



Labour Price Forecasts
Prepared for the Australian Energy Regulator

6 February 2017

Deloitte.

Access Economics

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6 February 2017

Dear Sophie,

Report on labour price forecasts

Our report on the Wage Price Index (WPI) for New South Wales, Victoria, Queensland, South Australia and Tasmania is attached.

This report has been drafted on the basis of the material and data available that fed into the December 2016 quarter *Business Outlook* and *Investment Monitor* publications.

Yours sincerely



Chris Richardson
Partner

Deloitte Access Economics Pty Ltd

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Glossary

AAWI	Average Annualised Wage Increase
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ANZSIC	Australia and New Zealand Standard Industry Classification
AWE	Average Weekly Earnings
AWOTE	Average Weekly Ordinary Time Earnings
DAE	Deloitte Access Economics
EBA	Enterprise Bargaining Agreement
EEBTUM	Survey of Employee Earnings, Benefits and Trade Union Membership
EEH	Survey of Employee Earnings and Hours
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GSP	Gross State Product
LNG	Liquefied Natural Gas
NEM	National Electricity Market
WPI	Wage Price Index

Executive Summary

For the States covered in this report, the ABS only releases WPI estimates in the utilities sector for Victoria and New South Wales. For the construction sector, the ABS releases WPI estimates in the construction sector for New South Wales, Victoria and Queensland. For those States where the ABS does not release WPI estimates, we use a range of related data to estimate the utilities sector WPI and the construction sector WPI.

Australia's outlook appears solid

Australia has gone from a China boom to a housing price boom. So far, that baton change has worked. Growth was below trend through 2016, but still enough to move unemployment down from its early 2015 peak. Given the alternative of a bigger downturn, that's been a good outcome.

And now the world is once again doing Australia favours, paying higher prices for our exports, particularly so for coal. Even better, the dynamics in world markets won't turn on a dime: chances are that China will be an ongoing good news story for Australia's economy through 2017.

Yet although that change in fortunes is very welcome, it probably isn't permanent, mainly because China's property boom will eventually lose its lustre. And here at home the boost to growth from lower interest and exchange rates is starting to lose steam – housing construction is nearing its peak, and retail's run is moderating.

On the other hand there is also a lot of good news. Some of that is temporary (such as a bumper wheat crop) and some of it will last longer (such as huge increases in gas exports and a lift in State spending on infrastructure).

That backdrop to the business cycle should keep the home fires of growth burning by enough to leave unemployment relatively steady, and by enough to see Australia pass the Netherlands to record the world's longest ever spell without a recession.

Utilities output growth forecast to stabilise at moderate rates

The utilities sector has been shrinking as a share of Australia's economy since 1993. In part that is simply because, over time (1) economic growth has favoured other industries, particularly service sectors, while (2) new technologies and new policy priorities have seen a marked uplift in energy efficiency.

Those trends are not going away. Electricity demand is still contracting in the southern States, though New South Wales's stronger economy kept electricity demand flat in 2016, while Queensland's new LNG operations boosted demand in that State. Falls in demand in Victoria, Tasmania and South Australia reflect ongoing challenging conditions among industrial users amid closures in manufacturing, petroleum refining and metal refining, with those effects accelerated by the weak population growth in both South Australia and Tasmania.

Looking ahead, industry demand may remain on the back foot as the economy continues a swing towards services and away from manufacturing (and parts of mining), while population growth – having already slowed in recent years – is projected to ease back further.

At the same time a range of technical and regulatory developments could further reduce sectoral demand (such as household solar, batteries for storing energy, and energy efficiency on the one hand, and the implications of the 2015 Paris Climate Accord on the other). The Australian Energy Market Operator (AEMO) is forecasting a 16% decrease in National Electricity Market (NEM) grid electricity consumption from the residential sector over the next 20 years.

Those negatives may outweigh potential positives for the sector, such as the rise of electric vehicles.

On balance, the utilities sector is projected to continue growing at a moderate pace over the period forecast in this report (to 2022-23). That said, the growth in utilities is expected to remain weaker than growth in the Australian economy as a whole, meaning that the utilities sector will continue to shrink as a share of national activity.

Australian wage growth remains in 'lower for longer' mode

Wage growth within Australia has dropped to a new low of just 1.9% in the year to September 2016 – not that different to inflation. Almost all sectors and States are feeling that weakness. The industries with the fastest wage gains in the past year are health (at 2.4%), followed by utilities, education and accommodation (all at 2.3%). At the other end of the scale, mining wages rose by just 1.0% in the past year, with administration services at 1.2% and professional services at 1.6%. South Australia had the fastest wage growth of any State (at 2.3%), with Tasmania and the Northern Territory next (at 2.2%), followed by New South Wales (2.1%), Victoria (2.0%), Queensland (1.9%) and Western Australia (at 1.7%).

This deceleration in the pace of wage increases, as the Reserve Bank has noted, is also evident in the fast falling share of wage increases that generate annualised wage gains of more than 4%. Just ahead of the GFC, 40% of wage increases fell in that category, whereas less than 10% do today.

Looking ahead, although Deloitte Access Economics doesn't see wage growth being stuck forever at today's record lows, we do see it struggling to gain much traction over the next year or two:

- Inflation is set to stay pretty low – and ordinary Australians are increasingly aware of that.
- Profits remain under pressure in many businesses, so employers are keen to hold the line.
- Although unemployment is relatively low, underemployment is relatively high – meaning that there's more competition for jobs (and hours) than often recognised.
- An ageing workforce and higher levels of household debt mean that employees are often more interested in job security than incomes increases, pushing less for wage rises.
- An increasingly casualised workforce means that employees possess more limited wage bargaining power.

Those are all good reasons why wage growth won't spring back towards a 4% rate any time soon.

Yet although current trends will last some time, there will be an eventual reversion to faster wage growth. One reason will be because some of those negatives noted above are rather more likely to be temporary rather than permanent: they hold back wage gains now, but not forever.

Another is changing demographic dynamics. Baby boomers are retiring at a relatively rapid rate, while a drop off in birth rates many years ago means that there are relatively fewer potential workers finishing their studies. And that combination of demographic effects sits atop a slowdown in net migration – which is quite important here too, given that most migrants are of working age.

Perhaps most importantly of all, wage gains in Australia slowed dramatically across a period in which national income growth dropped notably. Profits took a rather larger hit than wages did. But the fact that wages shared in the pain helped Australia during a difficult transition – lower wage growth showed up as higher job growth than would otherwise have occurred.

Yet 2016 saw a loosening of the national income noose. Commodity prices are back up. And while we don't think the news on commodity prices will stay quite as good, it is now likely the worst has past. Other things equal, that points to better national income growth in the next few years than we had in the last few – and some of that better news will show up as an acceleration in wage gains.

