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Investing in regions: Making a difference

John Daley and Annette Lancy

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This report was written by John Daley, Chief Executive Officer and Annette Lancy, Research Associate, Grattan Institute.

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Overview

Australia is increasingly described as a "patchwork economy" – an economy in which some parts of the country boom and others lag. Some regions have faster population growth, more employment opportunities, and provide a wider variety of services, while others are growing more slowly or even shrinking.

Our largest capital cities, and regions within an hour or two's drive of them (such as Ballarat), are growing quickly. Agglomeration economics explains that already concentrated populations tend to grow faster because they have larger markets, more high quality human capital, and more infrastructure that facilitates economic interactions. Fast growing cities near capitals are not simply dormitories for commuters. These satellite cities provide economic and service hubs for their local regions, supported by proximity to capital cities.

Coastal areas, even those not close to capital cities, are also growing quickly because people want to enjoy coastal amenities, including in their retirement or as a base for commuting to jobs in inland mining areas (such as Mandurah, south of Perth).

By contrast, inland centres are generally growing slowly or even shrinking in some cases, except where mining is driving rapid regional growth. Agriculture is no longer driving rapid economic growth in regional areas.

Historically, Australian governments have taken a "regional equity" approach to these disparities. They have tried to get slower regions to grow faster. Some wanted to alleviate congestion by encouraging growth outside Australia's capitals.

Australian governments spend over $2 billion per year on explicit programs to promote regional growth. Much more is spent on other programs where regional growth is an important goal.

However, the findings of this report show government spending cannot make economic water flow uphill. Local job attraction schemes, regional universities, small scale roads and major infrastructure are all expensive, but they do not appear to materially accelerate slow-growing regions. By not investing in regions where we can get the best return for our taxpayer dollars, we sacrifice higher overall productivity and economic growth.

Worse, the regional equity approach has treated people unfairly. Governments have tended to divide recurrent and infrastructure funding between regions according to the number of *existing* residents, and have tended to underinvest in "bolting" regions. Consequently, the people in rapidly growing regions near capital cities and on the coast get substantially less than their fair share of services and infrastructure. It would be fairer and more efficient to allocate more infrastructure funds according to the number of *new* residents.

Smaller and slower growing parts of rural and regional Australia remain great places to live and should not be left without services that increase wellbeing – such as schools, hospitals, transport and other community facilities. In many cases these services are what regional development policies are really funding. However, these should be clearly recognised as subsidies to be justified on equity or social grounds, rather than hoping that they will generate self-sustaining economic growth.

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1 Scope, outline, and implications

1.1 Scope of this report

We face the risk of a "patchwork economy" - an economy where some parts of the country boom while others go backwards.

The Hon Julia Gillard,MP, Prime Minister of Australia. Speech to the Queensland Media Club, 12 October 2010

The Prime Minister and others are increasingly using the term 'patchwork economy', to describe how different regions of Australia are experiencing variable economic conditions.

This phenomenon is not new, but reflects the reality that as some regions add population faster, provide more job opportunities and support a wider range of services, other regions must by definition grow at a slower pace. Within a country as large and geographically diverse as Australia, this is not surprising.

This patchwork of regional economic development has always created challenges for governments at the national level and within regions. When a region is growing, rapid change brings new opportunities as well as challenges to avoid congestion and to meet the infrastructure and other needs of existing and new residents. Slower growing regions fear they will be left behind or even go backwards if residents, jobs and services leave the area, and they apply political pressure to governments to introduce policies to promote economic growth in the region.

Box 1: What is regional development and how is it measured?

In this report we focus on the ***economic*** development of regions, as it is the underlying health of a region's economic base that sustains jobs and other activity into the future. Generally we measure regional economic growth through growth in population, employment and average incomes.

While economic activity is commonly measured by Gross Domestic Product (GDP) or Gross State Product (GSP) at a State level, no equivalent set of official statistics accounts for economic activity at a regional level. However, economic growth is driven by the 3P's - population, participation and productivity.[1] So population, employment growth, and average incomes are useful proxies for regional economic growth.

These economic indicators are not the only things that matter. Just as a focus solely on GDP growth can obscure other important aspects of national wellbeing such as social interaction or environmental amenity, the wellbeing of a regional area is also much more than the region's population growth rate.

Regional areas that are growing slowly, as measured by population, employment or income growth, are not unattractive places to live or without economic opportunities. In fact, regional areas often score more highly on other dimensions of wellbeing than larger cities, especially measures of social interaction.[2]

[1] Henry (2003)
[2] For example, over 80% of people in outer regional and remote areas of Australia felt part of their local community, compared to 71% of people residing in major cities: BTRE (2008) p.13. However, other wellbeing dimensions, such as health outcomes are less favourable (see Figure 6)

Against the backdrop of renewed interest in regional growth differences, this report sets out to answer three important questions raised by Australia's "patchwork economy".

1. Which regions of Australia are bolting and growing quickly, and which are lagging and growing slowly or even shrinking?
2. Can regional development policies lift growth rates in lagging regions, and do their benefits justify the costs?
3. Is government spending on social infrastructure well-targeted for variations in regional growth?

As we outline in more detail in the following chapters, the available evidence suggests that a government that attempts to even out regional economic growth rates is engaging in a futile exercise to push economic water uphill.

1.2 Outline

In Chapter 2 of this report, we **map the 'patchwork economy'**, showing that capital city satellites and coastal areas are bolting, while inland areas are lagging behind.

In Chapter 3 we investigate the causes of these differences. We conclude that **growth is primarily driven by economic factors governments don't control**. The major drivers of population growth today are the concentration of firms and people (agglomeration), mining opportunities, and the natural amenity of coastal areas. Governments can improve infrastructure and education, but these will only accelerate growth in areas which already provide a fertile environment – agglomerations and local job opportunities.

In Chapter 4 we review the history of government interventions to try to accelerate regional growth. We conclude that **government spending cannot make economic water flow uphill and accelerate slow-growing regions**. Over $2 billion a year is spent on explicit regional development programs, trying to get lagging regions to grow faster. However, Australian job attraction schemes, decentralisation, regional universities and infrastructure schemes do not appear to have made regional areas grow faster in the past.

In Chapter 5 we examine spending on regional services. We conclude that **the current approach to services of "regional equity" is unfair to residents of bolting regions**. They are not getting their fair share of services.

1.3 What should governments do?

Instead, governments can better improve the wellbeing of all Australians by being candid about the purpose of regional programs and using the best policy lever for the task. More specifically, government should:

- **Recognise that many regional development programs such as regional universities and local community facilities are in fact subsidies that can only be justified on equity or social grounds** rather than because they are likely to drive long-term sustainable economic growth. This may then provoke an honest conversation about what level of service governments are prepared to fund in more remote areas given the costs of servicing them.
- **Refocus regional assistance on providing social services** rather than trying to promote business and job creation.
- **Discontinue regional development programs that cannot be justified purely on equity or social grounds.**
- **Re-consider whether additional funding to regional universities is justified** by social and cultural benefits given limited economic impact.
- **Consider providing additional support for regional students** to attend higher education in capital cities.
- **Increase the priority for service infrastructure and funding in fast-growing bolting regions** rather than trying to induce additional growth and relocation of activity back to slower-growing regions.
- **Support improvements in long-term growth drivers (education, transport infrastructure, and innovation) where they can accelerate economic growth already underway** – generally within 150km of large population centres or where there are natural advantages (such as mining or coastal towns).
- **Monitor and evaluate regional development and other growth programs** more rigorously and transparently to identify which programs truly make a difference.

2 Different regional outcomes

2.1 Urbanisation

Australia's capital cities, and regions within an hour or two's drive of them, are generally growing quickly. Urbanisation is the dominant long-term trend across the world. Already concentrated populations tend to grow faster because they have larger markets, more high quality human capital, and the ability to facilitate greater levels of innovation and economic interaction (see Box 2).

Major cities are hubs of economic activity. Collectively, all Australian cities with populations of 100,000 or more contribute nearly 80% of GDP, employ 75% of the nation's workforce, and generated 81% of the new jobs created between 2001 and 2006.[3]

This is not a uniquely Australian phenomenon. Half of the world's population already lives in cities, generating over 80% of the world's economic output.[4] Cities are important for innovation and economic growth in developed countries. The 100 largest metropolitan areas in the United States support two-thirds of the nation's jobs and three-quarters of its economic output, but cover just 12% of the land area.[5] In coming years, cities in developing economies will become increasingly important, accounting for 45% of global economic growth from 2007 to 2025.[6]

Box 2: Agglomeration economics – how big should a city be?

Agglomeration economics - the benefits that accrue to individuals and firms when a large amount and variety of economic activity is concentrated in one place – can be traced back to Marshall in the 1890s but is becoming increasingly influential in explaining the central role of large urban areas in economic growth.[7]

Fujita distinguishes between the centripetal and centrifugal forces which push for and pull against greater agglomeration. "Push" factors include the economies of scale from consolidating production in larger factories and the reduced transport costs of being near larger markets, as well as increased competition, gains from specialisation, reduced transaction costs and productivity spillovers that come from dealing closely with other people on a day-to-day basis. Despite the rise of the internet and reduced telecommunication costs, innovation seems to rely on face-to-face contact between people and firms, which therefore tend to aggregate in large cities.[8] If anything, reduced telecommunications and internet costs have accelerated the importance of cities to innovation because they assist the follow up of face-to-face interactions.[9]

"Pull" factors are the diseconomies of scale and agglomeration such as rising congestion, pollution and the higher cost of land in densely populated areas. The interplay of these competing forces means that there is no natural size which a city will grow to, or that it needs to reach in order to be efficient.

[3] Infrastructure Australia (2010) p.2
[4] Dobbs *et al.* (2011)
[5] Brookings Institution (2008) p.4
[6] Dobbs *et al.* (2011)

[7] Glaeser and Resseger (2010), Poelese (2009), Fujita and Thisse (1996), Rauch (1993), Krugman (1991), Jacobs (1990), Marshall (1890)
[8] OECD (2009a) p.670-671.
[9] Charlot and Duranton (2006)

2.2 Capital cities

Early colonial settlement patterns determined the locations of Australia's capital cities. Capital cities only became home to the majority of the Australian population after World War II. From then they were centres for both the increased production of manufactured goods and for immigrating workers.[10] Since the 1950s the concentration of Australia's population in the capital cities has continued to increase.

Over time, the Australian economy has shifted towards a more service-oriented economy with over 75% of workers now employed in service industries.[11] This trend has further accelerated the movement to cities in Australia – and around the world.

Today Australia's four largest capitals (Sydney, Melbourne, Brisbane and Perth) are growing quite rapidly. The smaller state capitals share some of the characteristics of regional coastal and inland cities discussed later in this chapter. However, for the purposes of this report, we have classified them throughout as capital cities, due to their distinctive economic characteristics as state government administration hubs. State capitals are also often explicitly excluded from regional funding programs.

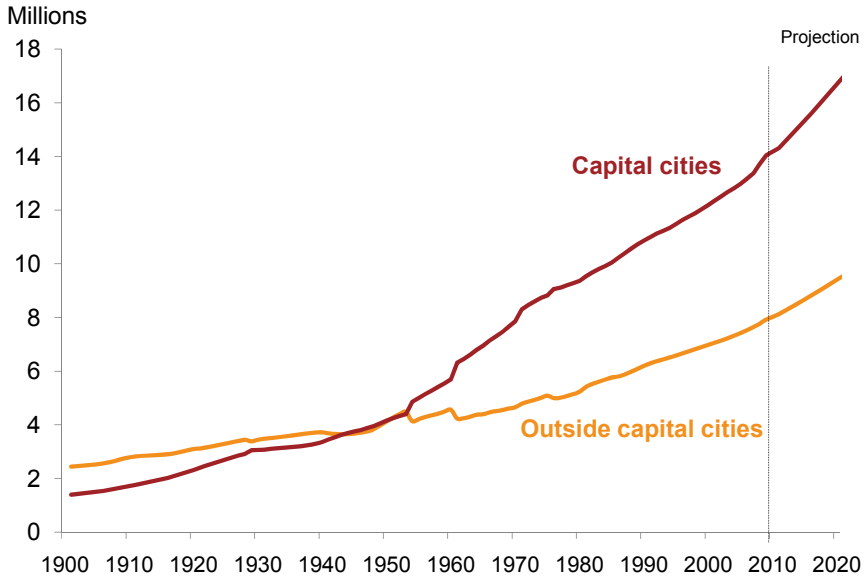
[10] Major Cities Unit (2010) p.3. Capital cities remain the primary location of migrants today, although the proportion settling in regional areas has increased over time. See Hugo and Harris (2011)
[11] ABS (2011b)

Around 64% of Australians (14 million people) lived in capital cities in 2009,[12] and this proportion is expected to grow slightly over the coming decades (see Figure 1).[13]

2.3 Regional areas

As leading Australian demographers and academics have pointed out,[14] the simple dichotomy between capital cities and the rest hides a more nuanced growth story in regional areas.

Figure 1: Australian population distribution



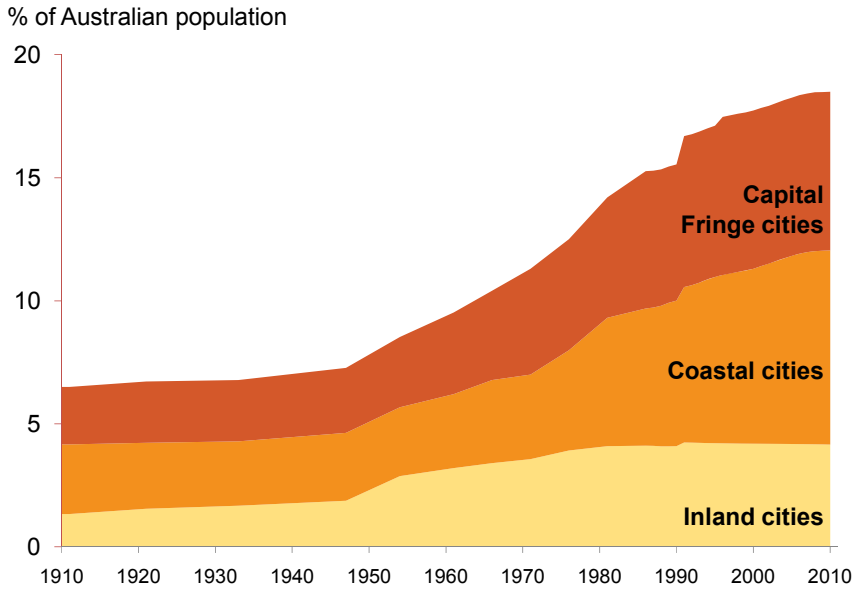
[12] ABS (2010b)
[13] ABS (2008a)
[14] Hugo *et al.* (2010), Budge (2005)

Source: ABS (2008b); ABS (2011a); ABS (2008a)

While some regional residents have moved to capital cities, around 4 million people, or just under 20% of the current population, now live in large urban areas outside capital cities. In this report we call these Australia's regional cities (see Table 1 and Figure 2). On average regional cities are now again growing faster than capital cities.

