

Regional Variation in Economic Conditions

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Abstract

Differences in economic conditions between capital cities and regional areas have widened since the early 2000s. Some regional areas, particularly outer regional and remote areas, have faced considerable structural changes and have taken longer than other regions to adapt to these developments. Most regional labour markets appear to have adjusted quite well to the differences in regional economic conditions, though the adjustment process may have been more difficult for some regions.

Introduction

Monetary policy is, by design, a national policy. While there is only one policy interest rate for the Australian economy, the Reserve Bank makes a considerable effort to understand the underlying drivers of the aggregate economic data. In particular, the Bank seeks to understand developments at the regional and industry level. For almost two decades, the Bank's Regional and Industry Analysis team, spread across five states, has gathered timely information on how economic conditions have varied across regions, industries and demographic groups (RBA 2014).

This article explores the differences in economic conditions across regions that are split into three broad groups: capital city regions; non-mining regional areas; and mining regional areas.^[1] Capital city regions and regional areas are defined using the Greater Capital City Statistical Areas (as set out by the Australian Bureau of Statistics), while mining regional areas are defined as regional areas that had more than 5 per cent of the workforce directly employed in the mining industry in 2012. The article then explores differences in the exposures of these regions to some key drivers of structural change, and how different regions have adapted to these

drivers as well as the differences in economic conditions in recent decades.

Economic conditions across regions

Differences in economic conditions across the three region groups have increased since the early 2000s (Graph 1). At the aggregate level, economic growth has been somewhat weaker over this period, particularly in the past decade or so. This weakness in conditions has been more pronounced in regional areas. Mining regional areas have experienced a large economic cycle in recent decades, related to the mining investment boom. From the mid 2000s to around 2012, the construction of new mining projects boosted growth in output and employment in these areas, but from 2012, economic activity started to slow or, in many cases, decline as mining projects moved from the construction to operational phase.

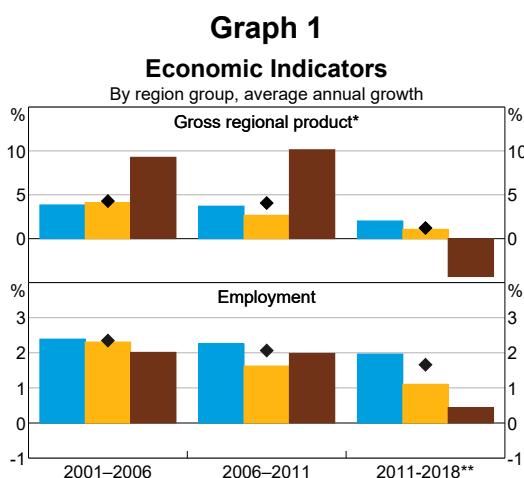
It is unsurprising that economic conditions vary across regions at any particular point in time. Regions are often exposed to different economic developments given their geographical dispersion and different characteristics, including industry and labour force composition, availability of natural resources and location. In addition, regions can have different capacities to adapt to these developments, which can be cyclical or structural in nature. An example of a cyclical event that has contributed to regional economic differences is the severe

drought that is currently affecting most of Australia.^[2] This has had a particularly large impact on regional areas with significant exposures to the agriculture industry. This article focuses on the role that longer-term structural developments may have had in the observed differences in regional economic conditions.

Previous work by the Reserve Bank has highlighted how the Australian economy has faced substantial structural change in recent decades (see, for example, Adeney (2018), Plumb, Kent and Bishop (2013), Lowe (2012), Connolly and Lewis (2010)). As economies develop and living standards rise, the structure of the economy necessarily changes: new industries emerge, especially in the service sector, while the relative share of industries such as agriculture declines. These shifts generate considerable benefits but can impose transition costs on some regions, industries and demographic groups.

One of the key structural changes in the Australian economy (and many other economies) in recent decades has been the shift in activity away from goods-related industries towards services industries.^[3] While the level of output in most goods-related industries has not fallen since 2000, the share of total output for many goods-related industries has declined given the strong growth in output in a number of service industries. For employment, both the level and share of total employment in some goods-related industries have declined in recent decades, notably agriculture and manufacturing (Graph 2). The shift towards services has been most evident in employment, since services industries tend to be more labour intensive and some goods-producing industries have become more capital intensive over time.

Another important structural change in the Australian economy has been the expansion in the mining industry. Since 2000, mining output and employment have more than doubled and the mining industry's share of total output has risen from 6 per cent to around 9 per cent. The share of mining employment has also increased, but it remains quite small because mining is a capital-intensive industry.



