SGS Economics & Planning | Independent insight.

Australian Cities Accounts 2015-16

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Preface

About SGS Economics and Planning

SGS Economics and Planning is a member-governed college of professionals that exists to shape policy and investment decisions in favour of sustainable urban and regional development. We are Australia's premier independent advisory firm in this field.

As a college of professionals, SGS Economics and Planning aspires to continuously learn and create new knowledge, to constructively contribute to policy debate and to offer real solutions to urban and regional issues. SGS Economics and Planning is independent, honest, thoughtful and innovative, committed to the public interest and committed to sustainability.

SGS Economics and Planning actively encourages greater understanding and debate on major public policy issues through a variety of educational and information channels. These include, regular free seminars on topical issues and the publication of our quarterly bulletin (Urbecon) and occasional research papers.

About this publication

Australian cities are orphans. Responsibilities for management of their economy (in terms of taxation, planning, infrastructure provision, regulation and economic development) fall between all tiers of government. Official statistics tend not to recognise the importance of cities, with economic data often not published at that level, or when published given secondary importance. This is despite the fact that even during the recent mineral exploration boom, Australian cities have provided the bulk of growth in Australia's economy.

For the past eight years SGS Economics & Planning have produced estimates of Gross Domestic Product[1] (GDP) for each major capital city and region across Australia. This is the sixth year the estimates have been published in this format. Our research into understanding the distribution of economic growth has filled a key void in economic policy.

The remainder of this document is set out as follows:

- Section One provides a summary of results, comparing the economic outcomes for each region;
- Section Two provides a detailed discussion of the economic performance of each capital city; and
- Section Three provides a detailed description of the methodology.

For further information about the statistics contained within this publication please contact Mr Terry Rawnsley via email Terry.Rawnsley@sgsep.com.au or +61 3 8616 0331.

1 GDP (Gross Domestic Product) refers to Australia, GSP (Gross State Product) refers to a State, while GCP (Gross City Product) refers to a city. However, for simplicity's sake in this paper all different measures are referred to as GDP.

Overview

The Australian Bureau of Statistics (ABS) Australian National Accounts: State Accounts (Cat. No. 5220.0) publication provides estimates of economic activity for each state and territory on an annual basis. SGS Economics and Planning (SGS) has developed estimates of economic activity for each major capital city, along with the regional balance of each state. These statistics provide improved insights into the relative economic performance of each of Australia's major capital cities (Sydney, Melbourne, Brisbane, Adelaide and Perth), the Northern Territory, Tasmania and the Australian Capital Territory. They also highlight the productivity challenge facing our cities.

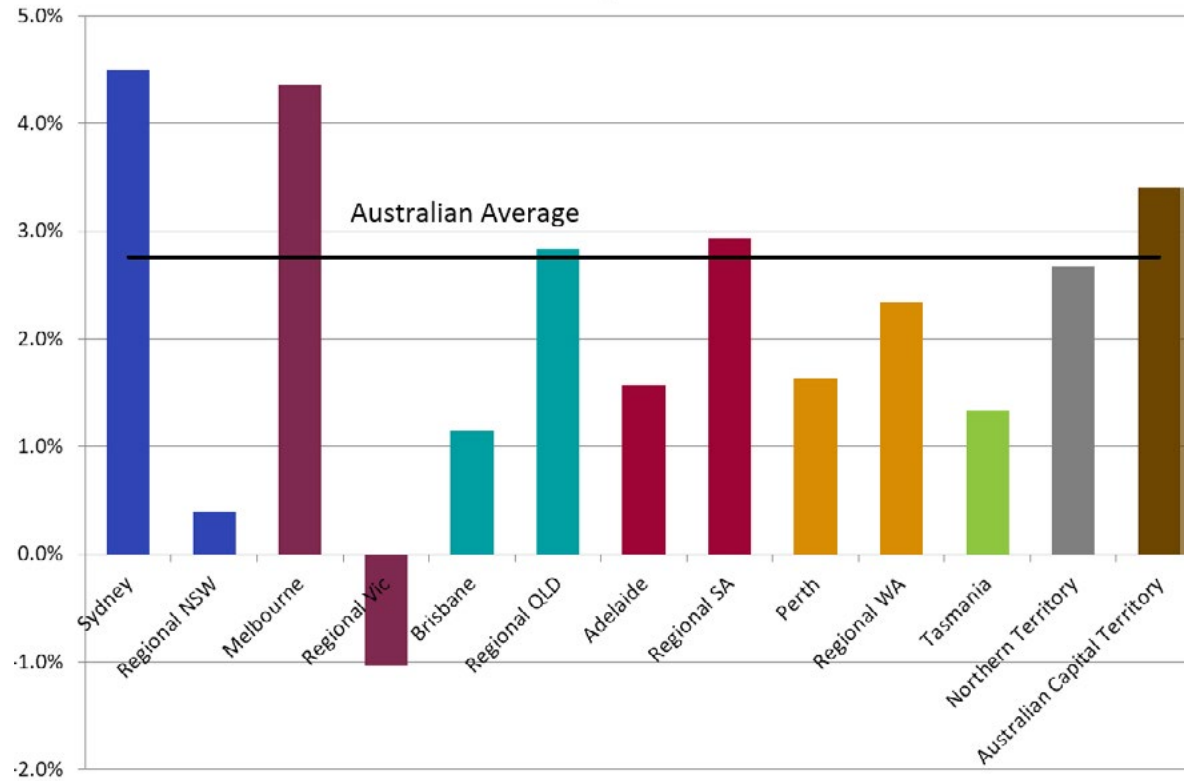
During the early 1980s, the economic structure of Australia was fairly homogeneous. Manufacturing was the primary income generator across most parts of the country. Of course, certain areas had specialisations in particular industries; for example, Agriculture, Mining and Manufacturing in regional areas and knowledge-intensive services in the central core of our cities. Examining economic statistics at the national level would have provided a reasonable insight into the conditions across the whole of Australia.

The economic evolution of the past 30 years has resulted in a far more complex picture. The rise of knowledge-intensive services, differentials in government policy and investment, the resources boom, the declining competiveness of manufacturing and other changes have created a patchwork economy.

As shown in Figure 1 there was a wide range of growth rates across the country in 2015-16. The strongest growing regions were Sydney (4.5 per cent), Melbourne (4.4 per cent), Canberra (3.4 per cent) and mining dominated regions of Regional South Australia (2.9 per cent) and Regional Queensland (2.8 per cent).

All other regions, with the exception of Tasmania, experienced below-trend growth during 2015-16 (see Table 1). The worst performing region was Regional Victoria, which fell by 1.0 per cent due to a decline in Manufacturing in regional centres such as Geelong, and reduced agricultural production.

FIGURE 1: 2015-16 GDP GROWTH RATES – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

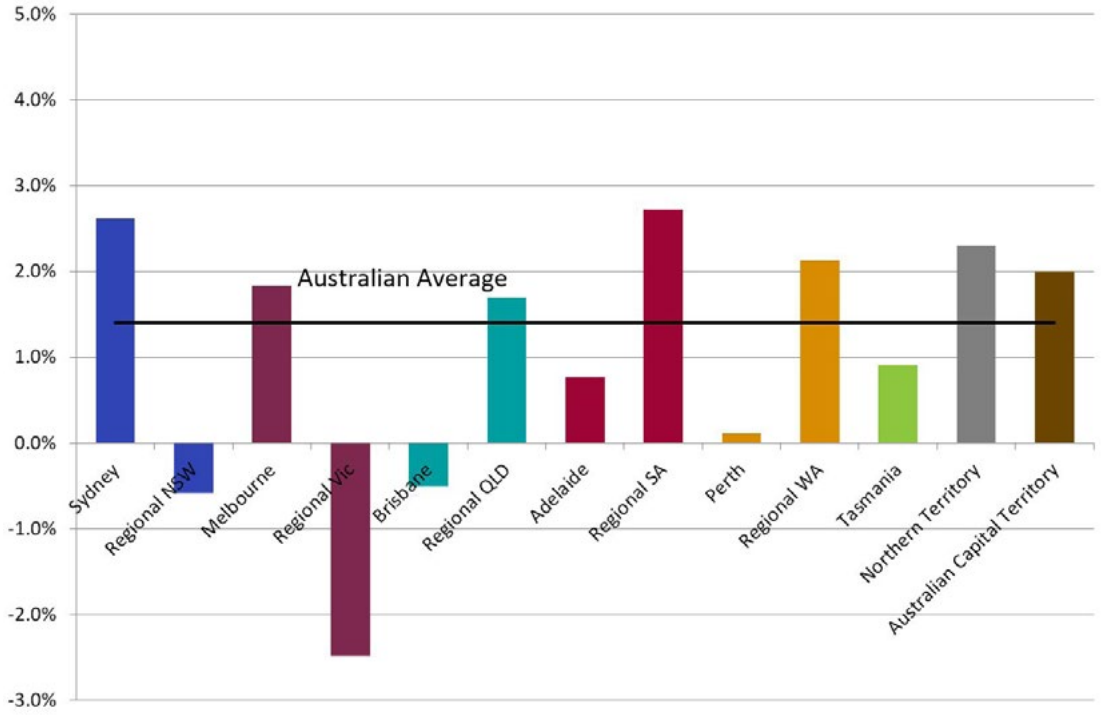
TABLE 1: GROSS DOMESTIC PRODUCT - VOLUME MEASURE 2015-16

Region	GDP $ Million	Annual Growth	Average Annual Growth 05-06 to 15-16	Share of GDP
Sydney	$400,900	4.5%	2.7%	24.1%
Regional NSW	$130,423	0.4%	0.9%	7.8%
Melbourne	$303,560	4.4%	2.6%	18.3%
Regional Victoria	$70,064	-1.0%	0.5%	4.2%
Brisbane	$157,931	1.1%	3.1%	9.5%
Regional QLD	$156,638	2.8%	2.7%	9.4%
Adelaide	$78,251	1.6%	2.7%	4.7%
Regional SA	$22,845	2.9%	0.4%	1.4%
Perth	$148,674	1.6%	4.3%	8.9%
Regional WA	$106,540	2.3%	6.2%	6.4%
Tasmania	$26,039	1.3%	1.1%	1.6%
Northern Territory	$23,648	2.7%	3.9%	1.4%
Australian Capital Territory	$36,225	3.4%	2.6%	2.2%
Australia	$1,661,739	2.8%	2.8%	100%

Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

As shown in Figure 2, in per capita terms Regional South Australia (2.7 per cent) posted the strongest growth (driven by mining production), followed by Sydney (2.6 per cent), Northern Territory (2.3 per cent) and Melbourne (1.8 per cent). Regional Victoria (-2.5 per cent), Regional New South Wales (-0.6 per cent) and Brisbane (-0.5 per cent) all experienced a decline in per capita GDP growth.

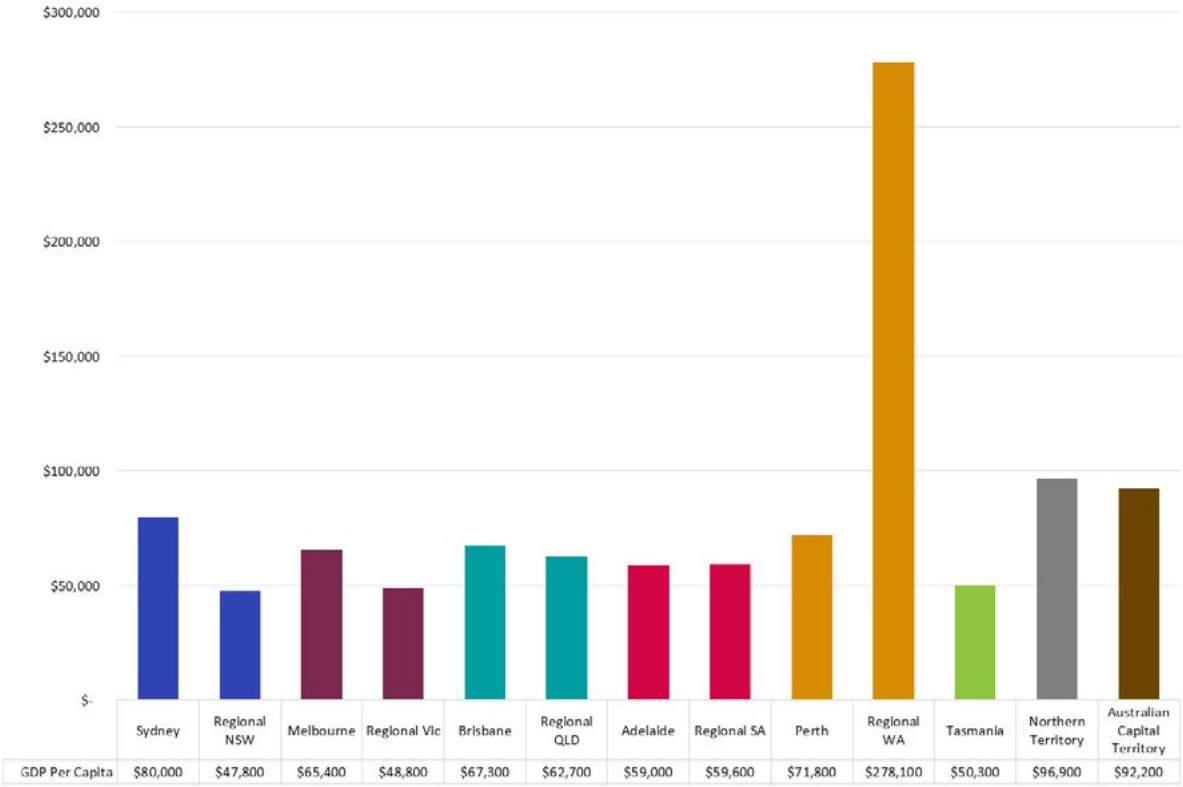
FIGURE 2: 2015-16 GDP PER CAPITA GROWTH RATES – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

Figure 3 presents the level of GDP per capita in 2015-16. Regional Western Australia has by far the highest GDP capita ($278,100) which is driven by iron ore and other mineral production. In terms of the major capital cities, Sydney's GDP per capita of $80,000 is the highest, followed by Perth ($71,800) Brisbane ($67,300), Melbourne ($65,400) and Adelaide ($59,600). Regional New South Wales ($47,800), Regional Victoria ($48,800) and Tasmania ($50,300) have the lowest GDP per capita.

FIGURE 3: 2015-16 GDP PER CAPITA– VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

Contribution to Growth

Table 2 presents each region's contribution to growth in Australia's GDP for the 1990s, 2000s, 2010s, the most recent financial year and the whole period (1989-90 to 2015-16). This demonstrates the importance of Australia's two largest cities, Sydney and Melbourne, to the national economy, and also the variable contributions of the resource-reliant economies of Regional Western Australia and Queensland.

Sydney has traditionally been a significant driver of Australia's economy, accounting for 33.6 per cent of Australia's economic growth in the 1990s. This title was ceded to Melbourne in the 2000s (18.9 per cent), with Sydney accounting for only 15.2 per cent of national growth in the 2000s. However the Harbour City's economy has returned to its preeminent position in the last six years, accounting for 26.2 per cent of growth since 2010, and 38.6 per cent in the most recent year.

Meanwhile Melbourne has demonstrated increasing importance to Australia's economy, successfully transforming from the "rust belt" economy of the late 80s to the diversified economy of today. This is illustrated through Melbourne's increasing contribution to national growth, from 13.0 per cent in the 1990s and 18.9 per cent in the 2000s, to 17.0 per cent over the most recent six years. In 2015-16, Melbourne accounted for 28.4 per cent of national growth, the second largest contributor behind Sydney.

Table 2 also illustrates the impact of the recent resources boom on Australia's economy. Perth's economy accounted for 4.0 per cent of growth in the 1990s, increasing to 11.7 per cent in the 2000s and 13.1 per cent in the 2010s. Regional Western Australia showed a similar trend, from 3.1 per cent in the 1990s to 7.9 per cent in the 2000s, and 13.3 per cent in the 2010s. There has been a transition in Western Australia from a construction boom to production boom, with new mine development curtailed by falls in commodity prices.

TABLE 2: CONTRIBUTION TO GDP GROWTH – VOLUME MEASURE

Region	1990s	2000s	2010s	Most Recent Year	1989-90 2015-16
Sydney	33.6%	15.2%	26.2%	38.6%	22.5%
Regional NSW	8.2%	5.5%	3.0%	1.2%	5.6%
Melbourne	13.0%	18.8%	16.8%	28.4%	18.0%
Regional Vic	11.1%	3.7%	0.0%	-1.6%	3.2%
Brisbane	10.8%	13.2%	9.0%	4.0%	11.1%
Regional QLD	8.8%	13.0%	9.0%	9.7%	11.3%
Adelaide	4.6%	4.8%	3.7%	2.7%	4.3%
Regional SA	0.3%	1.2%	-0.1%	1.5%	0.6%
Perth	4.0%	11.6%	12.8%	5.4%	10.7%
Regional WA	3.1%	7.9%	13.6%	5.5%	7.9%
Tasmania	1.1%	1.5%	0.4%	0.8%	1.1%
Northern Territory	-0.9%	1.4%	2.1%	1.4%	1.6%
Australian Capital Territory	1.7%	2.2%	1.8%	2.7%	2.0%
Australia	100%	100%	100.0%	100.0%	100.0%

Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

Interest Rate Comparison

Whilst overall Australia's cities have displayed a level of strength and resilience reflecting the competitive advantages built up over the last three decades, each city faces a number of challenges to ensure the ongoing prosperity of their residents through long-term growth. Some of these challenges are common to all cities (e.g. efficient provision of infrastructure, attraction of skilled workers, industry development and ensuring liveability), however others are unique to certain cities due to city-specific industry structures and other geographic factors.

At a city- level, the policy levers available to manage the individual economies of the Australia's cities in the short-term are limited. Interest rates[1] are used as a tool to help manage the short term economic movements. However, as shown above the rates of growth across the country vary greatly, so setting a single interest rate for all regions is challenging.

To highlight the economic divergence between regions, Table 2 below presents a hypothetical situation where each region has its own central bank setting local interest rates. The weighted sum of all the rates is equal to the current Reserve Bank of Australia (RBA) target cash rate of 1.5 per cent.

In this hypothetical situation, the highest interest rates in the major capital cities would have been in Sydney, with the Reserve Bank of Sydney increasing rates to 3.75 per cent.

A Reserve Bank of Melbourne would have also increased rates by 0.25 per cent at 2.25 per cent. With the exception of the North Territory and the Canberra the rest of the country would have rates of between 0.25 per cent and 0.5 per cent.

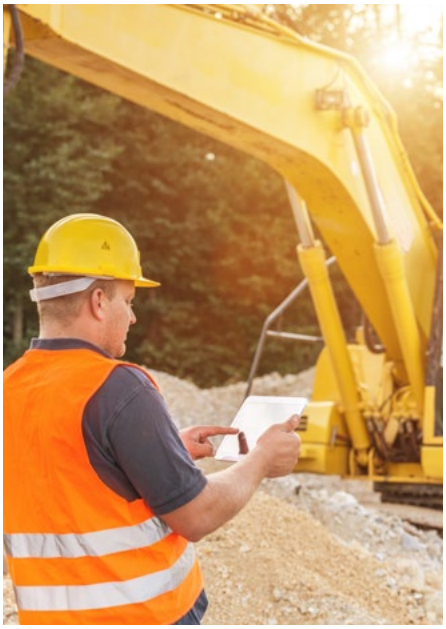
Clearly policy makers do not the ability to set different interest rates across the country, but this analytical exercise highlights how divergent Australia's regions have become in terms of their economic growth.

