8
GST paid			371	1,630	
Benefits	385	1,734	402	1,767	2.1
Business income	590	2,655	630	2,768	3.3
Interest/dividends	204	916	224	985	5.0
Interest paid	330	1,485	459	2,017	17.9
Net property income	31	140	37	162	8.7
Net flow of funds	4,026	18,117	5,086	22,351	12.4
Rank		6		4	1

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Accountants	961	Advanced clerical & service workers	-105
Secretaries & Personal assistants	929	Ambulance & paramedics	-10
Film, music & media prof.	888	Supply & distribution managers	8
Misc. business & info. prof.	829	Manufacturers	9
Legal professionals	803	Medical & science technical officers	12

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	76,047	4
Patent applications per 1,000 people	1.6	12
Tertiary degree attainment	0.35	5
University enrolments 1998	5.1	10
Global workers/100	89	5
Skill sustainability/100	67	6

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	21.6	26
Commercial floor space per capita (1998-2001)	0.7	59

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	90.3	40
Demand (1998)	161.3	40

SOCIAL

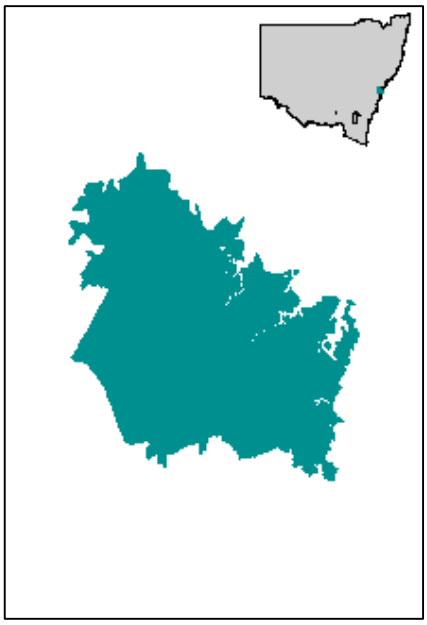
	Value	Rank
High income families -%	43.6	5
Social benefits as a % of net flow of funds	7.9	5

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. However, 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	Average annualised growth rate
Population	611,218		631,521		1.1
No. households	209,994		221,997		1.9
Workforce	329,683	53.9	346,873	54.9	1.7
Employment	318,494		339,380		2.1
Unemployment	11,189	3.4	7,494	2.2	-12.5
Structural U/E	14,158	4.4	12,938	3.6	-3.0
DEWRSB U/E	7,345	2.3	9,011	2.6	7.1

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	14,194	22,992	17,733	28,079	11.8
Taxes paid	4,110	6,657	4,175	6,611	0.8
GST paid			1,030	1,631	
Benefits	661	1,070	706	1,118	3.4
Business income	1,952	3,162	2,139	3,387	4.7
Interest/dividends	1,146	1,856	1,278	2,024	5.6
Interest paid	1,117	1,809	1,543	2,444	17.6
Net property income	55	89	65	103	8.7
Net flow of funds	12,781	20,704	15,173	24,046	9.0
Rank		4		1	2

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	8,388	Ambulance & paramedics	15
Accountants	4,867	Desktop publishers	56
General managers	4,066	Economists	97
Science building & engineering prof.	3,826	Town planners	105
Sales & marketing managers	3,645	Medical & science tech. officers	115

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	81,520	2
Patent applications per 1,000 people	1.9	9
Tertiary degree attainment	0.38	4
University enrolments 1998	5.5	6
Global workers/100	90	3
Skill sustainability/100	71	4

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.7	36
Commercial floor space per capita (1998-2001)	0.6	63

RESEARCH & DEVELOPMENT

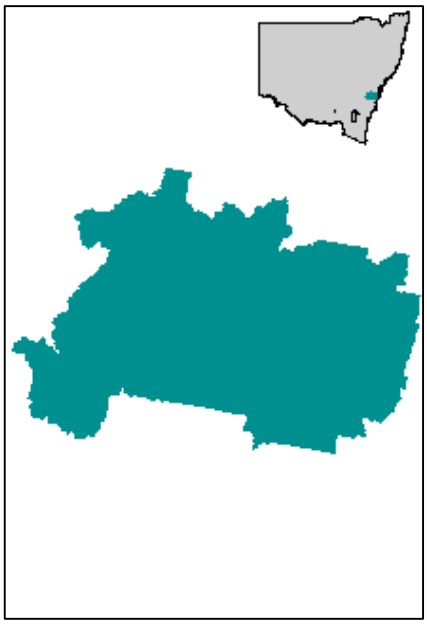
	Value ($)	Rank
Supply (1998)	250.5	14
Demand (1998)	245	14

SOCIAL

	Value	Rank
High income families -%	51.8	3
Social benefits as a % of net flow of funds	4.7	1

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 also a commuter and hobby farm area, and is bounded on two sides by water supply reserves.



Major centres:

Campbelltown

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	222,745		232,278		1.4
No. households	71,487		76,484		2.3
Workforce	120,858	54.3	129,728	55.9	2.4
Employment	111,111		119,282		2.4
Unemployment	9,747	8.1	10,446	8.1	2.3
Structural U/E	13,532	11.4	14,841	10.8	3.1
DEWRSB U/E	9,232	8.7	8,985	7.1	-0.9

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	3,630	16,075	4,245	18,274	8.1
Taxes paid	860	3,806	873	3,759	0.8
GST paid			288	1,239	
Benefits	394	1,745	432	1,861	4.7
Business income	373	1,650	388	1,669	2.0
Interest/dividends	63	278	70	299	5.2
Interest paid	364	1,613	476	2,049	14.3
Net property income	-8	-36	-10	-42	8.7
Net flow of funds	3,228	14,293	3,488	15,015	4.0
Rank		37		25	11

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	1,772	Higher education teachers	-239
Advanced clerical & service workers	626	Construction managers	-40
Building & engineering assoc. prof.	616	Medical practitioners	-34
Project & office managers	471	Planning managers	-17
Accountants	372	Legal professionals	-4

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	51,864	43
Patent applications per 1,000 people	0.8	41
Tertiary degree attainment	0.21	47
University enrolments 1998	2.9	40
Global workers/100	20	63
Skill sustainability/100	10	64

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	22.5	21
Commercial floor space per capita (1998-2001)	1.3	37

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	40.3	59
Demand (1998)	228.7	16

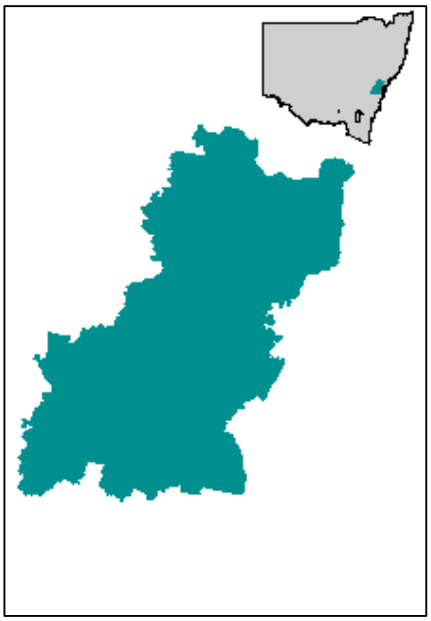
SOCIAL

	Value	Rank
High income families -%	15.4	28
Social benefits as a % of net flow of funds	12.4	16

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.



Major centres:

Penrith, Katoomba

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	308,159		316,392		0.9
No. households	104,529		110,063		1.7
Workforce	160,061	51.9	177,121	56.0	3.4
Employment	147,177		164,218		3.7
Unemployment	12,884	8.0	12,903	7.3	0.0
Structural U/E	16,390	10.5	17,360	9.3	1.9
DEWRSB U/E	11,351	7.3	7,906	4.6	-11.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	5,077	16,321	6,088	19,241	9.5
Taxes paid	1,221	3,924	1,240	3,919	0.8
GST paid			415	1,312	
Benefits	526	1,691	573	1,810	4.4
Business income	565	1,818	588	1,860	2.0
Interest/dividends	117	375	129	406	4.9
Interest paid	514	1,653	676	2,138	14.7
Net property income	-7	-23	-9	-27	8.7
Net flow of funds	4,543	14,604	5,037	15,921	5.3
Rank		32		16	5

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,341	Higher education teachers	-158
Building & engineering assoc. prof.	1,051	Medical practitioners	-142
Advanced clerical & service workers	809	Construction managers	-49
Project & office managers	709	Economists	-5
Accountants	653	Trade & wholesale managers	7

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	55,566	29
Patent applications per 1,000 people	1.0	30
Tertiary degree attainment	0.26	18
University enrolments 1998	3.4	26
Global workers/100	37	43
Skill sustainability/100	26	54

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	18.0	44
Commercial floor space per capita (1998-2001)	1.1	43

RESEARCH & DEVELOPMENT

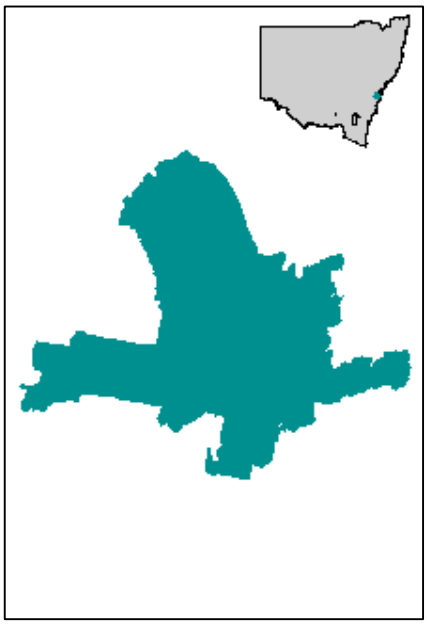
	Value ($)	Rank
Supply (1998)	25.4	63
Demand (1998)	163.7	39

SOCIAL

	Value	Rank
High income families -%	20.8	15
Social benefits as a % of net flow of funds	11.4	14

Sydney Mid West

The Mid West of Sydney is a large region, stretching west from Marrickville, and including several important urban centres: Bankstown, Parramatta, Liverpool and Blacktown. These are important centres of retailing, and 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.



Major centres:

Bankstown, Parramatta, Liverpool

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	1,251,881		1,299,441		1.3
No. households	420,487		446,098		2.0
Workforce	597,890	47.8	625,379	48.1	1.5
Employment	533,497		561,809		1.7
Unemployment	64,393	10.8	63,570	10.2	-0.4
Structural U/E	108,751	18.4	112,955	16.7	1.3
DEWRSB U/E	53,579	9.3	41,279	6.7	-8.3

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	17,947	14,191	20,127	15,489	5.9
Taxes paid	4,234	3,348	4,301	3,310	0.8
GST paid			1,590	1,224	
Benefits	2,726	2,156	3,003	2,311	5.0
Business income	2,003	1,584	2,075	1,597	1.8
Interest/dividends	348	275	378	291	4.2
Interest paid	1,532	1,211	2,050	1,578	15.7
Net property income	10	8	11	9	8.7
Net flow of funds	17,268	13,654	17,652	13,585	1.0
Rank		47		42	30

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,510	Project & office managers	-2,143
Accountants	1,673	Sales & marketing managers	-1,909
Computing professionals	1,655	General managers	-1,643
Building & engineering assoc. prof.	1,015	Higher education teachers	-1,112
Computing support technicians	824	Construction managers	-1,085

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	58,178	23
Patent applications per 1,000 people	1.2	16
Tertiary degree attainment	0.21	42
University enrolments 1998	3.3	31
Global workers/100	22	61
Skill sustainability/100	11	63

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	20.5	31
Commercial floor space per capita (1998-2001)	1.7	23

RESEARCH & DEVELOPMENT

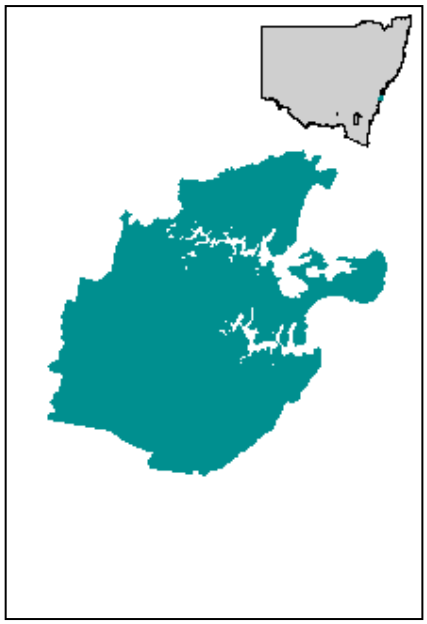
	Value ($)	Rank
Supply (1998)	83.4	43
Demand (1998)	331.8	5

SOCIAL

	Value	Rank
High income families -%	12.2	39
Social benefits as a % of net flow of funds	17.0	37

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.



Major centres:

Hurstville, Miranda

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	420,959		434,514		1.1
No. households	152,956		162,511		2.0
Workforce	217,496	51.7	224,150	51.6	1.0
Employment	206,269		214,372		1.3
Unemployment	11,227	5.2	9,778	4.4	-4.5
Structural U/E	17,408	8.1	17,036	7.3	-0.7
DEWRSB U/E	9,320	4.3	7,380	3.3	-7.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	7,981	18,803	9,171	21,107	7.2
Taxes paid	2,055	4,841	2,087	4,804	0.8
GST paid			646	1,487	
Benefits	687	1,618	742	1,707	3.9
Business income	1,020	2,403	1,075	2,474	2.6
Interest/dividends	376	885	414	952	4.9
Interest paid	628	1,478	858	1,974	16.9
Net property income	22	51	25	59	8.7
Net flow of funds	7,403	17,441	7,836	18,033	2.9
Rank		11		10	14

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	5,203	Higher education teachers	-91
Accountants	2,521	Economists	11
Science building & engineering prof.	1,695	Ambulance & paramedics	29
Project & office managers	1,483	Desktop publishers	37
Building & engineering assoc. prof.	1,472	Town planners	39

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	70,621	6
Patent applications per 1,000 people	1.6	13
Tertiary degree attainment	0.29	13
University enrolments 1998	3.7	20
Global workers/100	60	17
Skill sustainability/100	37	40

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	22.8	19
Commercial floor space per capita (1998-2001)	0.4	64

RESEARCH & DEVELOPMENT

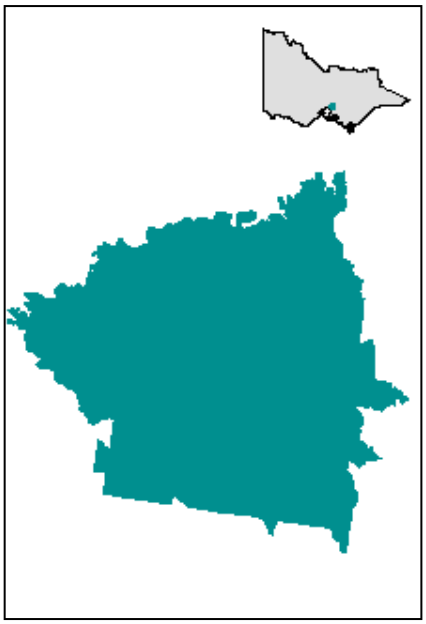
	Value ($)	Rank
Supply (1998)	258.1	10
Demand (1998)	176.9	32

SOCIAL

	Value	Rank
High income families -%	32.5	9
Social benefits as a % of net flow of funds	9.5	8

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	Average annualised growth rate
Population	815,655		835,590		0.8
No. households	287,708		303,182		1.8
Workforce	439,859	53.9	465,525	55.7	1.9
Employment	414,201		442,321		2.2
Unemployment	25,658	5.8	23,204	5.0	-3.3
Structural U/E	34,805	8.0	33,583	7.0	-1.2
DEWRSB U/E	28,901	6.7	21,915	4.8	-8.8

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	15,455	18,780	18,471	22,105	9.3
Taxes paid	3,937	4,783	4,038	4,832	1.3
GST paid			1,231	1,473	
Benefits	1,316	1,599	1,432	1,713	4.3
Business income	2,290	2,782	2,442	2,923	3.3
Interest/dividends	858	1,043	982	1,175	7.0
Interest paid	1,179	1,432	1,568	1,876	15.3
Net property income	103	126	122	146	8.7
Net flow of funds	14,907	18,114	16,613	19,881	5.6
Rank		7		7	4

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	4,116	Ambulance and paramedics	-58
Accountants	4,013	Desktop publishers	24
Computing professionals	3,214	Medical & science tech. officers	59
Science building & engineering prof.	3,160	Health services managers	69
Project & office managers	2,981	Town planners	86

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	64,096	10
Patent applications per 1,000 people	1.8	10
Tertiary degree attainment	0.33	8
University enrolments 1998	5.7	5
Global workers/100	76	9
Skill sustainability/100	59	11

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.0	41
Commercial floor space per capita (1998-2001)	1.5	31

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	279.9	8
Demand (1998)	241.6	15

SOCIAL

	Value	Rank
High income families -%	35.5	7
Social benefits as a % of net flow of funds	8.6	7

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. Several sub-regions may be recognised.