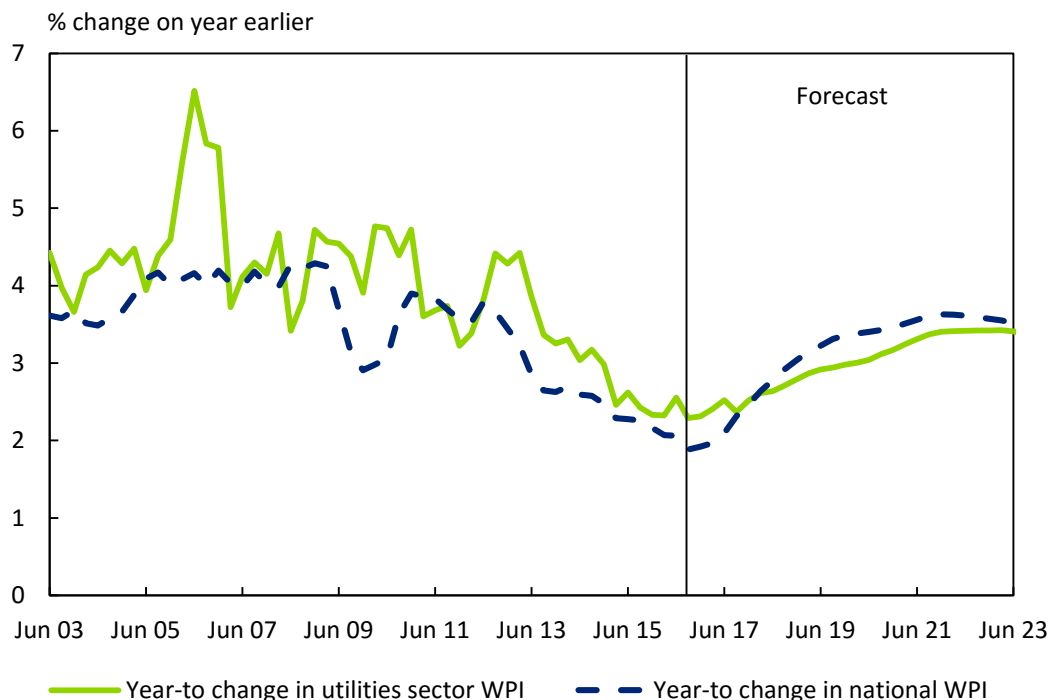
Again, Deloitte Access Economics doesn't project a rapid rebound in wage growth. But we do see a gradual turnaround from the record lows in wage growth seen at present.

Utilities wage growth is expected to continue moderating

Wage growth in the Australian utilities sector didn't stray too far from annual rates of 4% over the decade through to 2012-13. However, the slowdown in wage growth for the all industries average – which began back in 2008 – has continued unabated ever since, and the past four years saw the

pace of wage gains in the utilities sector tick steadily downwards. As Chart i shows, there has therefore been a slowdown in utilities wage growth since its most recent peak (4.4% in early 2013), with wage growth over the past year, at 2.3%, the lowest growth since records began in 1997.

Chart i Utilities Wage Price Index forecasts



Source: Australian Bureau of Statistics, Deloitte Access Economics

That has seen a further continuation of the long-running trend towards higher real wages (nominal wages adjusted for inflation) in the utilities sector. What is less clear, however, is why there should have been such a trend – neither fundamentals (improved relative productivity making utilities workers more valuable than before) or the business cycle (significant output growth in either the utilities or competitor sectors) is placing upwards pressure on wages:

- The utilities sector accounted for between 3.5% and 4% of the Australian economy through the 1980s and 1990s, but has consistently shed market share since the turn of the century to currently represent 2.5% of the economy. Its share of the national employment saw an earlier decline, more than halving in the decade to the mid-1990s, and broadly flat-lining ever since.
- Accordingly, productivity – relative to that elsewhere in the economy – fell sharply from 2000. And although there has been a modest recovery since late 2013, that comes after a period of underperformance (some but not all of which would be attributable to the changed energy mix evident since 2000). That would seem to suggest little linkage between changes in the effectiveness of workers in the sector and the wages paid to those workers.
- Construction is a competitor sector, and it is discussed in detail in this report. In brief, it has been shrinking as a share of the Australian economy since mid-2014. Employment has held up better, but it too is off its peak share of the nation's jobs, which it reached back in early 2008.
- Mining too is a competitor – or, at least, an occasional competitor. Its share of Australia's economy is continuing to climb relatively fast as the investments of the past decade come onstream, but the passing of the heights of the mining boom (and associated construction) means mining has lost about a third of its national job share since the peak in 2012.
- A further competitor is the manufacturing sector, but not even the lower \$A of recent years has stemmed that industry's job pain. As recently as 1984, one in every six workers in Australia was employed in manufacturing. Now that ratio is at one in every thirteen workers.

So neither this sector's own fundamentals nor pressures placed on it by competitor sectors can readily explain the jump in relative wages that it pays. Deloitte Access Economics is not well-equipped to consider a final possible reason for rising relative wages:

- Perhaps wages have gone up because (1) the requisite skills have gone up, but (2) changing regulations have prevented better skilled staff from actually increasing the sector's output.
- That said, were there to be substance to this latter argument, the more logical conclusion may be to reform the regulatory backdrop to increase its effectiveness against its policy aims, rather than to lift wages and thereby pass the costs of any regulatory inefficiencies on to consumers.

Looking ahead, the utilities WPI is expected to see a gradual recovery from its current growth rate of 2.3%, reaching 3.0% by 2019-20, and forecast to be at 3.4% in both 2021-22 and 2022-23:

- The gradual recovery in wage growth should mirror the gradual recovery in national income growth over the next few years, supported by a relative tightening in the availability of workers (as more baby boomers head into retirement, and with migration lagging its recent peaks).
- But wage gains may go from being above the national average to below it. In part that reversion is because the trends of the past appear unsustainable. And as noted above, this is a sector that is expected to grow more slowly than the national economy.

Utilities wage growth at the State level will largely mirror national trends

The dominant drivers of State level utilities wage outcomes are a range of national trends. Yet State influences are also relevant. Other things equal:

- Some States will grow faster and, within those States, the outlook for the utilities is stronger.
- For example, although there is bad news on much of the industrial landscape (including the loss of car-making in Victoria and South Australia), there are bright spots, including the boost to demand from new LNG operations in Queensland, and a bailout for the Alcoa smelter in Victoria.
- Equally, there's a ranking of population growth, from very fast in Victoria and good in New South Wales (with both those States also seeing a boom in apartment building that may peak in 2018), to moderate in Queensland, to slow in South Australia and Tasmania.
- And there are other factors too, ranging from potential responses to supply disruptions in South Australia, plus potential developments relating to competitive metering in New South Wales and Queensland.