1 http://www.rba.gov.au/monetary-policy/about.html

TABLE 3: HYPOTHETICAL REGIONAL INTEREST RATES

Region	Interest Rate 2012-13	Interest Rate 2013-14	Interest Rate 2014-15	Interest Rate 2015-16
Sydney	3.00%	3.50%	3.50%	3.75%
Regional NSW	2.00%	1.75%	1.25%	0.25%
Melbourne	2.50%	2.00%	2.00%	2.25%
Regional Victoria	2.00%	1.50%	1.00%	0.25%
Brisbane	2.50%	2.25%	1.00%	0.25%
Regional QLD	2.50%	2.00%	1.00%	0.25%
Adelaide	1.50%	1.25%	1.00%	0.25%
Regional SA	1.50%	1.25%	1.00%	0.50%
Perth	2.50%	2.25%	1.25%	0.50%
Regional WA	4.25%	4.00%	2.75%	0.50%
Tasmania	1.00%	1.00%	1.00%	0.25%
Northern Territory	4.50%	5.00%	5.00%	3.50%
Australian Capital Territory	2.50%	2.00%	1.75%	1.50%
Australia	2.50%	2.50%	2.00%	1.58%

Source: SGS Economics & Planning and Reserve Bank of Australia



Sydney

In terms of both share of the national economy and contribution to economic growth, Sydney is usually the most important city in Australia. However, the decade from 2000-01 could be described as Sydney's 'lost decade'. This period of relatively sluggish economic growth can been related to a number of factors, all of which contributed to a decline in Sydney's competitiveness over that period. One key factor was the ineffective application of urban policy, including:

- Poor housing policies which have generated congestion and have also had a significant impact on affordability;
- Lack of investment in transport capacity; and
- Limited opportunities for businesses to locate in strategic locations at affordable rents.

While these are structural challenges still facing Sydney, the last few years have seen improvements in the supply of housing (with additional supply in the pipeline), and new commercial redevelopments in the CBD (including Barangaroo and the revitalisation of a number of older precincts such as Martin Place and Circular Quay). Public transport projects including Sydney Metro and the CBD and South East Light Rail will also provide additional transport capacity for the inner city in the medium to long term.

Figure 4 presents the Volume Measure (i.e. excluding inflation) of GDP growth for Sydney, compared to New South Wales and Australia. Sydney represents around 75 per cent of the New South Wales economy; and as a result, the Sydney and New South Wales growth rates track very closely together. A few points of note in Figure 4 are:

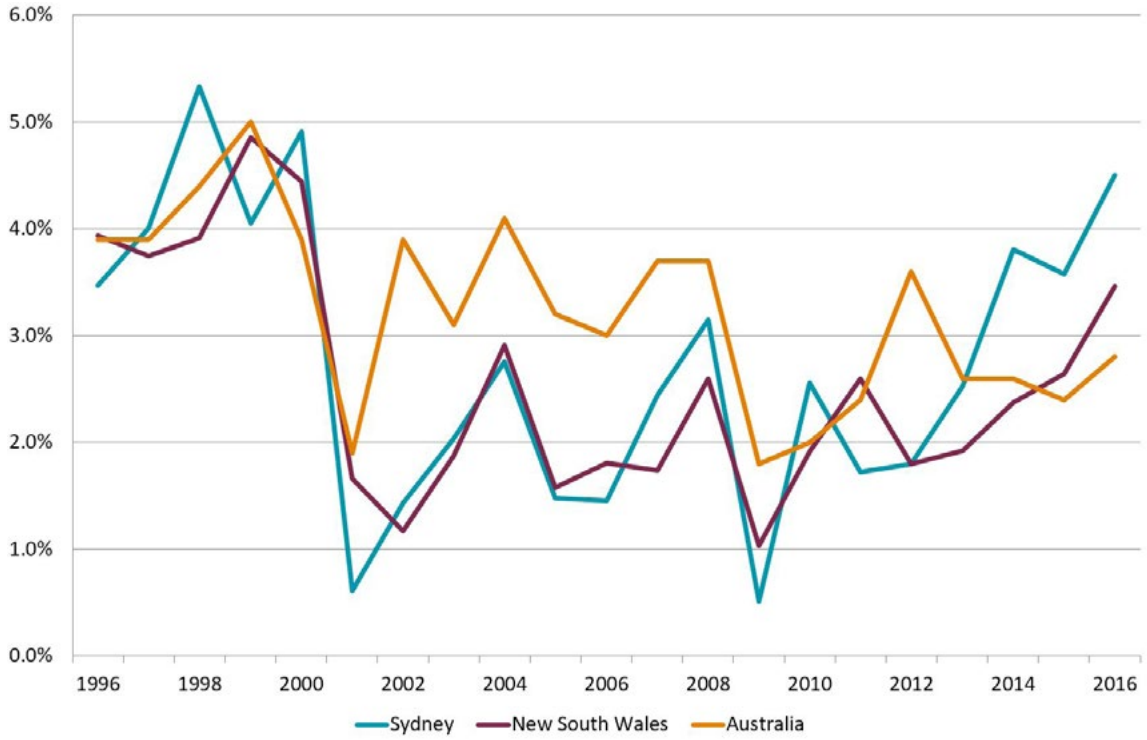
- Leading into 1999-00 Sydney had a higher rate of growth than the rest of Australia;
- Between 2000-01 and 2012-13, Sydney's growth underperformed relative to the rest of Australia, with the 2008-09 Global Financial Crisis impacting Sydney particularly hard; and
- The last three years have seen the Sydney economy significantly outperform the rest of the country.

The 2015-16 result for Sydney was particularly impressive. Sydney's 4.5 per cent GDP growth rate was the highest since 1999-2000 and the third highest on record. Sydney contributed 38.6 per cent of GDP growth, the highest since 1991-92.

Economic growth is driven by a number of factors, including population growth. To eliminate strip out the effects of population growth, Figure 5 presents growth in Sydney's GDP per capita, again compared to New South Wales and Australia. The overall pattern is similar to that of the GDP growth rate.

Sydney's GDP per capita of $80,000 is $10,600 higher than the national average – the highest margin since 2004-05. Sydney's GDP per capita is $32,200 higher than Regional NSW, this is the highest on record.

FIGURE 4: SYDNEY GDP GROWTH - VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

FIGURE 5: SYDNEY GDP PER CAPITA GROWTH - VOLUME MEASURE

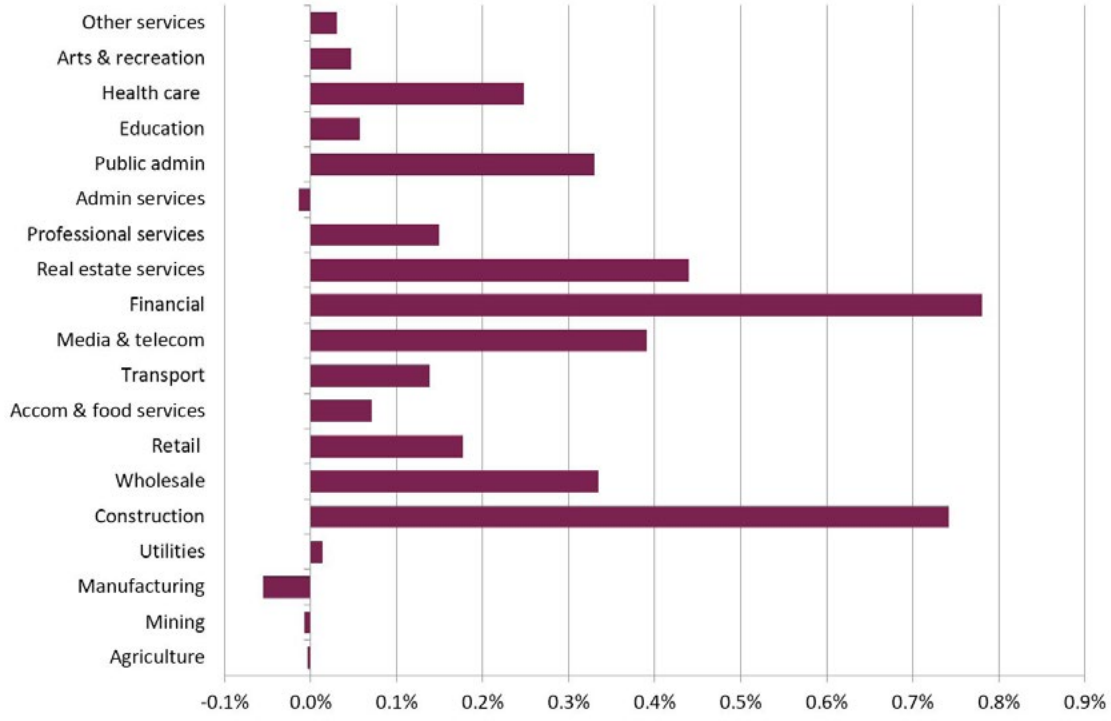
Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

Growth over the past few years have been linked to mainly cyclical factors. Sydney's role as a major financial hub has provides access to global capital flows, which over the past few years have been flooded with liquidity. The strong growth in Sydney's largest industry and low interest rates have helped support growth across a broad range of industries.

Figure 6 presents the industry contribution to Sydney GDP growth for 2015-16. Financial & Insurance Services (0.8 percentage points) and Construction (0.7 percentage points) the largest contributors. The 0.7 percentage point contribution from Construction is the largest on record for that industry in Sydney. Media & Telecommunications and Real Estate Services both contributed 0.4 percentage points.

Manufacturing saw a decline in activity (-0.1 percentage points) in 2015-16.

FIGURE 6: CONTRIBUTION TO SYDNEY GDP GROWTH 2015-16



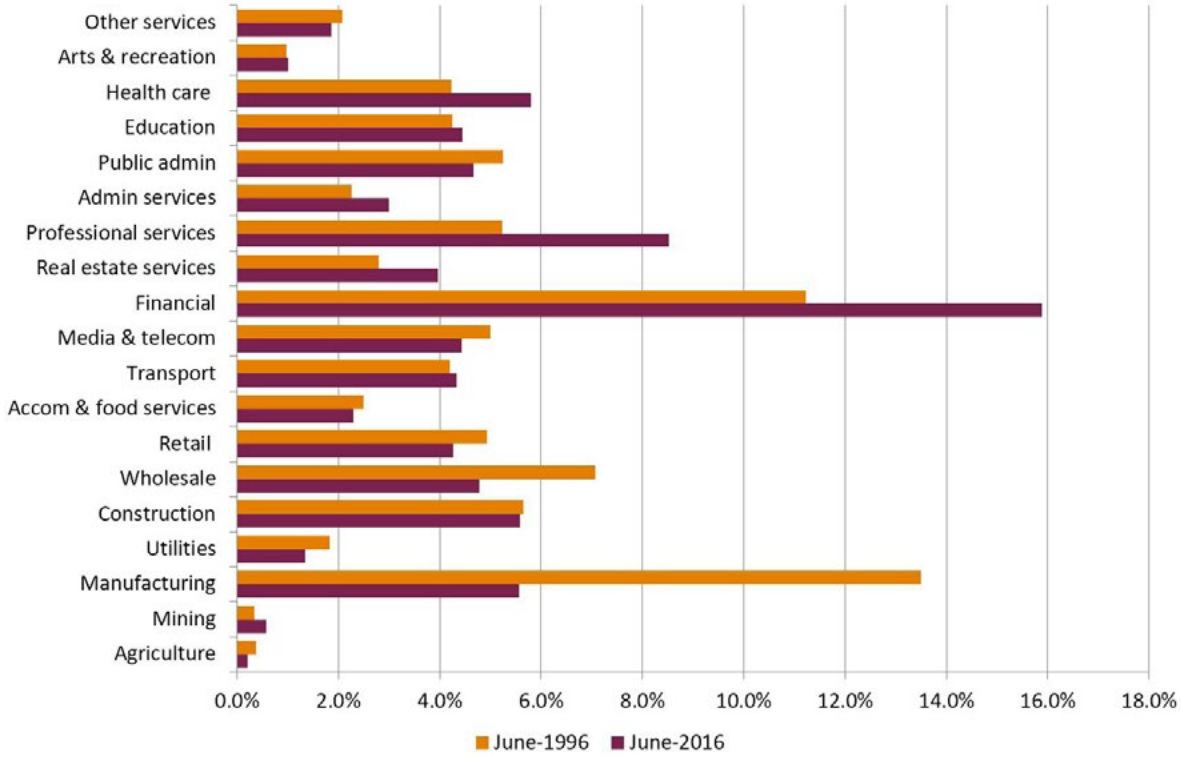
Source: SGS Economics & Planning

As shown in Figure 7, the Professional Services and Financial & Insurance Services industries represent 24.4 per cent of the economy of Sydney. This is up from 16.5 per cent in 2005-06. The Financial & Insurance Services share of Sydney's economy is was at a record high of 15.9 per cent in 2015-16.

Other major changes in the industry structure of Sydney over the same period include the decline in Manufacturing from 13.5 per cent to 5.7 per cent. Manufacturing share of Sydney's economy is at a record low.

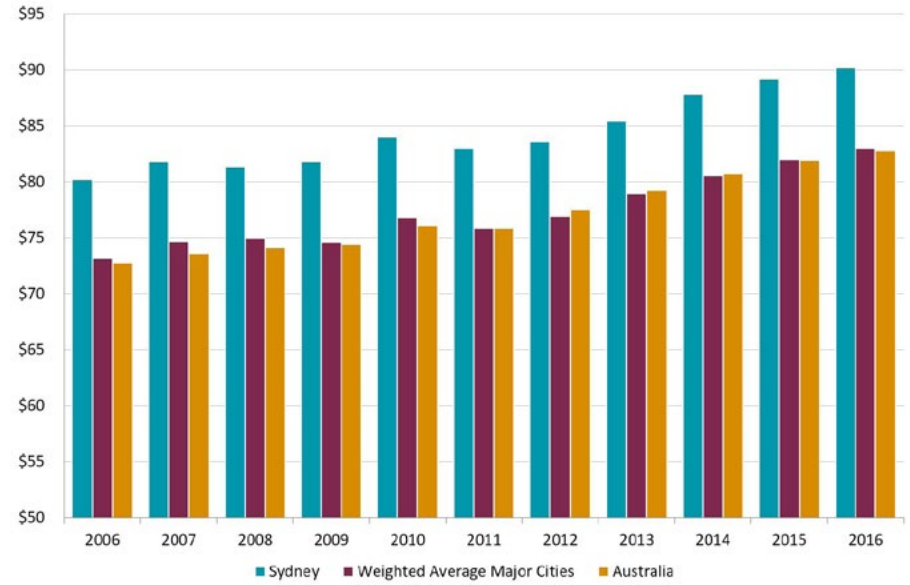
In terms of labour productivity (gross value added per hour worked), Sydney is the most productive of the major Australian capital cities. Sydney's labour productivity grew faster (1.2 per cent) than the national average (1.0 per cent) and is now at a record high of $90 per hour worked (as shown in Figure 8). This is a reflection of two related factors. The first is the relative concentration of high labour productivity industries (mostly Financial & Professional Services) located in Sydney. The second reflects the advantages, in terms of economies of scale and scope, which are offered to firms by the virtue of the size of the Sydney economy.

FIGURE 7: SYDNEY INDUSTRY STRUCTURE



Source: SGS Economics & Planning. Industry structure as measured by industry gross value added share of GDP (excluding ownership of dwellings, taxes less subsidies on products and statistical discrepancy).

FIGURE 8: LABOUR PRODUCTIVITY, SYDNEY



Source: SGS Economics & Planning

TABLE 4: CONTRIBUTION TO SYDNEY GDP GROWTH – VOLUME MEASURE

Sydney	2011-12	2012-13	2013-14	2014-15	2015-16
Agriculture, forestry & fishing	0.0%	0.0%	-0.1%	0.0%	-0.0%
Mining	0.1%	0.0%	0.0%	-0.0%	-0.0%
Manufacturing	-0.0%	-0.1%	0.1%	-0.4%	-0.1%
Electricity, gas, water & waste	-0.1%	0.0%	-0.0%	-0.1%	0.0%
Construction	-0.5%	0.4%	-0.1%	0.4%	0.7%
Wholesale trade	0.5%	0.1%	-0.2%	0.3%	0.3%
Retail trade	0.0%	0.3%	0.2%	0.3%	0.2%
Accommodation & food	-0.0%	-0.1%	-0.1%	0.2%	0.1%
Transport, postal & warehousing	0.2%	0.1%	0.1%	-0.3%	0.1%
Information media & telecommunications	0.1%	-0.2%	0.1%	0.6%	0.4%
Financial & insurance	0.8%	0.9%	0.9%	1.0%	0.8%
Rental, hiring & real estate	0.1%	0.3%	0.4%	0.3%	0.4%
Professional, scientific & technical	0.6%	0.4%	0.1%	-0.0%	0.1%
Administrative & support	-0.1%	0.1%	0.2%	0.1%	-0.0%
Public administration & safety	-0.2%	0.2%	0.5%	-0.0%	0.3%
Education & training	0.1%	0.1%	-0.0%	0.2%	0.1%
Health care & social assistance	0.1%	0.2%	0.7%	-0.1%	0.2%
Arts & recreation	-0.0%	0.1%	0.1%	-0.0%	0.0%
Other services	0.1%	-0.1%	0.3%	0.0%	0.0%
Ownership of dwellings	0.1%	0.2%	0.2%	0.2%	0.3%
Taxes less subsidies on products:	0.2%	0.2%	0.2%	0.1%	0.2%
Statistical Discrepancy (P)	0.1%	0.1%	-0.0%	0.0%	0.2%
Gross state product: Chain volume measures	2.1%	4.1%	3.9%	3.0%	4.5%

Source: SGS Economics & Planning

Melbourne

Melbourne has been a great success story over the last 25 years, successfully transitioning from an economy heavily reliant on a declining Manufacturing sector to a diversified economy with significant growth in Professional and Financial Services. Much of the growth in the Professional Services and Financial & Insurance Services industries in Melbourne has been the result of investments made over the past two decades. Development of Southbank and Docklands provided the Central Business District with "brownfields" to accommodate significant levels of new employment. Road projects, such as the Western Ring Road, CityLink and EastLink, helped to improve connectivity across the city.