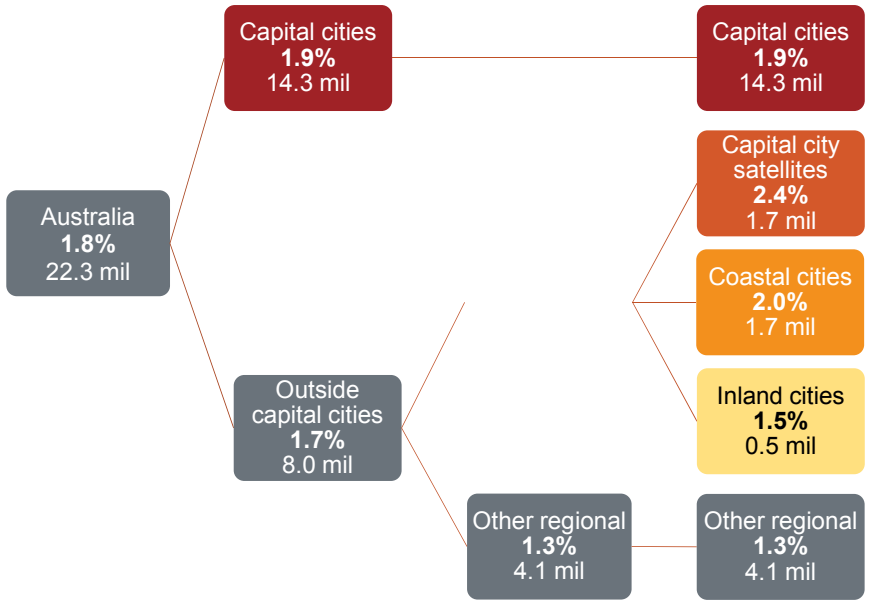
However, this picture conceals substantial variations outside capital cities in recent years (see Figure 2). Inland areas are not growing rapidly (1.5% per year on average between 2005 and 2010), while capital city satellites (2.4%) and coastal cities (2.0%) are bolting (see Figure 3).

Figure 2: Population distribution, regional cities



Source: Grattan Institute based on ABS (2008b) and ABS (2011a).
Note: ABS (2008b) does not include a complete series of population statistics for some regional cities. Additional figures were obtained from the 1954 Census records where necessary. Series break in 1991 as observations are not available for some Statistical Districts before this date.

Figure 3: Population growth by type of region: Annual population growth rate (2005-2010) and population at 30 June 2010



Source: Grattan Institute analysis based on ABS (2011a).
Note: Capital city satellite cities are regional cities are within 150 km of a capital city.

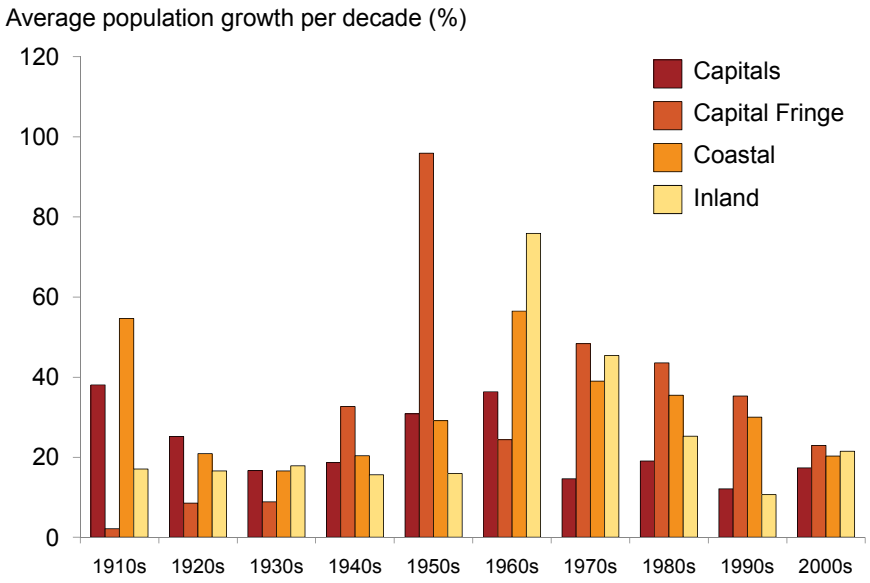
Table 1: Regional Cities Classification

State	Capital city satellites (within 150km of capital city)	Coastal	Inland
NSW	Wollongong	Newcastle; Coffs Harbour; Port Macquarie; Lismore; Nowra-Bomaderry	Tamworth, Bathurst, Dubbo, Orange
Vic	Geelong, Ballarat, Bendigo, Latrobe Valley	Warrnambool	Mildura, Shepparton
Qld	Gold Coast-Tweed; Sunshine Coast, Toowoomba	Hervey Bay; Gladstone; Rockhampton; Mackay; Townsville; Cairns	
WA	Mandurah	Bunbury; Geraldton	Kalgoorlie/Boulder
Tas		Burnie-Devonport	

Note: Statistical Districts are defined by the ABS' Australian Standard Geographical Classification. Each is a large predominantly urban area outside the Capital City Statistical Divisions. Each Statistical District contains one or more urban centres in close proximity to each other, with a total population of 25,000 or more and incorporates the expected urban spread of the area over the next 20 years.

It is critical to understand why different regions have grown, whether government policy had an impact and which areas are likely to keep growing into the future. The following sections provide further detail for each type of region.

Figure 4: Population growth rates, Australia, 1901 to 2010



Source: Grattan Institute based on ABS (2008b) and ABS (2011a)
Note: Apparent growth rates of inland areas in 1960s and 1970s are partly a result of redefined area boundaries – see footnote 25 (p. 13).

2.4 Capital city satellites

Capital city satellites are among the fastest growing regions in Australia today. They comprise larger regional cities located close to capital cities, such as Mandurah (4.3% average annual population growth rate between 2005 and 2010), Gold Coast-Tweed (3.1%), Sunshine Coast (2.9%) and Ballarat (2.0%).

Capital city satellites have a relationship to, but should not be confused with, fast-growing suburbs on the urban fringe of capital cities themselves.[15]

As capital city growth boundaries expand, the distance between a nearby satellite city and the edge of the capital contracts. While some residents may choose to live in the satellite city and commute back to the capital city for work, satellite cities are not simply dormitories for workers commuting to the CBD of the neighbouring capital city. For example, a 2007 analysis of transport patterns by the Victorian Government found that the median work journey was 10.9 km in Geelong and 6.8 km in Ballarat. Only 7% of commuter journeys from Geelong were over 75 km, the approximate distance to Melbourne.[16] Similarly, in outer suburbs, most residents work locally.[17]

Instead, satellite cities provide economic and service hubs for their regions. Their proximity to capital cities also allows local firms ready access to a large customer and supplier base.

The capital city satellite regions of Wollongong, Newcastle and Geelong grew rapidly in the post-war manufacturing boom. The proportion of the population living in these areas peaked in the early 1960s and declined slightly through the 1970s and 1980s. Geelong (1.5% per year) and Wollongong (1.1% per year) are now among the slowest growing regional cities in Australia.

[15] For example, the four fastest-growing local government areas in 2009-10 were all on Melbourne's urban fringes, with a combined population growth rate of 7%. See ABS (2011a) and Colebatch (2011).
[16] See Department of Transport, Victoria (2009), Figures 5.2 and 5.3
[17] Davies (2010), O'Connor (1999)

Yet while more established capital satellite cities such as Geelong now have slower growth rates, they continue to receive large numbers of new residents. In absolute numbers, Geelong had the largest population increase during 2008-09 of any regional centre in Victoria. There is also evidence that rapid population growth is occurring in neighbouring council areas such as Surf Coast (Torquay) and Golden Plains (Teesdale, Meredith).[18]

2.5 Coastal cities

Coastal cities are also growing slightly faster than capital cities (2.0% per year), with Queensland and Western Australian coastal cities growing much faster than those in NSW, Victoria or Tasmania.

Coastal areas, even those not close to capital cities, are growing quickly in part because people want to enjoy the amenity of a coastal area, especially as they near retirement. Within the coastal regional cities, an average of 15% of the population are aged 65 years and over, compared to 13% across Australia and 12% in capital cities.[19] At the time of the 2006 census, more than 45% of residents aged 65 or over now living in coastal cities had moved in the last five years.[20]

The trend of rapid population growth in capital city satellites and other coastal cities is most pronounced in Queensland and Western Australia. Treasury projections suggest cities on the Queensland Coast, South West WA and in Northern WA will grow by more than 50% between 2006 and 2031.[21] Mining is essential to this growth. It accounted for just 1.2% of jobs across Australia, but more than 10% of jobs in the Mackay region, around 20% in North West Queensland and South West WA and almost 30% in the Pilbara.[22]

In South West WA, which contains the rapidly growing regional cities of Mandurah and Bunbury, 4.4% of people are employed in mining, even though there are no significant mines in the immediate areas.[23] These regional cities, within driving distance of Perth, are home to a significant proportion of the fly-in, fly-out workforce. These workers are presumably making lifestyle decisions to live close to the coast, with land values substantially lower than in Perth,[24] but still within two hours drive of the Perth airport.

2.6 Inland cities and other regional areas

By contrast, large inland cities that are not located close to a capital city are generally growing slowly (1.5% per year on average between 2005-2010), except where mining is driving rapid regional growth. Like other cities, inland centres grew relatively quickly in the post-WWII era when a significant proportion of the population was still employed in the agricultural sector. The historical data also show rapid growth in inland city populations during the 1970s. This appears to be driven primarily

[18] ABS (2011a)
[19] ABS (2010c)
[20] ABS (2006). This includes older Australians who have moved residence within the same area, as well as 'sea-changers'.
[21] Ridout *et al.* (2010)
[22] ABS (2006)
[23] ABS (2006)
[24] Data from Australian Property Monitors (www.apm.com.au) show the median house price in the 12 months to January 2011 was $404,000 in the Mandurah local government area, compared to over $500,000 in the Perth region.

by changes in municipal area boundaries, rather than any significant impact from the Whitlam Government's decentralisation policies (see Box 7).[25]

Other regional areas that are not cities are generally growing much more slowly – on average around 1.3% per year between 2005 and 2010. Yet, again, areas vary significantly. Inland areas far from a large regional city have even shrunk. For example, the NSW Far West, including Broken Hill, lost on average 0.4% of its population each year and the Central West of Queensland, including Longreach, lost 0.6% per year between 2005 and 2010.[26]

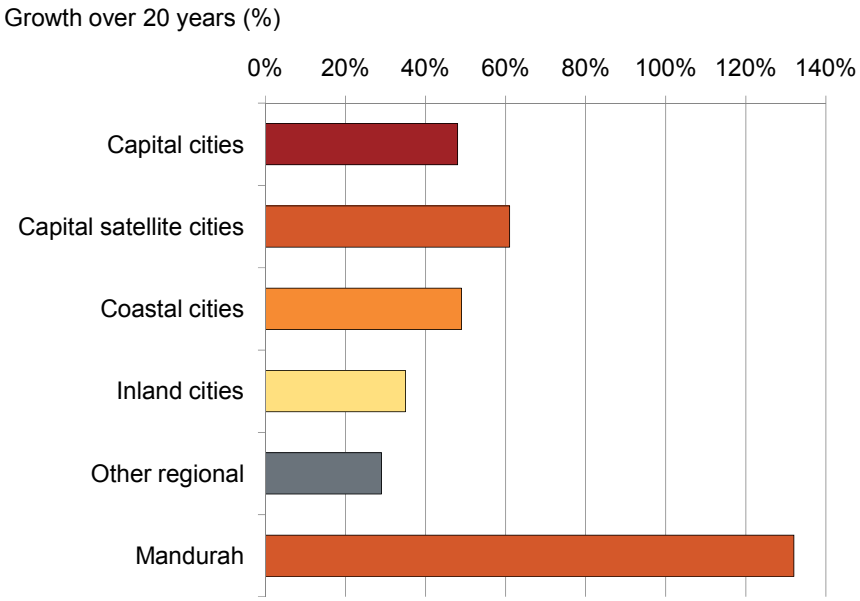
Other smaller regional towns continue to grow but at slow rates, so that in many towns the actual number of residents may only increase by around 50 a year. This increases the absolute difference in population between small regional towns and our fastest-growing cities. Even so, despite slower growth rates and smaller size, 4.1 million Australians – nearly one person in five – still live in these smaller regional towns and rural areas.

2.7 Population growth trends are important

Although these percentage growth rates might not seem very different, they will make a big difference if current trends continue.

When compounded over 20 years (see Figure 5), fast growing capital city fringe areas such as Mandurah could more than double in size. Inland areas, by contrast, would only add a third to their population and a town such as Broken Hill would halve.

Figure 5: Effect of current population growth trends over 20 years



Source: Grattan Institute analysis based on ABS (2011a).

Population growth and the demographic make up of future communities will determine the number of people wanting local schools, hospitals and transport infrastructure. They determine which areas are bolting, which are lagging and where additional money needs to be spent (see Table 2).

[25] For example, changing from measuring the population of Albury-Wodonga from an urban centre basis in 1971 to a statistical district basis in 1976, boundary changes caused the population in Albury-Wodonga to almost double over five years from 37,931 in 1971 (measured on an urban centre basis) to 63,409 in 1976 (measuring on a statistical district basis, which would incorporate more of the settlements surrounding the city proper).
[26] ABS (2011a)

Table 2: Bolting and lagging regions by state

State	Bolting Region (high pop. growth)	Lagging Region (low pop. growth)
NSW	Western Sydney, Coffs Harbour, Tweed Heads	Newcastle, Wollongong, Tamworth, Bathurst, Orange, Albury-Wodonga, Port Macquarie
Vic	Melbourne, Geelong region, Ballarat, Bendigo	Warrnambool, Shepparton, Mildura
Qld	Brisbane, Gold Coast, Sunshine Coast, Toowoomba, Hervey Bay, Townsville, Cairns, Gladstone, Mackay	Mt Isa, Longreach
WA	Perth, Mandurah, Busselton region, Port Hedland	Albany, Kalgoorlie/Boulder
SA	n/a	Adelaide, Whyalla, Mt. Gambier
Tas	n/a	Hobart, Launceston, Burnie-Devonport
ACT & NT	Darwin	

3 Drivers of uneven regional outcomes

3.1 Population growth and economic opportunity

Faster-growing regions have more economic opportunities. Economic considerations are the single biggest reason to move house. People from outer regional and remote areas are particularly likely to cite economic factors as their reason for relocating.[27] Job availability is also the central factor influencing the decision of skilled migrants whether to settle in a regional area of Australia on arrival.[28]

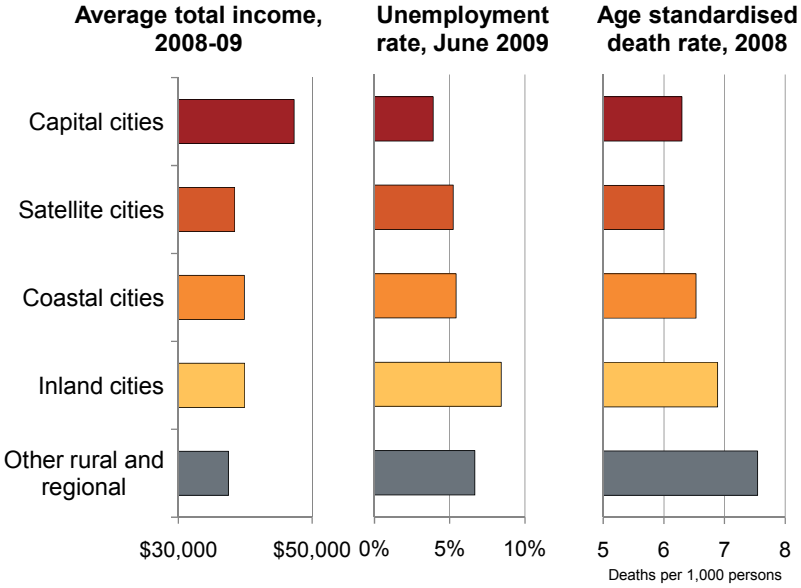
What attracts most people to these regional cities are job opportunities in the cities themselves (with the notable exception of fly-in, fly-out workforces in the mining sector discussed above), along with access to other services and amenities.