Sources: ABS; Department of Industry, Innovation and Science; RBA

These structural developments have affected regions in different ways. Compared with capital city regions, non-mining regional areas have experienced a larger shift in the industry share of employment towards services in the past couple of decades. On the other hand, mining regional areas have experienced a smaller shift towards services given their exposure to the expansion in the mining industry. Overall, this suggests that different rates of structural change could help to explain the differences in economic conditions across region groups in recent decades.

A measure of regional structural change

There is no standard measure of structural change, but a common measure is an index that captures the change in economic activity across different parts of the economy over a specified time period (Connolly and Lewis 2010). For example, no change in the relative importance of different industries over the time period would imply an index with a value of zero. Graph 3 shows an employment structural change index for each region group, which measures how the industry structure of employment changed over five-year periods.^[4] This measure can provide an indication of periods of significant structural change and identify the region groups that have experienced higher rates of change.

This measure suggests that capital city regions have generally experienced lower rates of structural change compared with regional areas, particularly mining regional areas. Over time, the median rate of structural change has been relatively steady for capital city regions, but has varied for regional areas more generally. Consistent with mining projects shifting from the construction to the operational phase, mining regional areas experienced a noticeable increase in the median rate of structural change around 2013. In recent years, there has been an increase in the median rate of structural change for non-mining regional areas, though this has reversed somewhat in the past year or so.

In addition to the differences across region groups, Graph 3 also shows the distribution of the rate of structural change within region groups. In particular, there is significant variation in the rates of structural change across non-mining regional areas; some of these regions have experienced similar rates of structural change to capital city regions, while others have experienced much higher rates of structural change.

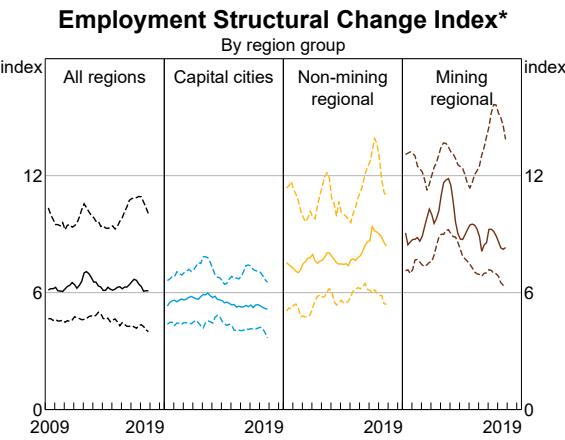
Exposures to key drivers of structural change

The differences in the rates of structural change across and within region groups can be partly explained by different exposures to some of the common drivers of structural change in recent decades. This section explores three of the key

Graph 2



Graph 3



drivers of structural change in the Australian economy: the industrialisation of east Asia; technological change; and demographic change.

Industrialisation of east Asia

The industrialisation of east Asian economies, particularly China, has significantly affected the structure of the Australian economy. One effect has been the surge in global demand for the main components of steel – iron ore and metallurgical coal – and energy sources, including natural gas and thermal coal. In response, the Australian mining sector expanded, resulting in a large cycle in mining investment, an increase in employment in the mining industry and a significant rise in resource exports (Graph 4).

This expansion in the mining industry has been concentrated in Western Australia and Queensland, particularly in more remote regional areas within close proximity to natural resources as well as some cities where mining companies are headquartered. There have also been spillovers to other regions with exposures to industries that support the mining sector (e.g. manufacturing, mining services) and have workforces with skills that can be transferred to the mining sector (Langcake and Poole 2017, D'Arcy *et al* 2012).

Another effect of the industrialisation of east Asian economies has been the emergence of new low-cost manufacturers. This has changed the global manufacturing market in recent decades. China's share of the global manufacturing market increased

from around 10 per cent to 30 per cent between 2005 and 2018. As a result, like in many advanced economies, manufacturing activity as a share of output has fallen in Australia over the past couple of decades.