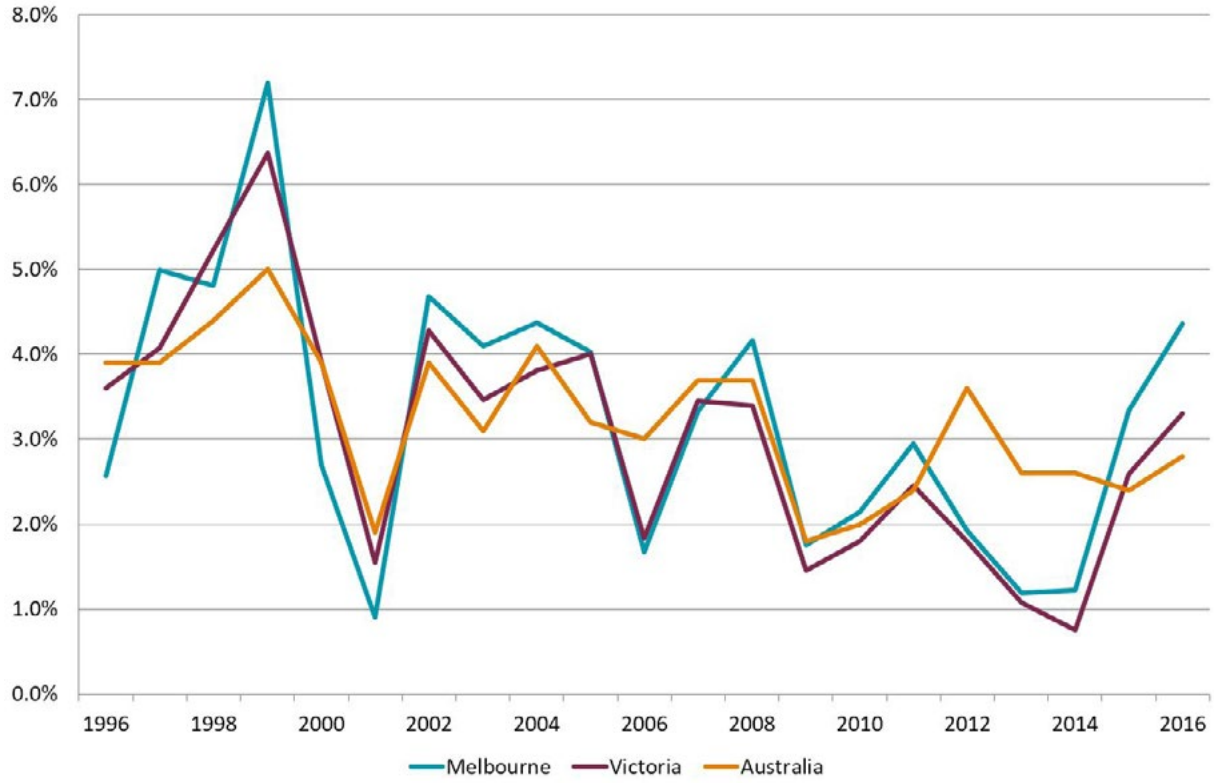
These factors have produced agglomeration economies which enabled high-productivity firms to flourish. However, this employment growth has absorbed the public transport capacity to the Melbourne CBD.

Without additional transport investment, Melbourne risks following the trajectory of Sydney's "lost decade". Aside from the Regional Rail Link (opened June 2015), Melbourne has had limited significant transport improvement in recent years. The proposed Melbourne Metro Rail Project will change this, however, the tentative completion date of 2024 means the benefits are still some way off. More immediately, the Victorian Government's program to remove 50 level crossings from the Metropolitan train network over the next eight years will bring incremental benefits in terms of increased rail and road network capacity.

Figure 9 compares GDP growth for Melbourne with Victoria and Australia. Melbourne represents over 80 per cent of the Victorian economy, an even greater concentration of economic activity than seen in Sydney. Key points of note in Figure 9 include:

- Melbourne experienced a larger boom in 1999 and a larger bust in 2001 than the rest of Australia (This period was influenced by the introduction of the new taxation system which caused changes in consumption patterns to avoid the Good & Services Tax. 2001 was also the timing of the previous recession in the United States.);
- Melbourne's growth rate from 2001-02 to 2003-04 was noticeably higher than Australia. This was driven by very strong growth in the Financial & Insurance Services sector in Melbourne; and
- After three years of low growth, in the last two years Melbourne has outperformed the Australian economy.

FIGURE 9: MELBOURNE GDP PER CAPITA GROWTH – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

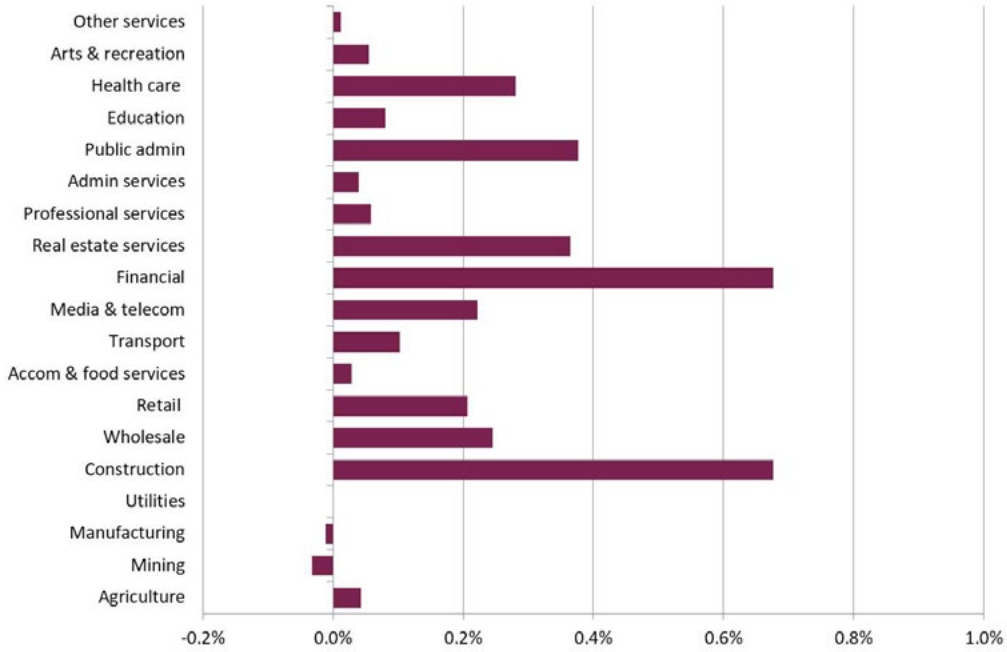
Figure 10 presents per capita GDP growth for Melbourne, Victoria and Australia. While the overall pattern is similar to the GDP growth, in four of the past eight years GDP per capita has contracted in Melbourne as population growth has outstripped economic growth. The 2015-16 growth (1.8 per cent) in per capita GDP was the highest since 2004-05.

Figure 11 presents the industry contribution to Melbourne GDP growth for 2015-16. Financial & Insurance Services (0.7 percentage points) and Construction (0.7 percentage points) were the largest contributors. Manufacturing and Mining were the only two industries which detracted from economic growth.

FIGURE 10:MELBOURNE GDP PER CAPITA GROWTH – VOLUME MEASURE

Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

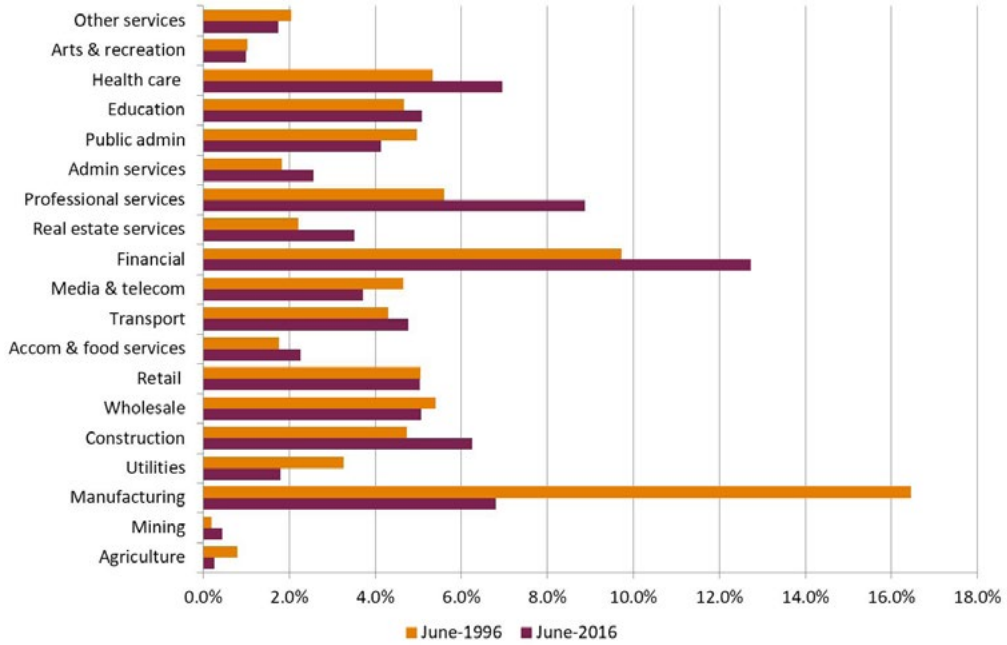
FIGURE 11: CONTRIBUTION TO MELBOURNE GDP GROWTH, 2015-16



Source: SGS Economics & Planning

As shown in Figure 12, Professional Services and Financial & Insurance Services represent 21.6 per cent of the economy of Melbourne. This is up from 15.3 per cent in 1995-96. Over the same period, the share of Manufacturing fell from 16.4 per cent to 6.8 per cent (the lowest level on record).

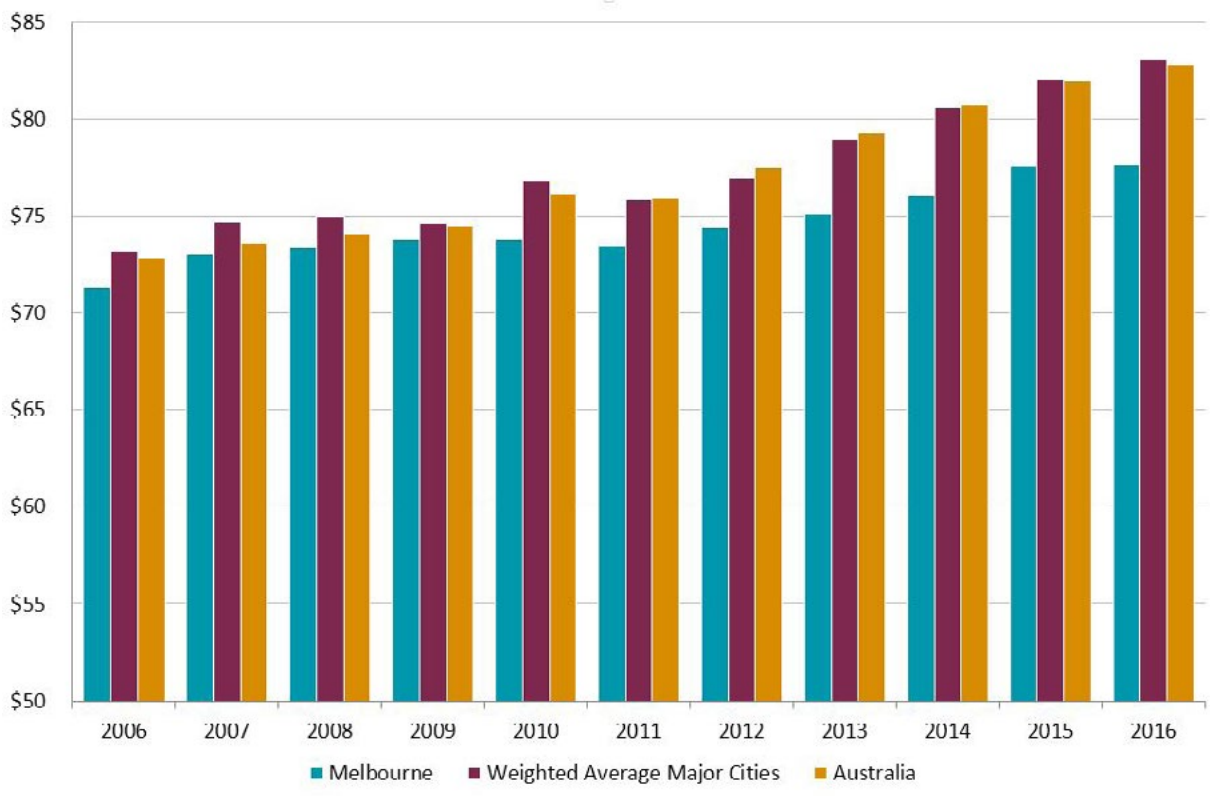
FIGURE 12: MELBOURNE INDUSTRY STRUCTURE



Source: SGS Economics & Planning. Industry structure as measured by industry gross value added share of GDP (excluding ownership of dwellings, taxes less subsidies on products and statistical discrepancy).

As shown in Figure 13, Melbourne's productivity is below the weighted average for the major capital cities and Australia as a whole due to a higher concentration of jobs in lower productivity industries. 2015-16 saw a 0.1 per cent increase in Melbourne's labour productivity.

FIGURE 13: LABOUR PRODUCTIVITY, MELBOURNE



Source: SGS Economics & Planning

TABLE 5: CONTRIBUTION TO MELBOURNE GDP GROWTH – VOLUME MEASURE

Melbourne	2011-12	2012-13	2013-14	2014-15	2014-15
Agriculture, forestry & fishing	-0.0%	0.1%	-0.2%	0.0%	0.0%
Mining	0.3%	-0.0%	0.0%	0.1%	-0.0%
Manufacturing	-0.1%	-0.0%	0.0%	0.4%	-0.0%
Electricity, gas, water & waste	0.0%	0.2%	-0.1%	0.1%	0.0%
Construction	-0.2%	-0.1%	0.0%	0.6%	0.7%
Wholesale trade	0.1%	0.3%	0.3%	0.0%	0.2%
Retail trade	0.3%	0.2%	0.0%	0.3%	0.2%
Accommodation & food	0.1%	-0.0%	-0.2%	0.2%	0.0%
Transport, postal & warehousing	0.2%	0.1%	0.1%	-0.3%	0.1%
Information media & telecommunications	0.1%	0.2%	0.0%	0.4%	0.2%
Financial & insurance	0.5%	0.2%	0.3%	0.5%	0.7%
Rental, hiring & real estate	0.3%	0.2%	0.1%	0.3%	0.4%
Professional, scientific & technical	0.4%	0.8%	-0.1%	-0.2%	0.1%
Administrative & support	0.1%	0.0%	-0.1%	-0.1%	0.0%
Public administration & safety	0.1%	0.0%	0.3%	-0.1%	0.4%
Education & training	0.1%	0.1%	0.1%	0.1%	0.1%
Health care & social assistance	0.0%	0.7%	0.3%	-0.1%	0.3%
Arts & recreation	0.1%	0.0%	-0.0%	0.0%	0.1%
Other services	0.1%	-0.1%	-0.1%	0.1%	0.0%
Ownership of dwellings	0.1%	0.3%	0.2%	0.6%	0.3%
Taxes less subsidies on products:	0.2%	0.2%	-0.0%	0.1%	0.2%
Statistical Discrepancy (P)	0.0%	-0.8%	0.0%	0.0%	0.3%
Gross state product: Chain volume measures	3.0%	2.7%	1.2%	3.1%	4.4%

Source: SGS Economics & Planning

Brisbane

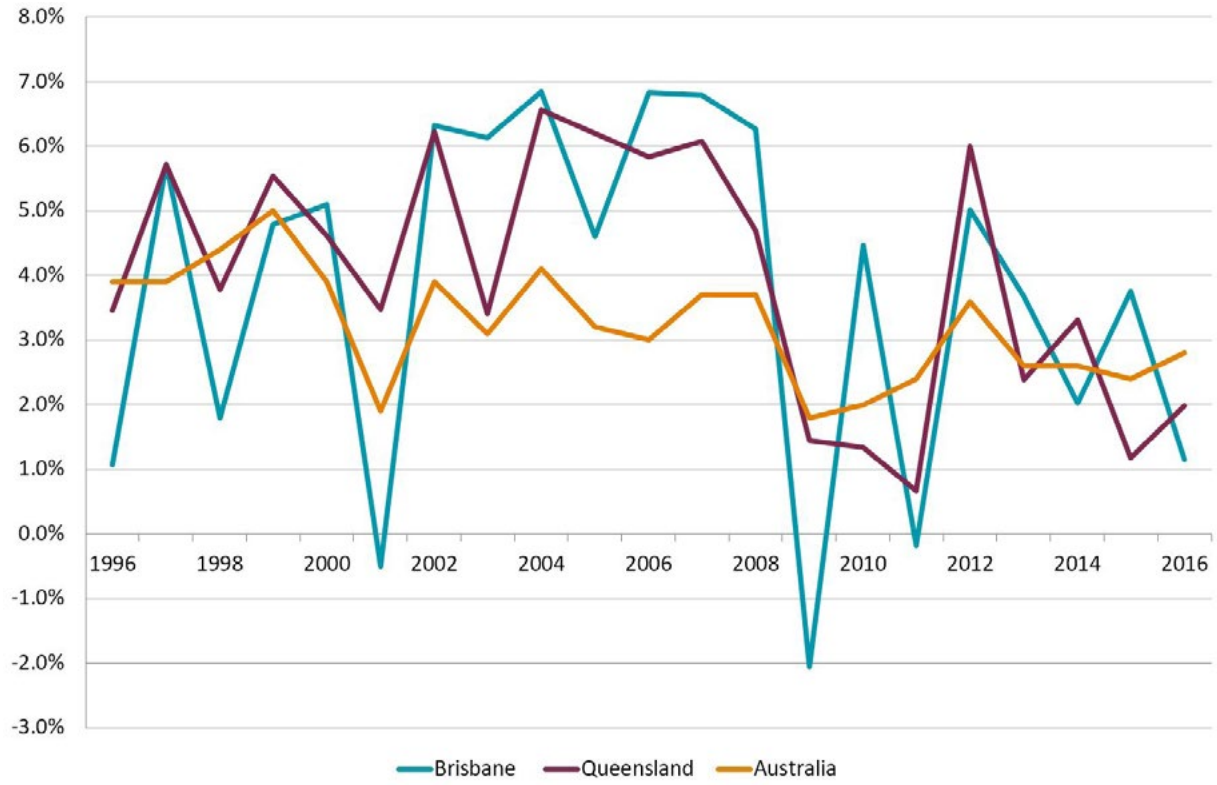
For an extended period, economic growth in Brisbane has been fuelled by population migration, with people coming mostly from the southern states attracted by employment opportunities, cheaper housing and lifestyle benefits. This migration pattern can no longer be relied upon to provide growth for Brisbane, which faces a myriad of challenges including the decline in the mining industry affecting employment, and decades of relatively high population growth impacting on affordability and liveability.

The challenge for Brisbane is to establish a competitive advantage for the city's continued development. Unlike Sydney and Melbourne, Brisbane does not have a deep pool of export-oriented Financial and Professional Services firms. Therefore a more diversified industrial makeup will be needed to overcome the cyclical downturn in the Mining sector.

In 2015-16, the Brisbane economy accounted for around half of the Queensland economy. This is the smallest share of all of the major capital cities with a more dispersed population and significant mineral production in Regional Queensland.

As shown in Figure 14, Brisbane's GDP growth was higher than the national average during the early-to-mid 1990s, however it also experienced a more pronounced contraction around the time of the introduction of the GST. During the 2000s, Brisbane's exposure to the minerals boom ensured higher growth than the Australian average. However Brisbane's GDP growth has also displayed significant volatility, with drops in growth experienced in 2008-09 (during the Global Financial Crisis), and also in 2010-11 (as a result of the major floods in Queensland).