Australian analysis suggests that the intensity of job opportunities within easy commuting distance (30 minutes) had over three times the impact on explaining house price differences between Local Government Areas than variations in the accessibility of services such as education, health and entertainment.[29]

3.2 Economic opportunity and well-being

In lagging regions, economic growth is slow. As a result citizens in capital cities and faster-growing satellite and coastal cities have more employment opportunities and higher average levels of income than the slower-growing inland cities and other regional areas (see Figure 6). Poor economic outcomes also contribute to lower well-being in lagging regions, including higher death rates.

Figure 6: Indicators of well-being by region



Source: Grattan Institute analysis based on ABS (2010d)

[27] BTRE (2008) p.7. Based on unit record data from the 2005 National Migration Survey conducted by GISCA (National Centre for Social Applications of Geographic Information Systems) 17% of people from major cities or inner regional areas moved for economic considerations, compared to 21% in outer regional areas and 31% in remote and very remote areas. The Australian average was 18%.
[28] Institute for Social Science Research (2010) p8, 12ff.
[29] National Economics (2010) p 47: compare elasticity for commuting distance

Box 3: ABS Remoteness classifications and regional cities[30]

The ABS Remoteness Structure groups Australia into five broad regions based on road distance between each location and urban centres of various sizes. The structure seeks to group together regions of Australia with a similar level of physical ease of access to services and opportunities for social connection. As such, remoteness regions tend to spread out in rings from our largest cities, which are most capital cities, Newcastle and the Gold Coast.

The advantage of the ABS classification is that it provides a single objective measure for dividing Australian regions. It is commonly used for defining eligibility to regional programs and subsidies.

However, the ABS classification groups together areas with very different social and economic features. Broad social and economic outcomes in Australia are driven both by size of population centre, proximity to large capital cities and proximity to the coast. The single factor classification used by the ABS does not reflect these interacting variables.

For example, inner regional areas include both regional satellite cities near large capitals as well as smaller capitals such as Hobart and Canberra. In doing so the category combines regions that have very different characteristics and outcomes depending on their local geography and economy.

Most coastal and inland cities are farther from the major cities and so are classified as outer regional. Thus the "outer regional" classification covers two very different kinds of cities: fast-growing coastal cities, and slow-growing inland cities.

[30] See ABS (2010e). The ABS Remoteness structure will remain relatively unchanged when the new Australian Statistical Geography Standard (ASGS) commences at the time of the 2011 Census.

Similar trends appear if economic and social outcomes are dissected on the basis of the ABS remoteness scale.[31] However, some care needs to be taken using the ABS remoteness definition because it classifies some areas together even though their key social and economic characteristics are very different (See Box 3).

3.3 Improving economic opportunity

Greater economic opportunity in regional areas would probably increase both their population growth and well-being. How might this be possible?

Economic opportunities may result from:[32]

- Investments in physical capital, including transport and other economic infrastructure.[33]
- Investments in human capital, including greater educational attainment and productive skills in the labour force.[34]
- Increases in the size of the local labour force, through population growth (migration and natural increase) or raising the participation rate of the existing population.
- Investments in technological progress, including R&D or other forms of innovation.[35]

[31] BTRE (2008)
[32] BTRE (2003) contains a simple summary of the main economic growth theories. Acemoglu (2008) provides a more formal study.
[33] Solow (1957), Swan (1956)
[34] Romer (1990)

- Improved access to markets and centres of economic activity.[36]

The collective importance of these factors was confirmed by a large OECD study in 2009. It analysed growth drivers across 1,600 regions in its member countries between 1995 and 2005 (see Box 4).[37]

Yet neither the OECD study nor other research could identify which of these factors is most important. Some are correlated – countries with more educated workforces also tend to invest more in technological progress, for example. Nor could the OECD study identify which specific government policies improve the outcomes for particular regions, rather than across an entire economy.

Applying OECD policy recommendations in Australia requires care given that the OECD's analysis has generally been undertaken at the first sub-national level – so each Australian State counts as a "region", with no analysis of smaller-scale geographic differences.[38] As our analysis of Australian growth trends has shown, economic resources, capacity and capability can vary significantly among regions within a State.

Box 4: OECD evidence on effective regional growth policies

The OECD recommended four policies to accelerate regional growth:

Provide infrastructure as part of an integrated regional approach
Infrastructure investment alone does not significantly improve regional growth. However, when combined with adequate levels of human capital and innovation in the target region, infrastructure investment takes three years to positively influence growth.

Invest in human capital
Investments in tertiary education are the most significant driver of growth and take around three years to have a positive impact on regional growth.

Emphasise innovation and R&D
Investments in R&D promote regional growth, but over a longer time. The benefit can only be seen after five years and unlike the agglomeration of other forms of capital, which can influence economic growth in neighbouring regions, the benefits of innovation seem to be localised.

Focus on integrated regional policies
Agglomeration economics are partly responsible for regional growth, as regions are strongly influenced by the economic performance of neighbouring regions. However, a region's level of human capital and innovation is more important than proximity to markets.

Source: OECD (2009b)

[35] Barro (2000)
[36] Krugman (1991)
[37] See OECD (2009a)
[38] OECD (2011); OECD (2009a)

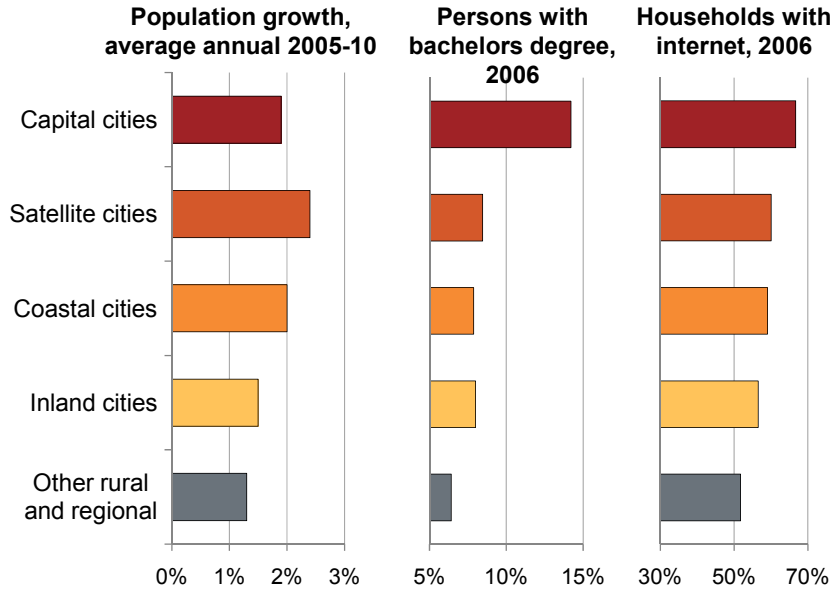
3.4 Sources of economic opportunity in regional Australia

The lagging areas of Australia perform relatively poorly on each of the identified economic growth drivers (see Figure 7). It is therefore not surprising that their economic growth is slower than in capital cities and bolting satellite and coastal cities.

A simplistic policy prescription might be for governments to invest in infrastructure, human capital, and R&D in slower-growing inland cities and other regional areas.

Yet as the rest of this report shows, this risks wasting taxpayer dollars for little economic return.

Figure 7: Economic growth drivers by region



Source: Grattan Institute analysis based on ABS (2010d)

4 Aiming for equal economic growth in regions is unproductive

Traditionally, governments have taken a "regional equity" approach to disparities in regional growth. Rather than redistributing the uneven economic impacts on individuals of disparate regional growth, these regional development policies aim to get the laggard regions to grow faster.

This is on top of other Federal Government policies designed to reduce the impact of unequal economic outcomes through *equity-based* policies such as the tax-transfer system and universal service access schemes such as Medicare. Horizontal fiscal equalisation through the Commonwealth Grants Commission also seeks to enable each State to fund a similar level of government services to its citizens.

However, economic theory, Australia's economic history, analysis of Australian government interventions and Australia's current patterns of development all suggest that there is relatively little that governments can do to increase the economic growth rates and population growth of particular regions.

Our analysis shows little lasting economic impact from regional job attraction schemes (including programs following factory closures), decentralisation of government jobs, and regional universities.

Despite successive waves of regional development policies, the long-term major patterns of regional development are primarily explained by exogenous economic factors, not by specific government intervention in a particular region.

Today these economic forces predominantly encourage economic activity and services to concentrate in or near large urban areas and it appears government intervention can do little to change this.

4.1 History of Australian regional development interventions

Other than the movement of the public service to Canberra, decades of government intervention in targeted regional development areas have made little difference to long-term trends in economic development and population growth.

In Australia, as in other countries, the focus of regional development policies has changed as theories of economic growth have evolved.

The Bureau of Transport Economics traced the evolution of federal policy from strategic infrastructure development and protectionist sectoral policies in the first half of the 20th century, to the investment attraction schemes (1950s and 1960s) and decentralisation initiatives for designated growth areas (1970s). In the last 30 years governments tried to assist private business development, first through industry or sectoral development plans (in the 1980s) followed by region-specific growth programs from the 1990s onwards.[39]

[39] BTRE (2003)

Region-specific or endogenous regional growth programs seek to exploit and develop a region's resources and capabilities in order to generate self-sustaining growth. These policies tend to target the economic growth drivers identified by the OECD in Box 4 (p. 17), including human capital, innovation, infrastructure and market integration. As a result, policies such as regional tertiary education institutions and provision of economic infrastructure are very common.

The most recent specific regional development policies announced by Commonwealth and state and territory governments total more than $2 billion a year of funding (see Table 3). The bulk of this funding is delivered by the Western Australian "Royalties for Regions" program and implementation of the Commonwealth's "Commitment to Regional Australia".

This is a conservative estimate, as successive governments have embedded policies for promoting specific regional development in a range of other ongoing programs such as the local Roads for Recovery program, worth $1.75 billion over five years from 2009-10 to 2013-14.

As well, industry assistance often has a substantial regional component. The Productivity Commission estimated that in 2008-09 the Commonwealth outlaid $70 million for explicit regional or structural adjustment. It identified a further $1.1 billion in industry and sector-specific assistance, most of which we believe has an explicit or implicit regional dimension, such as automotive industry assistance or 'exceptional circumstances' drought relief. This is a substantial proportion of the total industry assistance outlay of $3.7 billion that also includes non-sector-specific assistance such as R&D funding and small business programs (supplemented by a further $4 billion in tax concessions for industry assistance).[40]

Table 3: Programs badged as regional development

Jurisdiction	Program	Funding ($million)
NSW	Regional Development Assistance Package (2010-11 Budget)	$47.4m over four years
Victoria	Regional Growth Fund (2010 election commitment)	$1b over eight years
Queensland	Tomorrow's Regions (June 2010)	$2m over two years
	Smart State Stage 3	$120m over four years
South Australia	Riverland Sustainable Futures Fund & Upper Spencer Gulf Enterprise Zone (March 2010)	$24m over four years
W. Australia	Royalties for Regions (2008)	Over $1bn per year
Tasmania	Regional Assistance Program (RAP-Tas)	$2.5m over two years
Commonwealth	Commitment to Regional Australia (September 2010)	$10 billion over eight years (including $4.3 billion allocated in 2011-12 Budget)
	Investing in Australia's Regions (May 2011)	
TOTAL per year		**Over $2 billion**

[40] Productivity Commission (2010) p13.

An initial attempt at spatial accounting in the 2011-12 Federal Budget identified $54 billion of Government spending or 31.6% of the total funding for the programs studied flowed directly to regional Australia, although over $25 billion of this was for regional recipients of income support and other transfer payments and subsidies that do not meet the definition of regional development assistance used in this report.[41]

Drawing the line between regional development spending and other forms of government spending in regional areas is always difficult. Many regional development packages include elements of both economic development assistance and social support measures, as set out in Box 5. More worryingly, the rationale for government spending in regional areas is often blurred. Projects which primarily provide social infrastructure and more equitable access to government services are often badged and spending justified as regional economic development projects.[42]

This is not merely a question of semantics. As the available evidence discussed in the remainder of this chapter shows, region-specific economic development programs, while expensive, do little to create sustainable economic growth. When the only justification for a program is its social benefit, then it is likely to be scrutinised more carefully to determine whether the service level is reasonable given the cost and whether the program is delivering these benefits to the areas of greatest need.

Box 5: Badging regional community spending as regional development policy

Regional development packages typically include a mixture of funding for both economic development and social infrastructure. For example, the $4.3 billion regional package announced in the 2011-12 Federal Budget includes $1.8 billion for hospital and health services upgrades as well as over $600 million for regional higher education, $916 million for large scale regional economic infrastructure and $1 billion for smaller scale community development projects.

Within individual regional development programs, projects that appear to be primarily about improving the social and community base of a region are often justified on the basis that they will deliver economic growth and jobs and help the region establish a sustainable economic base.

"Local councils and shires across the nation will have funds to build key community assets such as playgrounds or sporting fields as nominated in submissions by the local authority.

"This $100 million investment will not only improve community facilities but at the same time support local jobs and boost local economies," Mr Crean said ."The funding will help promote business and economic activity nationwide"

The Hon Simon Crean MP, Federal Minister for Regional Australia, Media Release, 7 December 2010

"The Regional Growth Fund [will] provide better infrastructure, facilities and services; strengthen the economic and social base of communities; create jobs and improve career opportunities for regional Victorians; and support local project development and planning."

The Hon Dr Denis Napthine MP, Victorian Minister for Regional Cities, Media Release, 5 May 2011

[41] see Crean (2011) p149-185.
[42] See for example DSEWPC (2011) p77

4.2 Regional job attraction schemes

4.2.1 Scheme design

For years, job attraction schemes have been a significant feature of regional development policies in Australia and overseas. Some recent examples are outlined in Box 6.

Regional job attraction schemes subsidise the establishment or expansion of businesses in a particular region. Usually this assistance is provided through a one-off grant to the business for the necessary capital investments. Other forms of support can include tax breaks, wage subsidies, supporting public infrastructure or other in-kind support, or enterprise zones where a number of these policy levers may operate together.