- West Gippsland is an intensive dairy farming region, with some timber milling and commuting to Melbourne. Its main centre is Warragul.
- South Gippsland is also an intensive dairy farming region, with coastal retirement areas and resorts. Leongatha is emerging as the main centre, but Korumburra and Wonthaggi would dispute this.
- The Latrobe Valley is the centre of Victorian power generation based on brown coal. The actual production of power generates relatively little employment, and the Valley has suffered a difficult transition following the cessation of construction of new power plants. The Valley also has an important plantation-based paper industry.
- East Gippsland has patches of intensive agriculture and a retirement area round Lakes Entrance. Many of its small towns are making the difficult transition from old forest to plantation-based timber production.

Major centres:

Warragul, Traralgon, Bairnsdale

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	234,520		235,257		0.1
No. households	88,128		92,849		1.8
Workforce	109,993	46.9	100,576	42.8	-2.9
Employment	96,412		84,800		-4.2
Unemployment	13,582	12.3	15,776	15.7	5.1
Structural U/E	16,951	15.7	19,559	18.0	4.9
DEWRSB U/E	11,009	10.2	9,041	9.4	-6.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	3,119	13,354	3,008	12,791	-1.8
Taxes paid	630	2,696	646	2,746	1.3
GST paid			276	1,175	
Benefits	578	2,474	635	2,702	4.9
Business income	420	1,798	433	1,841	1.5
Interest/dividends	101	431	113	479	5.8
Interest paid	260	1,115	350	1,489	16.0
Net property income	9	39	11	46	8.7
Net flow of funds	3,337	14,284	2,927	12,447	-6.3
Rank		38		53	57

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Advanced clerical & service workers	304	Computing professionals	-409
Construction managers	235	Sales & marketing managers	-244
Building & engineering assoc. prof.	151	Higher education teachers	-213
Medical & science technical officers	95	Misc. business & info. prof.	-203
Manufacturers	57	Accountants	-175

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	53,209	35
Patent applications per 1,000 people	0.8	40
Tertiary degree attainment	0.21	39
University enrolments 1998	2.5	50
Global workers/100	66	13
Skill sustainability/100	56	15

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	20.2	33
Commercial floor space per capita (1998-2001)	3.4	6

RESEARCH & DEVELOPMENT

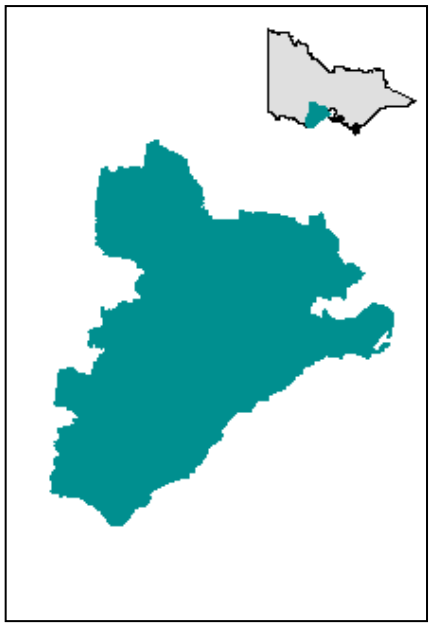
	Value ($)	Rank
Supply (1998)	79.8	46
Demand (1998)	144.1	42

SOCIAL

	Value	Rank
High income families -%	12.6	38
Social benefits as a % of net flow of funds	21.7	54

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, and has suffered from the decline of manufacturing, particularly the textile industry. The region also includes resort and retirement communities and agricultural areas.



Major centres:

Geelong

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	242,796		252,886		1.4
No. households	90,751		98,049		2.6
Workforce	117,308	48.3	118,682	46.9	0.4
Employment	102,953		103,608		0.2
Unemployment	14,355	12.2	15,074	12.7	1.6
Structural U/E	17,089	14.8	18,877	14.9	3.4
DEWRSB U/E	11,540	10.0	9,126	7.9	-7.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	3,518	14,340	3,790	14,989	3.8
Taxes paid	780	3,177	800	3,162	1.3
GST paid			314	1,243	
Benefits	580	2,366	635	2,512	4.6
Business income	431	1,756	447	1,766	1.8
Interest/dividends	140	569	158	626	6.5
Interest paid	279	1,137	371	1,467	15.3
Net property income	15	62	18	71	8.7
Net flow of funds	3,626	14,779	3,564	14,092	-0.9
Rank		26		39	41

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	246	Computing professionals	-230
Finance assoc. professionals	168	Sales & marketing managers	-139
Medical & science technical officers	128	Medical practitioners	-102
Advanced clerical & service workers	103	Sales & marketing professionals	-92
Construction managers	97	General managers	-88

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	52,833	37
Patent applications per 1,000 people	0.7	50
Tertiary degree attainment	0.23	27
University enrolments 1998	3.5	25
Global workers/100	47	32
Skill sustainability/100	40	36

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	30.2	10
Commercial floor space per capita (1998-2001)	6.0	1

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	351.9	3
Demand (1998)	293.5	7

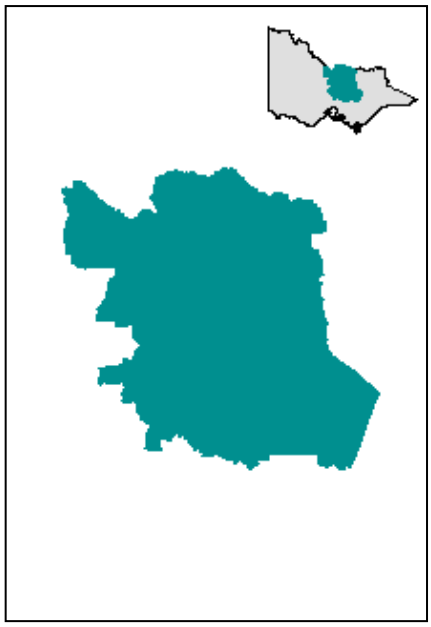
SOCIAL

	Value	Rank
High income families -%	13.3	35
Social benefits as a % of net flow of funds	17.8	41

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 between Seymour, where the river leaves the hills, and the Murray River. 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.



Major centres:

Shepparton

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	185,643		189,912		0.8
No. households	67,626		71,780		2.0
Workforce	93,236	50.2	96,761	51.0	1.2
Employment	82,997		86,403		1.3
Unemployment	10,238	11.0	10,358	10.7	0.4
Structural U/E	12,545	13.8	13,407	13.0	2.2
DEWRSB U/E	6,584	7.3	6,455	6.9	-0.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,654	14,233	2,930	15,428	5.1
Taxes paid	482	2,586	495	2,605	1.3
GST paid			221	1,165	
Benefits	417	2,238	455	2,394	4.4
Business income	399	2,141	410	2,156	1.3
Interest/dividends	90	484	101	533	5.9
Interest paid	231	1,240	307	1,617	15.2
Net property income	11	57	12	66	8.7
Net flow of funds	2,858	15,326	2,885	15,190	0.5
Rank		22		24	34

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	124	Computing professionals	-359
Advanced clerical & service workers	62	Higher education teachers	-286
Finance assoc. professionals	53	Sales & marketing managers	-230
Medical & science technical officers	47	Accountants	-186
Manufacturers	43	Project & office managers	-174

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	48,041	52
Patent applications per 1,000 people	0.7	49
Tertiary degree attainment	0.20	51
University enrolments 1998	2.6	46
Global workers/100	65	14
Skill sustainability/100	42	33

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	22.5	22
Commercial floor space per capita (1998-2001)	2.1	17

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	156.7	26
Demand (1998)	206.7	22

SOCIAL

	Value	Rank
High income families -%	9.0	51
Social benefits as a % of net flow of funds	15.8	31

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	Average annualised growth rate
Population	282,265		304,254		2.5
No. households	127,386		142,184		3.7
Workforce	169,207	59.9	163,474	53.7	-1.1
Employment	147,051		151,600		1.0
Unemployment	22,156	13.1	11,874	7.3	-18.8
Structural U/E	27,395	16.4	20.777	11.9	-8.8
DEWRSB U/E	10,927	6.5	8,808	5.3	-6.9

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	6,261	21,788	7,659	25,174	10.6
Taxes paid	1,815	6,316	1,862	6,118	1.3
GST paid			545	1,791	
Benefits	536	1,865	516	1,695	-1.9
Business income	1,051	3,658	1,160	3,812	5.0
Interest/dividends	515	1,792	597	1,961	7.7
Interest paid	411	1,431	565	1,856	17.2
Net property income	56	195	66	217	8.7
Net flow of funds	6,192	21,550	7,026	23,094	6.5
Rank		2		2	6

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Higher education teachers	395	Secretaries & personal assistants	-10,261
Economists	(56)	Accountants	-7,327
Desktop publishers	(106)	Project & office managers	-6,528
Trade & wholesale managers	(112)	Advanced clerical & service workers	-6,326
Health services managers	(163)	Finance assoc. professionals	-5,826

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	77,748	3
Patent applications per 1,000 people	6.2	1
Tertiary degree attainment	0.40	1
University enrolments 1998	7.1	1
Global workers/100	99	1
Skill sustainability/100	90	1

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	52.6	1
Commercial floor space per capita (1998-2001)	3.7	5

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	341.8	6
Demand (1998)	116.8	54

SOCIAL

	Value	Rank
High income families -%	52.5	1
Social benefits as a % of net flow of funds	7.3	4

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.

Major centres:

Bendigo, Castlemaine

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	160,190		163,265		0.6
No. households	59,170		62,436		1.8
Workforce	74,777	46.7	73,155	44.8	-0.7
Employment	65,306		63,503		-0.9
Unemployment	9,471	12.7	9,653	13.2	0.6
Structural U/E	11,607	15.8	12,662	15.9	2.9
DEWRSB U/E	6,785	9.2	5,818	8.2	-5.0

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,070	12,836	2,143	13,129	1.8
Taxes paid	428	2,652	439	2,687	1.3
GST paid			196	1,203	
Benefits	385	2,385	417	2,552	4.1
Business income	268	1,659	276	1,689	1.5
Interest/dividends	70	436	79	484	5.9
Interest paid	190	1,175	249	1,525	14.6
Net property income	7	43	8	50	8.7
Net flow of funds	2,182	13,533	2,039	12,489	-3.3
Rank		48		52	51

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Advanced clerical & service workers	210	Computing professionals	-139
Building & engineering assoc. prof.	160	Sales & marketing managers	-82
Project & office managers	101	Medical practitioners	-81
Finance assoc. professionals	95	Graphic designers	-53
Construction managers	76	Sales & marketing professionals	-34

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	46,698	58
Patent applications per 1,000 people	0.7	48
Tertiary degree attainment	0.23	31
University enrolments 1998	3.5	23
Global workers/100	59	18
Skill sustainability/100	48	26

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	20.5	32
Commercial floor space per capita (1998-2001)	1.3	39

RESEARCH & DEVELOPMENT

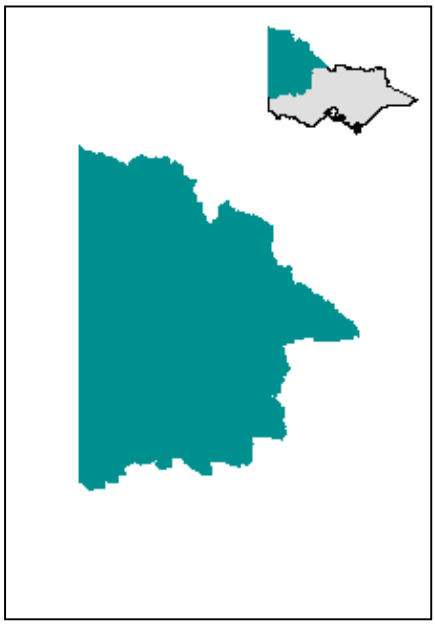
	Value ($)	Rank
Supply (1998)	29.2	62
Demand (1998)	202.8	24

SOCIAL

	Value	Rank
High income families -%	11.4	44
Social benefits as a % of net flow of funds	20.4	51

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; in the northern part of the region the Sunset country does not have sufficient rainfall to be worth clearing. Though wheat remains the basic crop, rain-fed agriculture is increasingly supplemented by oilseeds. Along the Murray there are irrigation areas: some of these have fallen on hard times due to saltation, but the intensive viticulture areas still prosper. Horsham is the chief town in the Wimmera, and Swan Hill and Mildura serve irrigation areas along the Murray.