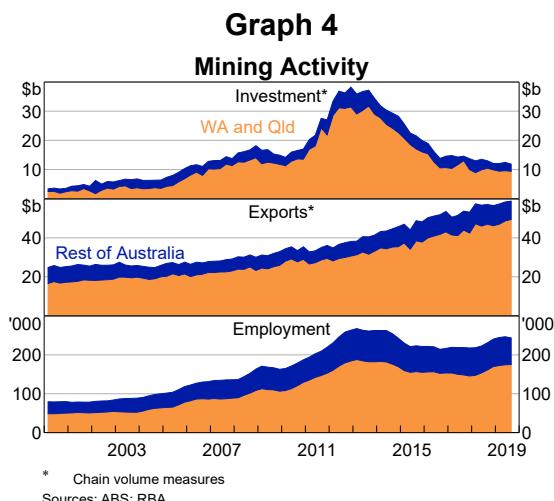
The regions most affected by the decline in the manufacturing sector tend to be located on the outskirts of capital cities where there is access to a large potential workforce and land is relatively affordable (Productivity Commission 2017). A well-known example of the varied impacts across regions is the decline in Australia's car manufacturing sector, which has had particularly large effects on North Adelaide and Geelong.

Technological change

Another important factor driving change in the Australian economy has been the emergence of new technologies. Technology innovation has profoundly affected households and businesses, and has significantly altered the size and functioning of some industries.

New technologies have enabled the automation of routine manual processes, which has contributed to the decline in employment in some goods-related industries, such as agriculture and manufacturing. The rise of e-commerce and price comparison technologies has noticeably affected the nature of competition and concentration of the retail trade industry (Hambur and La Cava 2018). New technologies have also contributed to an expansion in knowledge-intensive market services, including financial services and professional, scientific & technical services.

Technological change has supported activity in inner capital city regions because these industries tend to rely on a critical mass of skilled labour and the knowledge spillovers associated with agglomeration (Henderson 2010). On the other hand, the outer regions of capital cities and regional areas have been particularly affected by the decline in employment in goods-related industries as a result of automation. The effect of e-commerce on regional areas is unclear, since it has opened up new markets for regional businesses but some of these businesses may have more difficulty



competing if they are further from distribution networks.

Demographics

Similar to other advanced economies, Australia's population is ageing and the large 'baby boomer' cohort has started to reach retirement age in the past decade or so. This demographic change has contributed to a significant expansion in the health care and social assistance sector. All else equal, it would also weigh on labour supply, but in recent times increased participation rates across a range of age groups has offset this effect. To some extent, strong growth in net overseas migration over the past couple of decades has also helped to moderate the effect of the ageing baby boomer cohort on the population age structure, since migrants coming to Australia tend to be younger than the resident population.

While the increase in net overseas migration has partly offset the ageing population at the aggregate level, the story varies at the regional level. In particular, regional areas are ageing at a faster rate than capital cities (Graph 5). For example, over the past two decades the share of population over 65 years old has increased by around 10 percentage points in several regional areas, such as Wide Bay and Tasmania – South East, while in capital city regions this share has increased by much less or even declined. Consistent with this, there has been a larger increase in the share of employment in the health and social assistance services industry in regional areas compared with capital city regions.

The faster ageing in regional areas reflects a couple of factors. Net overseas migration has tended to be focused on capital cities (particularly Sydney and Melbourne) rather than regional areas, partly because international students comprise a significant proportion of overseas migration and many universities are located in capital cities. Also, younger overseas and inter-regional migrants are more attracted to capital cities given the greater diversity and depth of job opportunities relative to regional areas (Fujita and Thisse 2002).

Adaptability to structural change

As well as having different exposures to some of the key drivers of structural change, regions are likely to have different abilities to adapt to structural change. When jobs are lost as a result of structural change, it usually takes time for people to retrain for and find jobs in different industries, and businesses take time to adapt their business models or grow to capitalise on new opportunities. These adjustments can take longer in some contexts than in others, and in the interim, this process can weigh on economic conditions. The literature identifies a number of regional characteristics that are associated with adaptability, many of which fall into the following four broad categories:^[5]

- **Industry diversity.** Regions with a more diverse economic base can transfer resources more easily across industries. Any industry-specific shock should be more muted in regions with multiple industries, since resources can flow to industries that did not experience the shock.
- **Human capital.** The knowledge, experiences and skills of people within a region affect the region's capacity to take advantage of new economic opportunities, for example through innovation or starting new businesses. These characteristics will also affect firms' decisions to invest in the region. The supply of labour in a region is also important, though people can often move across regions if required.
- **Physical capital.** The availability of infrastructure, equipment and technology affects a