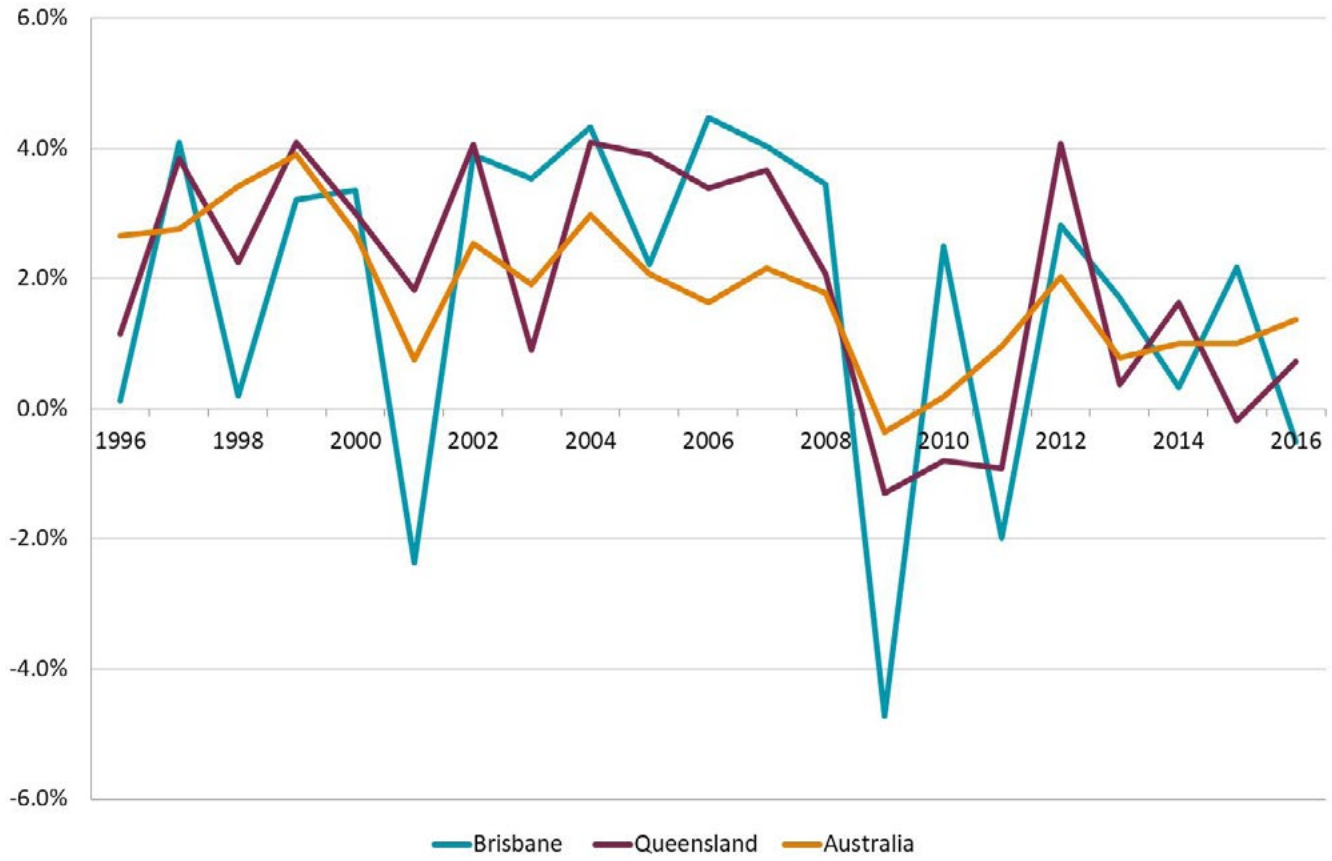
FIGURE 14: BRISBANE GDP GROWTH – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

Figure 15 shows that growth in GDP per capita for Brisbane exhibited a very similar trend to growth in the Volume Measure. 2015-16 saw negative growth in Brisbane's GDP per capita (-0.5 per cent), which was the third time in the last eight years that GDP per capita has contracted.

FIGURE 15: BRISBANE GDP PER CAPITA GROWTH – VOLUME MEASURE

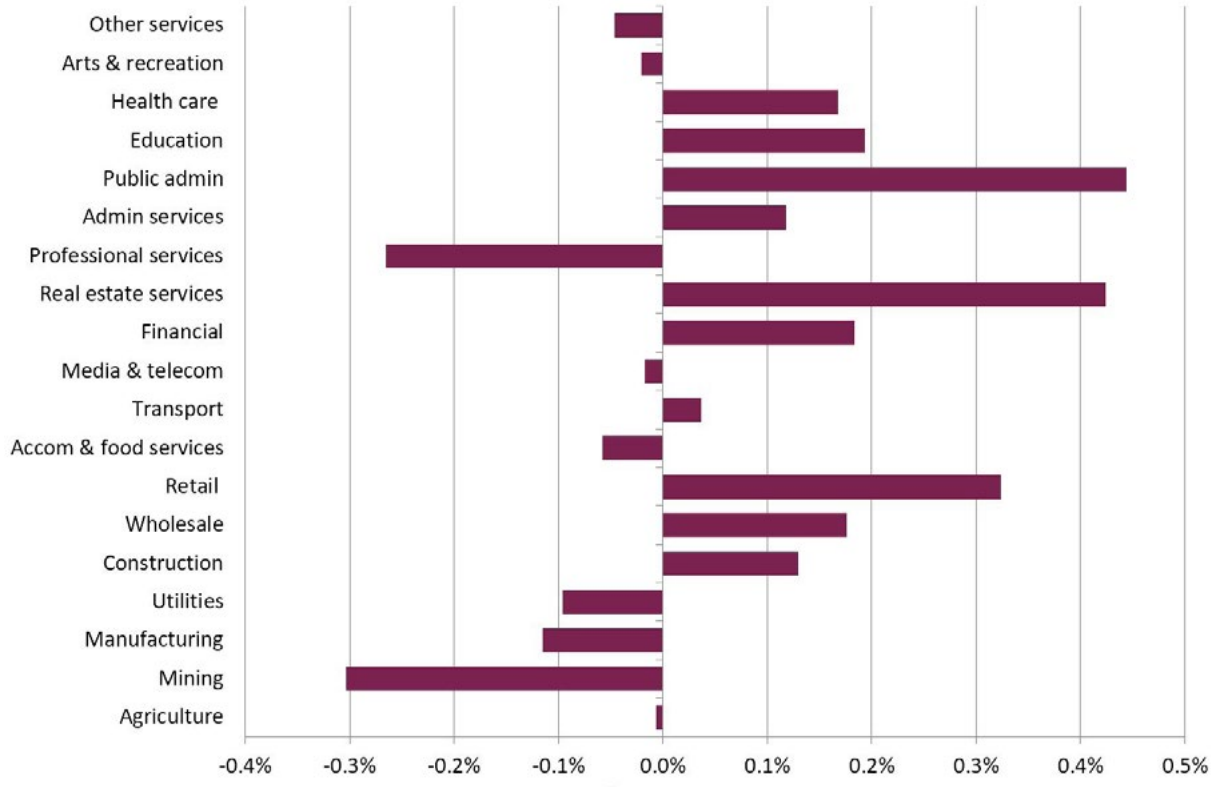


Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

As shown in Figure 16, the largest contributors to Brisbane's growth in 2015-16 was Public Administration and Real Estate Services (both 0.4 percentage points). Significant drags on the Brisbane economy included Professional Services (-0.3 percentage points) and Mining (-0.3 percentage points).

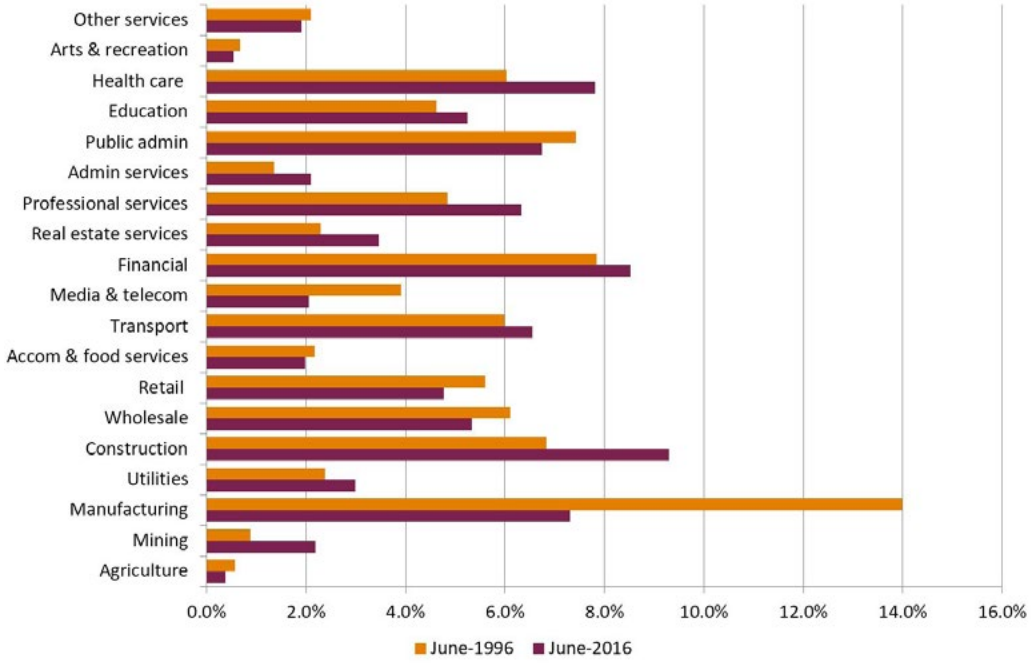
Figure 17 shows that in 2015-16, Construction (9.3 per cent) was the largest industry in Brisbane, followed by Financial & Insurance Services (8.5 per cent) and Health care (7.8 per cent). Whilst Brisbane showed a similar decline in the size of the Manufacturing industry as Sydney and Melbourne, the growth in Financial & Insurance Services and Professional Services has not been as pronounced.

FIGURE 16: CONTRIBUTION TO BRISBANE GDP GROWTH, 2015-16



Source: SGS Economics & Planning

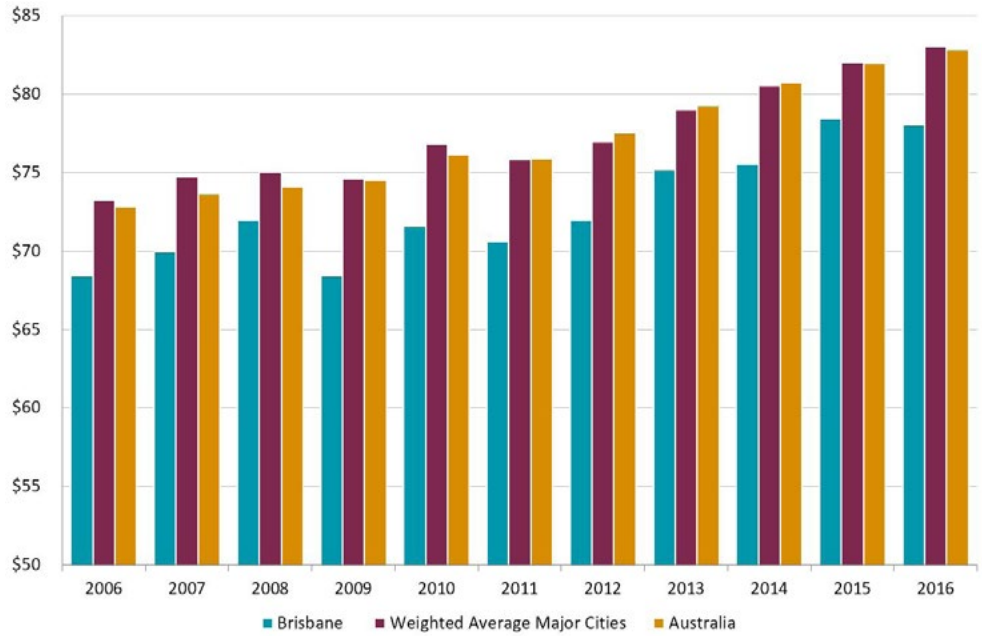
FIGURE 17: BRISBANE INDUSTRY STRUCTURE



Source: SGS Economics & Planning. As measured by industry gross value added share of GDP (excluding ownership of dwellings, taxes less subsidies on products and statistical discrepancy).

Figure 18 illustrates that Labour productivity in Brisbane is lower than Australia as a whole and the weighted average of the major capital cities, but that this gap has closed significantly over the past decade due to growth in high labour productivity industries, including Financial Services and Mining.

FIGURE 18: LABOUR PRODUCTIVITY, BRISBANE



Source: SGS Economics & Planning

TABLE 6: CONTRIBUTION TO BRISBANE GDP GROWTH – VOLUME MEASURE

Brisbane	2011-12	2012-13	2013-14	2014-15	2014-15
Agriculture, forestry & fishing	0.1%	-0.1%	-0.1%	-0.0%	-0.0%
Mining	0.4%	0.2%	0.1%	0.2%	-0.3%
Manufacturing	0.9%	0.2%	-0.3%	0.1%	-0.1%
Electricity, gas, water & waste	0.0%	-0.1%	-0.2%	0.2%	-0.1%
Construction	1.4%	0.4%	1.9%	-0.8%	0.1%
Wholesale trade	0.8%	0.4%	-0.2%	-0.4%	0.2%
Retail trade	0.1%	0.5%	0.2%	-0.2%	0.3%
Accommodation & food	0.0%	0.2%	0.0%	0.2%	-0.1%
Transport, postal & warehousing	0.4%	0.3%	-0.2%	0.3%	0.0%
Information media & telecommunications	0.0%	-0.2%	0.1%	0.2%	-0.0%
Financial & insurance	0.4%	1.0%	-0.3%	1.1%	0.2%
Rental, hiring & real estate	0.2%	-0.1%	0.6%	-0.1%	0.4%
Professional, scientific & technical	0.5%	0.9%	-0.2%	-0.6%	-0.3%
Administrative & support	-0.2%	0.3%	-0.1%	-0.1%	0.1%
Public administration & safety	0.5%	0.0%	0.1%	0.0%	0.4%
Education & training	0.1%	0.0%	0.2%	0.1%	0.2%
Health care & social assistance	0.4%	0.6%	0.6%	0.2%	0.2%
Arts & recreation	-0.1%	0.1%	0.0%	0.0%	-0.0%
Other services	0.4%	0.0%	-0.0%	0.2%	-0.0%
Ownership of dwellings	0.2%	0.2%	0.2%	0.2%	0.2%
Taxes less subsidies on products:	0.3%	0.5%	0.0%	0.0%	0.0%
Statistical Discrepancy (P)	0.1%	0.0%	-0.0%	0.0%	0.1%
Gross state product: Chain volume measures	7.4%	7.7%	3.4%	0.9%	1.1%

Source: SGS Economics & Planning. Contribution to Brisbane GDP growth- volume measure has rounded figures.

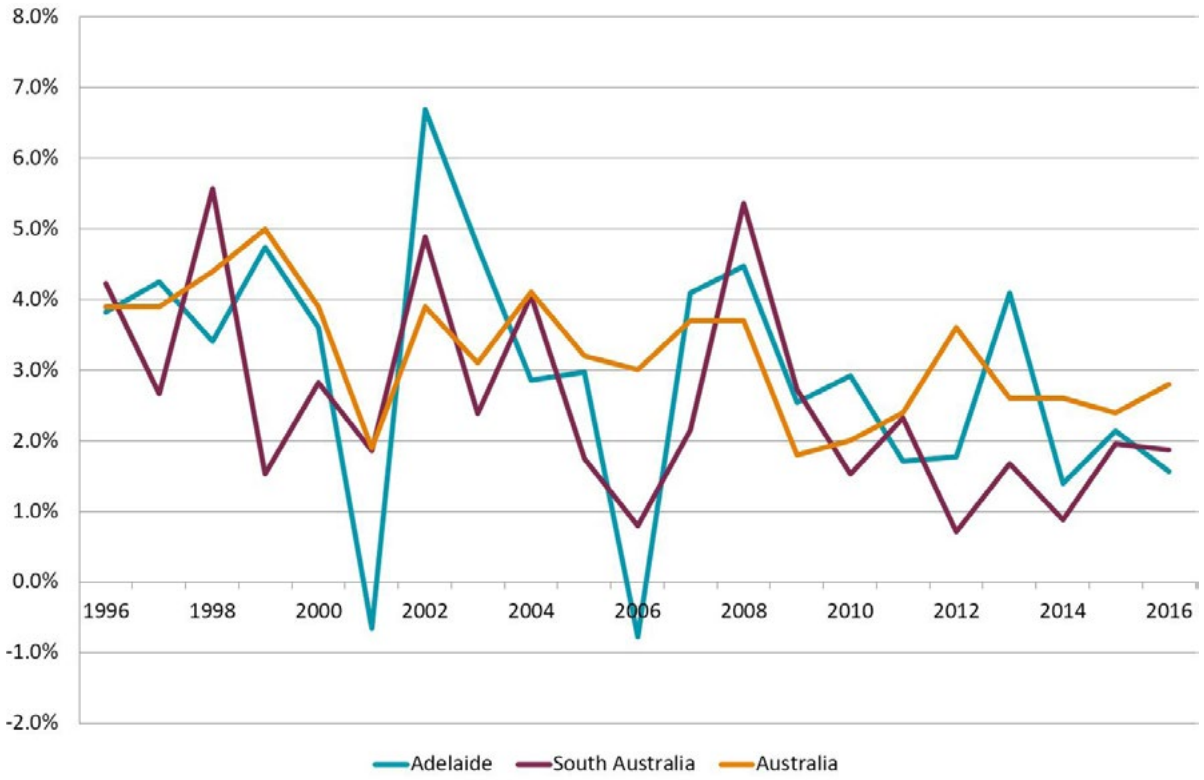
Adelaide

Adelaide has been a perennial underperformer economically over the past few decades, as the city struggles to overcome the on-going decline of the Manufacturing sector. The South Australian capital is faced with a number of structural challenges which do not have a clear solution. Aside from the decline of Manufacturing, it has a population which is ageing more rapidly than other cities and a shallow pool of export-oriented knowledge-intensive industries, which will constrain growth over the coming years. The weakness in the economy will continue to exacerbate the long-term trend of migration of skilled labour (in particular those in younger age groups) to elsewhere in Australia.

In most years since the mid-90s, Adelaide has experienced GDP growth below the national average (Figure 19). As with Brisbane, Adelaide exhibits more of a 'boom and bust' cycle than Sydney and Melbourne.

In 2015-16, the GDP of Adelaide grew by 1.6 per cent and per capita growth was 0.8 per cent.