Major centres:

Mildura, Horsham

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	139,666		139.905		0.1
No. households	52,852		54,974		1.3
Workforce	69,862	50.0	73,915	52.8	1.9
Employment	62,786		66,910		2.1
Unemployment	7,076	10.1	7,006	9.5	-0.3
Structural U/E	9,554	14.0	9,865	12.5	1.1
DEWRSB U/E	4,996	7.3	3,969	5.5	-7.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,954	14,002	2,266	16,195	7.7
Taxes paid	309	2,215	317	2,267	1.3
GST paid			157	1,125	
Benefits	319	2,286	342	2,446	3.6
Business income	304	2,180	311	2,220	1.0
Interest/dividends	65	468	73	520	5.6
Interest paid	163	1,169	219	1,568	15.9
Net property income	7	50	8	59	8.7
Net flow of funds	2,178	15,601	2,306	16,481	2.9
Rank		19		13	9

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	86	Computing professionals	-385
Ambulance & paramedics	44	Project & office managers	-354
Advanced clerical & service workers	30	Secretaries & personal assistants	-269
Finance assoc. professionals	16	Higher education teachers	-261
Manufacturers	16	Misc. business & info. Prof.	-258

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	49,018	48
Patent applications per 1,000 people	0.5	60
Tertiary degree attainment	0.18	60
University enrolments 1998	2.6	49
Global workers/100	73	10
Skill sustainability/100	50	23

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	15.3	47
Commercial floor space per capita (1998-2001)	2.4	13

RESEARCH & DEVELOPMENT

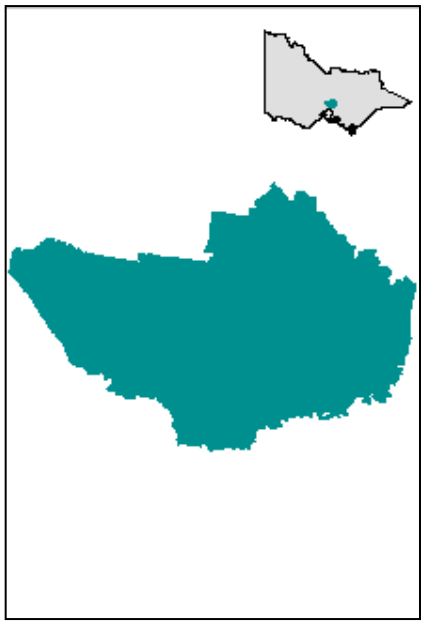
	Value ($)	Rank
Supply (1998)	185.2	23
Demand (1998)	117.8	53

SOCIAL

	Value	Rank
High income families -%	13.3	34
Social benefits as a % of net flow of funds	14.8	27

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, particularly textiles clothing and footwear, the region is becoming more of a commuter zone for Central Melbourne. By and large socio-economic status is low to middling, 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	Average annualised growth rate
Population	681,790		703,438		1.0
No. households	234,316		249,130		2.1
Workforce	343,455	50.4	348,668	49.6	0.5
Employment	306,237		311,969		0.6
Unemployment	37,218	10.8	36,700	10.5	-0.5
Structural U/E	54,405	16.1	55,596	14.9	0.7
DEWRSB U/E	28,392	8.4	26,213	7.7	-2.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	10,346	15,027	11,318	16,090	4.6
Taxes paid	2,394	3,478	2,456	3,491	1.3
GST paid			854	1,214	
Benefits	1,503	2,183	1,637	2,327	4.4
Business income	1,359	1,973	1,414	2,010	2.0
Interest/dividends	258	374	290	412	6.1
Interest paid	863	1,253	1,132	1,609	14.5
Net property income	48	69	56	80	8.7
Net flow of funds	10,256	14,896	10,274	14,605	0.1
Rank		25		31	37

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,312	Medical practitioners	-195
Project & office managers	1,675	Construction managers	-171
Accountants	1,527	Manufacturers	-131
Computing professionals	1,345	Production managers	-100
Advanced clerical & service workers	1,327	Trade & wholesale managers	-5

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,074	20
Patent applications per 1,000 people	1.0	31
Tertiary degree attainment	0.23	24
University enrolments 1998	4.1	12
Global workers/100	44	37
Skill sustainability/100	27	53

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	21.8	25
Commercial floor space per capita (1998-2001)	2.1	16

RESEARCH & DEVELOPMENT

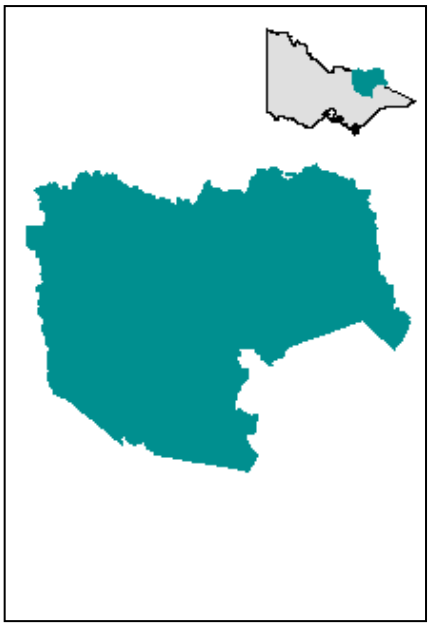
	Value ($)	Rank
Supply (1998)	198.4	22
Demand (1998)	350.8	3

SOCIAL

	Value	Rank
High income families -%	15.7	27
Social benefits as a % of net flow of funds	15.9	32

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. There were also decentralised footloose industries.



Major centres:

Wodonga, Wangaratta

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	90,102		91,611		0.6
No. households	33,278		35,079		1.8
Workforce	50,817	56.4	53,392	58.3	1.7
Employment	46,759		48,569		1.3
Unemployment	4,058	8.0	4,823	9.0	5.9
Structural U/E	5,460	10.8	5,962	10.6	3.0
DEWRSB U/E	3,241	6.4	3,080	5.9	-1.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,291	14,272	1,412	15,412	4.6
Taxes paid	258	2,848	264	2,884	1.3
GST paid			109	1,193	
Benefits	196	2,170	216	2,353	4.8
Business income	165	1,829	170	1,857	1.4
Interest/dividends	40	437	45	487	6.3
Interest paid	107	1,186	143	1,565	15.6
Net property income	4	49	5	57	8.7
Net flow of funds	1,332	14,723	1,330	14,523	0.0
Rank		27		34	35

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	93	Computing professionals	-170
Finance assoc. professionals	58	Project & office managers	-146
Ambulance & paramedics	28	Higher education teachers	-133
Medical & science technical officers	8	Misc. business & info. prof.	-126
Advanced clerical & service workers	8	Sales & marketing managers	-123

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	47,718	55
Patent applications per 1,000 people	0.8	45
Tertiary degree attainment	0.26	17
University enrolments 1998	3.4	27
Global workers/100	55	23
Skill sustainability/100	42	32

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	20.1	34
Commercial floor space per capita (1998-2001)	1.5	32

RESEARCH & DEVELOPMENT

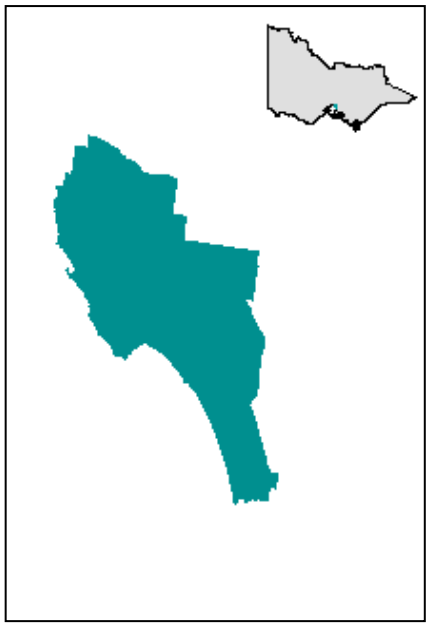
	Value ($)	Rank
Supply (1998)	116.7	32
Demand (1998)	251.2	11

SOCIAL

	Value	Rank
High income families -%	12.2	40
Social benefits as a % of net flow of funds	16.2	33

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	Average annualised growth rate
Population	343,879		353,650		0.9
No. households	132,277		139,411		1.8
Workforce	177,352	51.6	175,578	49.6	-0.3
Employment	164,452		164,712		0.1
Unemployment	12,900	7.3	10,865	6.2	-5.6
Structural U/E	17,989	10.3	17,020	9.3	-1.8
DEWRSB U/E	10,651	6.1	7,902	4.6	-9.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	6,343	18,284	7,203	20,369	6.6
Taxes paid	1,647	4,748	1,690	4,778	1.3
GST paid			535	1,513	
Benefits	634	1,826	675	1,909	3.2
Business income	966	2,784	1,031	2,914	3.3
Interest/dividends	392	1,129	447	1,263	6.8
Interest paid	482	1,390	636	1,798	14.8
Net property income	64	183	75	212	8.7
Net flow of funds	6,269	18,069	6,570	18,579	2.4
Rank		8		8	15

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	1,745	Ambulance and paramedics	-30
Computing professionals	1,497	Medical & science technical officers	-9
Accountants	1,478	Production managers	-7
Project & office managers	1,406	Desktop publishers	17
Science building & engineering prof.	1,040	Town planners	20

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	65,356	9
Patent applications per 1,000 people	1.9	8
Tertiary degree attainment	0.31	10
University enrolments 1998	4.6	11
Global workers/100	75	10
Skill sustainability/100	59	12

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	20.8	29
Commercial floor space per capita (1998-2001)	1.5	30

RESEARCH & DEVELOPMENT

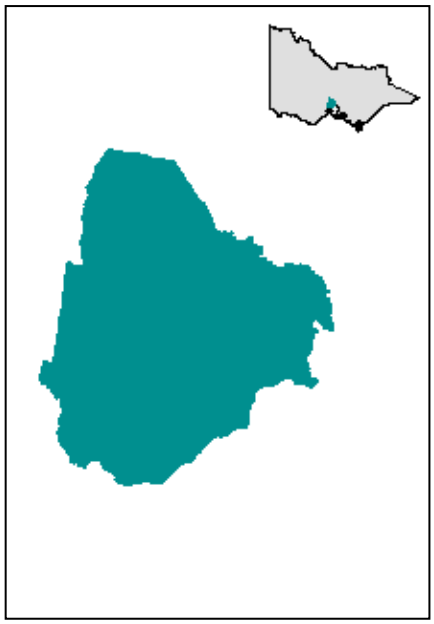
	Value ($)	Rank
Supply (1998)	348.0	4
Demand (1998)	451.9	1

SOCIAL

	Value	Rank
High income families -%	33.2	8
Social benefits as a % of net flow of funds	10.3	10

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 postwar immigrants. The decline of manufacturing as an employer has led to an increase in commuting to Central Melbourne, which is conveniently close.



Major centres:

Footscray, Werribee, Sunshine

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	539,607		569,499		1.8
No. households	187,807		206,060		3.1
Workforce	266,748	49.4	283,629	49.8	2.1
Employment	234,653		250,543		2.2
Unemployment	32,095	12.0	33,086	11.7	1.0
Structural U/E	47,912	18.2	51,063	16.8	2.1
DEWRSB U/E	25,260	9.6	22,182	8.0	-4.2

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	8,421	15,370	9,647	16,940	7.0
Taxes paid	1,939	3,540	1,989	3,493	1.3
GST paid			685	1,203	
Benefits	1,213	2,213	1,338	2,350	5.1
Business income	1,045	1,908	1,088	1,910	2.0
Interest/dividends	161	293	179	315	5.6
Interest paid	663	1,210	872	1,532	14.7
Net property income	21	39	25	44	8.7
Net flow of funds	8,259	15,074	8,731	15,330	2.8
Rank		23		21	23

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	1,838	Construction managers	-244
Accountants	1,158	Higher education teachers	-238
Project & office managers	1,010	General managers	-161
Computing professionals	922	Sales & marketing managers	-123
Advanced clerical & service workers	846	Medical practitioners	-85

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	58,300	22
Patent applications per 1,000 people	0.9	38
Tertiary degree attainment	0.20	50
University enrolments 1998	3.8	19
Global workers/100	29	56
Skill sustainability/100	15	61

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	34.0	6
Commercial floor space per capita (1998-2001)	3.1	7

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	199.0	21
Demand (1998)	396.8	2

SOCIAL

	Value	Rank
High income families -%	15.9	25
Social benefits as a % of net flow of funds	15.3	29

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 two main centres, Warrnambool, which following the decline of the textile and clothing industry is mainly a commercial centre, and Portland, which is both a port and heavy industrial town.

Major centres:

Warrnambool, Hamilton, Portland

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	99,477		98,463		-0.3
No. households	37,240		38,391		1.0
Workforce	50,489	50.8	51,474	52.3	0.6
Employment	45,915		46,369		0.3
Unemployment	4,574	9.1	5,106	9.9	3.7
Structural U/E	6,189	12.4	6,598	12.1	2.2
DEWRSB U/E	3,832	7.7	3,127	6.2	-6.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,464	14,799	1,621	16,458	5.2
Taxes paid	259	2,614	265	2,694	1.3
GST paid			116	1,178	
Benefits	217	2,197	237	2,405	4.4
Business income	222	2,242	228	2,312	1.3
Interest/dividends	55	558	62	631	6.1
Interest paid	120	1,215	163	1,658	16.5
Net property income	6	66	8	78	8.7
Net flow of funds	1,586	16,032	1,610	16,354	0.7
Rank		16		14	20

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	94	Computing professionals	-263
Medical & science technical officers	19	Secretaries & personal assistants	-239
Ambulance & paramedics	14	Project & office managers	-197
Finance assoc. professionals	7	Misc. business & info. prof.	-194
Desktop publishers	0	Accountants	-157

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	48,511	50
Patent applications per 1,000 people	0.6	57
Tertiary degree attainment	0.21	46
University enrolments 1998	3.1	35
Global workers/100	70	12
Skill sustainability/100	58	13

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	11.6	57
Commercial floor space per capita (1998-2001)	1.5	29

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	104.9	36
Demand (1998)	170.1	33

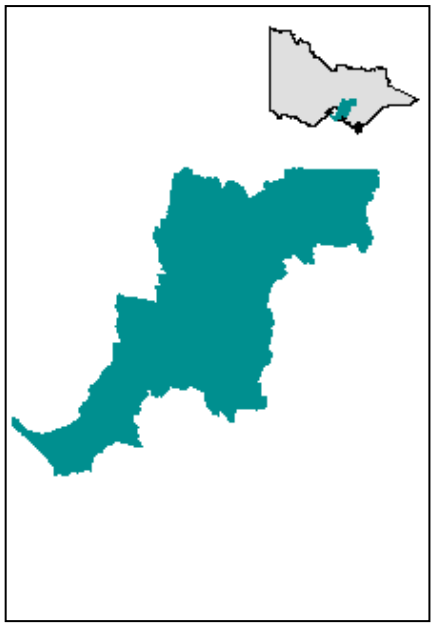
SOCIAL

	Value	Rank
High income families -%	10.4	46
Social benefits as a % of net flow of funds	14.7	25

Melbourne Westernport

The Westernport region lies more than 25 km from Melbourne CBD, and is accordingly outer suburban. It 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	Average annualised growth rate
Population	708,849		749,800		1.9
No. households	246,814		269,550		3.0
Workforce	353,038	49.8	386,563	51.6	3.1
Employment	321,294		349,303		2.8
Unemployment	31,744	9.0	37,260	9.6	5.5
Structural U/E	44,633	12.8	51,543	12.6	4.9
DEWRSB U/E	30,599	8.8	24,889	6.6	-6.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	10,693	14,832	12,383	16,515	7.6
Taxes paid	2,386	3,309	2,447	3,264	1.3
GST paid			927	1,236	
Benefits	1,447	2,007	1,608	2,145	5.4
Business income	1,326	1,839	1,374	1,832	1.8
Interest/dividends	326	453	373	497	6.8
Interest paid	1,014	1,406	1,324	1,765	14.3
Net property income	36	50	43	57	8.7
Net flow of funds	10,430	14,466	11,083	14,782	3.1
Rank		35		27	17

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,888	Higher education teachers	-564
Advanced clerical & service workers	2,206	Medical practitioners	-343
Building & engineering assoc. prof.	1,593	Legal professionals	-87
Project & office managers	1,480	Economists	-24
Computing professionals	877	Planning managers	-13

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	52,094	40
Patent applications per 1,000 people	1.3	14
Tertiary degree attainment	0.21	48
University enrolments 1998	2.9	41
Global workers/100	28	58
Skill sustainability/100	24	55

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	32.2	7
Commercial floor space per capita (1998-2001)	2.5	10

RESEARCH & DEVELOPMENT

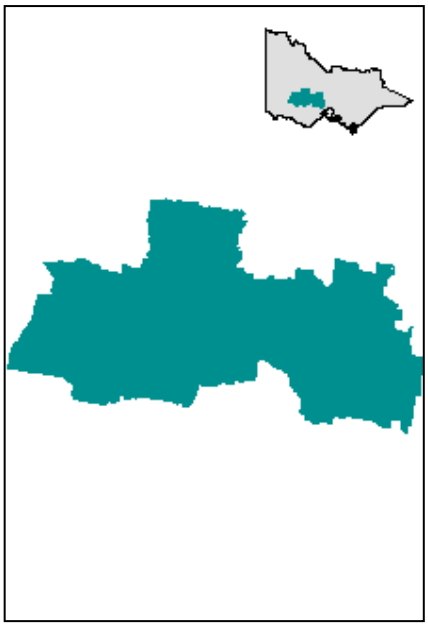
	Value ($)	Rank
Supply (1998)	40.2	60
Demand (1998)	277.1	8