Graph 5

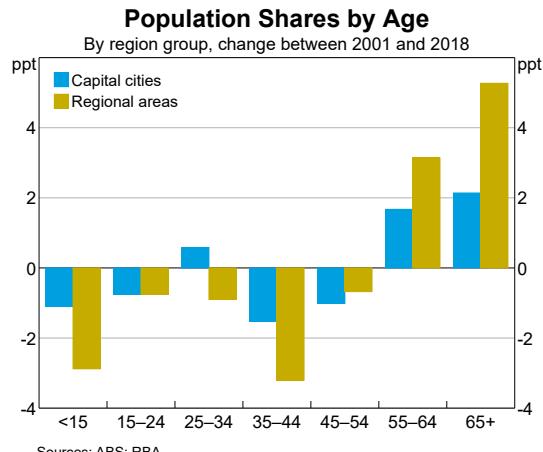


Table 1: Characteristics related to adaptability to structural change

By region group, average in 2016

	Capital city regions	Non-mining regional areas	Mining regional areas
Industry diversity index ^(a)	3.9	3.2	2.3
Share of population with university education (%)	29.6	16.0	13.5
Patents per 1,000 population (no) ^(b)	0.4	0.2	0.1
Remoteness index ^(c)	1.2	2.3	3.1
Access to internet (%)	85.7	77.8	74.9
Average individual income (\$) ^(d)	68,023	53,622	63,371
Average household wealth (\$) ^(d)	1,184,230	764,924	813,472

(a) A modified Herfindahl index that increases as a region's industrial diversity increases to match the diversity of the Australian economy; see Lawson and Dwyer (2002) for more information

(b) Average in 2015

(c) Remoteness index has value of 1 for major city, 2 for inner regional, 3 for outer regional, 4 for remote and 5 for very remote; average index of SA1 regions within SA4 region

(d) 2017/18 dollars

Sources: ABS; RBA

region's ability to take advantage of new economic opportunities. The presence of physical capital that improves connectivity and access to resources both within the region and with other regions/countries should lower costs and increase productivity, which increases firms' willingness to invest in the region.

- **Financial capital.** Regions with higher incomes and wealth or greater access to credit tend to be better placed to manage a decline in economic conditions and take advantage of new economic opportunities.

Compared with capital cities, regional areas tend to have: a less diverse industry structure; a less educated population; lower connectivity with other regions and markets; and lower income and wealth (Table 1). In particular, mining regional areas are less connected with other regions and have lower industry diversity. In addition to having significant exposures to the recent drivers of structural change, regional areas are also more likely to have characteristics associated with lower adaptability to structural change. Overall, this suggests that these regions have taken longer to adapt to recent structural developments.

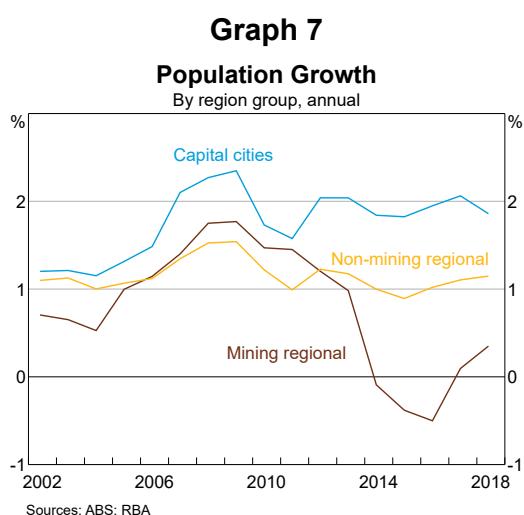
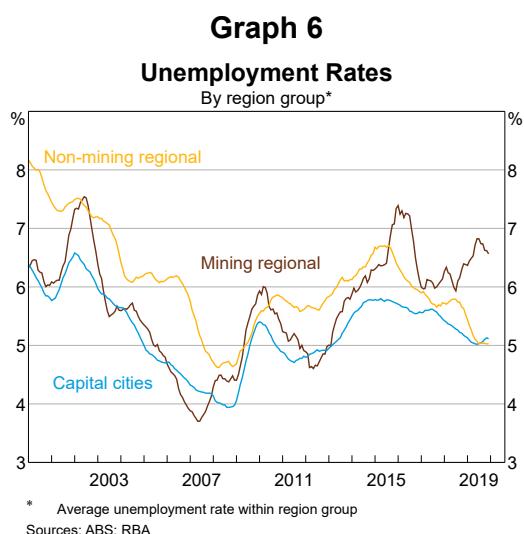
Adjustment to differences in regional economic conditions

In recent decades, economic conditions have tended to be weaker for regions that have experienced higher rates of structural change. Many of these regions have had significant exposures to the key drivers of structural change as well as lower adaptability to structural change. This section considers how regions have adjusted to the differences in economic conditions, focusing in particular on the labour market adjustment mechanism, and whether the adjustment process may have been more difficult for some regions.