Given these factors, plus others – current momentum, past performance on wages and the like – wages in the utilities sector are expected to grow at an average rate of 3.1% a year in Victoria and Tasmania, 3.0% for Australia, New South Wales and Queensland, and 2.9% in South Australia over the forecast period (2016-17 to 2022-23).

The following tables set out our forecasts in detail.

Summary results

Table i State WPI forecasts, all sectors

Yearly changes in nominal WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
New South Wales	2.1	2.1	2.5	3.2	3.4	3.4	3.6	3.5
Victoria	2.4	2.1	2.6	3.1	3.3	3.5	3.6	3.5
Queensland	1.9	2.1	2.7	3.0	3.3	3.5	3.7	3.6
South Australia	2.3	1.9	2.5	3.3	3.6	3.6	3.7	3.6
Tasmania	2.2	2.1	2.3	3.0	3.4	3.4	3.5	3.5
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	2.7	2.1	2.3	2.9	3.2	3.4	3.5	3.6

Yearly changes in real WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	0.8	0.1	0.5	0.9	1.2	1.1	1.1	1.2
New South Wales	0.6	0.0	0.2	0.8	1.1	1.0	1.1	1.1
Victoria	0.8	0.2	0.6	1.0	1.2	1.1	1.1	1.1
Queensland	0.3	0.2	0.9	0.9	1.2	1.2	1.2	1.2
South Australia	1.4	0.0	0.6	1.2	1.4	1.2	1.2	1.2
Tasmania	0.9	0.5	0.3	0.8	1.2	1.1	1.0	1.0
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	0.8	0.5	0.3	0.7	1.2	1.2	1.1	1.0

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table ii Summary results – key variables, Australia

Financial year changes in key variables

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Output - real	2.7	1.8	2.8	2.7	2.7	3.0	3.0	2.8
CPI	1.4	1.9	2.1	2.2	2.1	2.4	2.4	2.4
WPI - nominal	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
AWE - nominal	1.7	2.5	2.6	3.1	3.3	3.3	3.3	3.1
AWOTE - nominal	1.9	1.8	2.7	3.8	3.9	3.8	3.7	3.6

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table iii Summary results – economic variables, Australia

Financial year changes in key economic variables - annual % change (unless noted)

	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumption								
Private sector	2.9	2.5	3.1	2.9	2.6	2.4	2.6	2.7
Public sector	3.7	2.8	2.1	2.5	2.9	2.7	2.6	2.5
Private sector investment								
Non-business housing	10.8	3.8	0.0	-3.6	0.4	8.1	6.4	-0.6
Non-business real estate	1.3	-9.5	-1.7	-3.6	-0.3	6.6	4.9	-1.3
Non-residential building	0.3	-5.1	1.0	4.6	1.4	2.5	2.6	3.7
Engineering construction	-24.5	-30.1	-4.0	1.1	-1.2	-0.6	-0.9	-0.2
Machinery and equipment	-6.9	0.1	-2.6	4.3	2.8	3.8	3.8	4.9
IP and livestock	-0.2	-0.4	-2.0	-1.1	6.0	7.6	7.4	8.3
Public investment								
General Government	1.9	2.1	3.5	6.4	6.0	5.7	5.4	5.1
Public enterprises	5.1	-9.6	-4.2	7.8	3.8	2.9	2.6	3.5
Domestic final demand	1.4	0.7	2.0	2.5	2.6	3.0	3.0	2.7
Private sector	0.8	0.3	2.0	2.2	2.3	3.0	3.0	2.6
Public sector	3.5	2.0	2.0	3.3	3.4	3.1	3.1	2.9
Gross national expenditure	1.3	0.8	1.9	2.5	2.6	3.1	3.1	2.7
International trade								
Exports	6.7	6.8	5.3	3.2	3.4	3.7	4.3	5.3
Imports	-0.3	1.3	1.5	2.2	3.2	4.2	4.7	5.3
Net (% additon to growth)	2.1	1.3	0.4	0.2	0.0	0.0	0.0	0.1
Total output (GDP)	2.7	1.8	2.8	2.7	2.7	3.0	3.0	2.8
Non farm output	2.9	1.7	2.7	2.7	2.7	3.0	3.0	2.8
Population	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3
Employment	2.2	1.1	1.4	1.2	1.3	1.4	1.4	1.2
Unemployment rate (%)	5.9	5.7	5.8	5.7	5.7	5.5	5.2	5.2

Source: Australian Bureau of Statistics, Deloitte Access Economics. All variables (except for population, employment and unemployment) expressed in inflation-adjusted terms

Table iv Summary results – wages and prices, Australia

Financial year changes in national wage and prices variables

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumer price index	1.4	1.9	2.1	2.2	2.1	2.4	2.4	2.4
Wage price index								
Nominal	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
Real	0.8	0.1	0.5	0.9	1.2	1.1	1.1	1.2
Average weekly earnings								
Nominal	1.7	2.5	2.6	3.1	3.3	3.3	3.3	3.1
Real	0.3	0.6	0.5	1.0	1.2	0.9	0.8	0.7
Average weekly ordinary time earnings								
Nominal	1.9	1.8	2.7	3.8	3.9	3.8	3.7	3.6
Real	0.5	0.0	0.6	1.6	1.7	1.4	1.2	1.2
Unit labour costs								
Nominal	0.4	1.8	1.2	1.4	1.7	1.4	1.9	1.8
Real	-0.9	0.0	-0.9	-0.8	-0.5	-0.9	-0.6	-0.5

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table v Summary results – sectoral wages, Australia

Financial year changes in nominal national industry sector WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
Utilities	2.4	2.4	2.5	2.8	3.0	3.2	3.4	3.4
Construction	1.6	1.9	2.5	3.0	3.3	3.6	3.7	3.7

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table vi Summary results – State utilities sector nominal wages

Yearly changes in nominal utilities sector WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	2.4	2.4	2.5	2.8	3.0	3.2	3.4	3.4
New South Wales	1.3	1.7	2.3	3.2	3.3	3.4	3.6	3.5
Victoria	3.3	3.0	2.8	2.9	3.1	3.3	3.4	3.4
Queensland*	2.5	2.8	2.8	2.8	2.9	3.2	3.4	3.4
South Australia*	3.5	2.1	2.2	2.8	3.1	3.2	3.4	3.4
Tasmania*	2.6	2.5	2.4	3.1	3.4	3.5	3.5	3.5
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	3.6	3.3	2.8	2.8	3.0	3.2	3.4	3.4