SOCIAL

	Value	Rank
High income families -%	11.9	43
Social benefits as a % of net flow of funds	14.5	23

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 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

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	136,446		139,303		0.7
No. households	50,404		53,050		1.7
Workforce	67,411	49.4	77,507	55.6	4.8
Employment	58,489		68,850		5.6
Unemployment	8,923	13.2	8,658	11.2	-1.0
Structural U/E	10,694	16.2	11,280	13.6	1.8
DEWRSB U/E	8,117	12.8	6,028	7.9	-9.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,824	13,293	2,288	16,426	12.0
Taxes paid	384	2,799	394	2,828	1.3
GST paid			167	1,201	
Benefits	335	2,439	361	2,592	3.9
Business income	223	1,628	230	1,654	1.5
Interest/dividends	66	481	75	539	6.6
Interest paid	158	1,148	208	1,490	14.8
Net property income	6	40	7	47	8.7
Net flow of funds	1,912	13,935	2,192	15,739	7.1
Rank		42		17	3

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	120	Medical practitioners	-134
Building & engineering assoc. prof.	84	Sales & marketing managers	-101
Finance assoc. professionals	64	Computing professionals	-99
Manufacturers	55	Science building & engineer. Prof.	-87
Construction managers	41	Film, music & media prof.	-75

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	47,792	54
Patent applications per 1,000 people	0.7	47
Tertiary degree attainment	0.22	34
University enrolments 1998	3.6	21
Global workers/100	56	21
Skill sustainability/100	49	24

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.5	37
Commercial floor space per capita (1998-2001)	1.8	21

RESEARCH & DEVELOPMENT

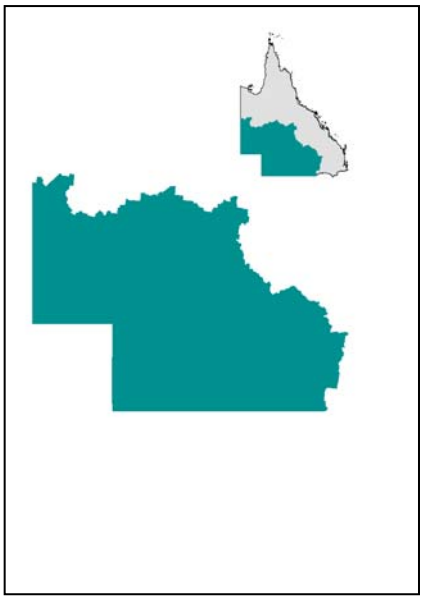
	Value ($)	Rank
Supply (1998)	17.9	64
Demand (1998)	183.9	29

SOCIAL

	Value	Rank
High income families -%	10.0	48
Social benefits as a % of net flow of funds	16.5	36

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 has yielded few major mineral discoveries.



Major centres:

Roma, Longreach

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	38,266		37,887		-0.3
No. households	14,519		14,809		0.7
Workforce	23,292	60.9	24,291	64.1	1.4
Employment	21,229		22,799		2.4
Unemployment	2,063	8.9	1,491	6.1	-10.3
Structural U/E	2,399	10.6	2,230	8.8	-2.4
DEWRSB U/E	917	4.1	891	3.7	-1.0

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	619	16,329	672	17,736	4.2
Taxes paid	105	2,768	106	2,799	0.5
GST paid			42	1,102	
Benefits	73	1,915	67	1,769	-3.9
Business income	98	2,589	101	2,669	1.5
Interest/dividends	15	389	16	420	3.9
Interest paid	45	1,176	59	1,563	15.3
Net property income	0	-12	-1	-13	8.3
Net flow of funds	655	17,266	648	17,117	-0.5
Rank		12		11	33

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Advanced clerical & service workers	33	Computing professionals	-119
Manufacturers	28	Higher education teachers	-95
Health services managers	27	Accountants	-91
Ambulance & paramedics	22	Misc. business & info. prof.	-84
Building & engineering assoc. prof.	17	Secretaries & personal assistants	-83

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	52,070	41
Patent applications per 1,000 people	0.6	56
Tertiary degree attainment	0.19	54
University enrolments 1998	2.5	52
Global workers/100	51	27
Skill sustainability/100	59	9

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	7.6	62
Commercial floor space per capita (1998-2001)	0.8	55

RESEARCH & DEVELOPMENT

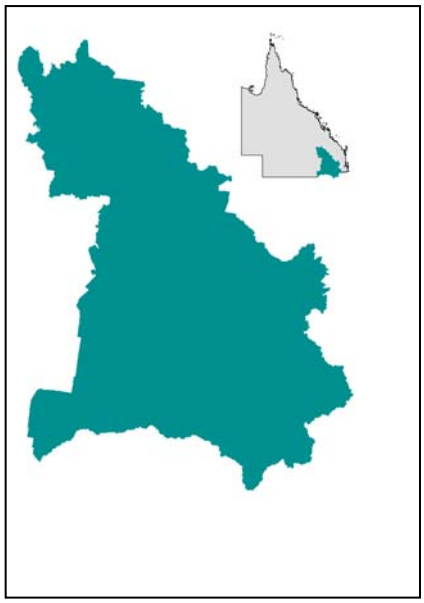
	Value ($)	Rank
Supply (1998)	255.0	12
Demand (1998)	67.1	63

SOCIAL

	Value	Rank
High income families -%	24.0	14
Social benefits as a % of net flow of funds	10.3	11

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.



Major centres:

Toowoomba, Warwick

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	200,758		204,588		0.6
No. households	73,579		76,920		1.5
Workforce	100,548	50.1	108,677	53.1	2.6
Employment	91,267		98,345		2.5
Unemployment	9,281	9.2	10,332	9.5	3.6
Structural U/E	12,365	12.6	13,645	11.8	3.3
DEWRSB U/E	5,918	6.1	4,762	4.5	-7.0

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,715	13,498	3,032	14,819	5.7
Taxes paid	554	2,755	560	2,738	0.5
GST paid			226	1,105	
Benefits	439	2,185	484	2,367	5.0
Business income	398	1,977	408	1,997	1.4
Interest/dividends	84	419	91	447	4.1
Interest paid	213	1,061	281	1,375	14.8
Net property income	-4	-20	-5	-23	8.3
Net flow of funds	2,865	14,243	2,944	14,389	1.4
Rank		41		36	26

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Manufacturers	67	Computing professionals	-449
Ambulance & paramedics	44	Project & office managers	-395
Health services managers	19	Misc. business & info. prof.	-381
Construction managers	11	Secretaries & personal assistants	-354
Finance assoc. professionals	11	Sales & marketing managers	-331

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	46,790	57
Patent applications per 1,000 people	1.2	17
Tertiary degree attainment	0.20	53
University enrolments 1998	4.0	16
Global workers/100	50	29
Skill sustainability/100	40	35

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	16.7	45
Commercial floor space per capita (1998-2001)	2.3	14

RESEARCH & DEVELOPMENT

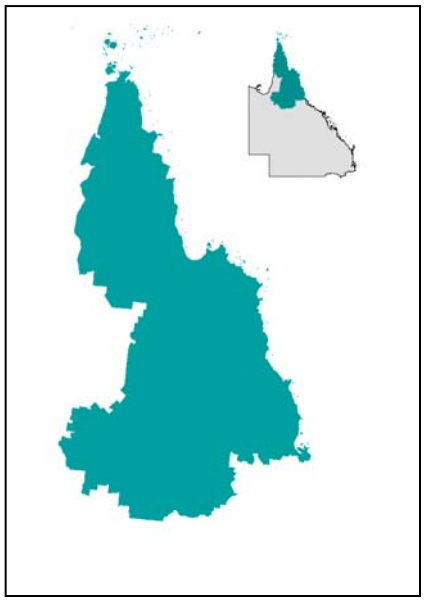
	Value ($)	Rank
Supply (1998)	144.1	28
Demand (1998)	167.0	37

SOCIAL

	Value	Rank
High income families -%	3.8	58
Social benefits as a % of net flow of funds	16.5	35

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	Average annualised growth rate
Population	219,277		227,532		1.2
No. households	85,453		89,704		1.6
Workforce	122,553	55.9	112,377	49.4	-2.8
Employment	108,518		97,094		-3.6
Unemployment	14,034	11.5	15,283	13.6	2.9
Structural U/E	15,839	13.1	17,905	14.9	4.2
DEWRSB U/E	9,820	8.1	7,982	7.3	-6.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,837	12,773	2,647	11,631	-3.4
Taxes paid	618	2,782	625	2,745	0.5
GST paid			282	1,241	
Benefits	451	2,029	492	2,162	4.5
Business income	500	2,251	516	2,268	1.6
Interest/dividends	81	364	88	388	4.4
Interest paid	256	1,153	346	1,522	16.3
Net property income	1	6	2	7	8.3
Net flow of funds	2,996	13,489	2,491	10,948	-8.8
Rank		49		58	62

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	118	Computing professionals	-589
Ambulance & paramedics	68	Misc. business & info. prof.	-360
Medical & science technical officers	61	Accountants	-320
Finance assoc. professionals	24	Higher education teachers	-319
Science building & engineering prof.	23	Secretaries & personal assistants	-199

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	48,567	49
Patent applications per 1,000 people	1.0	28
Tertiary degree attainment	0.24	22
University enrolments 1998	2.9	42
Global workers/100	41	39
Skill sustainability/100	51	20

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.5	38
Commercial floor space per capita (1998-2001)	2.0	18

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	220.8	18
Demand (1998)	122.0	50

SOCIAL

	Value	Rank
High income families -%	10.8	45
Social benefits as a % of net flow of funds	19.7	50

QLD Fitzroy

The Fitzroy region comprises the Eastern part of Central Queensland: we include the Western part in Queensland Pastoral. In the nineteenth century the Fitzroy region was regarded as unproductive scrub which had to be crossed in order to reach the better black soil country beyond Jericho, 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, has been developed as a coal export port and heavy industrial centre.

Major centres:

Rockhampton, Gladstone

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	180,474		182,534		0.4
No. households	66,282		68,599		1.2
Workforce	94,872	52.6	97,863	53.6	1.0
Employment	84,340		87,958		1.4
Unemployment	10,532	11.1	9,905	10.1	-2.0
Structural U/E	11,769	12.6	12,313	11.9	1.5
DEWRSB U/E	8,934	9.6	8,684	9.0	-0.9

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,684	14,837	2,978	16,312	5.3
Taxes paid	642	3,550	649	3,557	0.5
GST paid			227	1,243	
Benefits	352	1,946	382	2,092	4.2
Business income	410	2,267	431	2,361	2.5
Interest/dividends	57	314	62	337	4.1
Interest paid	207	1,146	275	1,505	15.1
Net property income	-11	-62	-13	-72	8.3
Net flow of funds	2,643	14,606	2,688	14,726	0.9
Rank		31		30	29

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	328	Computing professionals	-673
Medical & science technical officers	73	Accountants	-584
Ambulance & paramedics	67	Secretaries & personal assistants	-486
Health services managers	5	Project & office managers	-377
Desktop publishers	-5	Sales & marketing managers	-371

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	66,012	8
Patent applications per 1,000 people	0.7	53
Tertiary degree attainment	0.21	43
University enrolments 1998	4.0	15
Global workers/100	34	52
Skill sustainability/100	33	47

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	12.9	56
Commercial floor space per capita (1998-2001)	0.8	52

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	141.8	30
Demand (1998)	194.2	26

SOCIAL

	Value	Rank
High income families -%	16.2	23
Social benefits as a % of net flow of funds	14.2	21

QLD Mackay

The Mackay region is centred on the City of Mackay. Production statistics for the 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, with some recent diversification, while Whitsunday Shire adds tourism to the basic sugar of its economic base.

Major centres:

Mackay

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	124,309		129,129		1.3
No. households	45,626		48,446		2.0
Workforce	68,670	55.3	70,708	54.8	0.9
Employment	61,674		64,022		1.3
Unemployment	7,087	10.3	6,686	9.5	-1.9
Structural U/E	7,108	10.5	7,896	10.6	3.6
DEWRSB U/E	5,747	8.5	5,729	8.3	-0.1

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,119	16,845	2,397	18,567	6.4
Taxes paid	508	4,039	514	3,977	0.5
GST paid			167	1,293	
Benefits	216	1,721	241	1,869	5.6
Business income	328	2,608	349	2,705	3.2
Interest/dividends	57	451	61	476	4.1
Interest paid	154	1,225	198	1,534	13.4
Net property income	-13	-100	-15	-114	8.3
Net flow of funds	2,045	16,262	2,156	16,698	2.7
Rank		15		12	16

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	71	Computing professionals	-549
Ambulance & paramedics	44	Accountants	-378
Town planners	2	Secretaries & personal assistants	-329
Health services managers	0	Misc. business & info. prof.	-324
Desktop publishers	-8	Project & office managers	-310

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	60,509	14
Patent applications per 1,000 people	0.9	32
Tertiary degree attainment	0.22	38
University enrolments 1998	2.8	45
Global workers/100	29	55
Skill sustainability/100	27	52

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	22.8	20
Commercial floor space per capita (1998-2001)	1.5	33

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	81.6	45
Demand (1998)	246.3	13

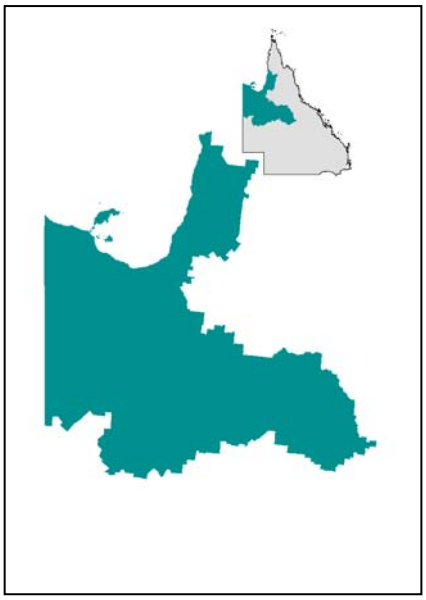
SOCIAL

	Value	Rank
High income families -%	15.8	26
Social benefits as a % of net flow of funds	11.2	12

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. The soft country supports extensive grazing, but has sufficient rainfall for there to be potential for intensification in some places.