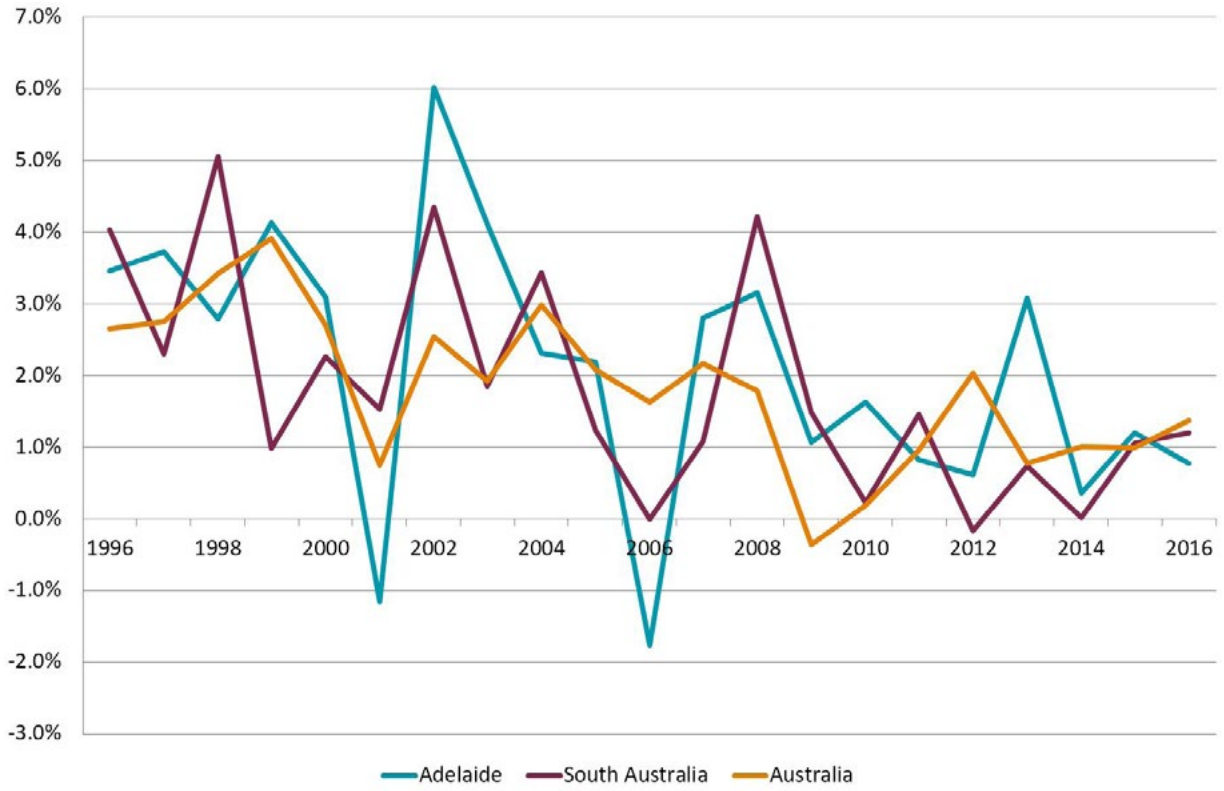
FIGURE 19: ADELAIDE GDP GROWTH – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

In per capita terms, Adelaide's GDP growth is slightly closer to the national average, and still shows the same volatility (Figure 20). This can be explained by the fact that Adelaide has relatively low population growth compared to other major capital cities.

FIGURE 20: ADELAIDE GDP PER CAPITA GROWTH – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

As shown in Figure 21, Health Care (0.5 percentage), Public Administration (0.4 percentage) and Construction (0.3 percentage) were the largest growth industries. Meanwhile Manufacturing (-0.4 percentage points), Transport (-0.2 percentage points) and Mining sectors (-0.2 percentage points) were all drags on Adelaide's economy.

As show in Figure 22, Health Care is now the largest industry in Adelaide, accounting for 10.4 per cent of the city's GDP in 2015-16. Due to Adelaide's ageing population, this sector has become increasing important in recent years. Financial & Insurance Services was the second largest (8.9 per cent), and while Public Administration has grown to the third largest industry. Manufacturing has significantly decreased in its share of Adelaide's GDP over the past two decades, from 16.6 per cent to 6.2 per cent of GDP.

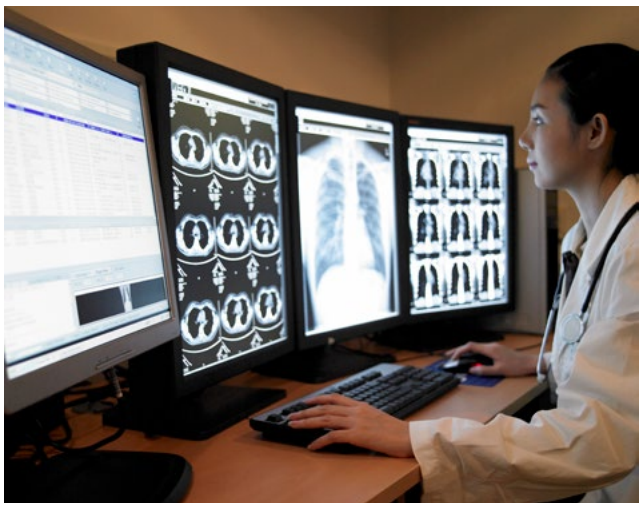
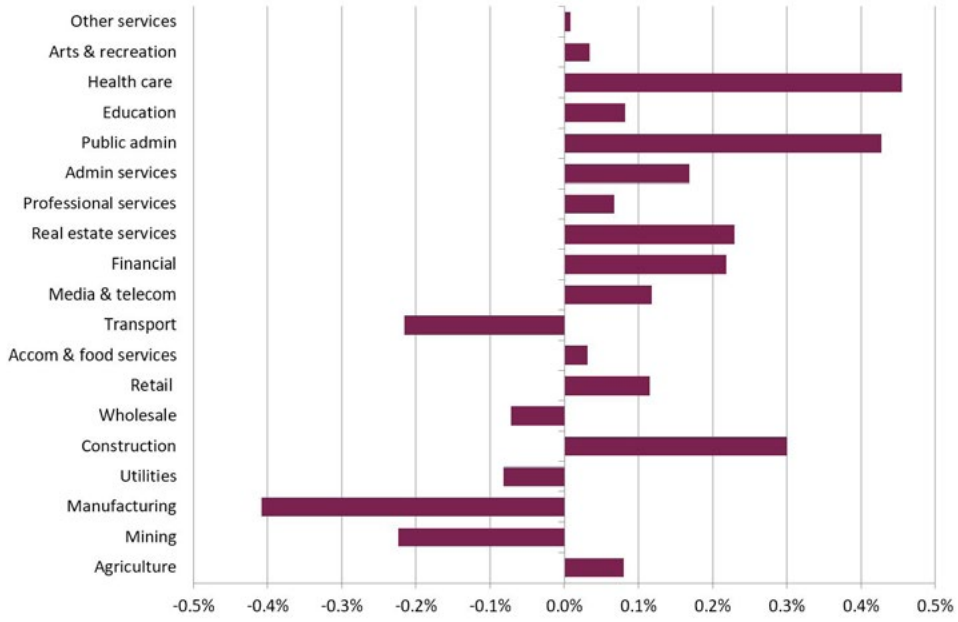
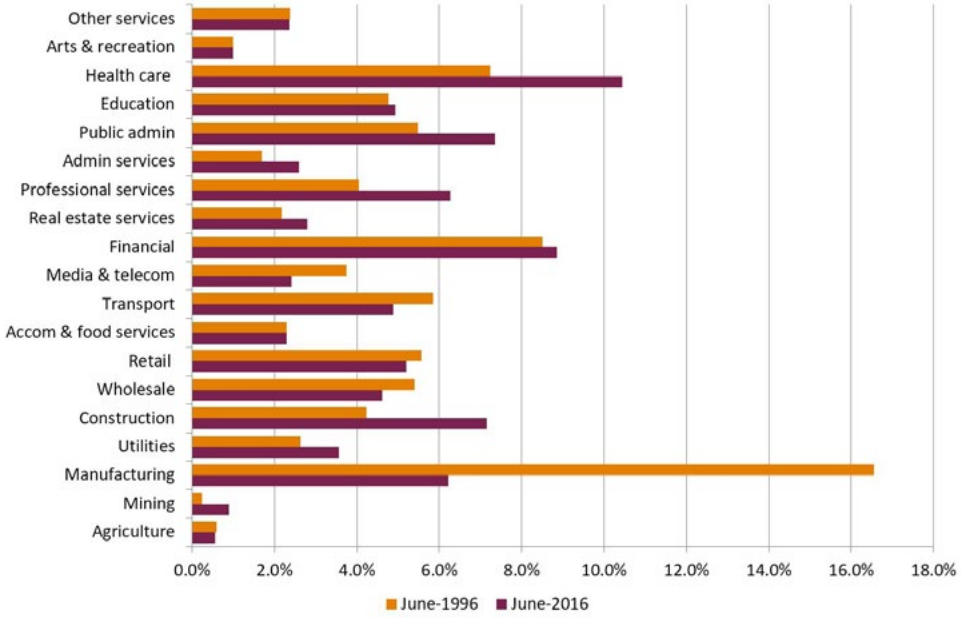


FIGURE 21: CONTRIBUTION TO ADELAIDE GDP GROWTH, 2015-16



Source: SGS Economics & Planning

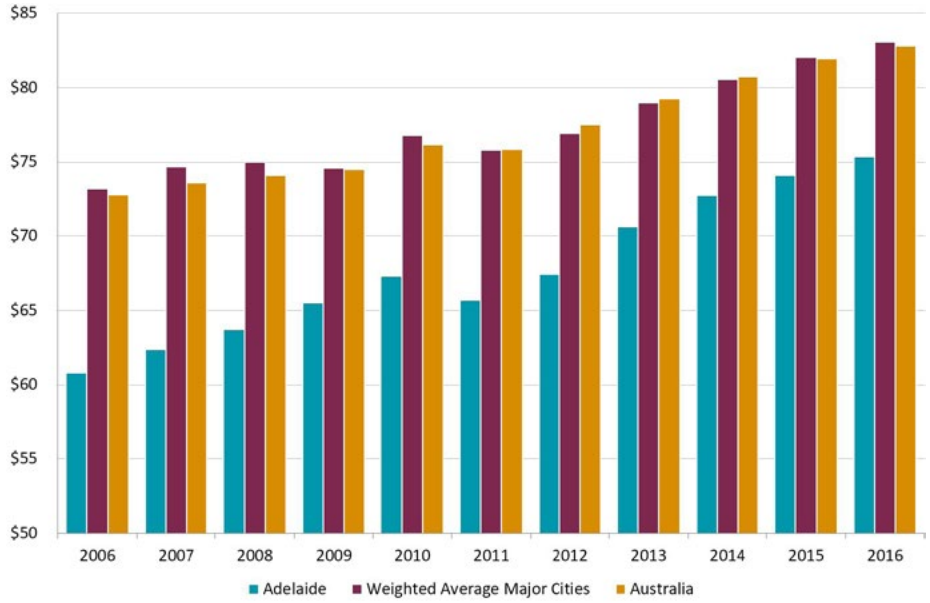
FIGURE 22: ADELAIDE INDUSTRY STRUCTURE



Source: SGS Economics & Planning. Industry structure as measured by industry gross value added share of GDP (excluding ownership of dwellings, taxes less subsidies on products and statistical discrepancy).

Labour productivity in Adelaide is the lowest of the major capital cities, which is heavily influenced by the composition of major industries the economy (Figure 23). Adelaide has a lower percentage of higher productivity industries than other major capital cities.

FIGURE 23: LABOUR PRODUCTIVITY, ADELAIDE



Source: SGS Economics & Planning

TABLE 7: CONTRIBUTION TO ADELAIDE GDP GROWTH – VOLUME MEASURE

Adelaide	2011-12	2012-13	2013-14	2014-15	2014-15
Agriculture, forestry & fishing	0.1%	-0.2%	0.1%	-0.0%	0.1%
Mining	0.1%	0.0%	0.0%	0.4%	-0.2%
Manufacturing	-0.0%	-0.4%	-0.6%	-0.1%	-0.4%
Electricity, gas, water & waste	-0.0%	0.1%	-0.2%	-0.1%	-0.1%
Construction	-0.6%	0.3%	0.2%	-0.3%	0.3%
Wholesale trade	0.1%	-0.0%	0.1%	0.1%	-0.1%
Retail trade	0.1%	0.1%	-0.0%	0.2%	0.1%
Accommodation & food	0.0%	-0.1%	-0.0%	0.2%	0.0%
Transport, postal & warehousing	0.2%	0.0%	-0.0%	0.1%	-0.2%
Information media & telecommunications	-0.0%	-0.1%	0.0%	0.2%	0.1%
Financial & insurance	0.4%	0.2%	0.1%	0.4%	0.2%
Rental, hiring & real estate	0.2%	0.2%	0.2%	0.3%	0.2%
Professional, scientific & technical	0.3%	0.2%	0.2%	-0.3%	0.1%
Administrative & support	-0.1%	-0.0%	-0.1%	0.0%	0.2%
Public administration & safety	0.3%	0.2%	0.4%	0.1%	0.4%
Education & training	0.1%	0.2%	0.0%	0.0%	0.1%
Health care & social assistance	0.1%	0.3%	0.3%	0.4%	0.5%
Arts & recreation	0.0%	0.0%	0.0%	0.0%	0.0%
Other services	0.0%	-0.1%	0.0%	0.1%	0.0%
Ownership of dwellings	0.1%	0.1%	0.1%	0.2%	0.1%
Taxes less subsidies on products:	0.1%	0.0%	-0.1%	0.1%	0.1%
Statistical Discrepancy (P)	-0.5%	0.1%	0.0%	0.0%	0.0%
Gross state product: Chain volume measures	2.3%	2.8%	0.9%	1.8%	1.6%

Source: SGS Economics & Planning. Contribution to Adelaide GDP growth - volume measure has rounded figures

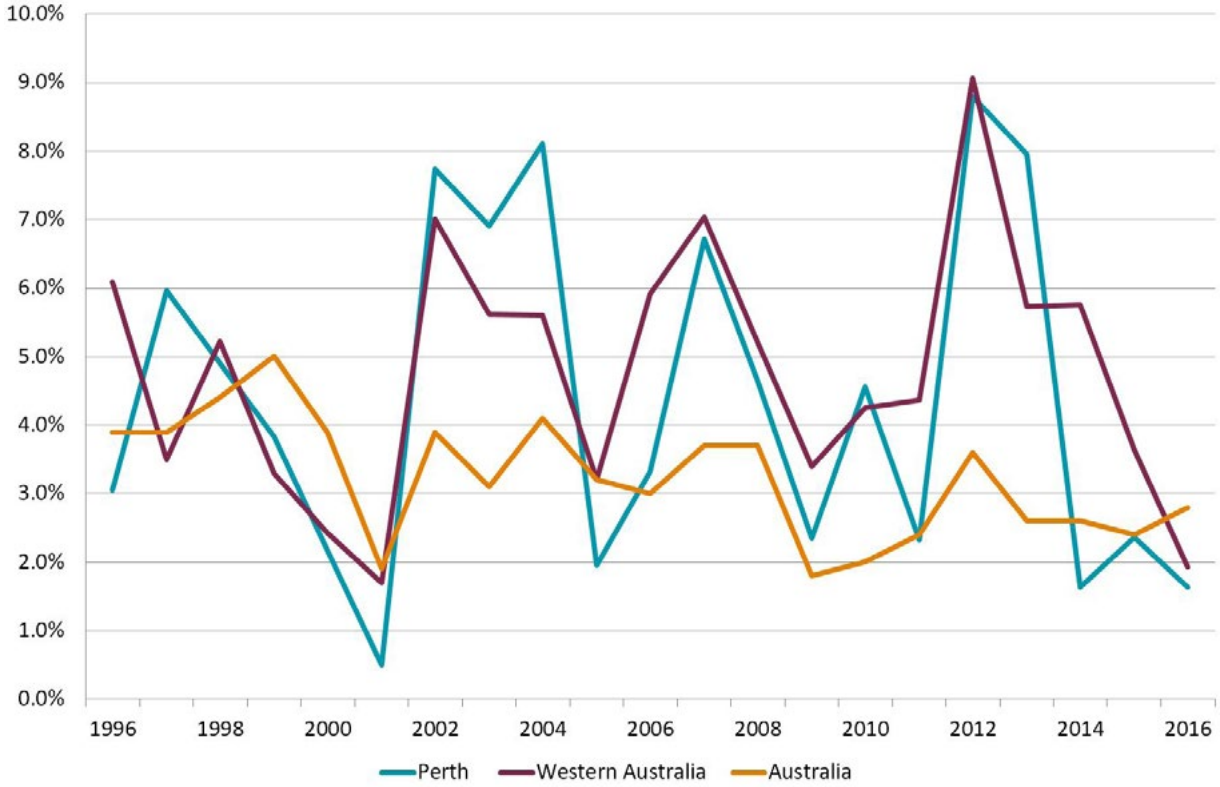
Perth

Perth's key challenge in the coming years will be to find alternate sources of economic growth, as the mining boom that has driven the city's economy for the past decade draws to a close. This is likely to be accompanied by a flight of skilled labour, as many workers formerly employed in mining-related jobs migrate to the eastern seaboard in search of employment.

Continuing investment and improvements to Central Perth will improve connectivity and amenity, which should aid in attracting high productivity employment to the city in the face of the decline of mining, and preventing some outward migration of skilled workers. The West Australian Government, constrained by repeated budget deficits, will have limited ability to continue stimulating the Perth economy through public expenditure.

As illustrated in Figure 24, the effect of the minerals boom on Perth's economy has been profound, with growth in the city's GDP significantly outperforming the national average from 2000-01 to 2013-14. The effect of the end of the boom on Perth's economy has been equally profound, with GDP growth diving to 1.6 per cent in 2015-16. The growth rate of 1.6 per cent was the third lowest on record lowest (only 2000-01 at 0.5 per cent and 1990-91 at minus 3 per cent are lower).

FIGURE 24: PERTH GDP GROWTH – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

Figure 25 presents the GDP per capita growth rate for Perth. In recent years, the spill over of mining construction and on-going increases in the volume of iron ore produced in Regional Western Australia has driven growth in Perth's GDP per capita during the early 2010s. In 2015-16, Perth experienced a small increase in GDP per capita of 0.1 per cent. In three of the past eight years, Perth has had a decline in GDP per capita.

FIGURE 25: PERTH GDP PER CAPITA GROWTH – VOLUME MEASURE

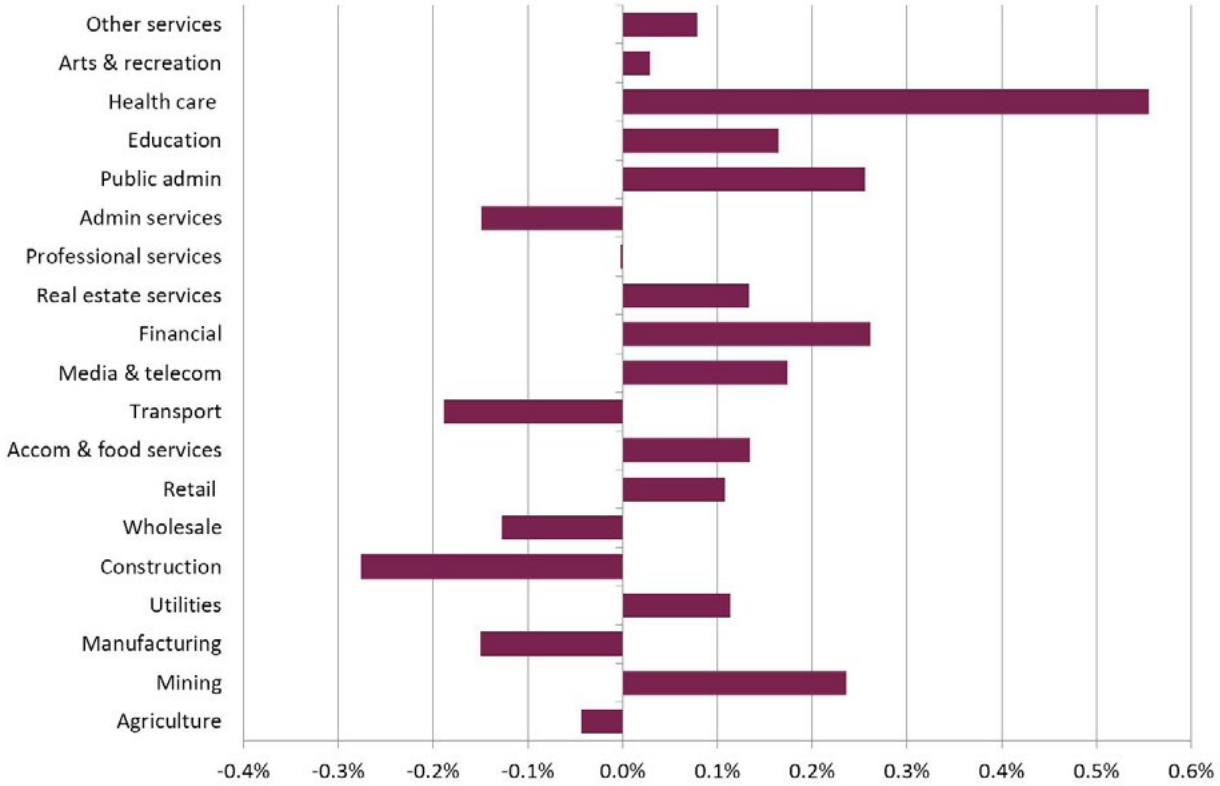
Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

The slow growth in Perth's economy in 2015-16 was reflected across most sectors (Figure 26). Health care (0.6 percentage points) was the main contributor to GDP growth.