4.2.2 Evidence about regional job attraction schemes

The success or failure of job attraction schemes as a regional development policy is often concealed because:

- the level of assistance, and the recipients, are sometimes not made public;
- evidence of any jobs created is often not collected;
- evaluation is often qualitative; and
- outcomes are not publicly disclosed.

Lack of transparency is a big problem in evaluating the effectiveness of Australian regional job attraction schemes.

Box 6: Recent Australian regional job attraction schemes

A $17 million **South East South Australia Innovation and Investment Fund** was announced by the Commonwealth and South Australian Governments on 25 January 2011. The Fund seeks to lessen the impact on the South East SA region of the closure of Kimberley Clark's paper mills. It will focus on new sustainable job opportunities in the region in manufacturing and manufacturing services.[43]

The NSW Regional Business Employment Fund aims to encourage business growth and new employment creation in regional NSW by offsetting business costs, including payroll tax. Further funds are available for businesses expanding into the lagging regions of Western Sydney, Hunter and Illawarra.

The 2010-11 NSW Budget also included $40 million over two years for the **Major Investment Attraction Scheme,** which is explicitly designed to attract large 'footloose' projects to NSW and $75 million to attract Defence industry suppliers and manufacturers.

The **Queensland Smart State Initiative** has invested more than $3.6 billion in science, research and innovation initiatives since 1998. The third stage of the initiative *Smart State 2008-2012* includes $120 million of funding over four years.

The South Australian Government established the **Upper Spencer Gulf Enterprise Zone** (including the towns of Whyalla, Port Pirie and Port Augusta) in its 2010 Budget. A $4 million fund provides grants for projects to enhance the long-term competitive advantages of the region.

[43] Carr (2011)

While not common, in some cases even basic information such as the amount of taxpayer-funded assistance provided to specific firms has been hidden as commercial-in-confidence[44] or otherwise undisclosed.[45]

While governments generally announce grant recipients and trumpet the numbers of new jobs and investment dollars expected to be attracted to the region, systematic monitoring and public reporting of the actual numbers of jobs or level of investment generated through investment attraction schemes does not occur.

Independent reviews of recent government regional grant programs by Auditors-General have consistently found that performance outcomes were either not effectively measured[46] or if measured, not met in a large number of cases.[47]

4.2.3 Scheme outcomes

On the best evidence available from around the world, regional job attraction schemes are generally not economically worthwhile.[48]

First, they often do not succeed in their primary aim of creating sustainable regional employment as they:

- do not result in jobs being permanently relocated; and
- require ongoing government assistance over the longer term.

Second, they may impose significant costs on the budget relative to their impact, particularly where they pay for jobs that would have been created anyway, or which are created outside the target region.[49]

Third, almost by definition, they impose *net* costs on the economy (thus reducing average living standards)[50] – at best they do not increase the *total* number of jobs in Australia, merely redistribute where they are located.

As a result, our analysis suggests that in Australia such programs have a very high dollar cost per expected job created, and significant uncertainty about the longer-term costs and benefits.

Where actual job numbers have been published, they appear to be lower than initial expectations. For example, only 43 of the expected 63 jobs to be created through the North East Tasmanian Innovation and Investment Fund launched in 2008 had been developed by 30 June 2010.[51]

[44] NSW Parliament (2009)
[45] The NSW Government provided an undisclosed package of incentives to entice a Perth based defence aircraft manufacturer to NSW, as part of a $75 million budg*et al.*location. See Premier of NSW (2011)
[46] ANAO (2010), Auditor-General of Victoria (2005), ANAO (2000).
[47] ANAO (2007) found that for the sample of Regional Partnerships projected audited by the ANAO, less than 25% could show they had met all the agreed performance outcomes.
[48] See for example, Kelly *et al.* (1997), Wren (1994), Mofidi & Stone (1990)
[49] Peters & Fisher (2002) study 75 enterprise zones operated by American states during the 1990s and find the zones supported on average six jobs that would have existed anyway for each truly additional job. See also Beer (2008) who notes that the largest funding recipient under the 2004 Structural Adjustment Fund for South Australian Structural Adjustment Fund (SAFSA) was a chicken processing plant in Edinburgh Park, 50 kilometres north of the Mitsubishi plant that had closed in Lonsdale.
[50] Freebairn (2003)
[51] DIISR (2011);

Most Australian job attraction schemes try to retain similar industries in a region, even where that industry is in ongoing decline (see case study on structural adjustment packages Section 4.2.4). Inevitably, it is expensive to prevent economic water from flowing downhill.

The Queensland 'Smart State' strategy is an exception. The Queensland Government has explicitly tried to increase the presence of new high-tech industries in the Queensland economy, spending over $3.6 billion over 10 years to 2008, and committing a further $120 million from 2008-2012 to retain and attract additional science and research jobs in the state.

The net benefits of the 'Smart State' strategy are difficult to assess, but it appears to have had some success. Brisbane, Sunshine Coast and Gold Coast all generate both high-tech and general patent application rates above the national average, while Townsville and Cairns have rates higher than other regional cities. However, patent application rates are higher still in the larger cities of Sydney and Melbourne and the rate of growth in patents has been lower than the national average in all Queensland centres except Townsville.[52] This suggests that other factors such as economies of scale from city size may have been a factor. As we discuss in more detail in relation to tertiary education centres and knowledge hubs, other regions looking to create their own high-tech industry cluster may need to proceed with caution.

4.2.4 Case study: regional structural adjustment programs

A prominent subset of regional job attraction schemes are programs that try to promote job creation after a large manufacturing plant has closed.

Many Australian manufacturing and agricultural sectors had to adjust when tariffs and other industry protection measures were unwound in the 1980s and 1990s.

The vast majority of the businesses and their employees adjusted without government assistance.

However, where an industry had a strong regional presence, the Commonwealth Government, in partnership with the relevant State Government, often provided a region-specific structural adjustment package. The best known example is the automotive industry, where ongoing assistance was provided as the industry shed capacity in South Australia and Geelong – alongside other industry assistance aimed at maintaining the remaining automotive manufacturers.

While these packages generally included a modest amount of funding for job search and training assistance for directly affected workers, they were designed primarily to attract new or expanding businesses to the region with grants to help them invest in plant or equipment.

[52] National Economics (2010)

Publicly disclosed information on the effectiveness of such schemes is very limited. Our analysis shows however, that such programs:

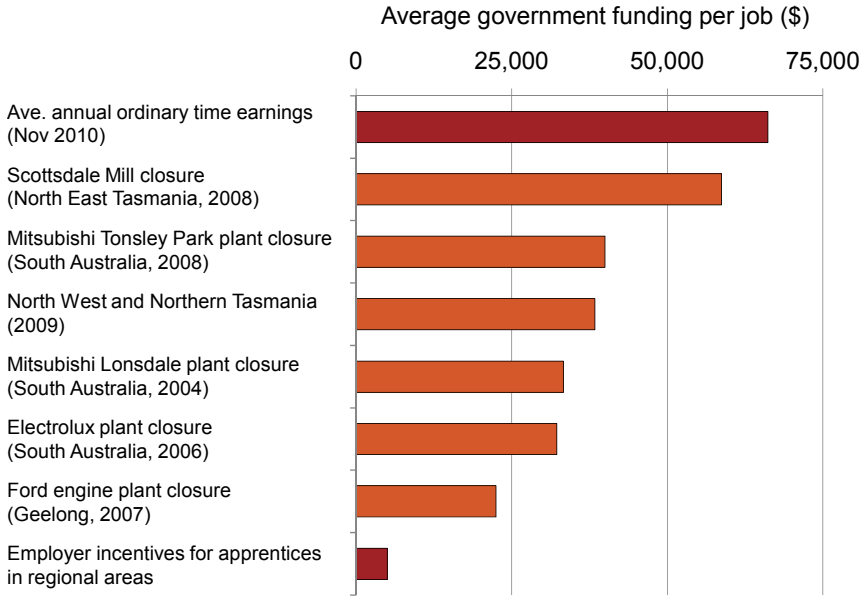
- have a high cost per job;
- do not appear to have significantly affected overall long term employment trends in the region; and
- did not result in the regions performing any better than other regions that lose a major employer but did not receive any government assistance.

The once-off cost per expected job from structural adjustment packages is high (see Figure 8), ranging from over $20,000 to nearly $60,000. This is equivalent to around 30 to 90% of current average earnings. If all of the planned jobs do not materialise, the cost per actual job is higher still.

In contrast, an employer who takes on an apprentice in a regional area receives only a total of $5,000 in Commonwealth Government subsidies (or less than 10% of average annual earnings).

At the macro level, a decade of special assistance for lagging regions has not translated into sustainable economic growth.

Figure 8: Average cost per expected job created under Commonwealth structural adjustment programs

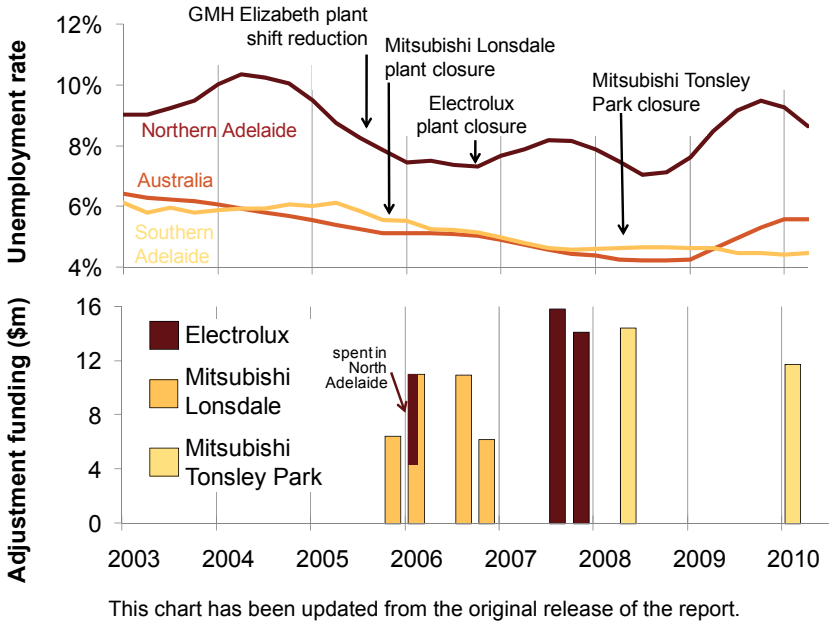


Source: Grattan Institute analysis based on ministerial press releases and AusIndustry data

For example, unemployment rates in Adelaide persisted above the national average for the last decade despite significant structural adjustment funds. Grants paid out under job attraction schemes introduced following automotive plant closures appear to have only temporarily reduced the region's unemployment rate. Overall, local unemployment rates seem primarily driven by national economic factors and the lack of economic diversification

and vibrancy in the areas rather than individual plant closures or specific job attraction and retention programs (see Figure 9).

Figure 9: Unemployment rates in Adelaide's structural adjustment region, 2002-2010



This chart has been updated from the original release of the report.

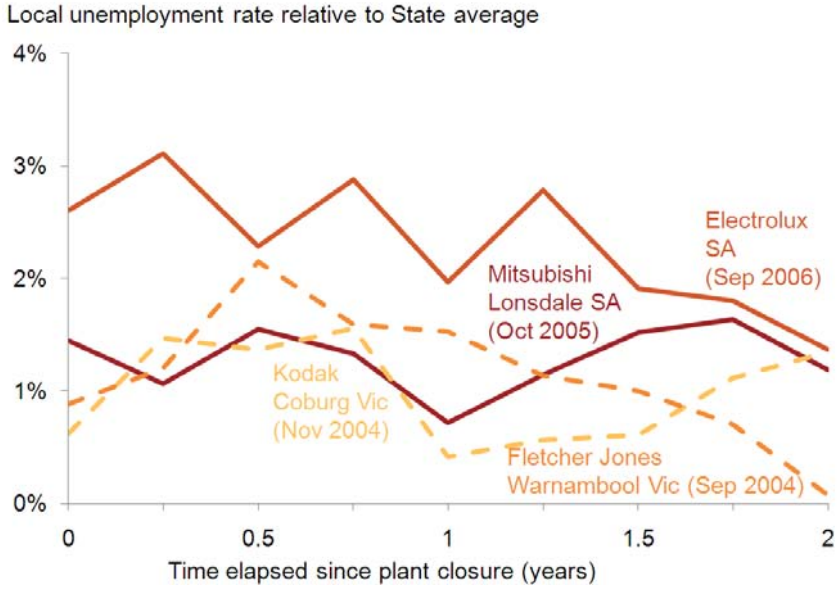
Source: Unemployment estimates are Parliamentary Library estimates derived from DEEWR Small Area Labour Market Data. Electorates are based on 2006 AEC Electoral Division Boundaries. Funding data are based on ministerial press releases and AusIndustry data.

Not all regions receive additional job attraction assistance when a major local employer closes down. However, unemployment outcomes after a plant closure appear to follow roughly the same course, whether or not regional assistance is provided. Figure 10 shows local unemployment rates relative to the relevant State average following four major plant closures between 2004-2006. Two of these (Mitsubishi Lonsdale, SA and Electrolux, SA) received significant regional structural adjustment packages. The other two (Fletcher Jones, Warrnambool, Vic and Kodak, Coburg, Vic) did not.

While the areas that received assistance started with (relatively) more depressed labour markets, the regions without assistance appeared to adjust slightly better over the next two years. While in all regions unemployment rose in the short term immediately following the plant closure, the recovery was not any quicker in regions that received structural adjustment assistance.

At best, the regional assistance packages may have ameliorated the immediate impact of the closure. However, as the funding paid out under the packages generally had a six to 12 month lag, it is not clear that this immediate effect could be attributed to the investment attraction component of the package as opposed to the associated intensive reskilling and job search assistance provided to affected workers.

Figure 10: Local unemployment trends following major plant closures



This chart has been updated from the original release of the report.

Source: Parliamentary Library estimates of unemployment rates in electorates directly affected by the plant closure, as derived from DEEWR Small Area Labour Market Data. State unemployment rates are from ABS (2011b).

4.3 Decentralisation of government jobs

Governments have promoted the relocation of public sector agencies and jobs to regional centres as a form of regional assistance. Examples of these are listed in Box 7. They have had little material impact on regional economic development. Canberra is an exception where the scale of the Federal Government has created a city in its own right.

Across Australia the public sector accounts for almost a fifth of all jobs,[53] but there are limits to how many of these jobs could be relocated to regional areas. Front line staff such as teachers, health professionals and emergency services personnel need to be located where government services are being delivered. Back office jobs tend to be in professional services and administration. While technological advances mean these jobs could be performed from regional centres, agglomeration economics shows that a lot of these jobs are exactly the type of jobs most efficiently concentrated in large urban areas.[54]

As a result, most recent decentralisation initiatives are small. At current growth rates, it would take fewer than two days for new arrivals to the city to replace the 400 people (0.01% of the city's four million residents) relocating from Melbourne as part of the Brumby Government's 2010 Regional Blueprint initiative. Of course, the impact on smaller regional areas receiving the population is larger, but not by much. When the Transport Accident Commission headquarters moved to Geelong, the 600

[53] ibid
[54] Glaesar and Resseger (2009)

relocated jobs represented just 0.03% of Geelong's population and 0.06% of its labour force.[55]

To have a discernible effect on an individual town, any decentralisation initiative needs to be much larger than previous programs. Even if larger initiatives were adopted, it is not clear that this would be in the national interest. The benefits to regional economies and any efficiency gains from restructuring business operations would need to be balanced against the costs of relocation, including any efficiency losses from reducing the concentration of economic activity in major urban centres.