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	Average annualised growth rate
Population	35,782		35,950		0.2
No. households	12,909		13,148		0.6
Workforce	21,410	59.8	19,314	53.7	-3.4
Employment	20,991		17,418		-6.0
Unemployment	419	2.0	1,895	9.8	65.3
Structural U/E	1,084	5.0	2,476	12.1	31.7
DEWRSB U/E	1,391	6.4	1,424	7.4	0.8

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	635	17,834	586	16,302	-4.0
Taxes paid	150	4,197	151	4,204	0.5
GST paid			46	1,285	
Benefits	65	1,828	79	2,184	9.8
Business income	114	3,201	121	3,370	3.1
Interest/dividends	9	245	9	264	4.2
Interest paid	47	1,307	62	1,714	15.1
Net property income	-4	-120	-5	-139	8.3
Net flow of funds	623	17,485	531	1,477	-7.7
Rank		9		28	60

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	119	Accountants	-114
Project & office managers	89	Science building & engin. Prof.	-112
Advanced clerical & service workers	71	Production managers	-84
Misc. business & information prof.	58	General managers	-84
Film, music & media professionals	42	Higher education teachers	-73

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	66,628	7
Patent applications per 1,000 people	0.8	44
Tertiary degree attainment	0.23	30
University enrolments 1998	2.2	56
Global workers/100	19	64
Skill sustainability/100	24	56

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	6.7	64
Commercial floor space per capita (1998-2001)	1.0	46

RESEARCH & DEVELOPMENT

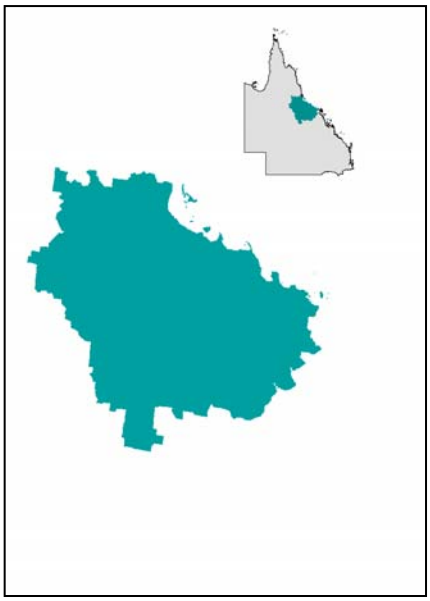
	Value ($)	Rank
Supply (1998)	129.2	31
Demand (1998)	169.0	34

SOCIAL

	Value	Rank
High income families -%	1.0	61
Social benefits as a % of net flow of funds	14.8	26

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 includes the north end of the Bowen Basin in Bowen Shire, 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

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	194,958		203,075		1.4
No. households	72,302		76,471		1.9
Workforce	108,229	55.5	92,571	45.6	-5.1
Employment	96,854		81,227		-5.7
Unemployment	11,374	10.5	11,343	12.3	-0.1
Structural U/E	12,386	11.6	13,218	13.4	2.2
DEWRSB U/E	8,648	8.1	7,481	8.2	-4.7

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	3,072	15,593	2,742	13,502	-5.5
Taxes paid	701	3,557	708	3,488	0.5
GST paid			249	1,226	
Benefits	384	1,948	415	2,044	4.0
Business income	415	2,105	431	2,124	2.0
Interest/dividends	85	431	93	456	4.4
Interest paid	218	1,107	291	1,431	15.4
Net property income	-5	-28	-6	-32	8.3
Net flow of funds	3,031	15,386	2,427	11,950	-10.5
Rank		21		54	64

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Ambulance & paramedics	12	Computing professionals	-719
Health services managers	-7	Misc. business & info. prof.	-675
Desktop publishers	-15	Secretaries & personal assistants	-627
Town planners	-17	Accountants	-472
Economists	-18	Sales & marketing managers	-385

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	56,592	27
Patent applications per 1,000 people	1.1	21
Tertiary degree attainment	0.22	36
University enrolments 1998	4.1	13
Global workers/100	39	42
Skill sustainability/100	34	44

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	21.5	27
Commercial floor space per capita (1998-2001)	2.2	15

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	256.3	11
Demand (1998)	191.9	27

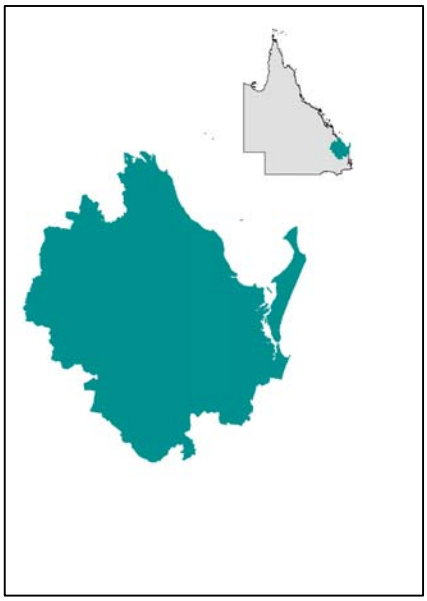
SOCIAL

	Value	Rank
High income families -%	15.4	29
Social benefits as a % of net flow of funds	17.1	39

QLD Wide Bay-Burnett

Wide Bay-Burnett comprises several sub-regions.

- The retirement and resort developments around Hervey Bay. These are the most northerly outposts of the strip of such settlements extending from well south of Sydney along the east coast.
- 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.
- Maryborough and Gympie are old-established towns with trade-exposed manufacturing industries, whose future is uncertain. Their rural hinterland comprises mainly small farms, many of which are on poor country. However round Kingaroy and in several other places intensive agriculture is practised.



Major centres:

Bundaberg, Hervey Bay, Maryborough

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	230,642		237,337		1.0
No. households	90,787		95,135		1.6
Workforce	108,487	47.0	104,777	44.1	-1.2
Employment	88,720		82,977		-2.2
Unemployment	19,768	18.2	21,800	20.8	3.3
Structural U/E	22,814	21.7	26,432	22.9	5.0
DEWRSB U/E	14,974	12.8	11,674	10.6	-8.0

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,299	9,884	2,197	9,257	-2.3
Taxes paid	467	2,008	472	1,989	0.5
GST paid			264	1,112	
Benefits	659	2,833	728	3,066	5.1
Business income	385	1,654	394	1,659	1.2
Interest/dividends	71	307	77	325	3.9
Interest paid	217	934	289	1,217	15.3
Net property income	-1	-3	-1	-3	8.3
Net flow of funds	2,729	11,733	2,370	9,985	-6.8
Rank		62		64	59

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Advanced clerical & service workers	620	Computing professionals	-422
Construction managers	504	Higher education teachers	-385
Secretaries & personal assistants	423	Accountants	-251
Building & engineering assoc. prof.	325	Misc. business & info. prof.	-129
Project & office managers	256	Sales & marketing managers	-94

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	40,707	63
Patent applications per 1,000 people	0.9	36
Tertiary degree attainment	0.17	62
University enrolments 1998	2.5	53
Global workers/100	34	51
Skill sustainability/100	34	45

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	18.9	42
Commercial floor space per capita (1998-2001)	1.4	35

RESEARCH & DEVELOPMENT

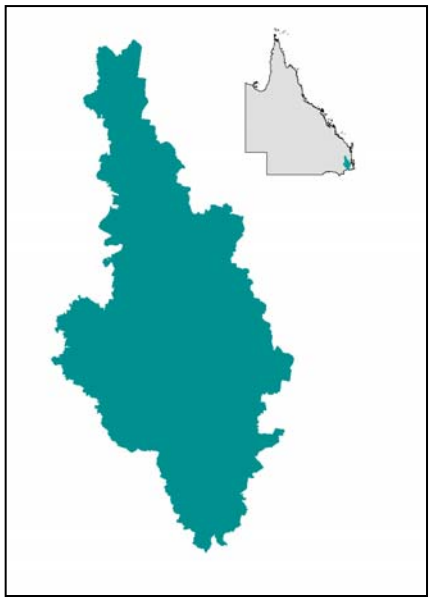
	Value ($)	Rank
Supply (1998)	101.5	37
Demand (1998)	168.9	35

SOCIAL

	Value	Rank
High income families -%	4.2	57
Social benefits as a % of net flow of funds	30.7	62

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. Intensive agriculture is still practised in the several fertile valleys of tributaries of the Brisbane river.



Major centres:

Ipswich

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	181,402		180,525		-0.2
No. households	62,696		65,158		1.3
Workforce	90,469	49.9	98,935	54.8	3.0
Employment	79,848		87,011		2.9
Unemployment	10,621	11.7	11,924	12.1	3.9
Structural U/E	14,006	15.9	16,282	15.2	5.1
DEWRSB U/E	8,422	9.6	7,472	7.9	-3.9

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,203	12,468	2,464	13,646	5.7
Taxes paid	485	2,747	491	2,719	0.5
GST paid			204	1,127	
Benefits	402	2,276	440	2,439	4.6
Business income	316	1,787	326	1,804	1.5
Interest/dividends	37	209	40	220	3.8
Interest paid	213	1,203	282	1,565	15.3
Net property income	-12	-65	-14	-75	8.3
Net flow of funds	2,249	12,725	2,279	12,624	0.7
Rank		57		49	31

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	505	Higher education teachers	-155
Project & office managers	332	Medical practitioners	-124
Secretaries & personal assistants	320	Accountants	-81
Advanced clerical & service workers	234	General managers	-75
Finance assoc. professionals	65	Sales & marketing managers	-73

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	47,705	56
Patent applications per 1,000 people	0.8	43
Tertiary degree attainment	0.18	59
University enrolments 1998	3.1	36
Global workers/100	21	62
Skill sustainability/100	18	58

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	13.6	52
Commercial floor space per capita (1998-2001)	2.5	11

RESEARCH & DEVELOPMENT

	Value ($m)	Rank
Supply (1998)	70.4	50
Demand (1998)	314.1	6

SOCIAL

	Value	Rank
High income families -%	12.0	41
Social benefits as a % of net flow of funds	19.3	48

QLD Gold Coast

The Gold Coast region comprises two main sub-regions.

- The Gold Coast proper is a tourist and retirement strip, intensively developed along and behind the beach front, and now extending across the backwaters towards the ranges which include Tambourine Mountain.
- 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	Average annualised growth rate
Population	704,717		756,347		2.4
No. households	272,164		296,888		2.9
Workforce	345,733	49.1	390,303	51.6	4.1
Employment	301,526		341,182		4.2
Unemployment	44,207	12.8	49,121	12.6	3.6
Structural U/E	48,999	14.4	57,806	13.9	5.7
DEWRSB U/E	35,396	10.4	33,805	8.9	-1.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	9,078	12,586	10,678	14,117	8.5
Taxes paid	2,162	2,997	2,185	2,889	0.5
GST paid			931	1,231	
Benefits	1,561	2,165	1,744	2,306	5.7
Business income	1,415	1,961	1,461	1,931	1.6
Interest/dividends	391	542	428	566	4.6
Interest paid	882	1,223	1,173	1,551	15.3
Net property income	-19	-26	-22	-29	8.3
Net flow of funds	9,382	13,008	9,999	13,220	3.2
Rank		56		43	24

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,652	Higher education teachers	-476
Project & office managers	1,868	Computing professionals	-408
Building & engineering assoc. prof.	1,396	IT managers	-36
Advanced clerical & service workers	1,387	Construction managers	-31
Sales & marketing managers	680	Accountants	-31

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	44,423	60
Patent applications per 1,000 people	2.2	6
Tertiary degree attainment	0.32	9
University enrolments 1998	2.9	44
Global workers/100	35	48
Skill sustainability/100	44	30

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	35.2	4
Commercial floor space per capita (1998-2001)	1.7	25

RESEARCH & DEVELOPMENT

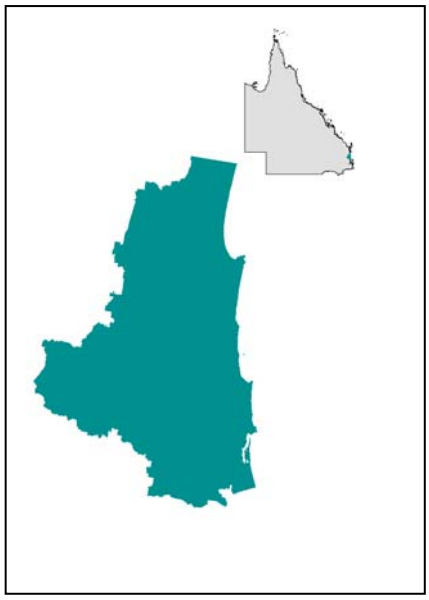
	Value ($m)	Rank
Supply (1998)	42.2	58
Demand (1998)	113.6	56

SOCIAL

	Value	Rank
High income families -%	8.8	52
Social benefits as a % of net flow of funds	17.4	40

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. Back from the strip is a row of older towns, the chief of which is Nambour. Some intensive farming survives, and manufacturing partly based on the farm products.



Major centres:

Caloundra, Nambour, Noosa

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	224,787		243,082		2.6
No. households	95,878		105,482		3.2
Workforce	105,284	46.8	122,430	50.4	5.2
Employment	87,871		102,889		5.4
Unemployment	17,413	16.5	19,541	16.0	3.9
Structural U/E	18,180	17.6	21,451	16.3	5.7
DEWRSB U/E	11,664	13.4	13,735	11.5	5.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,505	10,850	3,003	12,356	9.5
Taxes paid	568	2,460	574	2,363	0.5
GST paid			303	1,247	
Benefits	609	2,639	682	2,804	5.8
Business income	416	1,801	427	1,758	1.4
Interest/dividends	146	633	160	657	4.5
Interest paid	236	1,023	309	1,271	14.3
Net property income	-1	-3	-1	-3	8.3
Net flow of funds	2,871	12,436	3,085	12,691	3.6
Rank		60		48	19

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Manufacturers	81	Secretaries & personal assistants	-538
Ambulance & paramedics	18	Project & office managers	-480
Town planners	-1	Computing professionals	-472
Desktop publishers	-7	Accountants	-408
Health services managers	-7	Misc. business & info. prof.	-340

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	40,754	62
Patent applications per 1,000 people	1.7	11
Tertiary degree attainment	0.23	28
University enrolments 1998	2.9	43
Global workers/100	56	22
Skill sustainability/100	59	10

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	42.9	3
Commercial floor space per capita (1998-2001)	1.7	26

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	44.3	57
Demand (1998)	75.7	61

SOCIAL

	Value	Rank
High income families -%	1.5	60
Social benefits as a % of net flow of funds	22.1	55

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.

Major centres:

Caboolture, Redcliffe

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	272,232		288,272		1.9
No. households	98,896		104,928		2.0
Workforce	132,707	48.7	141,280	49.0	2.1
Employment	118,523		124,457		1.6
Unemployment	14,184	10.7	16,823	11.9	5.9
Structural U/E	17,604	13.5	21,025	13.9	6.1
DEWRSB U/E	7,180	6.9	10,795	7.9	14.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	3,647	13,149	3,985	13,825	4.5
Taxes paid	853	3,074	862	2,990	0.5
GST paid			336	1,165	
Benefits	590	2,127	662	2,295	5.9
Business income	504	1,816	522	1,809	1.7
Interest/dividends	101	366	111	385	4.7
Interest paid	339	1,221	446	1,549	14.8
Net property income	-16	-59	-19	-67	8.3
Net flow of funds	3,635	13,104	3,616	12,544	-0.3
Rank		55		50	40

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	1,199	Higher education teachers	-180
Project & office managers	1,163	Medical practitioners	-16
Building & engineering assoc. prof.	927	Economists	-5
Advanced clerical & service workers	768	Desktop publishers	11
Science building & engineering prof.	441	Town planners	11

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	46,305	59
Patent applications per 1,000 people	0.9	39
Tertiary degree attainment	0.20	52
University enrolments 1998	3.2	32
Global workers/100	23	60
Skill sustainability/100	20	57

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	22.2	23
Commercial floor space per capita (1998-2001)	0.9	49

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	53.8	52
Demand (1998)	140.6	44

SOCIAL

	Value	Rank
High income families -%	9.2	50
Social benefits as a % of net flow of funds	18.3	43

Brisbane City

Given the choice to 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	Average annualised growth rate
Population	848,741		900,042		2.0
No. households	336,202		360,820		2.4
Workforce	463,017	54.6	482,935	53.7	1.4
Employment	424,465		442,329		1.4
Unemployment	38,552	8.3	40,606	8.4	1.7
Structural U/E	47,774	10.4	52,078	10.2	2.9
DEWRSB U/E	31,138	6.8	31,556	6.6	0.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	14,122	16,278	15,827	17,584	5.9
Taxes paid	3,691	4,255	3,732	4,146	0.5
GST paid			1,226	1,362	
Benefits	1,576	1,816	1,696	1,884	3.7
Business income	2,094	2,413	2,201	2,445	2.5
Interest/dividends	689	794	756	840	4.8
Interest paid	1,034	1,192	1,368	1,520	15.0
Net property income	-45	-52	-53	-59	8.3
Net flow of funds	13,710	15,802	14,100	15,666	1.4
Rank		17		18	32

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Higher education teachers	838	Secretaries & personal assistants	-3,316
Medical practitioners	746	Accountants	-2,421
Science building & engineering prof.	358	Computing professionals	-2,288
Legal professionals	230	Adv. clerical & service workers	-2,174
Specialist medical professionals	85	Project & office managers	-1,236

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,599	16
Patent applications per 1,000 people	2.2	5
Tertiary degree attainment	0.29	11
University enrolments 1998	6.2	3
Global workers/100	83	6
Skill sustainability/100	56	16

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	29.1	13
Commercial floor space per capita (1998-2001)	3.9	4

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	169.8	24
Demand (1998)	134.5	45

SOCIAL

	Value	Rank
High income families -%	27.7	12
Social benefits as a % of net flow of funds	12.0	15

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.