Unlike the other major capital cities, the Construction industry detracted -0.3 percentage points from Perth's GDP growth. Transport (-0.2 percentage points) and Manufacturing (-0.1 percentage points) and Administrative services also detracted from growth.

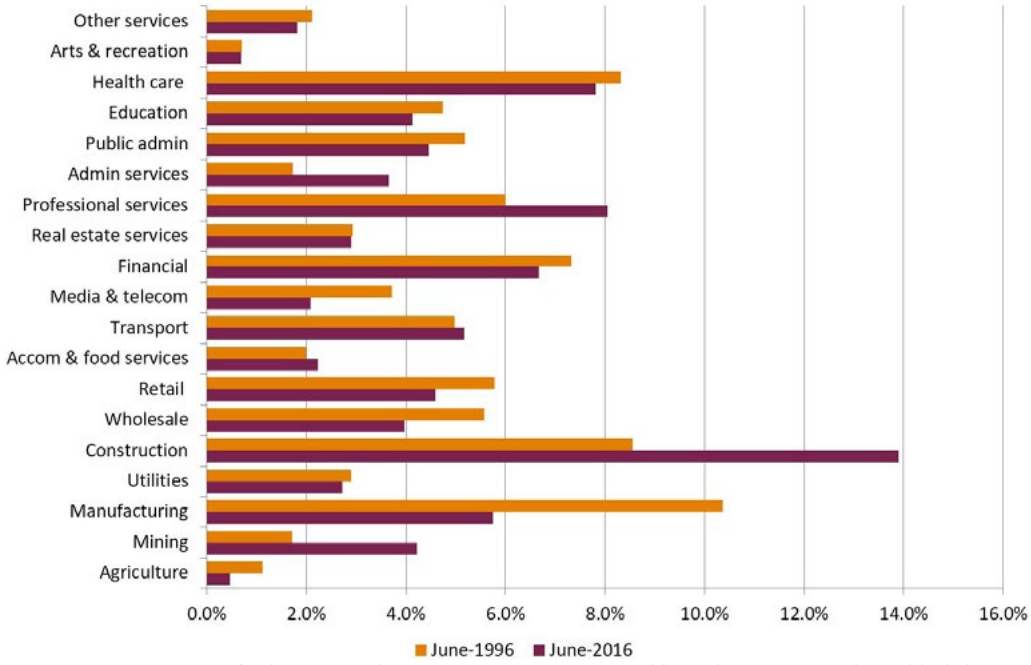
Figure 27 presents the industry share of the Perth economy. Despite the slow-down in mining, Construction was the largest industry (13.9 per cent) in 2015-16. However, given the difficulties fully accounting for fly-in-fly-out (FIFO) workers who live in Perth but travel to Regional Western Australia for employment, some caution should be exercised when interpreting these estimates. Professional services (8.0 per cent), Mining (4.2 per cent) and Health Care (7.8 per cent) were also large industries in Perth.

FIGURE 26: CONTRIBUTION TO PERTH GDP GROWTH, 2015-16



Source: SGS Economics & Planning

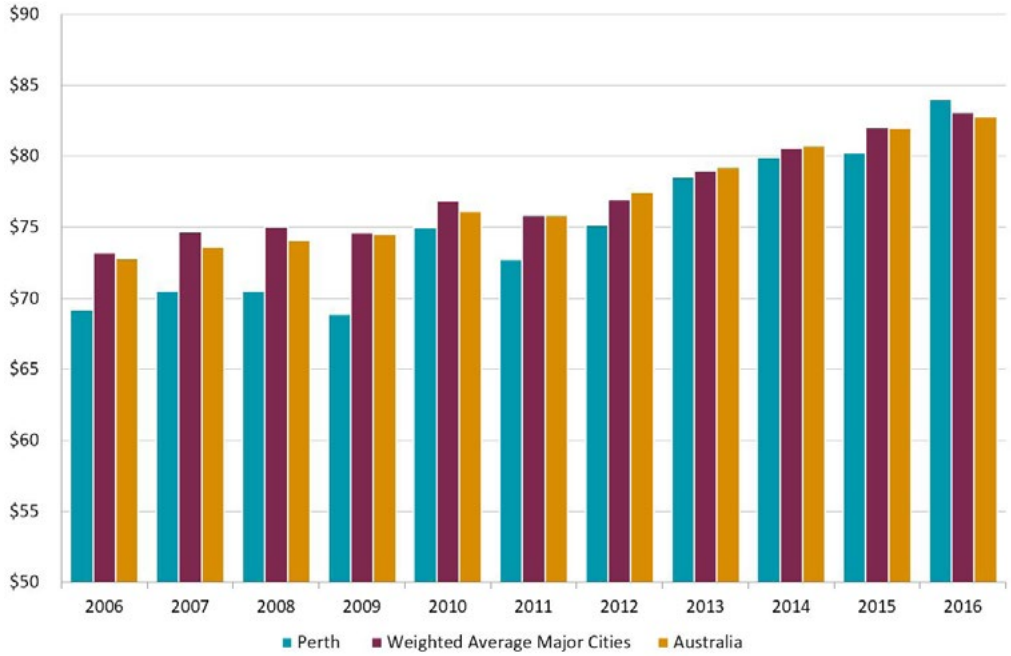
FIGURE 27: PERTH INDUSTRY STRUCTURE



Source: SGS Economics & Planning. Industry structure as measured by industry gross value added share of GDP (excluding ownership of dwellings, taxes less subsidies on products and statistical discrepancy).

Figure 28 presents estimated labour productivity for Perth. In 2005-06 the city was well below the weighted average of the major capital cities; however the onset of the mining boom brought Perth into line with the weighted average for the major capital cities. This was due to growth in a range of high labour productivity industries in Perth. The last five years have seen the growth in labour productivity decline again as the growth in the mining industry has moved from capital investment to higher levels of production.

FIGURE 28: LABOUR PRODUCTIVITY, PERTH



Source: SGS Economics & Planning

TABLE 8: CONTRIBUTION TO PERTH GDP GROWTH – VOLUME MEASURE

Perth	2011-12	2012-13	2013-14	2014-15	2014-15
Agriculture, forestry & fishing	-0.1%	0.1%	0.3%	-0.1%	-0.0%
Mining	0.2%	0.8%	0.2%	-0.4%	0.2%
Manufacturing	0.3%	-0.3%	0.1%	0.1%	-0.1%
Electricity, gas, water & waste	0.4%	-0.2%	0.1%	0.1%	0.1%
Construction	3.7%	0.6%	0.9%	0.2%	-0.3%
Wholesale trade	0.3%	0.2%	0.2%	0.1%	-0.1%
Retail trade	0.4%	0.5%	-0.2%	0.0%	0.1%
Accommodation & food	0.3%	0.1%	-0.0%	-0.0%	0.1%
Transport, postal & warehousing	0.5%	0.2%	-0.1%	-0.2%	-0.2%
Information media & telecommunications	0.2%	-0.3%	0.3%	0.1%	0.2%
Financial & insurance	-0.3%	0.6%	0.6%	0.5%	0.3%
Rental, hiring & real estate	0.5%	0.3%	0.2%	-0.1%	0.1%
Professional, scientific & technical	0.3%	0.4%	-1.0%	-0.6%	-0.0%
Administrative & support	0.1%	0.2%	-0.3%	0.1%	-0.1%
Public administration & safety	0.0%	0.2%	0.2%	0.0%	0.3%
Education & training	0.1%	0.1%	0.1%	0.1%	0.2%
Health care & social assistance	-0.0%	0.3%	0.4%	0.3%	0.6%
Arts & recreation	-0.0%	-0.0%	0.0%	-0.0%	0.0%
Other services	0.3%	-0.0%	0.0%	0.1%	0.1%
Ownership of dwellings	0.4%	0.4%	0.3%	0.3%	0.2%
Taxes less subsidies on products:	0.3%	0.5%	-0.2%	0.3%	0.2%
Statistical Discrepancy (P)	-0.2%	0.2%	0.3%	-0.3%	-0.1%
Gross state product: Chain volume measures	8.8%	8.0%	1.6%	2.4%	1.6%

Source: SGS Economics & Planning. Contribution to Perth GDP growth - volume measure includes rounded figures.

Canberra

Canberra's GDP growth tends to track the national average less closely than other capital cities, due to its small size and the fact that its largest industry, Public Administration, is less dependent on overall economic conditions. Figure 29 shows Canberra's GDP growth over the last 20 years.

Recent cuts to the public service saw Canberra's GDP growth fall to just 0.8 per cent in 2013-14, the lowest growth seen since 1996, the last time there were major cuts to the public service. Similar to the experience in 1996, GDP growth recovered to 3.4 per cent in 2015-16.

FIGURE 29: CANBERRA GDP GROWTH – VOLUME MEASURE

Source: Australian National Accounts: State Accounts, Cat. No. 5220.0

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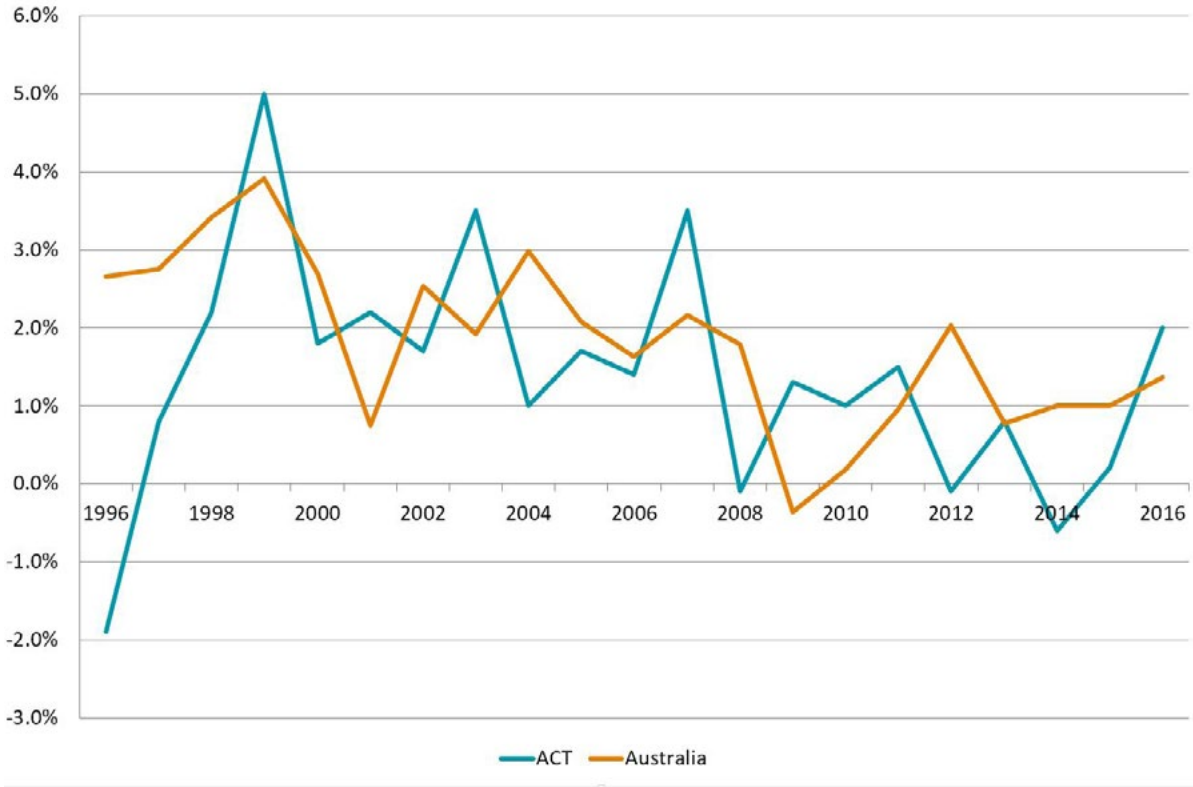
Figure 30 presents the GDP per capita growth rate for Canberra. Canberra's population has continued to grow despite the cuts (albeit more slowly than the Australian average), resulting in negative GDP per capita growth in 2013-14. Again, the GDP per capita growth rate recovered strongly growing by 2.0 per cent.

FIGURE 30: CANBERRA GDP PER CAPITA GROWTH – VOLUME MEASURE

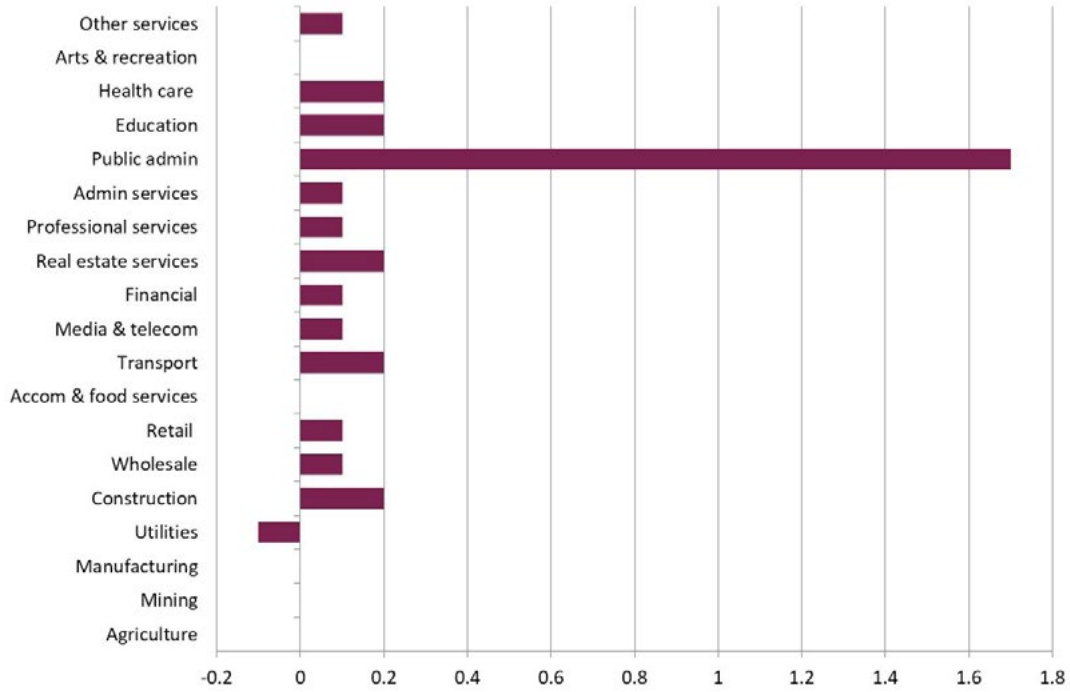


Source: Australian National Accounts: State Accounts, Cat. No. 5220.0

As shown in Figure 31 the highest contribution was Public Administration & Safety (1.7 percentage points). All other industries contributed to growth (or had nil growth) except for Utilities which contracted -0.1 per cent.

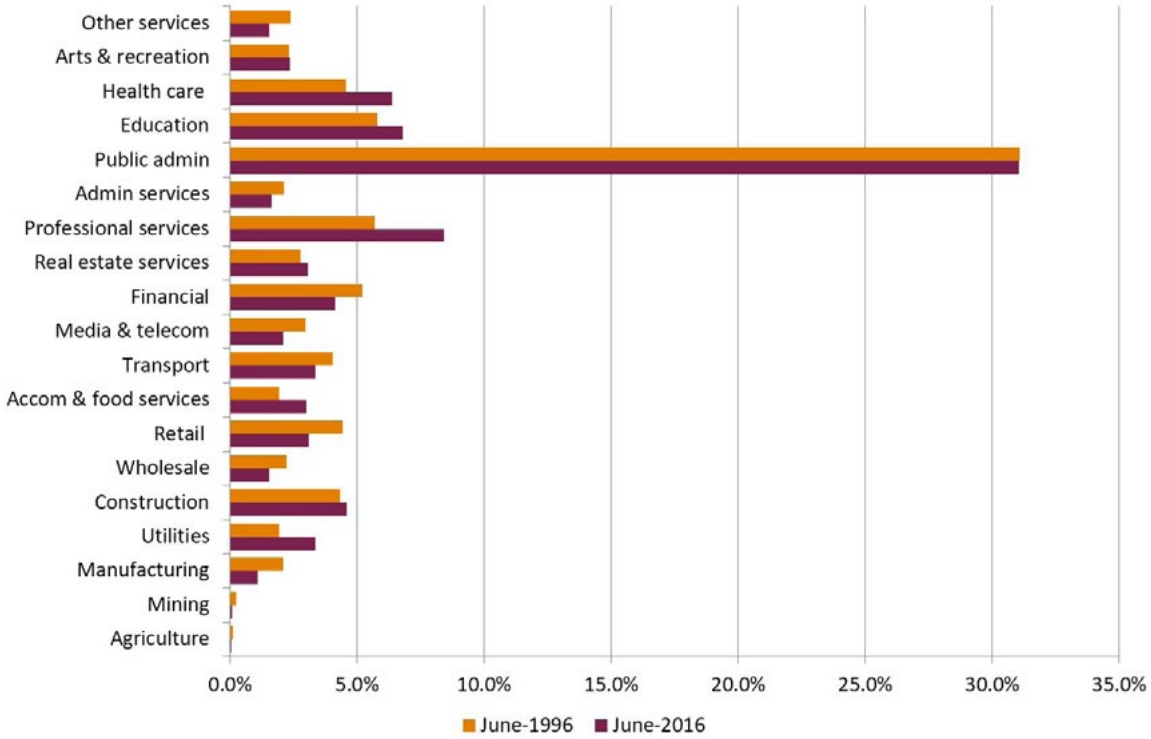
Figure 32 presents the industry share of Canberra's economy. Compared to other capital cities, the industry share in Canberra has changed little over the last twenty years. Public Administration & Safety makes up nearly a third of the ACT economy (31.1 per cent), which is only changed from 1995-96. The most substantial difference is the increased importance of Professional Services, which grew from 5.7 per cent in 1995-96 to 8.4 per cent in 2015-16.