Box 7: Examples of government decentralisation initiatives

The inland cities of **Albury-Wodonga** and **Bathurst-Orange** were selected for development under the Whitlam Government's decentralisation plans. In Albury-Wodonga, the aspiration was to grow the twin towns from 38,000 in 1972 to a model inland city of over 300,000, with major manufacturing operations, a regional university, defence facilities and other Federal Government Departments. The Fraser Government reduced the project considerably, and the outcome if the project had continued as originally planned is disputed.[56]

The Victorian Brumby Government's 2010 Ready for Tomorrow regional development blueprint relocated 400 government jobs to regional centres, including **Bendigo**, **Ballarat** and **Warrnambool**. Other state government agencies had already relocated their head offices to regional cities, including the Transport Accident Commission (600 jobs to Geelong), State Revenue Office (200 jobs to Ballarat) and Rural Finance Corporation (40 jobs to Bendigo).

The WA Nationals Leader asked the Federal Government to locate a large **military base in the Pilbara** to diversify the local economy and to meet the aspirational target that the region have a resident population of 140,000 people by 2035, triple the current population.[57]

Canberra was selected as the seat of the Commonwealth Government in 1908, but did not start to grow rapidly until entire government departments were relocated to the national capital after World War Two. Population growth then exceeded 5% a year during the 1950s to 1970s. Public administration continues to be the economic backbone of the region. 40% of jobs in Canberra are in the public sector.[58]

[55] ABS (2010d)

[56] Pennay (2005)
[57] Kerr (2011), Western Australia Planning Commission (2011)
[58] ABS (2006)

4.4 Regional universities

Spreading universities across regions to promote economic growth is a common regional development policy, especially in the US and Europe.[59] Australia has also developed a large network of regional universities.

It is argued that regional universities contribute to greater regional development in a number of ways.[60] However, the available evidence shows that Australia's regional universities:

- do not encourage additional productivity-enhancing innovation by local firms;
- do not promote higher rates of tertiary education participation and attainment; and
- do not help retain more skilled young people in the region.

A comparison of Australian cities with and without regional universities shows little difference in their economic development over the last decade.

The network of regional universities operating in Australia for nearly two decades has not made a material difference to regional growth and has not narrowed the gap between higher education participation levels in metropolitan and regional Australia.[61] However, it is a relatively expensive network to maintain as it costs taxpayers more per student to deliver higher education in smaller regional cities than larger cities.

This report does not investigate the contribution of a regional university to the cultural and community life of its region. It merely addresses the claim that the economic impact of universities in regions justifies the additional spending.

4.4.1 Regional universities in Australia

In Australia, tertiary education is concentrated in the major capital cities. However, more than 70% of Australia's 39 universities are either headquartered in a regional city or have a regional campus (see Figure 11). Many regional universities were created out of existing regional training colleges as part of the Dawkins higher education reforms of the early 1990s.

While most regional campuses are relatively small, tertiary education can be an important employer in smaller regional cities. In 2006, 1.8% of Australian employees worked in the tertiary education sector, yet the sector accounted for more than 4% of all jobs in Wagga Wagga and Bathurst, more than 3% in Canberra, Lismore and Rockhampton and more than 2.5% in Wollongong, Toowoomba, Ballarat and Warrnambool.[62] In the town of Armidale NSW, home to the University of New England, one in eight jobs is in tertiary education.[63] Outside the US, Australia has the greatest concentration of cities in which tertiary enrolments represent at least 20% of the population.[64]

[59] OECD (2007)
[60] See, for example, DEEWR (2011) p.1-6
[61] DEEWR (2010)
[62] ABS (2006)
[63] ABS (2006)
[64] Gumprecht (2008), p16

Figure 11: Map of Australian University Campuses

Source: Hugo (2010) p102

The Commonwealth Government invests significant resources in supporting regional universities. As well as subsidising student places and supporting research activity across all universities, in 2011 the Federal Government will quarantine up to $500 million from the Education Investment Fund for further investment in regional university campuses.[65]

An increased regional loading worth $249.4 million over the next four years is also payable to regional universities, in recognition of the higher costs and lack of economies of scale of teaching there.[66] Universities estimate that teaching at regional campuses costs between 5 – 50% more per student than at a capital-city based campus, depending on the size and remoteness of the regional campus.[67]

4.4.2 Regional universities in the United States

In the United States, college towns are common. They have sometimes succeeded in fostering surrounding economic development, although this usually depends on continued government funding for the university. Our reading of the evidence is that universities have contributed to self-sustaining economic activity only in college cities that had pre-existing scale and industry capacity (see Box 8).

[65] Commonwealth Budget 2011-12. This includes funding for a regional university campus in Port Macquarie, as agreed with the independent MP for Lyne, Mr Rob Oakeshott MP
[66] The regional loading system was reviewed, as recommended by the 2008 Review of Australian Higher Education (Bradley Review), see DEEWR (2009) and DEEWR (2011) and an expanded regional loading system introduced in the 2011-12 Commonwealth Budget. A regional university's share of the regional loading funding pool will depend on the number of students studying through a regional campus and the remoteness of the campus, based on the ABS Remoteness scale.
[67] DEEWR (2011) pvii

Box 8: College towns in the US

College towns – mid-sized regional cities away from state capitals that are home to a flagship university – are a well-known US phenomenon. Unlike Europe and Asia, where universities grew out of established urban areas, many US tertiary institutions such as Yale, New Haven and Princeton were "foundation tenants" in new urban settlements. Local governments offered the institutions land and money to establish a presence in the region.[68] Many state funded universities were also established after the Civil War following intra-state bidding competitions.

College towns have a reputation for vibrancy and amenity, low unemployment, high average incomes and a well-educated, young population. Their population growth is relatively stable and avoided the boom-bust cycle of other US cities, averaging 0.8% a year from 2000-06 to 1.1% a year through the economic downturn of 2006 to 2009.[69] They are often more economically developed than close neighbouring regions and may even be growing at their expense.[70]

Given the importance of state-funded universities and research grants, US college towns are more like Canberra or other concentrations of government activity. The town's long-term economic development rests on the ongoing presence of a large government-sponsored employer.

College towns such as Silicon Valley (Stanford University), Raleigh-Durham (Duke University, University of North Carolina) and Cambridge (Harvard, MIT) have formed the backbone of economic development theories that champion the role of universities and other higher education institutes as centres of innovation and knowledge transfer. As knowledge based-clusters[71] or by attracting the "creative classes",[72] the universities may create additional economic benefits beyond the direct impact of additional jobs and students. These include R&D and innovation spillovers to local businesses, and increased local amenity.

Closer examination of the US evidence shows that the region must have the pre-existing economic capacity to develop technological innovations, or else a university will add little to the local private sector economy. Some researchers have suggested that universities are best thought of as catalysts for, rather than drivers of, technological innovation.[73]

While universities are key collaborators in the Silicon Valley and Boston/Cambridge high-technology clusters, these all developed in areas that were already large metropolitan areas with large labour markets and regional financial centres. In contrast, Baltimore, despite being home to the largest research university in the US (Johns Hopkins University), has not developed a large technology cluster because it lacked pre-existing producer services, venture capital and other elements of an entrepreneurial culture.[74] Ann Arbor in Michigan devoted significant resources during the 1960s and 1970s to develop a technology park and high-tech research ventures. While a number of fast growing technology companies started, most moved away from the town as they grew bigger and were sold to larger established businesses.[75] Conversely, Portland, Oregon developed a high-tech sector without a research university by relying instead on private firms undertaking and collaborating on in-house R&D.[76]

[68] Gumprecht (2008) p18ff
[69] USA Today (2010)
[70] Winters (2008) finds that "smart towns" dominated by colleges with higher education levels are growing as the immigration of young people from the same State pursuing educational opportunities slightly outweighs the emigration of graduates. See also Polese (2009).
[71] Porter (1998)
[72] Florida *et al.* (2006)
[73] Bramwell, A & Wolfe, D (2008)
[74] Feldman, M (1994), Feldman, M and Desrochers, P (2004)
[75] Gumprecht (2008) p274
[76] Mayer, H (2005)

4.4.3 Impact of universities on regional economic growth

Previous studies of the economic impact of regional universities have not rigorously tested what the region's economic growth would be without the university. Our comparison of regional centres of similar size suggests that a local university has minimal impact on economic growth outside the university itself.

Most Australian studies of the impact of universities on regional development focus either on partial input-output analyses[77] or anecdotal references.[78] The direct economic impact of a university can indeed be significant for the area, as several studies commissioned by universities themselves have shown.[79]

These approaches can provide valuable information on the links between a university and other regional businesses. However, they do not assess what the economic performance of a region would be without the presence of the university. If the university were to leave the region, then some of the related economic activity might stay, and there might be other replacement businesses.

These partial input-output studies also fail to assess whether the government funds would have an even greater impact if spent in an area that already has greater economic opportunities.

One could address this question using general equilibrium modelling. However, the large data sets required are not available in sufficient detail in Australia to undertake this work.

The better approximation is to compare the performance of university cities to other cities of a similar size and location but which do not have a large tertiary education sector. In lieu of specific regional economic growth data, we have compared the performance of the cities against a number of indicators related to growth including population, jobs, innovation (roughly approximated by patent application rates) and human capital.

The university and reference cities chosen for this test are outlined in Appendix A. A regression analysis using all regional centres with and without a university comes to similar conclusions, as described in Appendix A.

On this basis, cities with a local university do not seem to grow their economies faster than cities without, as shown in Table 4.

As would be expected, university cities have more people with higher education degrees and slightly more people of prime working age, probably reflecting the people that the university attracts to the city as employees and students.

[77] Input-output analysis uses information from the National Accounts on the economic linkages between different regions and/or industries to estimate the flow-on impacts of an increase in a particular economic activity on the broader regional economy.
[78] For example, in a case study of Townsville BTRE (2003) p64 asserts "while not formally quantified here, the presence of educational institutions has likely facilitated technology and knowledge transfer, and improved productivity in local industries."
[79] Western Research Institute (2005); DS Enterprises Consultants (2009)

Table 4: Development of university cities

Towns[80]	Prime labour force	Higher education level	Unemploy -ment rate	Private sector growth	Patent Apps	Pop. Growth
non-university comparators	38.2%	37.1%	6.5%	21.4%	10.7	2.2%
University	39.3%	45.1%	6.3%	17.9%	10.7	1.5%
Australia	42.2%	42.7%	5.2%	13.9%	15.7	1.8%

Source: Grattan Institute analysis based on ABS (2001), (2006); (2011a); National Economics (2010)

Notes:

- ***Prime labour force** is the percentage of the town's population of prime working age (25-54) at the 2006 Census. This avoids double counting visiting students attending the university but not strongly attached to the local labour market*
- ***Higher education level** is the percentage of the working age population (15-64) with a post secondary education qualification, at the 2006 Census*
- ***Unemployment rate** is at the 2006 Census*
- ***Private sector growth** is the percentage increase in the number of people employed in private sector jobs between the 2001 and 2006 Census.*
- ***Patent applications** are the average annual number per 100,000 head of population, as reported in National Economics' 2010-11 State of the Regions Report*
- ***Population growth** is the average annual growth rate between 2005-2010*

[80] See Appendix A for a detailed list of towns included in the study and development indicators.

However, the economies of university cities do not develop faster than regions without a university. On average, population and private sector jobs grew faster outside university cities. Unemployment rates were similar.

The rate of patent applications and the growth in the number of patent applications over a decade were about the same, suggesting that a regional university provides limited local spillover benefits as a knowledge hub. This is contrary to the results of the only other study we could identify, which examined the impact on local innovation rates of decentralising regional universities to regional areas in Sweden.[81]

It has been argued that regional universities have a greater impact than metropolitan universities on local innovation because they provide skills, research and facilities otherwise not available to the region.[82] However, the Australian evidence suggests that regional innovation rates are similar with or without a regional university. Agglomeration economics suggest that the spillover effects of skills and research are greater when they are clustered together.[83] The experience of US college towns suggests that even world class universities have limited impact on innovation unless they are located in a region that already has thriving innovative industries – usually in large cities (see Box 8).

When regional universities employ staff and purchase local goods and services, they increase the region's population above what it would otherwise be, all other things being equal. However, in this regard regional universities share the fundamental problems of

[81] DEEWR (2011) p4-5
[82] DEEWR (2011) p4
[83] Krugman (1991)

other forms of regional job attraction schemes discussed in Section 4.2 (see Figure 8). They are relatively expensive policies – one estimate suggests every $1 million of direct expenditure by a regional university creates 33 jobs – about $30,00 per job per year[84] – but they ultimately simply transfer jobs around the country. Because it costs more to deliver higher education through a regional university, this transfer reduces overall productivity and living standards across the country.

4.4.4 Impact of regional universities on higher education participation

It has been suggested that regional universities increase local participation in higher education, and the proportion of school-leavers who ultimately work in their home region after completing higher education.[85]

However, our analysis shows that regional universities have no discernible impact on participation or retention when comparing cities of similar size.

Regional universities are often seen as a means to increase education levels of their region. As described in Chapter 2, smaller inland cities have fewer people with higher education, and are growing more slowly than larger coastal and capital satellite cities with universities.

However, this correlation does not prove that lower education levels in these regions *cause* slower economic growth. Because smaller inland cities have relatively fewer economic opportunities, they have lower average incomes, they disproportionately lose their younger educated population, and they *also* have lower economic growth rates. The lower average levels of education of regional work-forces are not the *cause* of lower economic growth, they are in part a *consequence* of limited economic opportunities.

Nevertheless, it might be assumed that a local university increases how many students from that region go to university, and how many of these students ultimately remain in the region, encouraging economic growth.

Again, the evidence does not bear out this assumption. Previous studies showed that proximity to a university campus, while material, is not an over-riding driver of higher participation in higher education. A student's socio-economic background and attitudes towards tertiary education are more important in determining levels of tertiary participation.[86]

Our comparison of regions with and without a regional university shows that a local university has little impact on higher education participation rates, once city size is taken into account.

Using the cohort of 22-year olds from the 2006 Census (who would have been 17-year old school leavers at the time of previous Census in 2001) we examined patterns of bachelor degree attainment and migration amongst this group over the five years between the censuses. Further detail is in Appendix A.