Major centres:

Adelaide, Glenelg

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	368,732		374,449		0.5
No. households	152,705		159,724		1.5
Workforce	186,855	50.7	189,653	50.6	0.5
Employment	168,964		172,831		0.8
Unemployment	17,891	9.6	16,822	8.9	-2.0
Structural U/E	22,476	12.2	22,504	11.2	0.0
DEWRSB U/E	13,963	7.6	11,455	6.2	-6.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	5,712	15,369	6,167	16,470	3.9
Taxes paid	1,588	4,272	1,553	4,146	-1.1
GST paid			544	1,454	
Benefits	808	2,173	862	2,302	3.3
Business income	773	2,079	813	2,172	2.6
Interest/dividends	446	1,199	484	1,294	4.3
Interest paid	403	1,084	539	1,441	15.7
Net property income	25	69	30	80	8.3
Net flow of funds	5,772	15,533	5,720	15,277	-0.5
Rank		20		23	36

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Higher education teachers	465	Secretaries & personal assistants	-1,709
General managers	451	Project & office managers	-1,387
Medical practitioners	385	Adv. clerical & service workers	-953
Comp. secretaries & finance managers	314	Computing professionals	-951
Sales & marketing managers	63	Accountants	-880

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	63,594	11
Patent applications per 1,000 people	2.1	7
Tertiary degree attainment	0.33	7
University enrolments 1998	6.1	4
Global workers/100	80	7
Skill sustainability/100	69	5

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.1	40
Commercial floor space per capita (1998-2001)	0.7	61

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	211.1	19
Demand (1998)	126.7	48

SOCIAL

	Value	Rank
High income families -%	30.2	10
Social benefits as a % of net flow of funds	15.1	28

SA Eyre and Yorke

Eyre and Yorke comprise several distinct sub-regions.

- Kangaroo Island is an isolated agricultural shire which is increasingly involved in tourism.
- Eyre Peninsula and the SA West Coast were added to the wheat belt in the first half of last century, and their urban development patterns somewhat resemble those of the contemporary WA wheat belt. Port Lincoln is the major centre, known for its fishing as well as a grain export port.
- The Iron Triangle comprises the three industrial cities of Whyalla, Port Augusta and Port Pirie. All three 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. In addition Port Augusta is a rail and road transport centre.
- The SA Outback comprises the northern two-thirds of the state. It has scattered pastoral stations, Aboriginal communities with close affinities with others across the border in the NT and several tourist attractions, notably the Flinders Ranges and Coober Pedy. The main mine is at Roxby Downs, but there are hopes of further mineral development.
- The Mid and Upper North is again wheat/sheep country, but with a longer history of settlement than Eyre Peninsula, and hence a greater number of small towns. 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	Average annualised growth rate
Population	164,546		164,043		-0.1
No. households	64,269		66,481		1.1
Workforce	76,634	46.6	73,544	44.8	-1.4
Employment	66,057		61,296		-2.5
Unemployment	10,577	13.8	12,248	16.7	5.0
Structural U/E	14,440	19.1	16,149	20.2	3.8
DEWRSB U/E	7,268	9.6	6,323	9.0	-4.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,977	12,031	1,783	10,869	-5.0
Taxes paid	419	2,549	409	2,496	-1.1
GST paid			187	1,140	
Benefits	414	2,518	447	2,727	4.0
Business income	270	1,642	277	1,691	1.4
Interest/dividends	60	368	64	390	2.9
Interest paid	148	901	203	1,238	17.1
Net property income	0	2	0	2	8.3
Net flow of funds	2,154	13,111	1,773	10,807	-9.3
Rank		54		60	61

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	58	Project & office managers	-460
Ambulance & paramedics	16	Computing professionals	-410
Finance assoc. professionals	9	Secretaries & personal assistants	-367
Planning managers	2	Accountants	-357
Economists	-3	Misc. business & info. prof.	-321

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	57,532	25
Patent applications per 1,000 people	0.6	59
Tertiary degree attainment	0.18	61
University enrolments 1998	1.8	62
Global workers/100	48	31
Skill sustainability/100	53	17

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	13.5	54
Commercial floor space per capita (1998-2001)	1.2	40

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	77.2	47
Demand (1998)	164.7	38

SOCIAL

	Value	Rank
High income families -%	15.2	31
Social benefits as a % of net flow of funds	25.2	59

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 grain cultivation away from it.

Major centres:

Renmark, Murray Bridge

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	68,286		68,270		0.0
No. households	26,815		27,739		1.1
Workforce	33,060	48.4	37,790	55.4	4.6
Employment	29,301		33,744		4.8
Unemployment	3,759	11.4	4,046	10.7	2.5
Structural U/E	5,193	16.0	5,732	14.1	3.3
DEWRSB U/E	3,733	11.5	2,859	7.7	-8.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	926	13,564	942	13,798	0.9
Taxes paid	166	2,435	162	2,380	-1.1
GST paid			75	1,106	
Benefits	167	2,440	179	2,628	3.8
Business income	119	1,744	121	1,779	1.0
Interest/dividends	25	362	26	386	3.2
Interest paid	68	996	93	1,363	17.0
Net property income	2	27	2	31	8.3
Net flow of funds	1,004	14,706	940	13,772	-3.2
Rank		28		41	49

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Ambulance & paramedics	21	Project & office managers	-221
Construction managers	12	Secretaries & personal assistants	-151
Comp. Secretaries & finance managers	-3	Computing professionals	-143
Economists	-5	Sales & marketing managers	-142
Desktop publishers	-5	Accountants	-134

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	55,471	30
Patent applications per 1,000 people	0.8	42
Tertiary degree attainment	0.16	64
University enrolments 1998	1.4	64
Global workers/100	40	40
Skill sustainability/100	16	60

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	13.6	53
Commercial floor space per capita (1998-2001)	1.6	27

RESEARCH & DEVELOPMENT

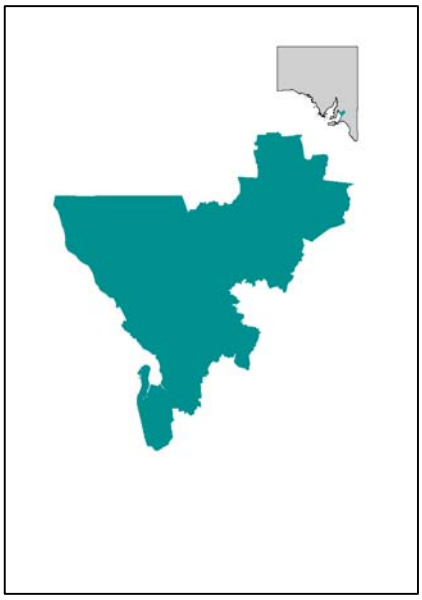
	Value ($)	Rank
Supply (1998)	49.8	55
Demand (1998)	210.7	21

SOCIAL

	Value	Rank
High income families -%	9.6	49
Social benefits as a % of net flow of funds	19.1	47

Adelaide Plains

The Adelaide Plains region includes the southern or urbanised part of the plain which begins with Adelaide airport and extends into the Lower and Mid North of SA. 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. Manufacturing is more important as an element in the economic base than in virtually any other part of Australia, and the region has not been favoured by Commonwealth policies over the past several decades. Given that Central Adelaide is less buoyant than Global Sydney, the region has not been able to develop the alternative reliance on commuting which has helped to keep its equivalents in Sydney prosperous.



Major centres:

Port Adelaide, Salisbury, Elizabeth

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	469,609		473,230		0.3
No. households	183,914		190,992		1.3
Workforce	222,547	47.4	232,029	49.0	1.4
Employment	187,332		195,269		1.4
Unemployment	35,214	15.8	36,760	15.8	1.4
Structural U/E	48,798	22.5	52,235	20.5	2.3
DEWRSB U/E	27,314	12.8	23,580	10.6	-4.8

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	5,424	11,526	5,709	12,064	2.6
Taxes paid	1,295	2,752	1,266	2,675	-1.1
GST paid			558	1,179	
Benefits	1,327	2,820	1,445	3,054	4.4
Business income	641	1,362	658	1,390	1.3
Interest/dividends	156	331	167	352	3.4
Interest paid	467	992	610	1,288	14.3
Net property income	13	27	15	31	8.3
Net flow of funds	5,798	12,322	5,559	11,748	-2.1
Rank		61		55	42

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Medical & science technical officers	213	Science building & engineer. Prof.	-1,143
Finance assoc. professionals	211	Project & office managers	-806
Comp. secretaries & finance managers	114	Sales & marketing managers	-756
Ambulance & paramedics	24	Production managers	-636
Planning managers	23	Computing professionals	-513

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	57,167	26
Patent applications per 1,000 people	1.0	27
Tertiary degree attainment	0.19	58
University enrolments 1998	2.9	39
Global workers/100	24	59
Skill sustainability/100	16	59

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	15.1	49
Commercial floor space per capita (1998-2001)	0.9	51

RESEARCH & DEVELOPMENT

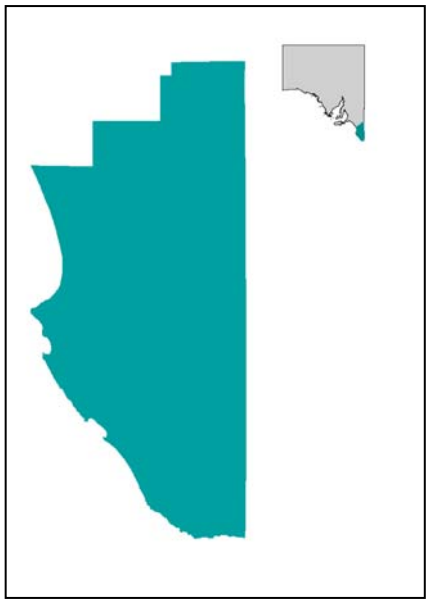
	Value ($)	Rank
Supply (1998)	246.0	15
Demand (1998)	336.9	4

SOCIAL

	Value	Rank
High income families -%	6.7	54
Social benefits as a % of net flow of funds	26.0	60

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	Average annualised growth rate
Population	62,776		62,794		0.0
No. households	23,423		24,276		1.2
Workforce	32,530	51.8	35,329	56.3	2.8
Employment	29,334		32,525		3.5
Unemployment	3,196	9.8	2,804	7.9	-4.3
Structural U/E	3,168	10.1	3,688	9.9	5.2
DEWRSB U/E	2,656	8.5	1,907	5.5	-10.4

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	926	14,729	962	15,314	1.9
Taxes paid	191	3,045	187	2,981	-1.1
GST paid			74	1,176	
Benefits	125	1,990	140	2,230	5.8
Business income	111	1,770	114	1,819	1.3
Interest/dividends	32	511	34	548	3.4
Interest paid	68	1,078	92	1,466	16.5
Net property income	3	43	3	51	8.3
Net flow of funds	938	14,921	900	14,339	-2.0
Rank		24		37	39

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Finance assoc. professionals	22	Project & office managers	-175
Comp. Secretaries & finance managers	19	Computing professionals	-139
Ambulance & paramedics	10	Secretaries & personal assistants	-129
Supply & distribution managers	3	Higher education teachers	-120
Engineering & process managers	3	Sales & marketing managers	-108

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	51,538	46
Patent applications per 1,000 people	0.5	62
Tertiary degree attainment	0.17	63
University enrolments 1998	1.9	61
Global workers/100	37	45
Skill sustainability/100	13	62

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	13.7	51
Commercial floor space per capita (1998-2001)	1.5	34

RESEARCH & DEVELOPMENT

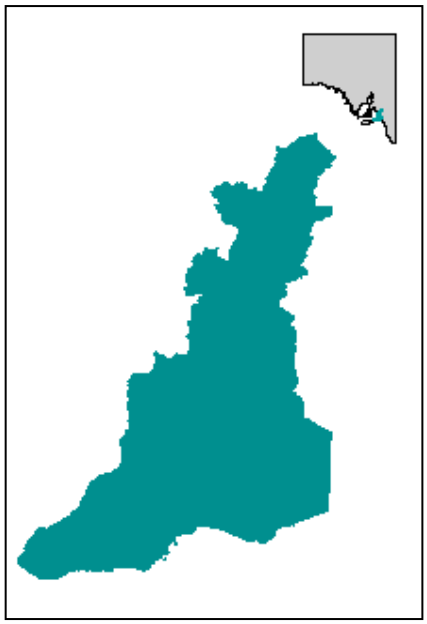
	Value ($)	Rank
Supply (1998)	89.5	41
Demand (1998)	227.4	17

SOCIAL

	Value	Rank
High income families -%	1.6	59
Social benefits as a % of net flow of funds	15.6	30

Adelaide Outer

The Outer Adelaide region has been defined essentially as the Adelaide Hills, using that term broadly, without restriction to the LGA of that name. It begins at the scarp which angles across from behind Gawler to the sea at Marino. To the south it ends at the coast, while to the east it ends where 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 (and formerly almond orchards), and beyond again to the south are the tourist resorts and retirement areas of Encounter Bay. The wine industry combines agriculture, manufacturing and tourism, and there is also some manufacturing; however the region is mainly a commuter zone.