*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table vii Summary results – State utilities sector real wages

Yearly changes in real utilities sector WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	1.0	0.5	0.4	0.7	0.8	0.8	0.9	1.0
New South Wales	-0.2	-0.5	0.0	0.9	1.0	1.0	1.1	1.2
Victoria	1.7	1.1	0.8	0.8	1.0	0.9	0.9	1.0
Queensland*	0.9	0.9	0.9	0.7	0.8	0.8	0.9	1.0
South Australia*	2.6	0.2	0.4	0.7	1.0	0.9	0.9	1.0
Tasmania*	1.2	0.9	0.4	0.9	1.2	1.1	1.0	1.1
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	1.6	1.7	0.8	0.6	1.0	0.9	0.9	0.9

*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics

Source: Australian Bureau of Statistics, Deloitte Access Economics

Deloitte Access Economics

1 Background

The Australian Energy Regulator (AER) commissioned Deloitte Access Economics to provide forecasts for labour cost growth for the electricity, gas, water and waste services (utilities) and construction industries for the following States:

- New South Wales to 2022-23;
- Victoria to 2022 and to 2022-23;
- Queensland to 2021-22;
- South Australia to 2022-23;
- Tasmania to 2018-19; and
- Australia (national) to 2022-23.

Specifically, AER requested:

- an analysis of forecast labour costs for the utilities industry in the above mentioned States;
- a comparative analysis of forecast labour costs for the construction industry;
- an analysis of forecast general labour cost growth in each of the States; and
- a discussion of how market conditions are expected to affect the labour forecasts.

The report is organised as follows:

- **Discussion of the economic outlook**, including national and State commentary, as well as a broad look at the utilities and construction sectors.
- **Discussion of the outlook for wages**, including a brief discussion at the national and State level, followed by analysis at the industry level.
- The report then discusses **detailed forecasts at the State level of wage growth in the utilities and construction industries**.
- **The Appendices** cover regional and sectoral wage data availability, some rules of thumb for wage forecasting, an outline of the methodology used in the Deloitte Access Economics macro model and the Deloitte Access Economics labour cost model, and a discussion of different wage measures.

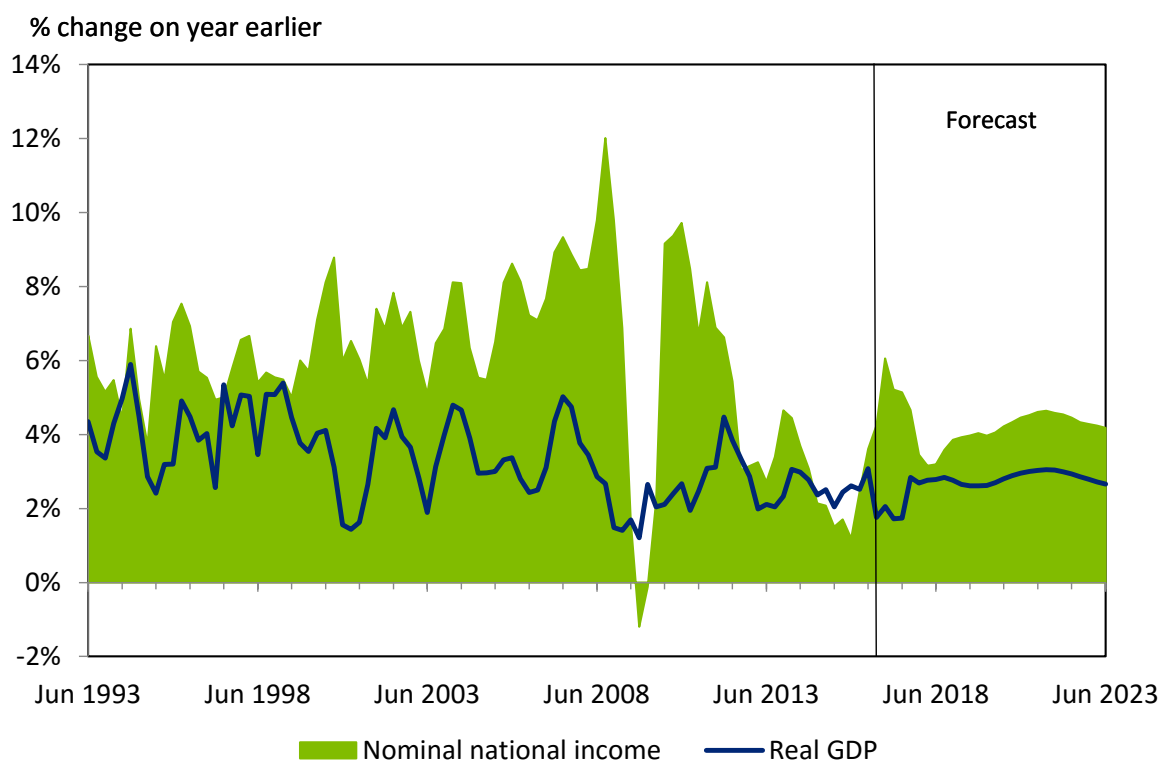
2 The economic outlook

2.1 Australia

Australia's output growth has been below trend, but it has still been enough to move unemployment down from its early 2015 peak. Despite the continued falls in mining investment, economic growth has benefitted from a rebound in Chinese construction activity, and record low interest rates have provided a boost for housing construction, housing prices and retail activity.

Until recently the story in Australia has been that production growth was at above trend rates, while income growth remained subdued. That is an unusual combination as economic growth and income growth typically move together. In fact only twice in the last quarter of a century has income growth dipped below economic growth – during the GFC, and again through 2015 and much of 2016.

Chart 2.1 Australian production and national income growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

There has since been a reversal in this trend, with economic growth faltering and income growth lifting. The flow of data and commentary on Australia's economic growth has since shifted from being overly optimistic to overly pessimistic. This change was prompted by the latest data, which showed the Australian economy shrinking slightly in the September quarter of 2016. Yet while economic growth might not be as good as it was in 2015-16, it also isn't as bad as it looks now.

Looking through the fluctuations, economic growth in Australia made an initial recovery from the GFC back in 2011, with growth averaging just under 2.5% a year for the better part of four years now. That's a little below trend (which is some 2.75% a year), but not by much. And although there has been some weakening in growth, that is better captured in the job numbers, with the spurt of job gains registered through 2015 moderating notably through 2016.

Since 2011 Australia’s biggest problems have been a cooling China and falling commodity prices. This has meant that in addition to modest growth in what the economy was producing, there was also a sharp tightening in growth in what the economy was earning.