The raw results in Table 5 suggest that a regional university increases the proportion of school leavers gaining a degree and

[84] SGS Economics and Planning (2006) p5, a study produced for the Victorian Vice-Chancellors' Committee cited in DEEWR (2011).
[85] DEEWR (2011) p7ff
[86] DEEWR (2010); Garlick *et al.* (2007); McKenzie (2010)

remaining in their home region. This is consistent with previous studies using Australian graduate destination surveys and university records.[87]

Table 5: Higher education qualifications and retention

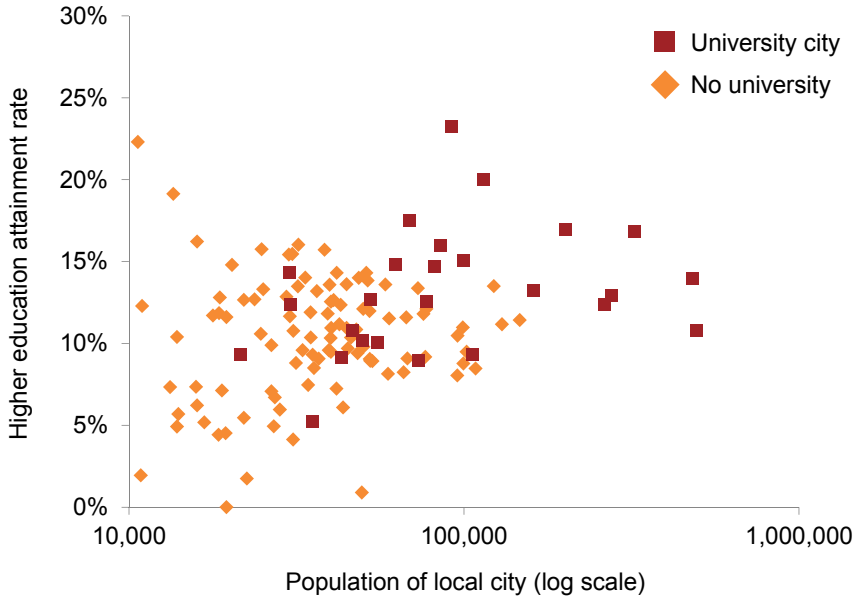
Region	Capital city	Non capital city		Australia
		with university	without university	
% with bachelor degree	17	15	11	16
% graduates remaining in home region	85	49	24	71

Source: Grattan Institute analysis based on ABS (2006)

However, these results do not take into account that larger centres (which are more likely to have a university) tend to have higher participation and retention rates because they are supported by a larger and more diverse economy. When comparing regions of similar population, the presence of a regional university does not seem to make much difference, as illustrated graphically in Figure 12 and Figure 13, and as described in Appendix A using regression analysis.

Where the university is located in a relatively small population centre, the proportion of local school-leavers completing tertiary education, and the proportion of graduates working where they grew up is the same in regions of a similar population size, whether or not there is a local university. These results tally with previous studies of graduate destination.

Figure 12: Tertiary attainment by region



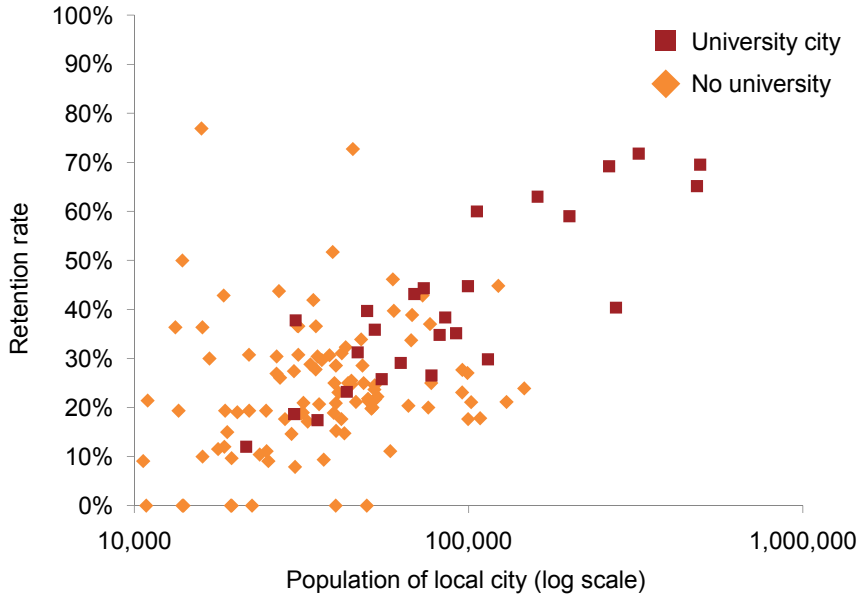
Source: Grattan Institute analysis based on ABS (2006)

Having a local university is not enough in itself to retain residents locally through higher education and into employment. The host city also needs to be large enough to sustain an economic base that provides jobs for graduates outside the tertiary education

[87] Coates & Edwards (2009), Hillman & Rothman (2007), Western Research Institute (2006, 2007), Garlick (2000), Richardson & Friedman (2010), DEEWR (2011)

sector. If not, fewer people with tertiary education will stay in the region over time.

Figure 13: Retention of graduates in their home region, 2006



Source: Grattan Institute analysis based on ABS (2006)

Consistent with this finding, the gap between metropolitan and non-metropolitan higher education participation rates has actually widened over the last 20 years, despite the proliferation of regional universities.[88]

4.4.5 Implications for higher education policy

Thus it appears that regional universities do little to promote economic growth. The evidence is consistent from:

- a comparison of the economic growth of cities in Australia with and without a regional university;
- a comparison of tertiary participation and retention rates in cities with and without a regional university; and
- the history of Australia, where despite a decades-old network of regional universities, inland regions continue to grow more slowly, and regional students continue to attend university less than students from capital cities.

Given their limited impact on local participation rates, it may well be that the additional spending on universities and regional campuses in smaller cities should be redirected to assist students from regional areas to study at larger campuses in our capitals and largest regional satellite and coastal cities. These cities are more likely to have a "critical mass" and sufficiently diverse local economy to support a university and provide jobs for graduates from a diverse range of disciplines. Additional funds direct to students might well have a greater impact on participation rates.

[88] DEEWR (2010)

Ensuring that all Australians, including those from more remote regions, have ample opportunities for higher education is important both for fulfilling their individual capabilities, and in promoting Australia's long-term economic growth and well-being. If regional universities are having little impact on this aim, it may well be that tertiary participation among regional school-leavers could be increased at lower cost – and potentially provide more opportunities for regional students – if the resources were instead used to help students from regional areas with the living expenses they incur if they move away to study.

This logic probably also applies to the regional campuses of larger universities. We have not analysed their specific impact as regional campuses are more difficult to identify separately. Nevertheless, it is reasonable to assume that the regional campus of a capital city university will have a similar impact – or lack of it – as a regionally headquartered university.

The cultural and community life of a region may also benefit from a local university campus, particularly if the university is headquartered there. This cultural impact is beyond the scope of this report. The additional costs of regional universities are only justified if they are a reasonable price to pay for these social values alone.

4.5 Regional infrastructure

Many believe that infrastructure investments, especially in transport, energy and communication networks, promote greater economic activity in a region. All major strands of economic growth theory suggest that infrastructure, as a form of public capital investment, can increase labour productivity and therefore facilitate higher rates of economic growth.[89]

Australian infrastructure policies often include elements of regional development. Examples include the rollout of the National Broadband Network into regions and improved transport connections between regional areas and our capital cities.

However, infrastructure investment may only have a limited impact in accelerating a regional economy. The evidence needed to test this has not been comprehensively assembled or analysed in Australia. Overseas evidence is also inconclusive. The available studies and anecdotal observations seem to suggest that in today's world, better infrastructure alone cannot override the predominant drivers of long-term economic development in a region – education and proximity to larger urban areas. Rather, infrastructure can accelerate economic growth, but only in regions that are already growing quickly due to a critical mass of population and economic activity and high levels of education.

Overseas, improved transport links between regional areas and cities appear to have supported growth in regions that already had relatively high levels of human capital and urbanisation.[90]

[89] see Acemoglu (2008)
[90] see OECD (2009b) p.6. Also Repham, T & Isserman, A (1994) analysis of new highway linkages across the US during the 1960s and 1970s finds the

This growth is not always additional and may cannibalise activity in neighbouring regions which become *relatively* less accessible to large cities as a result of the infrastructure. For example, 25 years after the opening of a US interstate highway, total earnings in counties that the highway passed through were 6-8% higher, but in adjacent counties earnings fell by 1-3%, even though both sets of counties became better connected to the central regions.[91]

As a previous OECD study suggests, without region-specific improvements in human capital, improved infrastructure does little to improve economic growth in a specific region.[92]

4.5.1 Large scale infrastructure projects

There are several overseas academic studies of the economic impacts of trunk road infrastructure on regional development. In particular, scholars have analysed the impact of the expansion of the interstate highway network in the USA on regional development. Seminal studies by Aschauer and Munnell in the early 1990s found significant regional and national economic benefits from investments in highway construction.[93]

Similar analysis of Australian data conducted by economists Otto and Voss in the 1990s also suggests large national economic gains from infrastructure investment.[94]

However, a number of studies following Aschauer and Munnell across different countries and models suggest that infrastructure may benefit regional areas much less than the earlier study suggested.[95] The findings seem to be very sensitive to the data and model specifications used (see Figure 14).[96] We are not aware of any more recent Australian studies that take into account these revised methodologies.[97] In any case, the true opportunity cost of spending on roads is the impact of an extra dollar in a taxpayer's pocket. All of the studies suggest that the flow-on economic effects of a road are *smaller* than the effects of commensurately lower taxes.

economic growth beneficiaries were interstate counties either in close proximity to large cities or that already had a degree of urbanisation. Predominantly rural interstate counties did not seem to benefit.

[91] Chandra, A & Thompson, E (2000); see also Ambrose, B & Springerm T (1993) and Haughwout, A (1999).

[92] OECD (2009a)

[93] Aschauer (1989); Munell and Cook (1990)

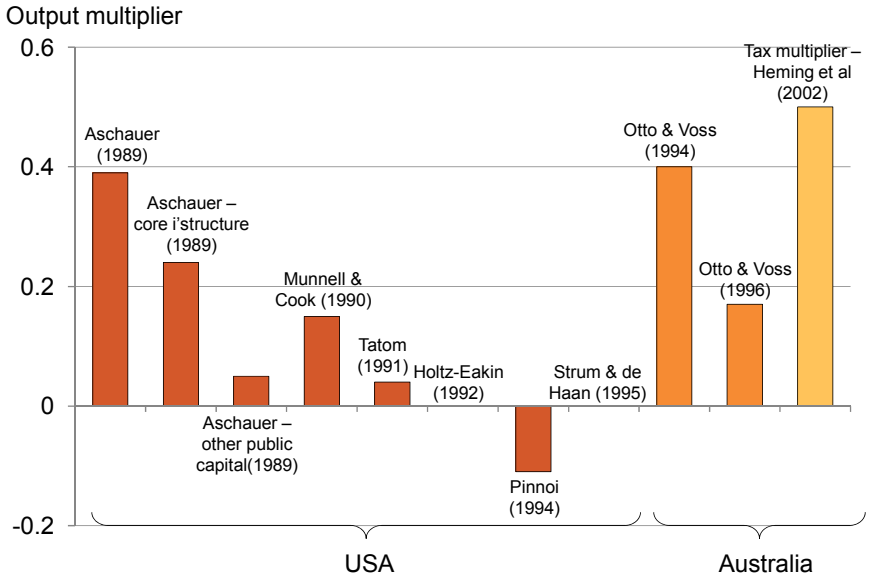
[94] Otto & Voss (1994, 1996).

[95] Tatom (1991), Holtz-Eakin (1992), Pinnoi (1994), Strum and de Haan (1995)

[96] Although, a recent meta-analysis of the existing literature by Shatz *et al* (2011) finds that, even when differences in study design are accounted for, a statistically significant positive relationship between highway spending and *national-level* productivity generally remains.

[97] Indeed, the Bureau of Transport and Communications Economics (1996) concluded further macro-economic research would make only a limited contribution to evaluating Australia's infrastructure needs, recommending instead that far more could be learned from benefit-cost analyses of individual investments.

Figure 14: Productivity benefits from public infrastructure investment



An examination of recent major road and rail transport upgrades in Victoria illustrates the difficulty in unpicking the influences of transport from other factors that may influence a region's growth.

Between 2000 and 2006, the rail links between Melbourne and Geelong, Ballarat, Bendigo and Gippsland were significantly upgraded. Regional highways were also upgraded, such as the Princes Highway to Geelong in 2003, the duplication of the Calder Freeway to Bendigo by 2009 and the Pakenham Bypass, completed in 2007.

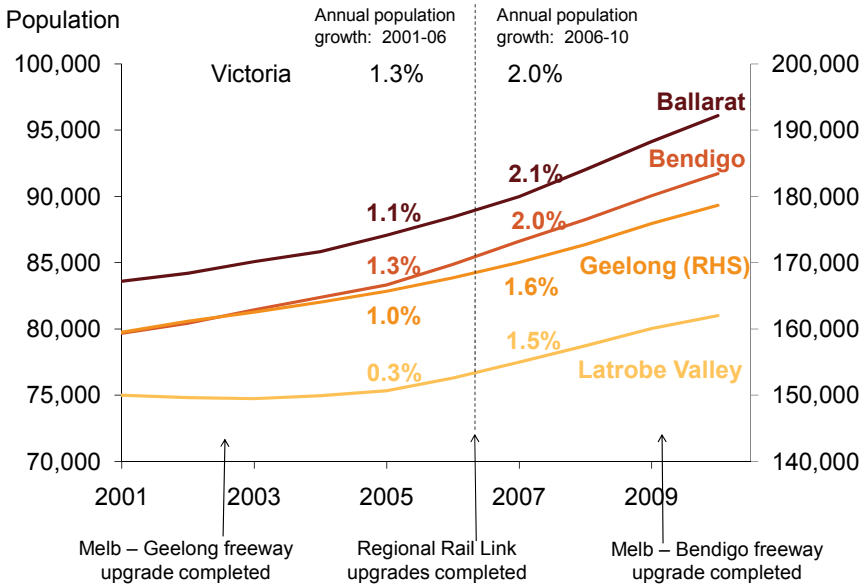
As shown in Figure 15, the completion of the improved transport links around 2006 coincided with significant population growth in Ballarat and Bendigo. Rates of growth in Geelong and the Latrobe Valley, while not as high, were much stronger than in the preceding five years.

Yet it is hard to tell whether transport improvements or other factors drove this increased growth. The four years to 2010 saw accelerated population growth across Australia. The Australian population grew by 1.3% a year on average from 2001 to 2006 and then by 1.9% per year from 2006 to 2010.[98] Victorian population growth accelerated from 1.3% to 2.0% over the same periods, outperforming all states other than WA, Queensland and the Northern Territory.[99] None of the Victorian regional cities significantly outperformed the national or Victorian average over this period.

The number of rail trips increased substantially immediately following the opening of the upgraded lines,[100] whereas the population grew over several following years. This may suggest that much of the increased patronage reflected the unserved demand of existing residents for train links back to the capital city.