Major centres:

Angaston, Mt Barker, Noalunga Centre

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	353,345		359,294		0.6
No. households	129,051		136,036		1.8
Workforce	179,268	50.7	186,982	52.0	1.4
Employment	161,465		167,687		1.3
Unemployment	17,803	9.9	19,295	10.3	2.7
Structural U/E	21,235	12.1	24,118	12.2	4.3
DEWRSB U/E	14,327	8.1	11,445	6.3	-7.2

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	4,873	13,735	5,104	14,207	2.3
Taxes paid	1,180	3,326	1,154	3,212	-1.1
GST paid			443	1,232	
Benefits	728	2,053	807	2,245	5.2
Business income	606	1,707	624	1,737	1.5
Interest/dividends	153	431	165	460	3.9
Interest paid	463	1,304	602	1,675	14.0
Net property income	1	3	1	4	8.3
Net flow of funds	4,719	13,299	4,503	12,534	-2.3
Rank		52		51	47

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,052	Economists	13
Project & office managers	1,264	Desktop publishers	25
Building & engineering assoc. prof.	1,192	Town planners	34
Science building & engineering prof.	1,088	Health services managers	37
Advanced clerical & service workers	1,081	Planning managers	57

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	53,463	33
Patent applications per 1,000 people	0.9	34
Tertiary degree attainment	0.24	21
University enrolments 1998	3.5	24
Global workers/100	45	36
Skill sustainability/100	37	42

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.8	35
Commercial floor space per capita (1998-2001)	1.0	48

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	98.7	38
Demand (1998)	202.3	25

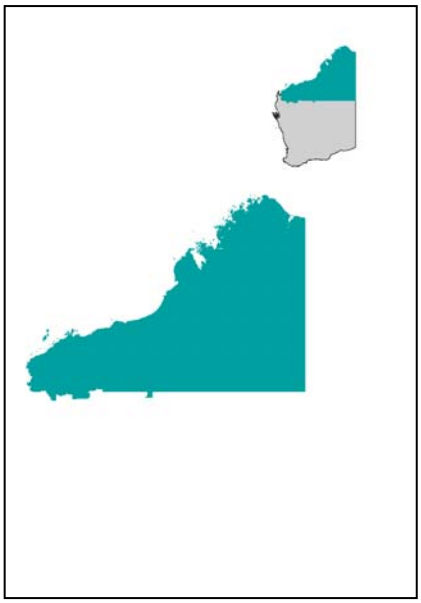
SOCIAL

	Value	Rank
High income families -%	10.1	47
Social benefits as a % of net flow of funds	17.9	42

WA Pilbara-Kimberly

The Pilbara and Kimberley are two WA planning regions, here brought together due to low populations. 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. The several 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	Average annualised growth rate
Population	69,489		71,282		0.9
No. households	25,890		27,158		1.6
Workforce	42,439	61.1	39,655	55.6	-2.2
Employment	39,607		35,573		-3.5
Unemployment	2,832	6.7	4,082	10.3	13.0
Structural U/E	3,780	9.0	4,986	11.8	9.7
DEWRSB U/E	2,829	6.7	2,782	7.1	-0.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,153	16,348	1,228	17,222	3.2
Taxes paid	308	4,360	313	4,396	0.9
GST paid			100	1,404	
Benefits	119	1,692	114	1,604	-2.1
Business income	328	4,644	353	4,959	3.9
Interest/dividends	17	238	18	259	4.9
Interest paid	102	1,451	141	1,975	17.2
Net property income	-13	-180	-15	-211	9.1
Net flow of funds	1,194	16,931	1,145	16,058	-2.1
Rank		13		15	45

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Science building & engineering prof.	457	Computing professionals	-1,352
Production managers	175	Building & engineer. assoc. prof.	-729
Medical & science technical officers	103	Accountants	-102
Misc. business & information prof.	62	Higher education teachers	-87
General managers	53	Secretaries & personal assistants	-84

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	73,055	5
Patent applications per 1,000 people	0.4	63
Tertiary degree attainment	0.29	12
University enrolments 1998	1.9	60
Global workers/100	29	57
Skill sustainability/100	40	37

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	18.3	43
Commercial floor space per capita (1998-2001)	1.8	22

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	50.5	54
Demand (1998)	250.7	12

SOCIAL

	Value	Rank
High income families -%	29.0	11
Social benefits as a % of net flow of funds	10.0	9

WA Gascoyne-Goldfields

The Gascoyne/Goldfields region conflates 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	Average annualised growth rate
Population	118,691		119,955		0.4
No. households	44,044		46,479		1.8
Workforce	70,231	59.2	65,097	54.3	-2.5
Employment	64,827		59,058		-3.1
Unemployment	5,405	7.7	6,039	9.3	3.8
Structural U/E	6,357	9.2	7,791	11.3	7.0
DEWRSB U/E	5,185	7.5	3,882	6.0	-9.2

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,739	14,745	1,814	15,232	2.1
Taxes paid	433	3,674	441	3,707	0.9
GST paid			150	1,263	
Benefits	203	1,718	215	1,809	3.1
Business income	460	3,898	483	4,057	2.5
Interest/dividends	51	433	56	469	4.5
Interest paid	170	1,444	234	1,965	17.2
Net property income	-5	-38	-5	-45	9.1
Net flow of funds	1,844	15,638	1,737	14,587	-3.0
Rank		18		32	50

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	365	Computing professionals	-389
Medical & science technical officers	229	Accountants	-339
Science building & engineering prof.	75	Project & office managers	-227
Health services managers	9	Secretaries & personal assistants	-217
Manufacturers	-2	General managers	-209

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	63,276	12
Patent applications per 1,000 people	1.1	25
Tertiary degree attainment	0.23	25
University enrolments 1998	1.6	63
Global workers/100	35	50
Skill sustainability/100	41	34

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	20.6	30
Commercial floor space per capita (1998-2001)	2.0	19

RESEARCH & DEVELOPMENT

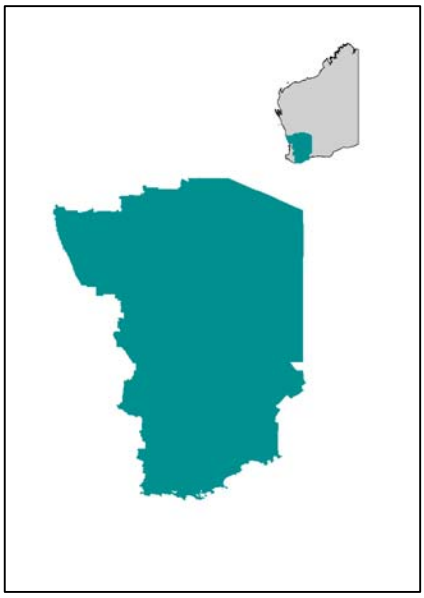
	Value ($)	Rank
Supply (1998)	109.5	34
Demand (1998)	181.3	31

SOCIAL

	Value	Rank
High income families -%	19.6	16
Social benefits as a % of net flow of funds	12.4	17

WA Wheatbelt-Great Southern

The WA planning authorities distinguish the Wheat Belt and the Great Southern, but they are here brought together because of small populations in each. The WA wheat belt was opened up later than its eastern-states equivalents, well into the age of the motor car, and accordingly lacks large towns: 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 may be defined as 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, and now even has a woodchip mill.



Major centres:

Albany, Northam

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	123,504		125,940		0.7
No. households	46,055		49,287		2.3
Workforce	70,218	56.9	67,826	53.9	-1.1
Employment	60,511		61,502		0.5
Unemployment	9,707	13.8	6,323	9.3	-13.3
Structural U/E	6,296	9.9	8,627	12.0	11.1
DEWRSB U/E	3,224	5.1	3,284	4.9	0.6

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,507	12,151	1,787	14,187	8.9
Taxes paid	309	2,487	314	2,495	0.9
GST paid			136	1,081	
Benefits	240	1,935	269	2,139	6.0
Business income	459	3,698	470	3,733	1.2
Interest/dividends	77	618	83	660	4.2
Interest paid	164	1,322	230	1,829	18.5
Net property income	4	30	4	36	9.1
Net flow of funds	1,814	14,622	1,933	15,350	3.2
Rank		29		20	12

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Finance assoc. professionals	67	Project & office managers	-382
Construction managers	64	Computing professionals	-286
Advanced clerical & service workers	30	Higher education teachers	-241
Manufacturers	25	Misc. business & info. prof.	-187
Health services managers	8	Accountants	-181

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,105	19
Patent applications per 1,000 people	1.2	18
Tertiary degree attainment	0.19	55
University enrolments 1998	2.0	58
Global workers/100	53	24
Skill sustainability/100	64	8

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	26.3	14
Commercial floor space per capita (1998-2001)	2.6	9

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	107.4	35
Demand (1998)	114.2	55

SOCIAL

	Value	Rank
High income families -%	1.0	61
Social benefits as a % of net flow of funds	13.9	20

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, which is an old-established 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	Average annualised growth rate
Population	188,560		203,620		2.6
No. households	70,808		79,927		4.1
Workforce	90,175	47.8	100,171	49.2	3.6
Employment	83,202		89,744		2.6
Unemployment	6,974	7.7	10,427	10.4	14.3
Structural U/E	10,567	11.8	13,956	12.9	9.7
DEWRSB U/E	5,798	6.5	6,699	6.8	4.9

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,575	13,299	2,995	14,709	7.9
Taxes paid	634	3,277	646	3,174	0.9
GST paid			230	1,128	
Benefits	410	2,119	471	2,314	7.2
Business income	502	2,592	520	2,554	1.8
Interest/dividends	84	436	92	450	4.2
Interest paid	245	1,266	327	1,604	15.4
Net property income	2	9	2	10	9.1
Net flow of funds	2,693	13,912	2,877	14,131	3.4
Rank		43		38	25

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Medical & science technical officers	133	Project & office managers	-410
Advanced clerical & service workers	128	Computing professionals	-385
Building & engineering assoc. prof.	62	Accountants	-341
Town planners	17	Higher education teachers	-259
Comp. Secretaries & finance managers	9	Sales & marketing managers	-242

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	57,883	24
Patent applications per 1,000 people	1.1	23
Tertiary degree attainment	0.19	56
University enrolments 1998	2.0	59
Global workers/100	30	54
Skill sustainability/100	29	51

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	48.6	2
Commercial floor space per capita (1998-2001)	2.4	12

RESEARCH & DEVELOPMENT

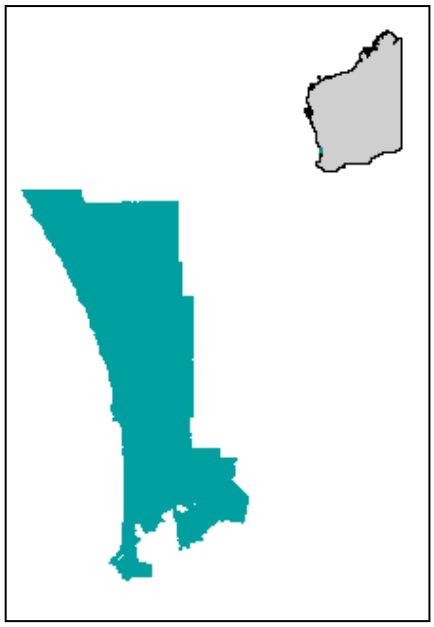
	Value ($)	Rank
Supply (1998)	57.5	51
Demand (1998)	258.5	10

SOCIAL

	Value	Rank
High income families -%	5.4	56
Social benefits as a % of net flow of funds	16.4	34

Perth Central

For its first century, what is now metropolitan Perth included several distinct population centres—Fremantle, Perth and others up-river to Guildford and Midland. 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 older part of the port, the established eastern and inner southern suburbs, and even some 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	Average annualised growth rate
Population	419,583		428,697		0.7
No. households	183,104		196,105		2.3
Workforce	233,072	55.5	244,128	56.9	1.6
Employment	212,193		223,007		1.7
Unemployment	20,878	9.0	21,121	8.7	0.4
Structural U/E	28,511	12.3	29,622	11.4	1.3
DEWRSB U/E	18,740	8.1	17,593	7.2	-2.1

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	6,943	16,455	8,075	18,835	7.8
Taxes paid	1,952	4,628	1,989	4,640	0.9
GST paid			589	1,374	
Benefits	847	2,008	881	2,054	1.9
Business income	1,661	3,936	1,774	4,137	3.3
Interest/dividends	458	1,087	500	1,166	4.4
Interest paid	604	1,431	802	1,871	15.2
Net property income	12	30	15	35	9.1
Net flow of funds	7,365	17,456	7,863	18,342	3.3
Rank		10		9	10

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Higher education teachers	309	Project & office managers	-3,522
Medical practitioners	25	Secretaries & personal assistants	-3,255
Comp. secretaries & finance managers	20	Computing professionals	-3,073
Planning managers	12	Adv. Clerical & service workers	-1,984
Town planners	-22	Accountants	-1,953

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,050	21
Patent applications per 1,000 people	2.4	4
Tertiary degree attainment	0.33	6
University enrolments 1998	5.4	7
Global workers/100	76	8
Skill sustainability/100	65	7

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	31.1	8
Commercial floor space per capita (1998-2001)	1.7	24

RESEARCH & DEVELOPMENT

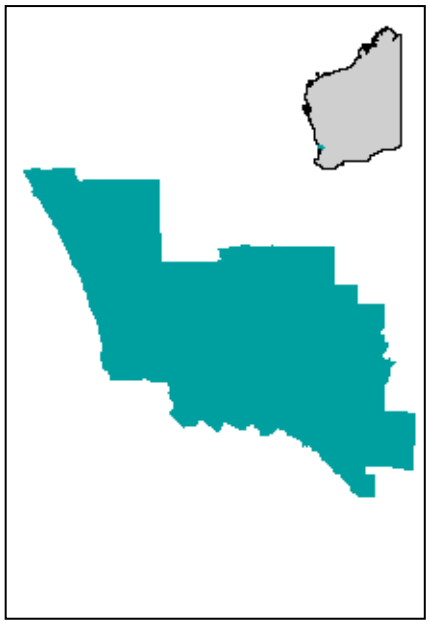
	Value ($)	Rank
Supply (1998)	271.5	9
Demand (1998)	105.9	57

SOCIAL

	Value	Rank
High income families -%	41.0	6
Social benefits as a % of net flow of funds	11.2	13

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.



Major centres:

Joondalup

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	408,253		432,662		2.0
No. households	137,838		149,856		2.8
Workforce	205,204	50.3	213,364	49.3	1.3
Employment	192,616		196,934		0.7
Unemployment	12,588	6.1	16,430	7.7	9.3
Structural U/E	20,375	10.0	25,399	11.2	7.6
DEWRSB U/E	13,425	6.6	12,524	5.9	-2.3

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	6,126	14,703	6,830	15,786	5.6
Taxes paid	1,526	3,662	1,554	3,592	0.9
GST paid			519	1,199	
Benefits	697	1,673	789	1,824	6.4
Business income	1,147	2,752	1,190	2,749	1.9
Interest/dividends	149	357	162	374	4.4
Interest paid	645	1,549	862	1,992	15.6
Net property income	-11	-27	-13	-31	9.1
Net flow of funds	5,936	14,248	6,023	13,920	0.7
Rank		40		40	38

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,627	Construction managers	-246
Building & engineering assoc. prof.	1,637	Medical practitioners	-76
Advanced clerical & service workers	1,529	Higher education teachers	-45
Science building & engineering prof.	1,470	Economists	-8
Project & office managers	1,108	Health services managers	15

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	48,161	51
Patent applications per 1,000 people	1.2	15
Tertiary degree attainment	0.23	33
University enrolments 1998	4.0	17
Global workers/100	35	49
Skill sustainability/100	34	46

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	29.6	12
Commercial floor space per capita (1998-2001)	1.5	28

RESEARCH & DEVELOPMENT

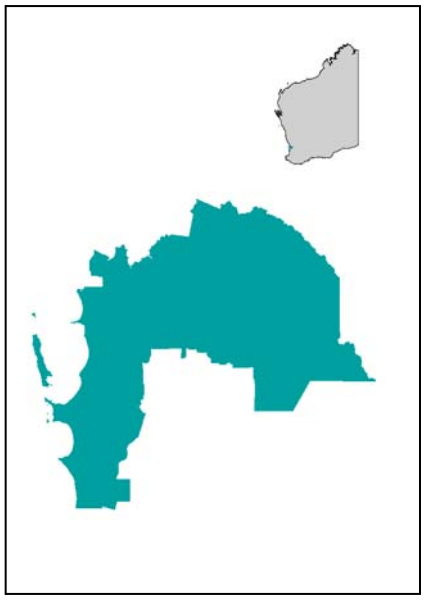
	Value ($)	Rank
Supply (1998)	53.2	53
Demand (1998)	118.0	52

SOCIAL

	Value	Rank
High income families -%	6.9	53
Social benefits as a % of net flow of funds	13.1	18

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. 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 functions for its economic base.