Regional labour markets appear to have adjusted quite well to the differences in economic conditions across region groups. The variation in unemployment rates across regions has remained broadly steady since the early 2000s (Lowe 2018). Moreover, the average unemployment rates in capital cities and non-mining regional areas have recently converged for the first time since the data have been available, suggesting that the labour market adjustment mechanism may have become more efficient in recent years (Graph 6). In contrast, the average unemployment rate in mining regional areas has remained above the average unemployment rates of the other region groups for the past five years or so, suggesting that the labour market

adjustment mechanism in these regions may have been less efficient.

Population flows across regions are likely to have supported the labour market adjustment process, with people moving from regions with fewer employment opportunities into regions with more employment opportunities. For example, population growth has been higher in capital city regions compared with regional areas in recent years, consistent with the stronger economic conditions in capital city regions (Graph 7). While unemployment rates in mining regional areas have been above those of other region groups, there is still evidence that population flows have supported the labour market adjustment process; population flows into mining regional areas were strong during the mining investment boom and subsequently declined as the boom came to an end.



While regional labour markets have adjusted relatively well to the differences in economic conditions in the past decade or so, the adjustment process may have been more difficult for some regions, particularly regional areas. If structural change reduces employment opportunities in the region and induces a large decline in the local population, this can further weaken economic conditions in the region through, for example, a weaker housing market and a general decline in demand for local goods and services. Outer regional and remote areas may be more vulnerable to a large decline in population, since these regions tend to have lower industry diversity (and therefore fewer alternative employment opportunities) and commuting to other regions for employment tends to be a less viable option.

In regions where people face greater barriers to moving, higher rates of structural change may contribute to poorer social and economic outcomes associated with long-term disadvantage, such as higher long-term unemployment rates and lower youth engagement rates. This can have lasting effects on the region through the loss of skills and income.

The barriers to moving may be larger in regional areas compared with capital city regions. Regional areas tend to have a less educated population and lower levels of income and wealth, which are characteristics that are associated with greater barriers to moving. Higher education and skill levels can increase the economic returns of moving (Productivity Commission 2014, Clark 2013).

Moreover, the potential returns from moving for people with lower education and skill levels may have fallen in recent years, since much of the recent employment growth has been concentrated in non-routine cognitive jobs, which tend to require higher education and skill levels (Heath 2016). The costs associated with moving may be a significant barrier for people with lower income and wealth (Productivity Commission 2014, Mitchell 2008). There are fixed costs to moving regions, such as relocation costs and the costs associated with home sales and purchases. Also, housing costs tend to be higher in regions where there are more employment opportunities and those relying on public

housing face the risk of losing subsidised accommodation if they move.

Conclusion

Differences in economic conditions between capital cities and regional areas have increased over the past 15 years. This partly reflects some regional

areas having significant exposures to the key drivers of structural change and taking longer to adapt to these structural developments, particularly outer regional and remote areas. Population flows have generally helped regional labour markets adjust to differences in regional economic conditions, though the adjustment process may have been more difficult for some regions. ↗

Footnotes

- [*] Author is from the Economic Analysis Department
- [1] Regions in this article refer to Statistical Area Level 4s (SA4s), which are the largest sub-state regions in the Australian Statistical Geography Standard 2016 as defined by the Australian Bureau of Statistics. These regions are bound by population requirements and can cut across or combine highly interconnected regions, which has implications for regional economic analysis.
- [2] Droughts are generally considered to be cyclical events, at least from an economic standpoint (Debelle 2019). More frequent droughts could be considered a structural development, but this is not addressed in this article.
- [3] Goods-related industries include those involved in goods distribution (retail, wholesale, and transport) and goods production (agriculture, mining, manufacturing, utilities and construction). Services industries include those that provide household services (accommodation & food,

education, health, arts & recreation, and other services) and business services (professional, scientific & technical, administrative & support, rental, hiring & real-estate, information media & telecommunications, and financial & insurance). The public administration & safety industry is excluded from the analysis.

- [4] The only reliable economic data available to construct a regional structural change index are SA4 employment data from the Australian Bureau of Statistics; these data are available from October 1998 onwards. Other regional economic data, such as investment and activity, are not available at a regular frequency.
- [5] For example, see Productivity Commission (2017) and Dinh *et al* (2016). There are other characteristics that influence a region's adaptability to structural change not discussed in this article.

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