[98] ABS (2011a)
[99] ibid
[100] VLine (2010)

Figure 15: Population and transport upgrades in Victoria



Source: ABS (2011)

4.5.2 Small scale community infrastructure projects

Alongside large-scale network infrastructure, Australian regional development funds are often directed towards smaller scale community infrastructure including local roads, community facilities such as sporting grounds and community halls, and recreational and tourism amenities.[101]

While we consider this infrastructure is best seen as part of the local community's social infrastructure, local economic development objectives are commonly mentioned as a supplementary benefit of such projects (see Box 5).

Again, there is little analysis of whether these programs in fact create sustainable regional economic growth. The limited available evidence suggests they do not.

Previous Australian academic work has suggested that local roads expenditure can have a significant immediate impact on local economy, as proxied by local unemployment rates, although the relationship is relatively weak.[102]

However, this appears to be a one-off stimulus for the local economy that falls away once the road-building jobs are completed. The road building did not result in long-lived sustained economic growth. As detailed in Appendix B, the updated analysis shows that road spending tended to be associated with local reductions in unemployment between 2001 to 2004, but there did not appear to be an enduring relationship over the longer time period to 2007. Although the program may have created short-term jobs, within three years the effect on unemployment was no longer statistically significant.

[101] Relevant Commonwealth Government programs include Roads to Recovery, the Regional Community Infrastructure Program and the Regional Development Australia Fund. See Section 5 of the report for more detail.
[102] Leigh and Neill (2009)

5 Targeting regional service development

As previous chapters show, regional assistance does not promote economic growth in regions that do not already have a critical mass of population and industry, and a well-educated population. Regional development programs attempting to increase growth in lagging regions that do not have these necessary growth drivers are ultimately wasteful attempts to push economic water uphill.

Nevertheless, regionally targeted assistance may be justified because it distributes government services more fairly around the country. As noted previously, programs are often described as regional economic development assistance when their underlying aims are to provide social and community service infrastructure.

Although there is no simple definition of "fairness", ultimately the test for governments should be to target services where they are most needed, having regard to the cost of delivery.

Currently government spending on regional services does not appear to be sufficient to fund the new infrastructure and services needed by the fast-growing populations of 'bolting' regions. Funding for regional services should be redirected to areas with rapid population growth such as the capital city satellites and coastal regional cities identified earlier in this report.

5.1 What is a fair share?

While technological advances may allow some services such as specialist health consultations, responses to Centrelink queries or school education to be provided remotely, the majority of government services still require face-to-face interaction with service providers and supporting social infrastructure such as health centres, schools and police stations.

A key issue for regional services is how funding and service levels should be allocated to different regions. There is no clear benchmark about what is a "fair" allocation of funding for regional services and infrastructure.

For recurrent services and maintenance, expending equal amounts per person would leave more remote areas under-serviced because they lack the economies of scale which would spread fixed overheads such as police stations and school principals among more people. On the other hand, providing equal levels of service in every location would require very high expenditure per capita in remote regions, and fail to take into account other factors that affect living costs outside large cities, such as lower housing costs.

For capital works, expending equal amounts per person would lead to excess capacity and over-servicing of slow-growing regions and leave 'bolting' regions with inadequate social infrastructure such as schools, hospitals, community centres and policing. As a starting point, expenditure on new capital works should be allocated proportionate to absolute change in population as the demand for new schools and other infrastructure is roughly proportionate to the number of additional population in the region. Of course, this is a simplification: even static populations need some spending on capital works to meet rising community expectations, to respond to changes in the age

structure of the population and to replace old facilities at the end of their working life.

Ultimately the test of fairness must be that available funds are distributed where services are most needed, having regard to the cost per capita.

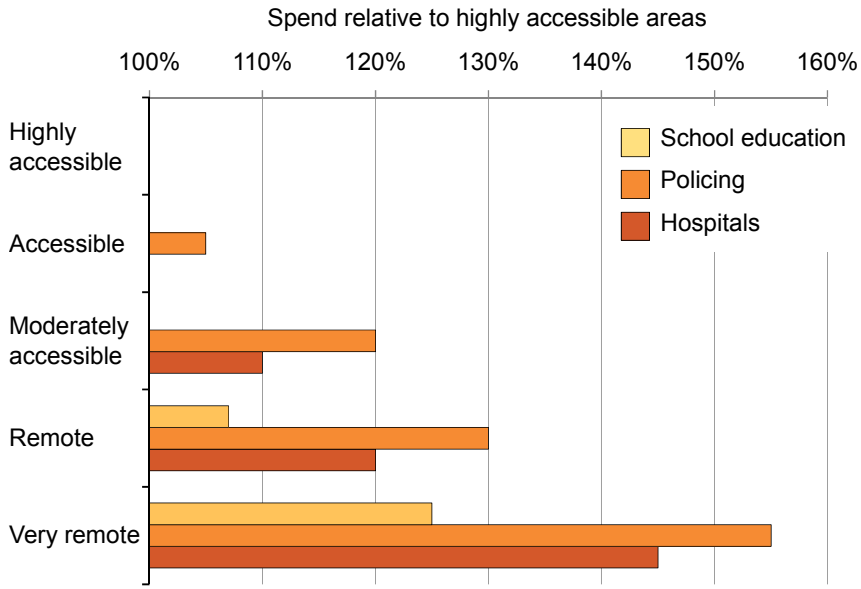
5.2 Evidence base

Analysing the fairness of regional service spending is difficult because government spending is not generally reported on a regional basis. Spatial accounting of Commonwealth spending was trialled for the first time in the 2011-12 Budget. These initial estimates suggest just over 30% of Commonwealth government spending can be specifically attributed to regional areas, which is roughly proportionate to their share of the population.

5.3 State government services

State governments provide a variety of services in regional areas such as schools, police and hospitals. Current spending per capita on these services is in fact higher in regional areas outside major capital cities, as shown in Figure 16. This higher spend per capita reflects the higher costs of transport and other services in more remote locations, such as air transport of remote-based patients to specialised health services. It also reflects that it is cheaper to provide services in more densely populated areas where fixed costs such as school buildings can be spread over a larger population.

Figure 16: Spending on government services by remoteness



Source: Grattan Institute based on Commonwealth Grants Commission (2010)

Note: Spending rates for hospitals are derived from the AIHW Hospital Morbidity Database. Rates for school education and police were calculated by the Commonwealth Grants Commission based on the costs incurred in providing services by region as reported to the Commonwealth Grants Commission by states. Not all States were able to provide data on all service types and so the relative spending rates are a representative picture only and actual regional spending rates may be different.

It is beyond the scope of this report to investigate whether this spending on schools, policing and hospital leads to an equivalent level of service, or a lower level of service justified given the costs of remote provision.

5.4 Recurrent and maintenance funding for local government services

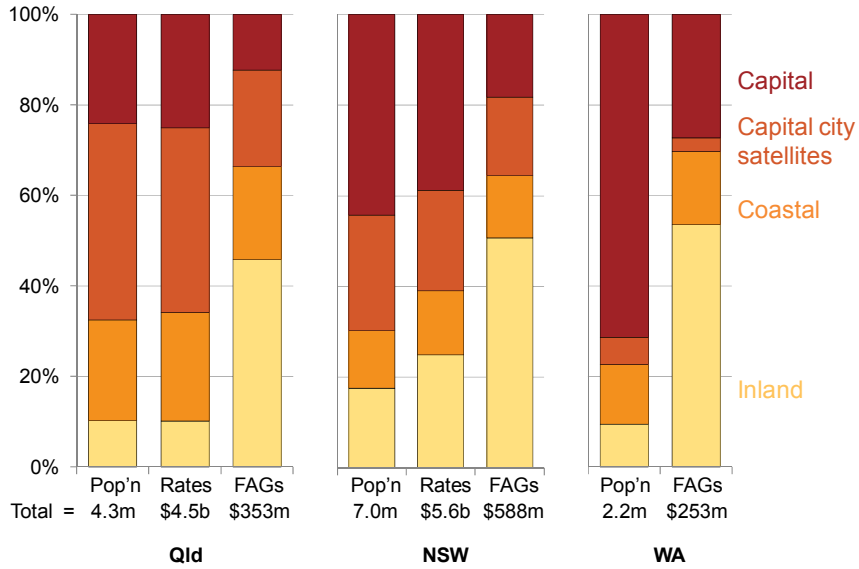
Local government bodies are responsible for providing and maintaining many other services such as planning, roads, community facilities, and rubbish collection.

Analysis of the funding distribution to local governments across three states – NSW, Queensland and Western Australia – shows that areas with rapid population growth do not receive funding for these services commensurate to the needs of residents.

'Bolting' regions have less capacity to pay themselves for local government services. Local governments raise most of their funds from rates and user charges. The rates a council can raise depend on the number and income of individuals and businesses in the council areas. Bolting regions are likely to raise lower rates per capita than slower growing regions. Bolting regions outside capital city outskirts have relatively low income per capita (see Figure 6) and few taxable local businesses relative to their population. For the data we have analysed in Queensland and NSW, capital city satellites raise less in rates per capita than other regions (see Figure 17). Similarly, the Productivity Commission estimated that councils on the urban fringe boundaries between capital cities and previously rural areas have the lowest fiscal capacity of any type of councils (based on estimated per capita income of individuals and businesses in the council areas).[103] Thus residents of capital city satellites have local governments less able to pay for services than elsewhere.

[103] Productivity Commission (2008) Table c.4

Figure 17: Local government recurrent funding



Source: Grattan Institute based on figures from Queensland Department of Infrastructure and Planning (2010), NSW Division of Local Government, Department of Premier and Cabinet (2010), ABS (2010d), Commonwealth Department of Infrastructure and Transport website and the Commonwealth Department of Regional Australia, Regional Development and Local Government website

Notes: Population is at 30 June 2008; Rates and FAGs are for the 2008-09 financial year, but excludes Indigenous councils. FAGs are the Federal Government's Financial Assistance Grants.

Despite the greater need of bolting regions, Federal government grants to local councils do not particularly assist them. The Federal Government provides Financial Assistance Grants

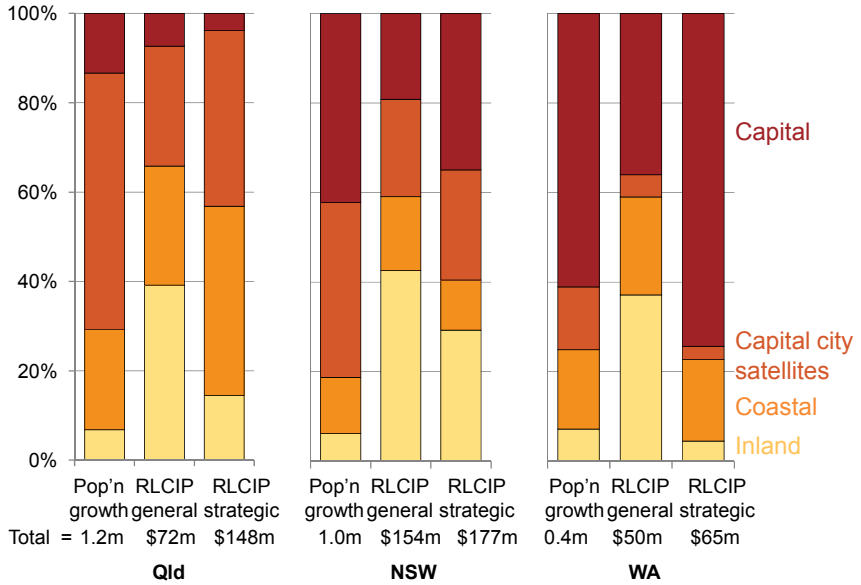
(FAGs) to local councils of $2.1 billion in 2010-11, effectively for recurrent expenditure. These grants are equivalent in value to about 10% of the revenue pool from rates and are allocated within each State based on nationally agreed allocation principles. In the States we have analysed, these funds are awarded disproportionately to inland cities and rural areas, at the expense of both capital cities and capital city satellites, as shown in Figure 17. This inequity appears to result from out-dated formulae, which continue to allocate a minimum amount to local councils even if their population is falling or lacks sufficient scale to support efficient service delivery.

5.5 Capital works funding for local government services

Bolting regions are likely to need relatively greater funding for capital works. As noted above, the demand for new facilities is primarily driven by the number of new residents in an area. Rapidly growing regions need new community facilities, local roads and other facilities. Bolting regions are unlikely to be able to pay for these capital works from recurrent revenue. As noted above, they generally have lower rates and Commonwealth grants per capita than other regions.

Commonwealth funding for local capital works is not taking up the slack. The Regional and Local Community Infrastructure Program (RLCIP) provided more than $1 billion over three years to local governments through a mix of formula-driven general allocations ($450 million) and competitive funding for strategic projects ($670 million).

Figure 18: Local government capital works revenue



Source: Grattan Institute based on figures from Queensland Department of Infrastructure and Planning (2008), NSW Planning (2010), WA Planning Commission (2005 and 2011),, Commonwealth Department of Infrastructure and Transport website and the Commonwealth Department of Regional Australia, Regional Development and Local Government website.
Notes: Population growth covers expected growth from 2008 to 2021, including aspirational targets for Pilbara Cities. RLCIP covers total funding awarded through rounds 1 to 3 of the programs, excluding grants in Indigenous councils. RLCIP is the Regional Local Community Infrastructure Program.

Bolting regions receive relatively less of this Commonwealth funding for capital works per new resident. Instead the Commonwealth funding for capital works – worth about 5% of the

rates pool – is disproportionately directed to inland regions, as shown in Figure 18.

Indeed, bolting regions barely receive an allocation proportionate to their *existing* population, let alone an allocation proportionate to their projected population growth. For example, in NSW, capital city satellites and coastal areas received 35% of the RLCIP strategic funding, but are expected to account for 52% of future growth.

There is some evidence that even the strategic component of the RLCIP funding was deliberately spread evenly around Australia, although it was badged as a competitive grants program.[104]

Projects to increase service capacity in these bolting regions should be the focus of the Federal Government's new $1 billion Regional Development Australia Fund (RDAF), rather than trying to spread funding evenly across all regions, irrespective of need.

5.6 Western Australia and 'Royalties for Regions'

In Western Australia, this relative under-funding of bolting regions is accentuated by the 'Royalties for Regions' program.

The WA 'Royalties for Regions' program was created following the 2008 state election, in order to secure the support of the WA Nationals to form a coalition with the minority Liberal Government.

Under 'Royalties for Regions', the equivalent of 25% of the state's mining and onshore petroleum royalties is earmarked for additional investment in the regions. In 2009-10 $619 million was allocated under the program and more than $4 billion provided for in the budget over five years from 2008-09 to 2013-14. All locations outside Perth qualify for the program, and they have been divided into nine planning regions, each with its own Regional Development Commission.

The 'Royalties for Regions' program has three components. The Country Local Government Fund ($543 million over five years) allocates money according to a formula to each regional council for local infrastructure. The Regional Community Services Fund ($997 million over five years) funds better access to government services in regional areas. These include the Royal Flying Doctor Service, a network of Community Resource Centres, and cash and housing bonuses to attract public servants to regional areas. It also funds subsidy programs such as the Country Age Pension Fuel Card and the Boarding Away from Home Allowance for school students who move away from home to study.