Major centres:

Armadale, Rockingham

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	503,319		527,691		1.6
No. households	179,431		194,282		2.7
Workforce	253,467	50.4	272,630	51.7	2.5
Employment	235,218		248,981		1.9
Unemployment	18,249	7.2	23,649	8.7	9.0
Structural U/E	26,846	10.7	32,465	11.2	6.5
DEWRSB U/E	16,402	6.5	17,379	6.4	1.9

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	7,423	14,497	8,433	15,982	6.6
Taxes paid	1,883	3,677	1,918	3,635	0.9
GST paid			624	1,183	
Benefits	966	1,886	1,083	2,053	5.9
Business income	1,491	2,912	1,552	2,942	2.0
Interest/dividends	225	439	244	463	4.2
Interest paid	743	1,451	987	1,870	15.3
Net property income	-8	-15	-9	-17	9.1
Net flow of funds	7,471	14,590	7,774	14,733	2.0
Rank		33		29	27

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Secretaries & personal assistants	2,356	Construction managers	-552
Science building & engineering prof.	1,471	Medical practitioners	-39
Advanced clerical & service workers	1,293	IT managers	-23
Building & engineering assoc. prof.	1,226	Sales & marketing professionals	-14
Accountants	772	Economists	-5

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	55,631	28
Patent applications per 1,000 people	1.2	19
Tertiary degree attainment	0.23	26
University enrolments 1998	3.9	18
Global workers/100	35	46
Skill sustainability/100	31	49

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	29.6	11
Commercial floor space per capita (1998-2001)	4.6	3

RESEARCH & DEVELOPMENT

	Value ($m)	Rank
Supply (1998)	114.4	33
Demand (1998)	215.3	20

SOCIAL

	Value	Rank
High income families -%	15.9	24
Social benefits as a % of net flow of funds	13.9	19

Tasmania-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 central city regions of the mainland states. The economic base includes city centre functions (with perhaps a little more tourism than most), manufacturing, agriculture, fishing and forestry.

Major centres:

Hobart

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	229,593		229,014		-0.1
No. households	88,741		91,066		0.9
Workforce	115,429	50.3	111,862	48.8	-1.0
Employment	92,134		93,302		0.4
Unemployment	23,294	20.2	18,560	16.6	-7.3
Structural U/E	25,421	23.3	22,653	18.8	-3.8
DEWRSB U/E	9,252	8.5	9,956	9.3	2.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,833	12,363	2,799	12,222	-0.6
Taxes paid	709	3,094	675	2,948	-2.4
GST paid			284	1,241	
Benefits	590	2,576	600	2,619	0.8
Business income	403	1,757	416	1,814	1.6
Interest/dividends	119	520	124	541	2.0
Interest paid	238	1,039	300	1,308	12.2
Net property income	9	38	10	44	7.7
Net flow of funds	3,006	13,122	2,689	11,744	-5.4
Rank		53		56	54

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Science building & engineering prof.	278	Project & office managers	-477
Comp. Secretaries & finance managers	242	Secretaries & personal assistants	-395
General managers	138	Computing professionals	-310
Misc. business & information prof.	135	Accountants	-274
Building & engineering assoc. prof.	129	Adv. Clerical & service workers	-189

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	51,660	45
Patent applications per 1,000 people	0.7	51
Tertiary degree attainment	0.25	20
University enrolments 1998	4.1	14
Global workers/100	50	28
Skill sustainability/100	50	21

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	10.2	59
Commercial floor space per capita (1998-2001)	0.7	56

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	232.7	16
Demand (1998)	122.8	49

SOCIAL

	Value	Rank
High income families -%	16.4	21
Social benefits as a % of net flow of funds	22.3	56

TAS North West

North West Tasmania comprises the urban strip along the North West 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 is now gradually overshadowing 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	Average annualised growth rate
Population	109,063		108,022		-0.3
No. households	41,554		42,336		0.6
Workforce	51,640	47.3	51,213	47.4	-0.3
Employment	43,035		41,370		-1.3
Unemployment	8,606	16.7	9,843	19.2	4.6
Structural U/E	9,765	19.7	11,593	20.9	5.9
DEWRSB U/E	5,351	10.8	5,172	10.7	-1.1

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,267	11,680	1,176	10,886	-3.7
Taxes paid	293	2,698	279	2,581	-2.4
GST paid			123	1,139	
Benefits	272	2,511	306	2,833	6.0
Business income	174	1,602	179	1,653	1.4
Interest/dividends	33	302	34	312	1.5
Interest paid	100	923	127	1,179	12.8
Net property income	2	22	3	26	7.7
Net flow of funds	1,356	12,496	1,168	10,810	-7.2
Rank		58		59	58

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	71	Project & office managers	-252
Engineering & process managers	24	Computing professionals	-216
Manufacturers	18	Higher education teachers	-192
Ambulance & paramedics	11	Sales & marketing managers	-154
Medical & science technical officers	9	Accountants	-149

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	53,394	34
Patent applications per 1,000 people	0.5	61
Tertiary degree attainment	0.19	57
University enrolments 1998	2.1	57
Global workers/100	30	53
Skill sustainability/100	32	48

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	7.2	63
Commercial floor space per capita (1998-2001)	0.8	54

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	44.3	56
Demand (1998)	268.3	9

SOCIAL

	Value	Rank
High income families -%	14.1	32
Social benefits as a % of net flow of funds	26.2	61

Tasmania 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. It has some manufacturing development, notably aluminium smelting at Bell Bay.

Major centres:

Launceston

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	133,229		133,004		-0.1
No. households	51,583		52,886		0.8
Workforce	66,741	50.1	68,679	51.6	1.0
Employment	56,753		58,304		0.9
Unemployment	9,988	15.0	10,375	15.1	1.3
Structural U/E	11,358	17.5	12,470	16.9	3.2
DEWRSB U/E	7,269	11.2	4,987	7.5	-11.8

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,542	11,578	1,534	11,530	-0.3
Taxes paid	359	2,697	342	2,572	-2.4
GST paid			156	1,177	
Benefits	332	2,492	363	2,726	4.5
Business income	215	1,612	220	1,654	1.2
Interest/dividends	59	444	61	461	1.8
Interest paid	130	975	164	1,234	12.4
Net property income	4	31	5	35	7.7
Net flow of funds	1,663	12,485	1,520	11,425	-4.4
Rank		59		57	53

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Construction managers	156	Computing professionals	-275
Comp. secretaries & finance managers	51	Project & office managers	-233
Science building & engineering prof.	46	Secretaries & personal assistants	-169
Medical & science technical officers	44	Misc. business & info. prof.	-162
Building & engineering assoc. prof.	29	Sales & marketing managers	-142

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	47,968	53
Patent applications per 1,000 people	0.7	52
Tertiary degree attainment	0.21	40
University enrolments 1998	3.3	28
Global workers/100	43	38
Skill sustainability/100	45	28

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	9.8	60
Commercial floor space per capita (1998-2001)	1.1	45

RESEARCH & DEVELOPMENT

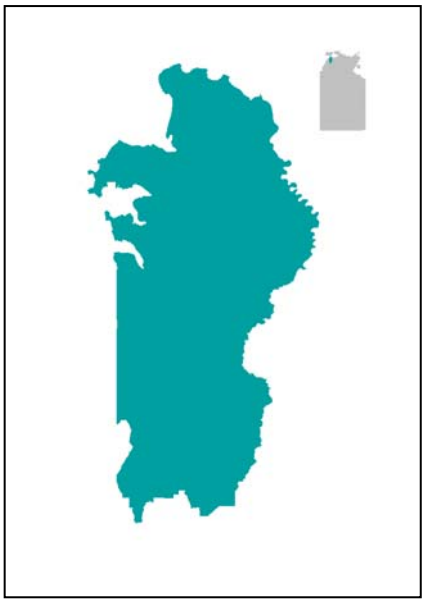
	Value ($)	Rank
Supply (1998)	98.0	39
Demand (1998)	183.2	30

SOCIAL

	Value	Rank
High income families -%	12.7	37
Social benefits as a % of net flow of funds	23.9	58

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. There was little choice as to the actual boundary: the group of LGAs centred on Darwin is surrounded by unincorporated areas. 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.



Major centres:

Darwin

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	102,557		108,255		1.8
No. households	38,296		41,780		2.9
Workforce	53,142	51.8	56,467	52.2	2.0
Employment	46,996		49,707		1.9
Unemployment	6,146	11.6	6,761	12.0	3.2
Structural U/E	7,088	13.4	8,172	13.6	4.9
DEWRSB U/E	2,388	4.5	2,042	3.7	-5.1

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	2,241	21,420	2,519	23,270	6.0
Taxes paid	423	4,044	427	3,940	0.4
GST paid			153	1,414	
Benefits	169	1,614	185	1,709	4.7
Business income	203	1,943	213	1,971	2.5
Interest/dividends	41	387	44	411	4.8
Interest paid	108	1,031	145	1,340	16.0
Net property income	-13	-122	-15	-142	9.9
Net flow of funds	2,110	20,168	2,222	20,525	2.6
Rank		5		6	21

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Building & engineering assoc. prof.	210	Computing professionals	-173
Higher education teachers	144	Accountants	-158
General managers	139	Secretaries & personal assistants	-74
Comp. secretaries & finance managers	136	Sales & marketing managers	-55
Advanced clerical & service workers	123	Graphic designers	-47

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	59,526	18
Patent applications per 1,000 people	0.6	58
Tertiary degree attainment	0.28	14
University enrolments 1998	5.2	9
Global workers/100	61	16
Skill sustainability/100	58	14

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	34.1	5
Commercial floor space per capita (1998-2001)	3.0	8

RESEARCH & DEVELOPMENT

	Value ($)	Rank
Supply (1998)	226.8	17
Demand (1998)	69.5	62

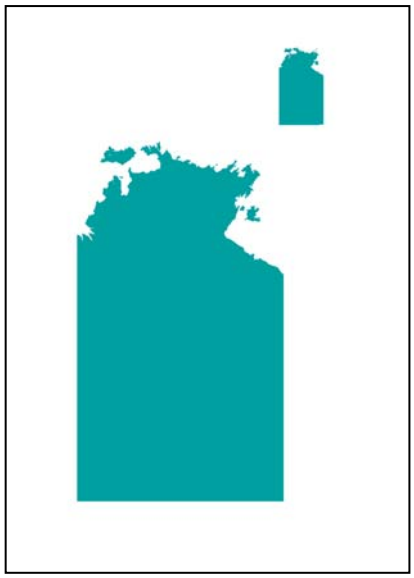
SOCIAL

	Value	Rank
High income families -%	17.0	19
Social benefits as a % of net flow of funds	8.3	6

NT Lingiari

Outside Darwin, the Northern Territory comprises conservation reserves and low-productivity pastoral country. 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. A remarkably high proportion of community commercial income comes from the sale of art.

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	Average annualised growth rate
Population	87,434		89,416		0.8
No. households	26,384		27,684		1.6
Workforce	38,976	44.6	41,258	46.1	1.9
Employment	31,738		30,709		-1.1
Unemployment	7,238	18.6	10,549	25.6	13.4
Structural U/E	8,293	21.3	10,675	23.9	8.8
DEWRSB U/E	1,777	4.6	2,798	6.8	16.3

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	1,376	15,619	1,462	16,345	3.0
Taxes paid	237	2,694	239	2,677	0.4
GST paid			86	965	
Benefits	239	2,717	200	2,242	-8.5
Business income	126	1,427	132	1,475	2.4
Interest/dividends	15	170	16	182	4.3
Interest paid	57	648	75	838	14.5
Net property income	-10	-116	-12	-138	9.9
Net flow of funds	1,452	16,475	1,397	15,627	-1.9
Rank		14		19	44

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Science building & engineering prof.	123	Accountants	-160
Building & engineering assoc. prof.	97	Computing professionals	-147
Medical & science technical officers	78	Secretaries & personal assistants	-141
Advanced clerical & service workers	75	Project & office managers	-134
Construction managers	55	Misc. business & info. prof.	-114

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	54,842	32
Patent applications per 1,000 people	0.4	64
Tertiary degree attainment	0.23	29
University enrolments 1998	2.6	47
Global workers/100	37	44
Skill sustainability/100	43	31

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	14.9	50
Commercial floor space per capita (1998-2001)	1.0	47

RESEARCH & DEVELOPMENT

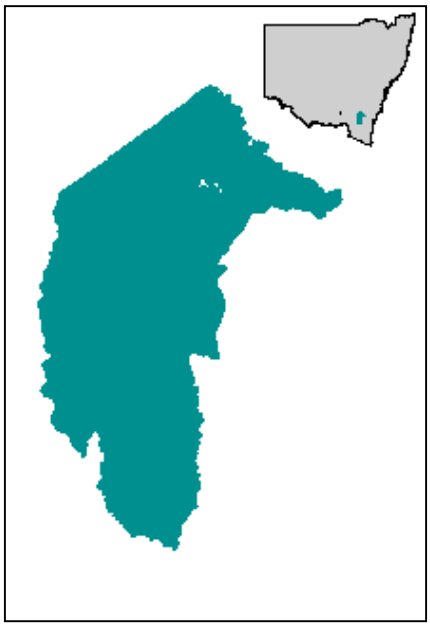
	Value ($)	Rank
Supply (1998)	314.3	7
Demand (1998)	95.5	60

SOCIAL

	Value	Rank
High income families -%	26.2	13
Social benefits as a % of net flow of funds	14.3	22

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.



Major centres:

Canberra

POPULATION / LABOUR FORCE

	1998 level	1998 percentage	2001 level	2001 percentage	Average annualised growth rate
Population	308,411		313,520		0.5
No. households	112,907		118,874		1.7
Workforce	171,586	55.6	178,298	56.9	1.3
Employment	157,447		168,561		2.3
Unemployment	14,138	8.2	9,737	5.5	-11.7
Structural U/E	16,190	9.6	13,688	7.4	-5.4
DEWRSB U/E	10,742	6.3	8,501	4.8	-7.5

FLOW OF FUNDS

	1999 level ($m)	1999 per capita ($)	2001 level ($m)	2001 per capita ($)	% p.a. growth
Wages/salaries	7,461	24,123	8,574	27,348	7.2
Taxes paid	1,658	5,362	1,648	5,258	-0.3
GST paid			503	1,603	
Benefits	406	1,314	403	1,286	-0.4
Business income	511	1,652	546	1,740	3.3
Interest/dividends	197	636	215	687	4.7
Interest paid	443	1,432	580	1,850	14.4
Net property income	-27	-86	-32	-103	10.1
Net flow of funds	6,447	20,844	6,975	22,248	4.0
Rank		3		5	7

OCCUPATIONAL BALANCE

Occupation	Surplus	Occupation	Deficit
Computing professionals	2,968	Secretaries & personal assistants	-813
Planning managers	2,819	Building & engineer. assoc. prof.	-651
Misc. business & information prof.	2,434	Accountants	-544
Comp. secretaries & finance managers	957	Adv. clerical & service workers	-467
IT managers	922	Science building & engineer. prof.	-283

GENERAL

	Value	Rank
GRP (excl. mining) per person employed	62,090	13
Patent applications per 1,000 people	4.1	3
Tertiary degree attainment	0.38	2
University enrolments 1998	7.0	2
Global workers/100	95	2
Skill sustainability/100	77	2

CONSTRUCTION

	Value	Rank
Building approvals per capita (1998-2001)	19.4	39
Commercial floor space per capita (1998-2001)	2.0	20

RESEARCH & DEVELOPMENT

	Value ($m)	Rank
Supply (1998)	875.6	1
Demand (1998)	25.3	64

SOCIAL

	Value	Rank
High income families -%	44.1	4
Social benefits as a % of net flow of funds	5.8	2