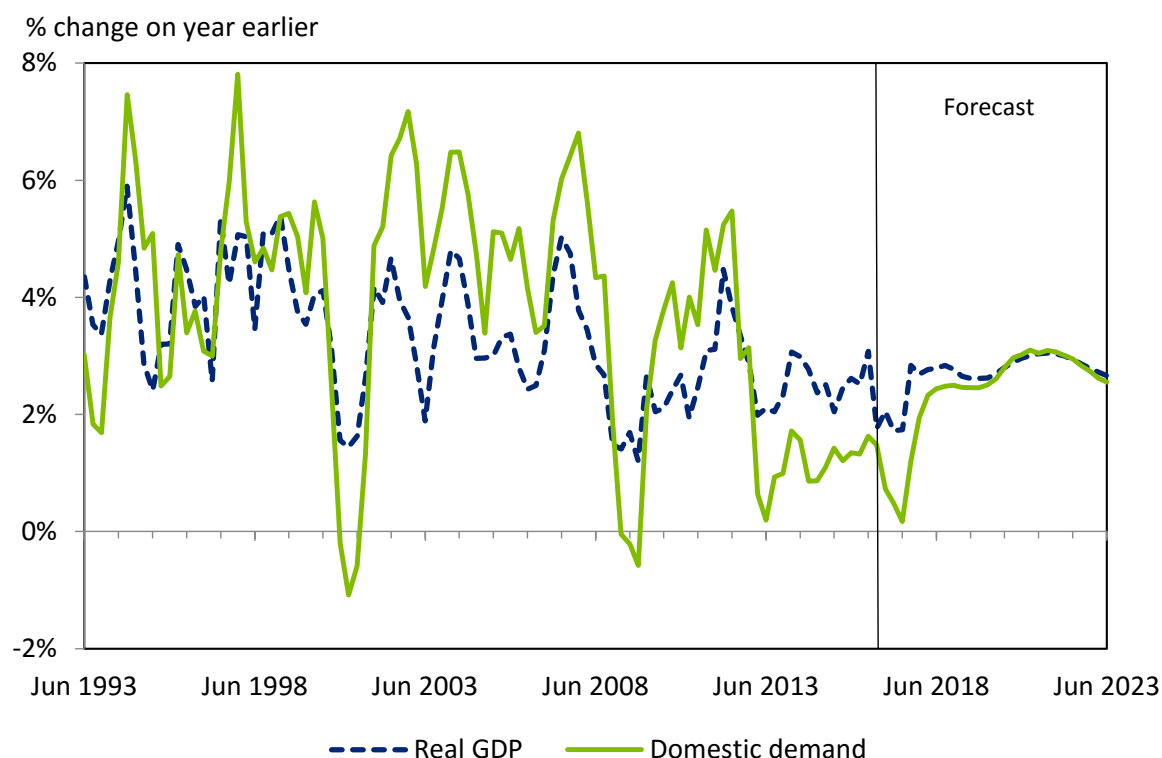
This has changed of late, with the price of Australia’s two largest exports, iron ore and coal, rising substantially over the second half of 2016. The main demand-side driver has been debt-fuelled stimulus directed at China’s construction sector and an uncharacteristically high level of investor speculation. At the same time, supply has been limited by a combination of bad weather and the (now relaxed) decision by Chinese authorities to limit the number of days that coal mines can operate. That combination has put a firm floor under iron ore prices and has allowed coking coal spot prices to soar by around 300% from January 2016 to the peak in November 2016.

The related improvement in Australia’s terms of trade – the price received for exports relative to the price paid for imports – has provided a long-awaited boost to national income growth (see Chart 2.1 earlier). Nominal gross national income has now grown by 4.3% over the year to the September quarter of 2016.

Yet it is worth remembering that incomes aren’t rising because wage growth is fast or because job growth is robust. In fact, the last time that the combination of wage growth and job growth was as low as it is today was during the recession of the early 1990s. Rather, national income is rising at the fastest speed since early 2012 thanks almost entirely to the rapid rise in commodity prices.

And while higher commodity prices may linger for some time yet, they are not expected to be permanent. It remains the case that China has built too much, relying on too much debt to do so. With a leadership reshuffle occurring in late-2017, the pressures on authorities in China to keep cheap credit flowing will remain a risk to China’s medium-term economic stability.

Chart 2.2 Domestic demand and GDP



Source: Australian Bureau of Statistics, Deloitte Access Economics

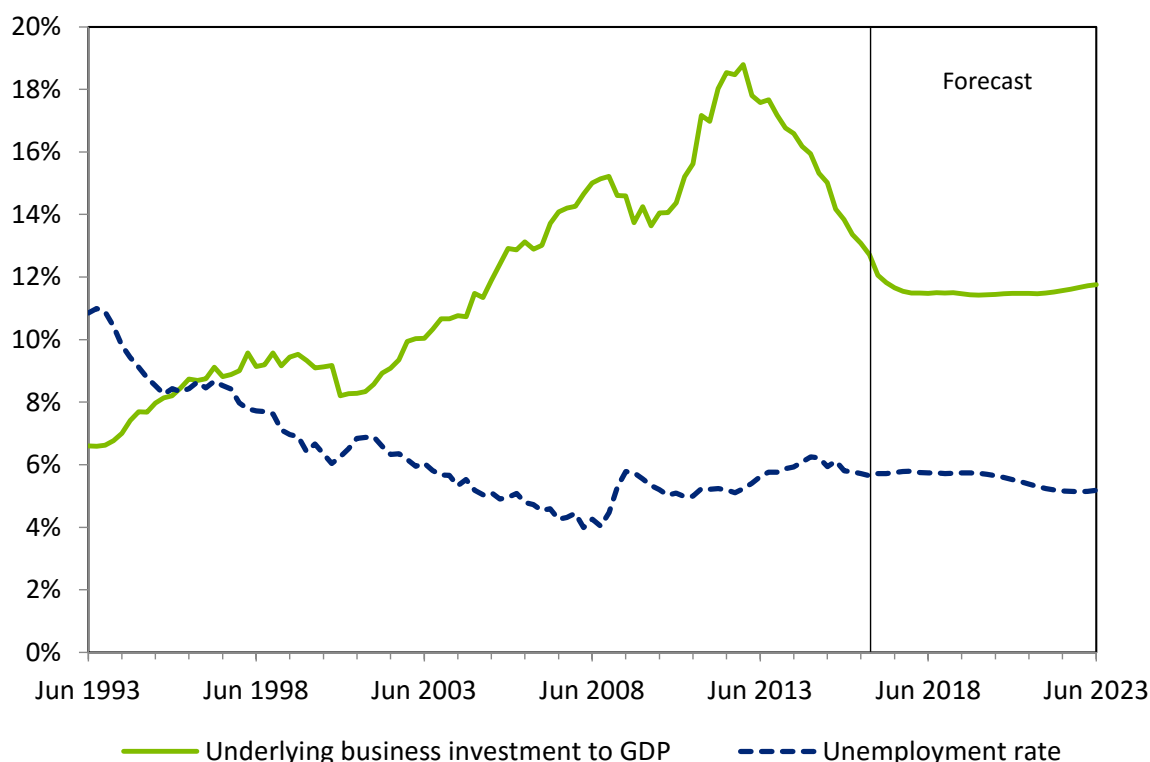
Much of Australia’s short-term economic outlook rides on the future of the current commodity price boom. As commodity prices can place upward or downward pressure on national income,

movements in commodity prices are often echoed in wages. This makes the price of Australia’s major exports a useful predictor of future wage growth.¹

Accordingly, the longer that high commodity prices persist, then the greater the likelihood of faster wage growth, a lift in consumer spending (the largest component of the economy), and a closing of the gap between growth rates in domestic demand and GDP (see Chart 2.2 above).