FIGURE 31: CONTRIBUTION TO CANBERRA GDP GROWTH, 2015-16



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0

FIGURE 32: CANBERRA INDUSTRY STRUCTURE

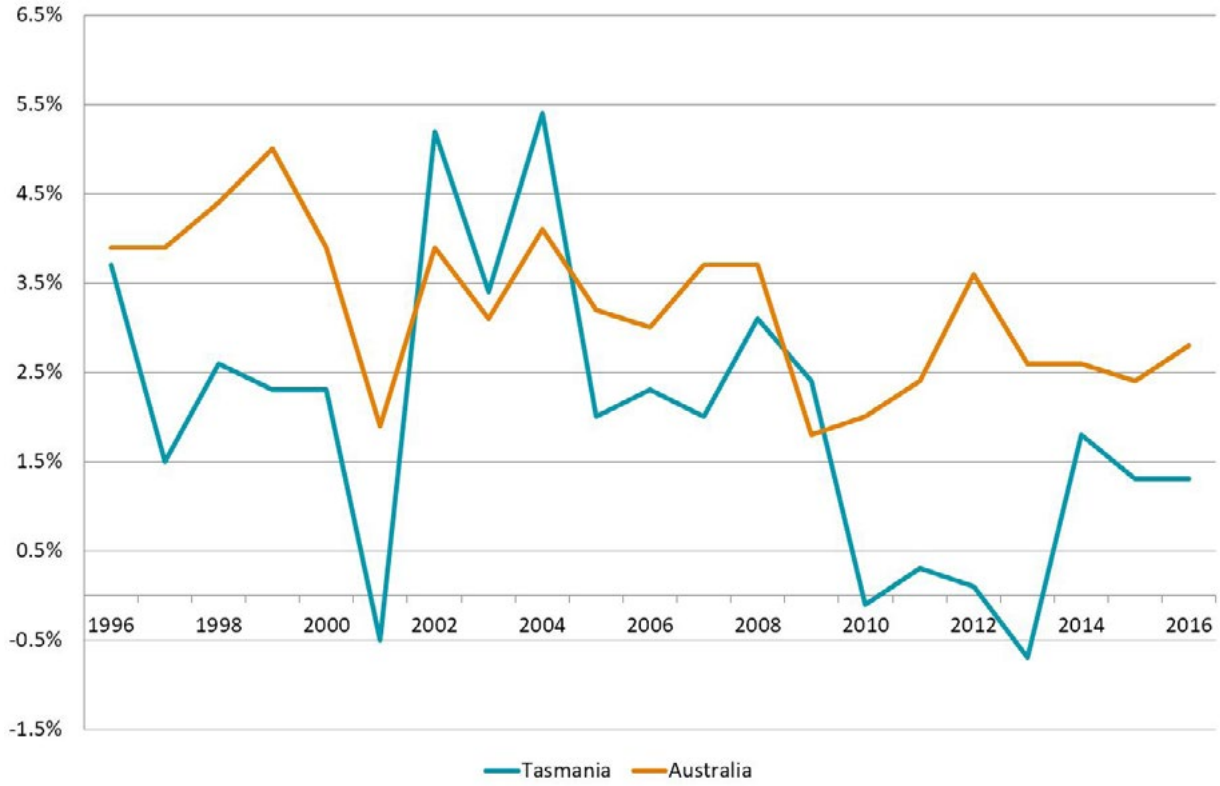


Source: Australian National Accounts: State Accounts, Cat. No. 5220.0. Canberra industry structure as measured by industry gross value added share of GDP (excluding Ownership of dwellings, Taxes less subsidies on products and Statistical discrepancy).

Tasmania

Due to the relatively small size of Tasmania's economy, Hobart and the rest of Tasmania were not analysed separately. For most of the last 20 years, Tasmania's economy has grown more slowly than the national average, as shown in Figure 33. Between 2009-10 and 2012-13, the Tasmanian economy was stagnant. The 2015-16 growth of 1.3 per cent, although lower than Australia's 2.8 per cent, shows an ongoing improvement in the Tasmania economy.

FIGURE 33: TASMANIA GDP GROWTH – VOLUME MEASURE



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0

Part of the reason why Tasmania shows lower GDP growth than the rest of Australia is its relatively low population growth. Per capita growth rates in Tasmania, shown in Figure 34, show less of a gap with Australia as a whole compared to overall GDP figures, and growth rates tend to move in line with Australia's growth. Recent years have been an exception. While the rest of Australia's economy rebounded after the financial crisis, Tasmania showed four years of mostly negative economic growth. However the two most recent years saw an improvement in per capita GDP growth, at 1.0 per cent in 2013-14 and 0.9 per cent in 2015-16.

FIGURE 34: TASMANIA GDP PER CAPITA GROWTH – VOLUME MEASURE

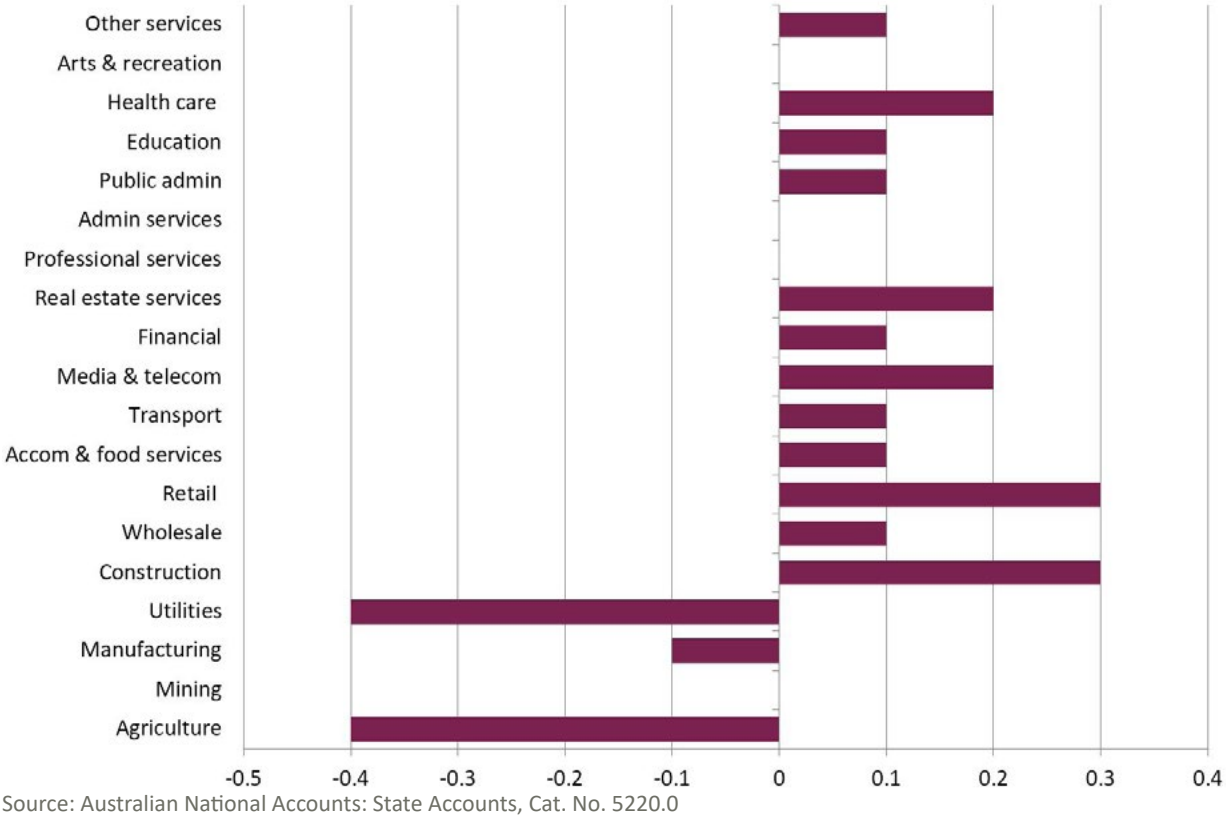
Source: Australian National Accounts: State Accounts, Cat. No. 5220.0 and SGS Economics & Planning

In 2015-16, Construction and Retail (0.3 percentage points) were the biggest contributors to Tasmania's GDP growth.

Agriculture and Utilities were the most significant drag on Tasmanian growth (-0.4 percentage points). The breakdown of each industry's contribution to Tasmanian economic growth is shown in Figure 35.

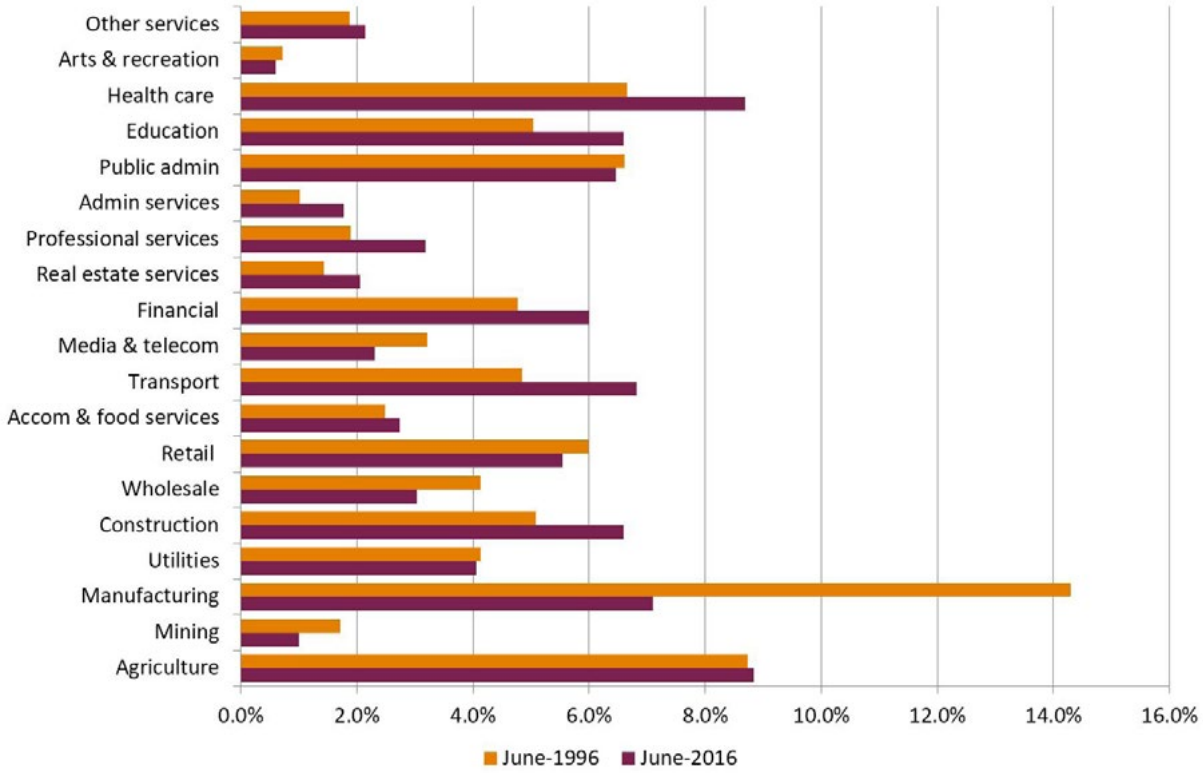
As with all the other States, the decline in the share of Manufacturing in Tasmania is significant, falling from 14.3 per cent of GDP in 1995-96 to 7.1 per cent in 2015-16. Several industries have shown modest growth in share. Heath Care grew from 6.7 per cent of GDP in 1995-96 to 8.7 per cent in 2015-16, Education from 5.0 per cent to 6.6 per cent, Financial Services from 4.8 per cent to 6.0 per cent and Transport from 4.8 per cent to 6.8 per cent.

FIGURE 35: CONTRIBUTION TO TASMANIAN GDP GROWTH, 2015-16



Source: Australian National Accounts: State Accounts, Cat. No. 5220.0

FIGURE 36: TASMANIAN INDUSTRY STRUCTURE



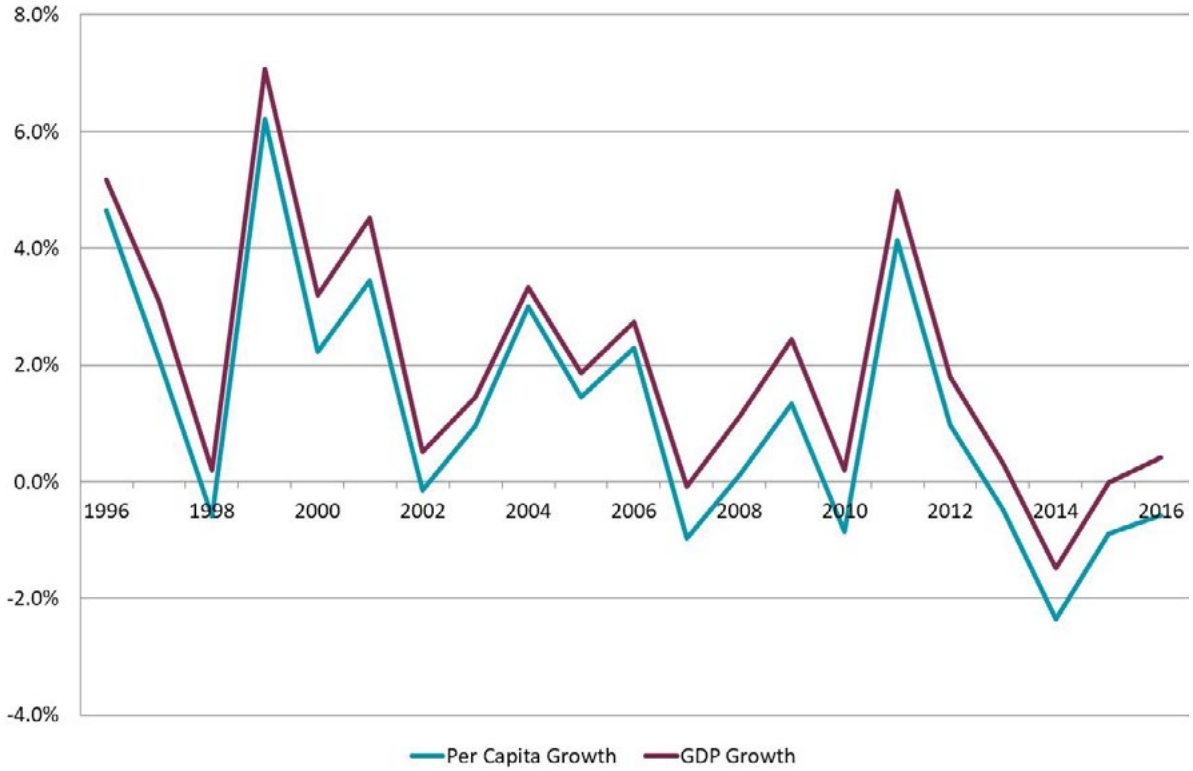
Source: Australian National Accounts: State Accounts, Cat. No. 5220.0. Tasmania industry structure as measured by industry gross value added share of GDP (excluding Ownership of dwellings, Taxes less subsidies on products and Statistical discrepancy).

Regional Analysis

While the focus of this report has been on the major capital cities, there are major economic changes in Regional Australia. This section provides a snapshot of some of these changes.

While Sydney has been booming, GDP per capita has declined in the past four years in Regional New South Wales Figure 37.

FIGURE 37: REGIONAL NSW GDP AND GDP PER CAPITA GROWTH



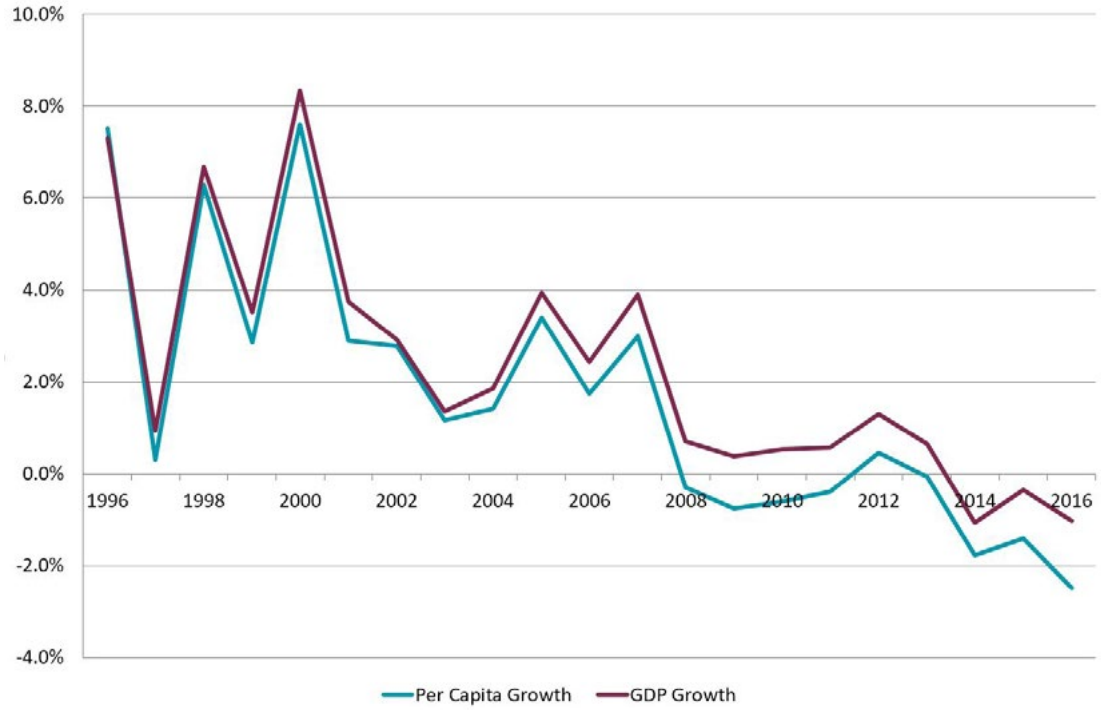
Source: SGS Economics and Planning

As shown in Figure 38, Regional Victoria is even worse, with a decline in GDP per capita over the past nine straight years. A key factor in the economic decline in both of these regions has been a fall in Manufacturing. The manufacturing production in both regions have fallen by over 20 per cent since 2005-06 has a range of industrial plants have closed down.

While GDP growth in Regional West Australia is more robust, the increase in mineral production is hiding an overall weakness in the economy. In 2015-16, GDP in Regional West Australia increased by 2.3 per cent. Excluding Mining, Regional West Australian GDP declined by 1.8 per cent. As shown in Figure 40, almost all others industries apart from Mining declined during 2015-16.

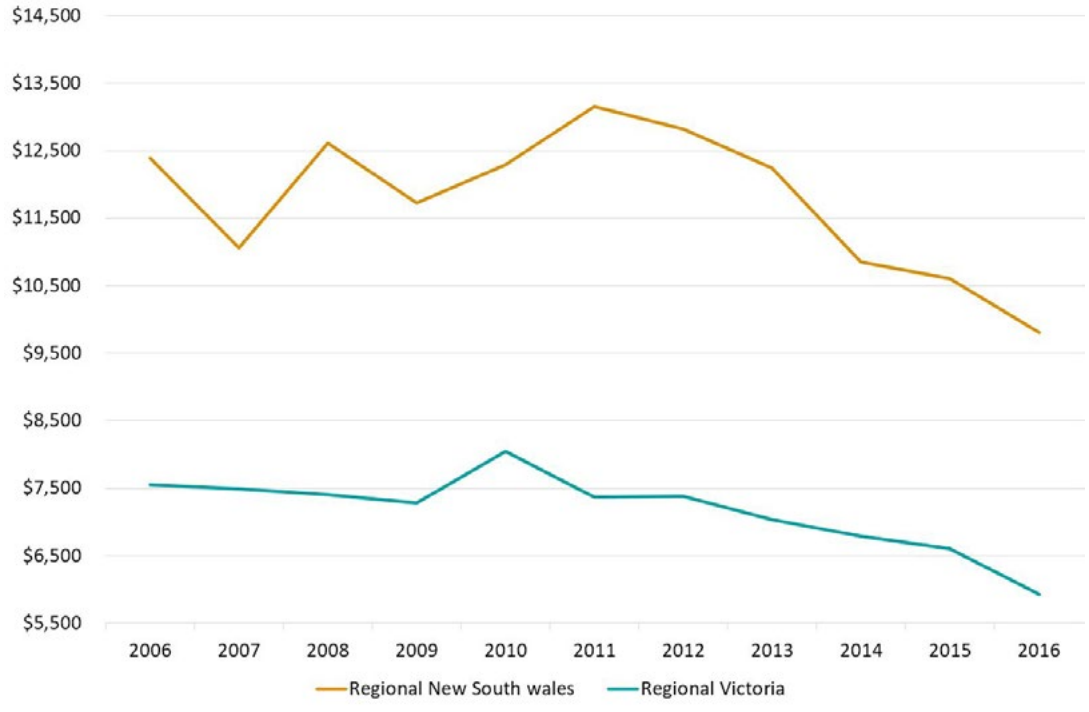
While not as bad as Regional West Australia, Regional Queensland also saw a decline in a number of industries, all related to the end of the mining construction related boom.