The Regional Infrastructure and Headworks Fund ($2.66 billion over five years) includes larger strategic projects such as the $220 million Ord Irrigation expansion project, $977 million Pilbara Cities plan and $131 million for revitalisation of the Gascoyne region.[105] This larger fund also supports the Regional Grants Scheme, a discretionary grants scheme worth around $370 million over five years and administered by each planning region's Development Commission.

[104] ANAO (2010) p23-24 reports the Minister recommended a selection of projects be funded under the RLCIP Strategic Projects stream in the context of three objectives – to provide an equitable geographic distribution of funding, to fund worthwhile projects where no alternative funding was available and to maximise the stimulus and community benefits.

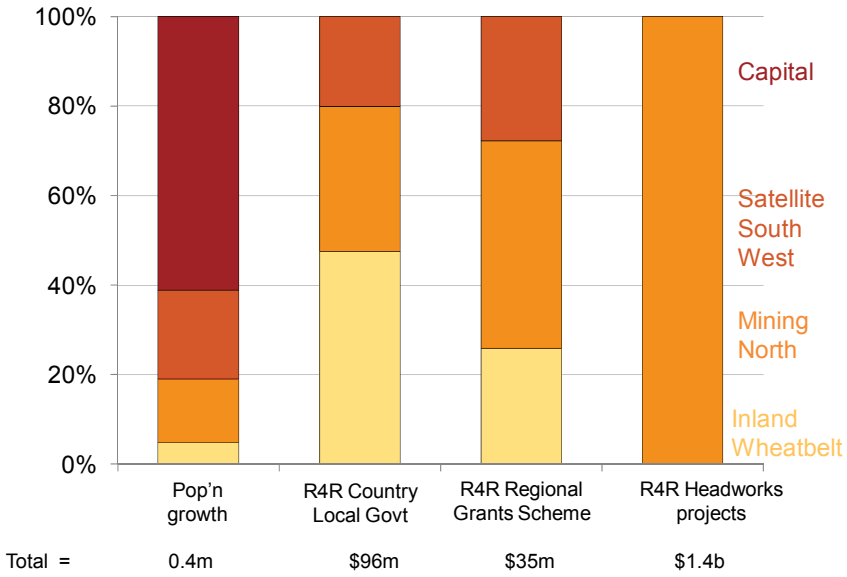
[105] To our knowledge, a full reconciliation of projects making up the $2.66 billion Headworks Fund has not been published.

The major strategic projects, especially the Pilbara Cities initiative, are deliberately designed to alter future settlement patterns by creating economically diverse urban areas close to existing and future mining activities in order to reduce the need for a fly-in, fly-out workforce. The aspiration is to increase the Pilbara resident population exponentially from around 50,000 today to 140,000 by 2035. Without the policy, the Pilbara Industry's Community Council estimated the region's population would reach just 62,500 by 2020, in addition to the 'service population' of fly-in, fly-out and temporary construction workers. The history of previous regional economic development projects discussed earlier in this report suggests that unless the permanent population of the area starts to grow rapidly anyway, it is unlikely that additional government funding will accelerate growth.

The 'Royalties for Regions' fund established by the WA Government is supposed to be a competitive fund to support strategic regional projects. However, the initial grants through the Country Local Government Fund and the Regional Grants Scheme are primarily directed towards inland areas, especially in the southern parts of the state, that are not expected to experience large population growth, as shown in Figure 19.

There are significant risks associated with the 'Royalties for Regions' strategy. The large infrastructure projects in the Pilbara, Kimberley and Gascoyne regions are very expensive, and history suggests that government-driven economic development programs are unlikely to accelerate growth of slow-growing regions. Even if the ambitious population aspirations are met, most population growth will occur in the non-mining regions of Perth and the South West coast, which are receiving relatively little of the regionally-specific funding of the WA Royalties for Regions program.

Figure 19: Distribution of 'Royalties for Regions' funding



Source: Grattan Institute based on figures WA Planning Commission (2005 and 2011) and www.royaltiesforregions.wa.gov.au
Notes: Population growth is expected growth from 2008 to 2021 and assumes the Pilbara Cities Initiative aspirational population targets are met. Royalties for Region funding covers funding allocations made during 2008-09 and 2009-10 and so may include funding to be paid out in future years for long projects.

6 Appendix A: Analysis of the impact of regional universities

6.1 Regional Development in University cities

Data limitations prevent detailed general equilibrium modelling of the net economic impact of additional regional university provision.

An examination of the growth in private sector jobs across regions between 2001 and 2006 showed that presence of a regional university does not strongly explain differing private sector employment growth rates as shown in Table 6.

Table 6: Private sector employment growth in university cities: regression results

	Model 1	Model 2
Dependent variable	% increase in number of private sector employees (2001-2006)	
Local university presence	0.27*	0.03
	[0.11]	[0.11]
Log(population)	-	0.25*
		[0.13]
R^2	0.44	0.44

** significant at 10% level; numbers in square brackets are standard errors.*

Table 7 provides details of the university cities and non-university comparators used to examine whether regional areas with a university exhibited better economic performance. For detail on the performance indicators used, refer back to Table 4 in the main body of the report.

Table 7: University & Comparator Cities

University City (University)	Population June 2010	% workforce employed in tertiary education	Private sector growth (%)	Patent applications (per 1,000 pop)	Comparator City	Population June 2010	% workforce employed in tertiary education	Private sector growth (%)	Patent applications (per 1,000 pop)
Canberra, ACT (ANU, Uni of Canberra)	358,222	3.7	14.0	34.7	Gold Coast-Tweed, QLD/NSW*	591,473	1.2	43.4	28.07
Wollongong, NSW (Uni of Wollongong)	292,190	2.9	12.6	9.9	Sunshine Coast, QLD*	251,081	1.3	37.3	15.17
Toowoomba, QLD (Uni of Southern Qld)	131,258	2.7	20.8	10.7	Mandurah, WA	85,814	0.6	34.4	10.81
Ballarat, VIC (Uni of Ballarat)	96,097	2.7	14.1	6.8	Bundaberg, QLD	69,036	0.9	23.3	7.65
Rockhampton, QLD (Central Qld Uni)	77,878	3.3	26.5	5.8	Mildura, VIC	50,522	1.0	9.9	6.31
Wagga Wagga, NSW (Charles Sturt Uni)	58,610	4.5	26.3	7.4	Shepparton, VIC*	49,859	1.1	7.8	6.03
Bathurst, NSW (Charles Sturt Uni)	34,303	4.1	22.3	7.3	Tamworth, NSW	47,595	1.3	15.8	7.74
Warrnambool, VIC (Deakin Uni)	33,922	2.6	17.9	4.9	Port Macquarie, NSW	44,313	1.2	18.1	8.5
Lismore, NSW (Southern Cross Uni)	32,494	3.4	17.1	12.1	Dubbo, NSW*	38,037		8.5	7.26
Armidale, NSW (Uni of New England)	21,532	12.7	7.4	7.7	Nowra-Bomaderry, NSW	34,479	0.8	16.0	9.89
Average	**113,651**	**4.3**	**17.9**	**10.7**	**Average**	**126,221**	**1.0**	**21.4**	**10.7**

*Notes: *These cities are home to a university campus, but it is not a significant employer in the area. All Cities are based on Statistical Districts, except for Armidale which is based on the Armidale Dumaresq (A) – City Statistical Local Area*

University City (University)	Prime Labour Force (%)	Higher Education Levels (%)	Unemployment (%)	Population Growth (%)	Comparator City	Prime Labour Force (%)	Higher Education Levels (%)	Unemployment (%)	Population Growth (%)
Canberra, ACT (ANU, Uni of Canberra)	44.9	53.9	3.3	1.7	Gold Coast-Tweed, QLD/NSW*	41.0	41.5	4.5	3.1
Wollongong, NSW (Uni of Wollongong)	40.2	46.1	7.3	1.1	Sunshine Coast, QLD*	38.9	44.3	5.8	2.9
Toowoomba, QLD (Uni of Southern Qld)	38.7	41.8	4.5	1.9	Mandurah, WA	35.6	36.3	5.3	4.3
Ballarat, VIC (Uni of Ballarat)	39.2	47.2	6.4	2.0	Bundaberg, QLD	36.3	35.4	7.9	2.3
Rockhampton, QLD (Central Qld Uni)	39.9	39.1	5.3	1.7	Mildura, VIC	39.5	34.8	5.9	1.5
Wagga Wagga, NSW (Charles Sturt Uni)	38.7	44.4	5.9	1.6	Shepparton, VIC*	40.3	35.7	6.6	1.7
Bathurst, NSW (Charles Sturt Uni)	38.7	42.7	6.5	1.6	Tamworth, NSW	38.3	14.1	6.9	1.7
Warrnambool, VIC (Deakin Uni)	38.8	41.9	5.2	1.8	Port Macquarie, NSW	34.6	45.8	8.3	1.6
Lismore, NSW (Southern Cross Uni)	38.7	43.3	9.3	0.9	Dubbo, NSW*	39.4	40.3	5.6	1.3
Armidale, NSW (Uni of New England)	35.0	50.7	9.5	1.0	Nowra-Bomaderry, NSW	37.7	42.7	8.6	1.5
Average	**39.3**	**45.1**	**6.3**	**1.5**	**Average**	**38.2**	**37.1**	**6.5**	**2.2**

*Notes: *These cities are home to a university campus, but it is not a significant employer in the area. All Cities are based on Statistical Districts, except for Armidale which is based on the Armidale Dumaresq (A) – City Statistical Local Area*

6.2 Tertiary participation and mobility of regional school leavers

Using the cohort of 22-year olds from the 2006 Census (who would have been 17 year old school leavers at the time of previous Census in 2001) we examined patterns in bachelor degree attainment and migration among this group over the five years between the censuses.

Overall, 16% of the cohort had achieved a bachelor's degree and 78% were still living in the same region. Young people in the capital cities had slightly higher rates of educational attainment (17%) and were much more likely to be still living in their home city (90%).

Across non-capital city regions, those regions with a local university had higher rates of 22-year olds with bachelor's degrees (15% compared to 11% in non-university regions) and double the proportion of bachelor degree holders still living in the local area (49% compared to 24%).

Table 8: Higher education qualifications and retention

Region	Capital city	Non capital city		Australia
		with university	without university	
% with bachelor degree	17	15	11	16
% graduates remaining in home region	85	49	24	71

Source: ABS; Grattan Institute analysis

However, the presence of a local university did not strongly explain higher levels of tertiary degree attainment in the local area. This is a consistent with previous research which found other socio-economic factors are much more important in explaining differences in tertiary education participation than physical proximity to a university campus.[106]

Table 9: Drivers of retaining graduates in regional areas: regression results

	Model 1	Model 2	Model 3
Dependent variable	% of bachelor degree graduates living in the same region in 2001 and 2006		
Local university presence	25.2**	8.0**	5.7*
	[3.5]	[3.4]	[3.3]
Log (population)	-	25.7**	22.7**
		[9.4]	[2.8]
Capital city satellites	-	-	9.8**
			[3.2]]
R^2	0.26	0.55	0.58

*** significant at 5% level; numbers in square brackets are standard errors. Note: Region is generally defined as a Statistical Sub-Division (SSD). The exceptions are capital cities which are each aggregated into one Statistical Division (SD) and the Northern Territory which due to the small number of observations is divided into Darwin SD, the Central NT SSD (including Alice Springs) and all remaining SSDs are aggregated together due to small number of observations.*

[106] DEEWR (2009)

Where the university is located in a relatively small region, the proportion of graduates remaining in their local area is no different from levels of regions with a similar population size without a local university.

The raw graduate attainment and retention scores obtained from the 2006 Census data correlate closely with previous Australian studies of graduate destination, based on the annual Graduate Careers Australia (GCA) survey or other ad hoc surveys of graduates.[107]

Corcoran *et al.* use a multinomial logit model to interrogate the 2006 GCA and estimate how individual characteristics including attendance at a non-urban (ie outside a major city) university affect the likelihood a graduate will be working in a regional area six months after graduation. In contrast to our results, Corcoran *et al.* find attending a non-urban university significantly increases the odds of finding a job in a regional area.

There are a number of reasons why our results differ. Corcoran *et al.* use the ABS remoteness classification, which as we explain in Box 3 of the main report, obscures significant differences between the size and location of areas classified as inner and outer regional. This is particularly obvious when looking at state-by-state analysis of likely destinations of graduates by remoteness region. Tasmanian graduates are much more likely to work in inner regional areas than major cities, but this probably reflects that under the ABS remoteness scale, the state capital, Hobart, is classified as an inner regional area. However, we also expect that further extension of our analysis to test for the significance of other variables which may impact on tertiary participation and graduate mobility would be a useful research exercise.

[107] Corcoran *et al.* (2010), Coates & Edwards (2009), Hillman & Rothman (2007), Western Research Institute (2007), (2005), Garlick (2000)

7 Appendix B: Small scale infrastructure regression analysis

Leigh and Neill (2009) reviewed how local unemployment rates (as a proxy for local economic activity) were affected by targeted local roads expenditure programs under the Roads to Recovery program during 2001-2004.

Their analysis suggested that local infrastructure projects have a statistically significant impact on local unemployment levels, creating additional jobs at a cost of $10,000 to $31,000 per job over a three-year period – a substantial multiplier effect given average full-time earnings at the time were around $50,000.

Leigh and Neill noted that it is not possible to definitively link the reduction in unemployment directly to the regional roads program. The explanatory power of their model was quite low. Unemployment might also have changed due to the indirect impact of improving road infrastructure on productivity, or due to other government policies and programs in the target areas also increasing economic activity over the same period.

To explore whether local infrastructure projects can affect regional development in the longer term, we looked at the relationship between the road spending identified by Leigh and Neill and the change in local unemployment rates between 2001 and 2007, three years longer than the time period they analysed. We could then analyse whether the regions that received larger amounts of road funding had greater long-run increases in economic activity.

Changes in electoral boundaries since the original analysis was undertaken mean that directly comparable data are not available. We used revised data from the Parliamentary Library but excluded observations for the central NSW electorates of Gwydir, Parkes, Calare, Farrer and Hunter, as significant redistributions occurred in this area in late 2006.

On these revised figures we find a moderately significant relationship between road spending and local changes in unemployment over the period 2001 to 2004, similar to that identified by Leigh and Neill with their slightly different data set.

However, there is no statistically significant relationship over the longer time period to 2007. That is, although the program may have created short-term jobs, within three years it no longer had a statistically significant effect on unemployment.

Table 10: Economic growth and road spending

	Leigh & Neill	Grattan	Grattan
Dependent variable	Change in regional unemployment rate		
Time period	2001-2004	2001-2004	2001-2007
Log (road spending)	-0.4**	-0.7*	-0.9
	[0.2]	[0.4]	[0.6]
Population density	0.7*	0.5	0.7
	[0.4]	[0.4]	[0.6]
Pop density^2	-0.06	-0.04	-0.06
	[0.03]	[0.04]	[0.06]
R^2	0.03	0.025	0.02

** significant at 10% level; ** significant at 5% level; numbers in square brackets are standard errors.*

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