Higher commodity prices also have the potential for a more direct effect on business investment spending. Chart 2.3 shows that private business investment has been on the slide since late 2012, as an increasing number of resources construction projects that were approved when conditions were more favourable finish construction and move into production. In fact, the value of engineering construction fell by around a quarter over 2015-16.

Chart 2.3 Business investment as a share of GDP and the unemployment rate



Source: Australian Bureau of Statistics, Deloitte Access Economics

However the dynamics have changed. There’s less supply still to come online than there once was, demand in China is rising, and commodity prices are higher. To date, mining companies haven’t been sufficiently convinced of the longevity of recent pricing to once again approve new projects in Australia. This broadly remains the case, but there is increasing risk in the outlook. The longer that commodity prices remain high, the greater the chances that miners will be tempted into new investment.

Looking ahead, output growth is expected to be solid in the short-term, but risks to the Australian economic outlook remain high. Growth in real GDP in Australia is expected to average 2.6% over the next five years, slightly below the average annual growth over the previous decade of 2.8%.

¹ There has also been some useful work done of late by Treasury – see https://www.treasury.gov.au/~media/Treasury/Publications%20and%20Media/Publications/2016/An%20Aust%20ralian%20Labour%20Market%20Conditions%20Index/Downloads/PDF/Aust_Labour_Market_Cond_Index.ashx.

2.2 New South Wales

Recent years have seen economic strength across the nation move from the resource rich States of Western Australia and Queensland back in favour of Australia's south-eastern States. Overall economic growth at the national level is now very much a New South Wales and Victoria story. The New South Wales economy grew by 3.5% in 2015-16 in compared with 2.7% across the nation.

On Deloitte Access Economics' estimates, New South Wales is currently the fastest growing State economy, edging out Victoria for that title, and only slightly behind output growth in the ACT over the year to September 2016. Much of this has to do with the continuing tailwind provided for the businesses and families of New South Wales by record low interest rates. Those interest rates moved even lower through the course of 2016, providing further support for household consumption and dwelling investment.

Housing construction continues to be a key driver of economic growth in New South Wales. Over the last five years the number of dwelling units under construction has more than doubled in New South Wales, while approvals for construction are almost three times higher today than during 2009.

The surge in New South Wales housing construction has been driven by apartment building. While the number of new houses approved increased by 76.9% in the four years to 2015-16, the number of units approved surged by 131.9%. That said, more recent data shows that approvals for both houses and units has slowed in the last few months.

Higher housing prices also meant that household wealth has increased, supporting strength in retail spending. Nominal retail spending grew by 5.3% in 2015-16, outperforming the Australian average for the fourth straight year. While there have been recent indications of slowing growth, New South Wales continues to outperform the national average. And given that consumption accounts for more than two-thirds of State output, the recent strength has made a significant contribution to overall GSP growth.

New South Wales is also leading other Australian States on infrastructure spending. Stamp duty revenue from the housing boom and funds from asset recycling are being directed into large transport projects. Public investment in New South Wales grew by 11.2% in 2015-16, significantly higher than the Australian growth of 2.3%

The State's \$11.5 billion WestConnex project and its \$3 billion NorthConnex counterpart are the biggest road projects underway in the country. New South Wales also hosts the two largest rail projects, with the \$8.3 billion Sydney Metro Northwest and the \$2 billion CBD and South East light rail projects both under construction. Since New South Wales has under-invested in its infrastructure for a long time, the benefits of spending now are higher, while lower interest rates mean that the cost of financing infrastructure is now relatively low.

The New South Wales labour market remains healthy following a very good burst of job growth that has moved New South Wales's unemployment rate even further below the national level, falling under 5% in September 2016.

Population growth remains strong in New South Wales, with the State's population growing at a faster rate than the overall Australian population in 2015. This outperformance faded over 2016, but New South Wales population growth still remains above the decade average for the State.

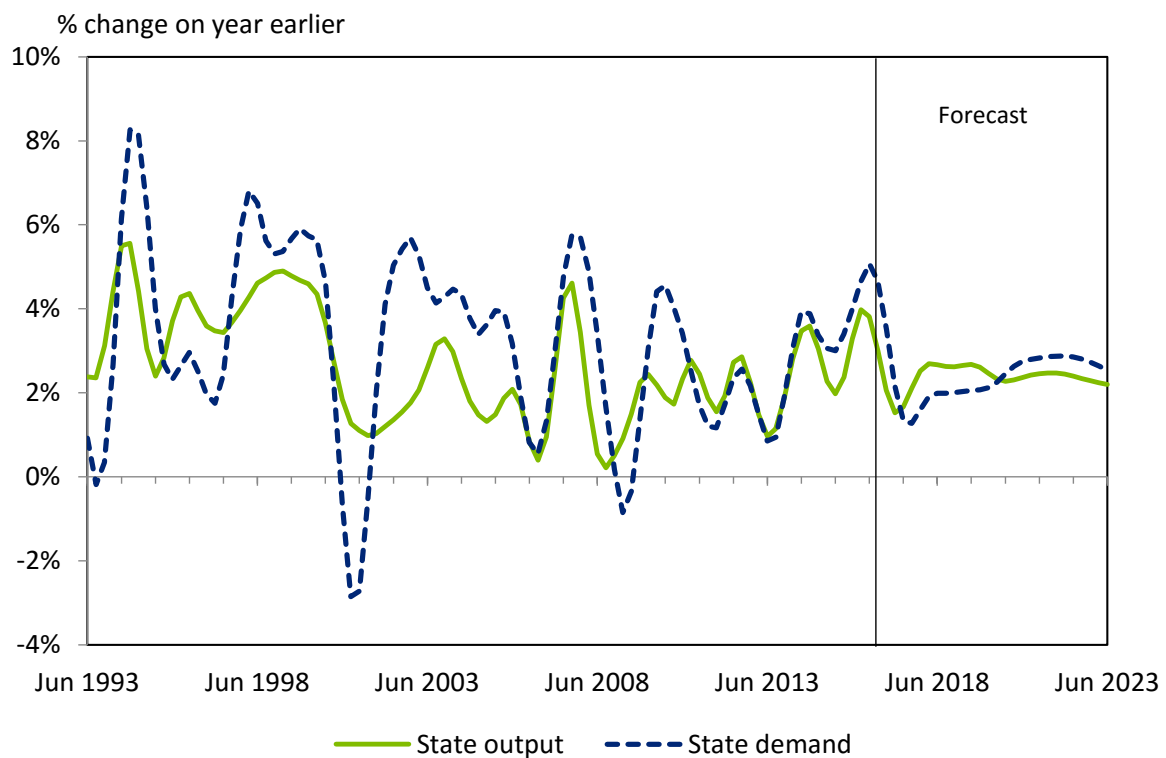
Another key factor in play is that Sydney is home to half the finance sector employees in the nation, and the continuing cuts to the cost of credit have shown up in great growth in the State's finance sector – people are borrowing a lot, and that is good news for one of the major sectors in this State in terms of output.