FIGURE 38: REGIONAL VICTORIA GDP AND GDP PER CAPITA GROWTH



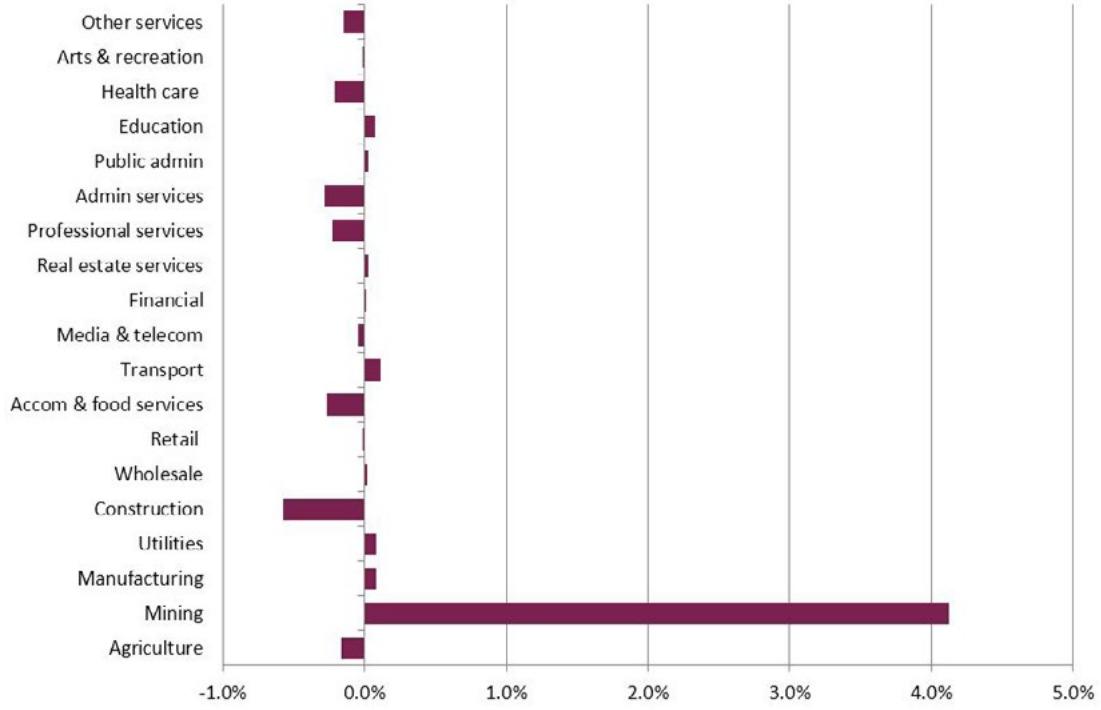
Source: SGS Economics and Planning

FIGURE 39: MANUFACTURING PRODUCTION VOLUME MEASURE ($ MILLIONS)



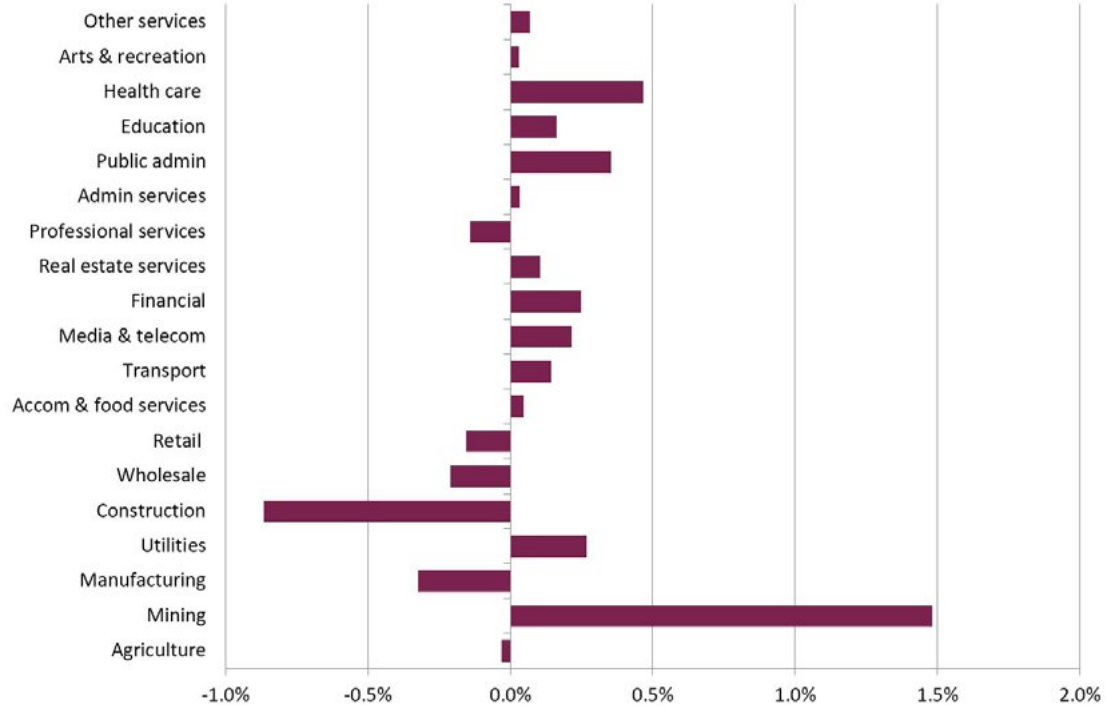
Source: SGS Economics and Planning

FIGURE 40: CONTRIBUTION TO REGIONAL WA GDP GROWTH, 2015-16



Source: SGS Economics and Planning

FIGURE 41: CONTRIBUTION TO REGIONAL QLD GDP GROWTH, 2015-16



Source: SGS Economics and Planning

Methodology

There are three approaches to measuring Gross Domestic Product (GDP):

- **The Production Approach:** the sum of the Gross Value Added (GVA) for each of the industries and taxes, less subsidies on products;
- **The Expenditure Approach:** measures final expenditure on goods and services; and
- **The Income Approach:** sum of income generated by all factors of production.

At the Australian level, the Production, Expenditure and Income approaches are averaged by the ABS to produce and estimate of GDP. However at the State level, a lack of data on trade between the states results in the Expenditure and Income approaches being combined and averaged with the Production approach. The hybrid Expenditure and Income estimates of Gross State Product (GSP) have been published since the 1990s. The Production approach has only been estimated and published as part of the Australian National Accounts: State Accounts (Cat. No. 5220.0) since 2007.

In developing GDP[3] estimates for each major capital city (as defined by the capital city statistical divisions), the Production approach is used. This is used firstly because of the lack of data on interstate trade, and secondly because the data available to calculate the Production approach is more robust (and hence requires fewer assumptions to be made) than that available for the Expenditure or Income approaches. For each industry, wherever possible, the same data sources that have been used to produce industry Gross Value Added at the state level are used to produce industry Gross Value Added at the city level. Some of these data sources include:

- Agricultural Commodities: Small Area Data, Australia (Cat. No. 7125.0);
- Manufacturing Industry, Australia (Cat. No. 8221.0);
- Regional Population Growth, Australia (Cat. No. 3218.0);
- Household Expenditure Survey, Australia (Cat No. 6530.0);
- Education and Training Experience (Cat. No. 6278.0); and
- Labour Force, Australia, Detailed, Quarterly (Cat. No. 6291.0.55.003).

Via the use of the implicit price deflation technique, the Chain Volume Measures of the industry Gross Value Added are converted into current prices. This method overcomes the non-additivity issue with the Chain Volume Measure and allows the aggregation of industry estimates of GVA to overall GDP. In order to maintain consistency with the wider National Accounts, the Production Approach estimate of city GDP is benchmarked to the state GDP.

For deriving labour productivity, the estimates of hours worked are taken from Information Paper: Implementing New Estimates of Hours Worked into the Australian National Accounts, 2006 (Cat. No. 5204.0.55.003) which provides the total hours worked within the economy for 2004-05. The index of total hours worked from the Australian System of National Accounts, 2014-15 (Cat. No. 5204.0) has been used to advance the 2004-05 estimate for the years between 2005-06 and the most recent year. This Australian total hours worked figure has then been allocated for each industry in each capital city based on its share of total hours worked from the Labour Force, Australia, Detailed, Quarterly (Cat. No. 6291.0.55.003).

Industry methods

The gross value added for each industry for Australia is derived in the annual supply and use tables using the double deflation technique. That is, subtracting estimates of intermediate input from estimates of output. Where possible the same data has been used in estimating State level industry gross value added. The details of this estimation method are outlined in *"Information paper: Gross State Product using the Production approach GSP(P)"*. In estimating the Capital City level industry gross value added, where possible, the same data sources have been used. The following section provides a summary of the data sources used to estimate gross value added for each industry. A quality assessment is also provided.

Agriculture, forestry and fishing

Method

Australian National Accounts: State Account (cat. no. 5220.0) provides a measure of gross value added for the *Agriculture, forestry & fishing industry in State. Data from the Agricultural Commodities: Small Area Data, Australia, 2006-07 (cat. no. 7225.0)* provides information on the gross value of agricultural production within Capital City and Balance of the State.

The share of the gross value of agricultural production within Capital City is used to allocate the State gross value added figure to Capital City for 2006-07. The Capital City share is altered in every other year using the hours worked

3 GDP (Gross Domestic Product) refers to Australia, GSP (Gross State Product) refers to a State, while GCP (Gross City Product) refers to a city. However, for simplicity's sake in this paper all different measures are referred to as GDP.

from the *Labour Force, Australia, Detailed, Quarterly (cat. no. 6291.0.55.003)*.

Quality

The most reliable estimate would be for 2006-07, with the estimates based on the labour force survey being a slightly lower quality. The 2006-07 share based on the *Agricultural Commodities: Small Area Data*, Australia publication is 8.5 per cent and the *Labour Force, Australia, Detailed*, Quarterly estimate is 8.3 per cent. This indicates that the labour force survey is a good proxy of economic activity in the Agriculture, forestry & fishing industry.

This method would be unlikely to capture head office operations of Agriculture, forestry & fishing firms located in Capital Cities. This would have a very small downward bias on the estimates. Due to the relatively small size of the industry in the Capital City (0.2 per cent in 2006-07), it would have little impact on the quality of Capital City's GDP.

Mining

Method

The gross value added per hour worked (labour productivity) for the Professional, scientific & technical services industry is multiplied by the total hours worked in the Mining industry in the Capital City. This is done as much of the Mining activity in the Capital City is often related to head office operations. The Professional, scientific & technical services gross value added per hour worked is thought to reflect the type of activities carried out by head office operations.

Quality

Due to the conceptual issues with measuring mining production associated with city based workers and lack of data the Mining estimates of gross value added are considered to be of a very low quality. The method would not account for direct mining operations (quarries, sands etc) which take place in the Capital City. This could have a very small downward bias on the estimates. Due to the relatively small size of the industry in Capital Cities (between 0.1 per cent and 0.4 per cent) it would have little impact on the quality of the Capital City's gross domestic product.

Manufacturing

Method

Data from the *Manufacturing Industry, State and Australian Capital Territory (cat. no. 8221.1.55.001)* publication provides information on the sales income share between Capital City and the Balance of State for 2001-02. *Manufacturing Industry, Australia, 2006-07 (cat. no. 8221.0)* provides the sales income spilt for 2006-07.

The share of the income within Capital City and the Balance of State is used to allocate the State gross value added figure to Capital City for 2001-02 and 2006-07. The Capital City share is altered in every other year using the movements in hours worked from the *Labour Force, Australia, Detailed, Quarterly (cat. no. 6291.0.55.003)* publication.

Quality

The most reliable estimate would be for 2001-02 and 2006-07 with the estimates based on the labour force survey of a slightly lower quality. The 2001-02 income share for the Capital City is 69.8 per cent and the labour force hours worked is 72.8 per cent. The 2006-07 income share for the Capital City is 68.6 per cent and the labour force hours worked is 70.3 per cent. This indicates that the labour force survey is a reasonably good proxy of economic activity in the Manufacturing industry. The availability of detailed Manufacturing industry statistics data for 2001-02 and 2006-07 makes the estimates of Capital City's industry gross value added of a good quality.

Electricity, gas, water and waste services

Method

National gross value added for the two digit industry subdivisions from A*ustralian System of National Accounts (cat .no. 5204.0)* and the Census two digit industry subdivision place of work data is used to estimate an average gross value added per worker. The Census place of work data for Capital City and the Balance of State is then applied to these averages. The share of the total estimated gross valued added is applied to the *Australian National Accounts: State Account (cat. no. 5220.0)* gross value added for the Electricity, gas, water & waste services for State. This produces an estimate for 2005-06 for Capital City and Balance of State gross value added for this industry. Population growth is then used to create a time series for industry gross value added.

Quality

The quality for the Electricity, gas, water & waste services industry estimates would have to be seen as low. The lack of data is the key issue. The conceptual issue of splitting gross value added between generators / water treatment plants and distribution networks is also challenging. The industry is estimated to represent around 2.0 per cent of a city's gross domestic product.

Education and training

Method

The Australian Bureau of Statistics publication, *Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0)* provides a measure of gross value added for the Education industry in Australia. *Government Finance Statistics, Education, Australia (cat. no. 5518.0.55.001)* is used to split the national estimates of Education gross value added into School & Post School Education.

Australian National Accounts: State Account (cat. no. 5220.0) provides a measure of gross value added for the Education industry in each State. The *Survey of Education and Training (cat. no. 6278.0)* provides data on people with education qualifications, and estimates of school aged population taken from *Population by Age and Sex, Regions of Australia (cat. no. 3235.0)* are used to allocate the State estimate of education by level to the capital city.

Quality

Given the detailed level of data being used and the fairly straightforward nature of the delivery of education and training services (in a spatial sense) lead to the quality of this industry estimated being classed as good.

Ownership of dwellings

Method

Average rents in Capital City and Balance of the State are derived from the *Housing Occupancy and Costs, Australia, 2005-06 (cat. no. 4130.0)* publication and combined with population data to estimate the share of Ownership of dwellings for the two areas. This is then applied to the Ownership of dwellings gross value added from the *Australian National Accounts: State Account (cat. no. 5220.0)*.

Quality

The quality of the available data and the clear conceptual boundaries lead to the quality of this industry estimate being classed as good.

All other industries

Method

In the absence of any data which would allow the share between the Capital City and Balance of the State to be estimated, the hours worked from the L*abour Force, Australia, Detailed, Quarterly (cat. no. 6291.0.55.003)* is used. The industries which this method is applied to are:- Construction

- Wholesale trade
- Retail trade
- Accommodation & food services
- Arts & recreation services
- Other services

For some industries one adjustment is made to the hours worked share. The hours worked are weighted by an average wage rate for Capital City and Balance of the State from the Census. This accounts for different economic structures within each industry in the Capital City and Balance of the State. For example, in Financial & insurance services the type of activities (from basic banking operations up to hedge funds) is much wider than in Balance of the State (where basic banking operations are the most common activities). The industries which this method is applied to are:

- Information media & telecommunications
- Financial & insurance services
- Rental, hiring & real estate services
- Professional, scientific & technical services
- Public administration and safety
- Health care and social assistance

Quality

The quality of the various industry estimates would vary and should be treated with some caution but in aggregate the method should be provide a good estimate of a Capital City's gross domestic product.

Taxes less subsides on products

Method

Australian National Accounts: State Account (cat. no. 5220.0) provides a measure of Taxes less subsides on products for the Agriculture, forestry & fishing industry in each State. The Capital City share of Agriculture, forestry & fishing industry gross value added is used to split the value of Taxes less subsides on products this industry. The residual of the State Taxes less subsides on products is then spilt using the total industry value added (excluding Ownership of dwellings) for Capital City and the Balance of State.

Quality

This method should produce reasonable estimates of the split between Capital City and Balance of the State for Taxes less subsides on products.

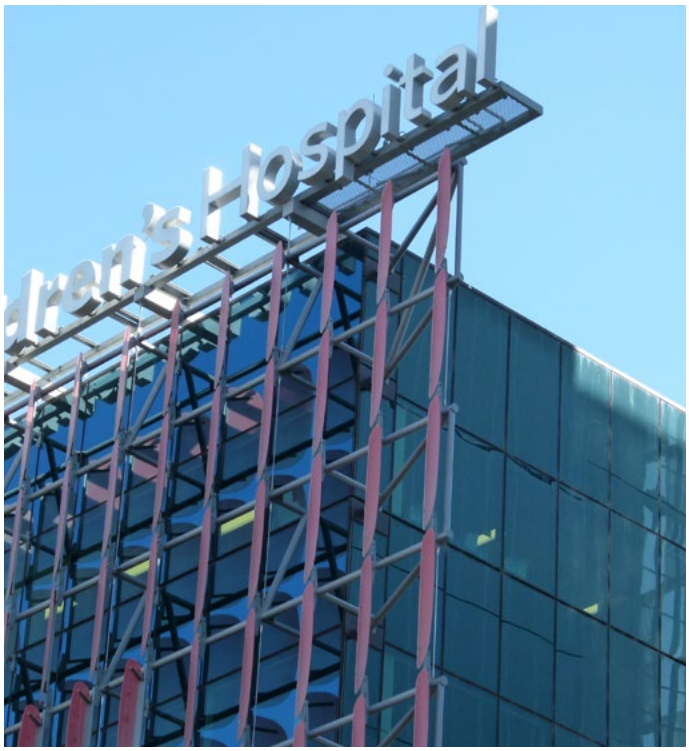
Aggregation of industry estimates to Gross Domestic Product

Via the use of the implicit price deflation technique, the chain volume measures of industry gross value added are converted into current prices. This method overcomes the non-additivity issue with the chain volume measure and allows the aggregation of industry estimates of gross value added to overall gross domestic product. In order to maintain consistency with the wider National Accounts, the Production approach estimate of Capital City gross domestic product is benchmarked to Gross State Product. An industry weighted GDP implicit price deflator is created to for the Capital City and Balance of State.

Areas for further refinement and research

Methodological areas which are the subject of ongoing research and development include:

- Development of a Supply Use Table to improve editing of the city GDP estimates
- Development of a Purchasing Power Parity (PPP) measure to allow better comparisons between the relative size of each major capital city
- Extending revision analysis to understand the quality of the city GDP estimates
- Further analysis and development of the city labour productivity estimates prior to 2000-01
- Development of multifactor productivity estimates for each state and city
- Incorporation of additional industry specific data sources as they become available.

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