New South Wales has also benefitted from the lower Australian dollar, with Sydney tourist numbers increasing and room occupancy rates that are well above the national average. Moreover, a wet winter means a great harvest for a State whose farmers have been on the wrong side of fickle weather patterns in some years of late.

However, there are risks building for New South Wales. A number of factors that are supporting current growth are likely to contribute less in the years ahead. The retail and housing construction sectors, and the State Budget, are all currently being supported by elevated house prices. Deloitte Access Economics expects property prices to grow more slowly over coming years. As a result, a key driver of economic growth for the State will erode. In addition, New South Wales is likely to be hit relatively hard by an ageing population, which will weigh on the size of the labour force and, ultimately, economic output.

Looking forward, New South Wales economic growth is expected to slow from 3.5% in 2015-16 to around 2.0% in 2016-17 before rebounding thereafter. Chart 2.4 highlights that growth is forecast to recover over the forecast period, reaching rates that are in line with the decade average for the State.

Chart 2.4 Output and demand (change on year earlier), New South Wales



Source: Australian Bureau of Statistics, Deloitte Access Economics

Table 2.1 sets out Deloitte Access Economics' current forecasts for the New South Wales economy between 2015-16 and 2022-23.

Table 2.1 New South Wales output and demand forecasts

Financial year changes in New South Wales key economic variables								
	History		Forecast					
Annual % change (unless noted)	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumption								
Private sector	3.2	2.1	2.1	2.3	2.1	2.1	2.3	2.5
Public sector	4.7	2.7	2.4	2.8	2.8	2.6	2.6	2.4
Private sector investment								
Dwelling investment	14.9	14.4	1.1	-4.2	-0.2	5.7	5.4	0.4
Non-residential building	-1.2	3.1	8.4	4.3	2.0	2.3	2.1	2.8
Engineering construction	-13.9	15.7	7.2	-0.4	0.1	0.4	0.2	0.9
Machinery and equipment	2.1	10.9	-5.5	0.5	1.4	3.1	3.5	4.7
IP and livestock	5.9	2.8	4.1	-1.5	4.9	7.3	7.4	8.5
Public investment								
General Government	9.2	2.2	1.6	9.4	4.9	4.7	4.8	4.6
Public enterprises	15.6	-12.2	-9.8	5.1	2.6	2.3	2.2	3.2
Real final demand								
Private sector	3.7	3.2	1.8	1.5	2.0	2.7	2.8	2.6
Public sector	6.1	1.6	1.5	3.9	3.2	2.9	2.9	2.8
Gross State output								
	3.5	2.0	2.5	2.6	2.4	2.4	2.4	2.3
Population								
	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Employment								
	3.9	0.8	1.6	1.4	1.5	1.4	1.2	0.9
Unemployment rate (%)								
	5.4	4.9	5.0	5.0	5.0	4.9	4.7	4.7

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms

Source: Australian Bureau of Statistics, Deloitte Access Economics

2.3 Victoria

Victoria's economic growth accelerated after the Australian dollar peaked several years ago. Low interest rates and exchange rates provided a vital boost to Victoria, which is now – on Deloitte Access Economics' estimates – the second fastest-growing State economy in Australia.

Lower interest rates have provided a strong foundation for Victoria's housing construction boom. Strong population growth (2.0% in the year to September 2016) and rising house prices have supported growth in dwelling investment (up by 6.0% in the year to September 2016).

Higher house prices and falling interest rates also created wealth effects, providing Victorians with strong incentives to spend rather than save. That backdrop has boosted retail turnover, and private consumption more broadly. In fact, retail turnover grew by 5.6% in Victoria over 2015-16 – the fastest growth of any State or Territory.

High rates of migration, the low Australian dollar (and its protective effect on manufacturing) and the housing construction boom have kept employment growth well ahead of the national average. This has seen the Victorian unemployment rate fall below the national average in September 2016.

However, the strong growth of the Victorian economy is slowing down. Much like New South Wales, the State's recent performance has been supported by record low interest rates (which have fuelled property prices) and a falling Australian dollar (which boosted the tourism and manufacturing sectors). Yet over the next few years, interest rates and property prices are likely to contribute less to Victorian output growth.

There is growing risk in Victoria’s housing sector. Specifically, rapid growth in the number of inner-Melbourne apartments is giving rise to a potential glut. It is increasingly unclear whether population growth in Melbourne (largely from international students and interstate migrants) will be enough to fill the rapidly growing apartment stock. An oversupply of dwellings could lead to a fall (or stagnation) in property price growth.

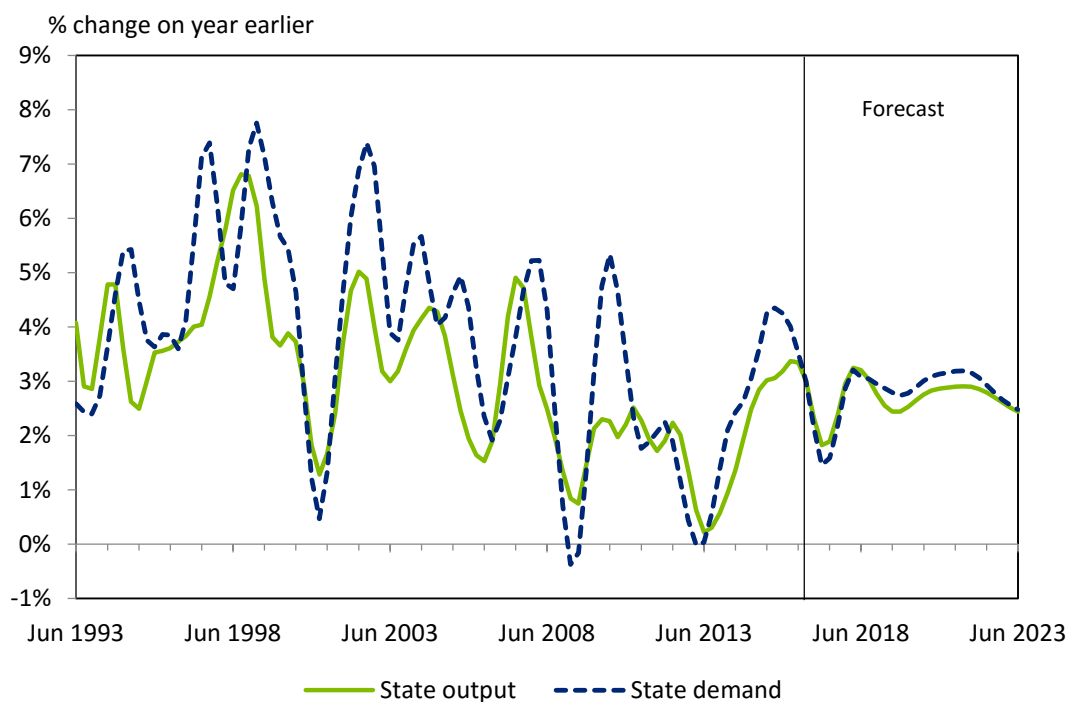
Although retail turnover in Victoria has grown faster than the national equivalent for the past three years, recent months have seen this outperformance fade. This indicates that consumer wealth effects from high house prices are starting to lose strength and the reality of record-low wage growth (a national phenomenon) is kicking in.

Structural change in the manufacturing sector could also prove challenging for Victoria. The end of domestic car manufacturing is set to create an employment gap, particularly in regions such as Geelong. This exodus is likely to spread to other types of manufacturing in the long term, as emerging economies in Asia capture increasing market share in manufacturing.

Chart 2.5 illustrates the growth in output in the Victorian economy to June 2023. A (largely temporary) slowdown in growth is underway, and there are medium term risks as the housing cycle cools and the effects of low interest rates and the lower Australian dollar fade. As population growth in Victoria moderates, so too will residential construction activity and consumer demand.

Table 2.1 sets out Deloitte Access Economics’ current forecasts for the Victorian economy.

Chart 2.5 Victoria output and demand



Source: Australian Bureau of Statistics, Deloitte Access Economics

Table 2.1 Victoria output and demand forecasts, financial year

Financial year changes in Victoria key economic variables								
	History		Forecast					
Annual % change (unless noted)	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumption								
Private sector	3.3	2.7	4.1	3.9	3.3	2.6	2.9	2.9
Public sector	2.6	3.1	2.8	2.8	3.6	3.1	3.0	2.7
Private sector investment								
Dwelling investment	11.3	1.3	-0.5	-4.8	-0.6	8.7	5.9	-1.9
Non-residential building	3.2	-7.4	6.8	5.8	0.7	1.1	0.9	2.3
Engineering construction	1.8	-17.8	12.7	8.3	1.0	-0.5	-1.3	-0.3
Machinery and equipment	4.2	2.5	-0.6	3.5	2.1	3.2	3.3	4.5
IP and livestock	6.7	-2.2	-4.5	-3.0	3.7	6.2	6.6	7.8
Public investment								
General Government	11.2	5.1	6.3	4.0	2.3	2.7	2.8	2.7
Public enterprises	8.8	-10.5	-9.7	5.3	2.9	2.6	2.5	3.4
Real final demand	4.2	1.7	3.0	2.9	2.8	3.1	3.1	2.6
Private sector	4.2	1.5	3.1	2.9	2.7	3.2	3.1	2.6
Public sector	4.1	2.7	2.7	3.0	3.3	3.1	2.9	2.7
Gross State output	3.3	2.1	3.0	2.7	2.6	2.9	2.9	2.6
Population	1.9	2.0	1.8	1.7	1.6	1.5	1.5	1.4
Employment	2.4	3.0	0.6	0.9	1.1	1.5	1.7	1.6
Unemployment rate (%)	6.0	5.9	6.1	6.1	6.1	5.8	5.5	5.4

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table 2.2 Victoria output and demand forecasts, calendar year

Annual % change (unless noted)	History Forecast							
	2015	2016	2017	2018	2019	2020	2021	2022
Consumption								
Private sector	2.9	2.9	3.6	4.0	3.7	2.9	2.7	2.9
Public sector	3.5	3.0	2.8	2.8	3.2	3.4	3.0	2.8
Private sector investment								
Dwelling investment	10.6	7.7	-1.3	-2.2	-4.8	5.2	8.9	1.6
Non-residential building	15.2	-9.1	2.5	6.6	2.8	0.9	0.7	1.7
Engineering construction	5.0	-9.6	-4.3	12.4	3.9	0.1	-1.3	-0.8
Machinery and equipment	4.9	2.4	1.6	0.9	3.0	2.7	3.1	4.0
IP and livestock	7.5	4.8	-6.7	-3.0	-0.1	5.7	6.3	7.3
Public investment								
General Government	-2.1	25.3	-1.7	4.8	3.2	2.7	2.8	2.7
Public enterprises	1.2	-9.1	-12.2	0.1	5.2	2.4	2.4	3.0
Real final demand	4.3	3.0	2.1	3.1	2.8	3.0	3.2	2.9
Private sector	4.7	2.5	2.2	3.1	2.7	3.0	3.2	2.9
Public sector	2.6	5.3	1.4	3.0	3.3	3.2	3.0	2.8
Gross State output	3.1	3.0	2.2	3.1	2.5	2.8	2.9	2.7
Population	1.8	2.0	1.9	1.7	1.7	1.6	1.5	1.4
Employment	2.9	2.9	1.4	0.8	0.9	1.3	1.6	1.7
Unemployment rate (%)	6.0	5.8	6.1	6.1	6.1	6.0	5.6	5.4

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms

Source: Australian Bureau of Statistics, Deloitte Access Economics

2.4 Queensland

The last decade has been something of a challenge for Queensland. After capturing a rising share of Australia's population over the long term, the State's share of the nation's economy and its population is flat-lining. And although growth in Queensland's economy is on the rise, that projected lift is due to exports. While exports are good for Gross State Product (GSP), the resultant economic growth does not necessarily translate to significant employment growth or other domestic benefits. Indeed, a look at Queensland's data shows the dividing line:

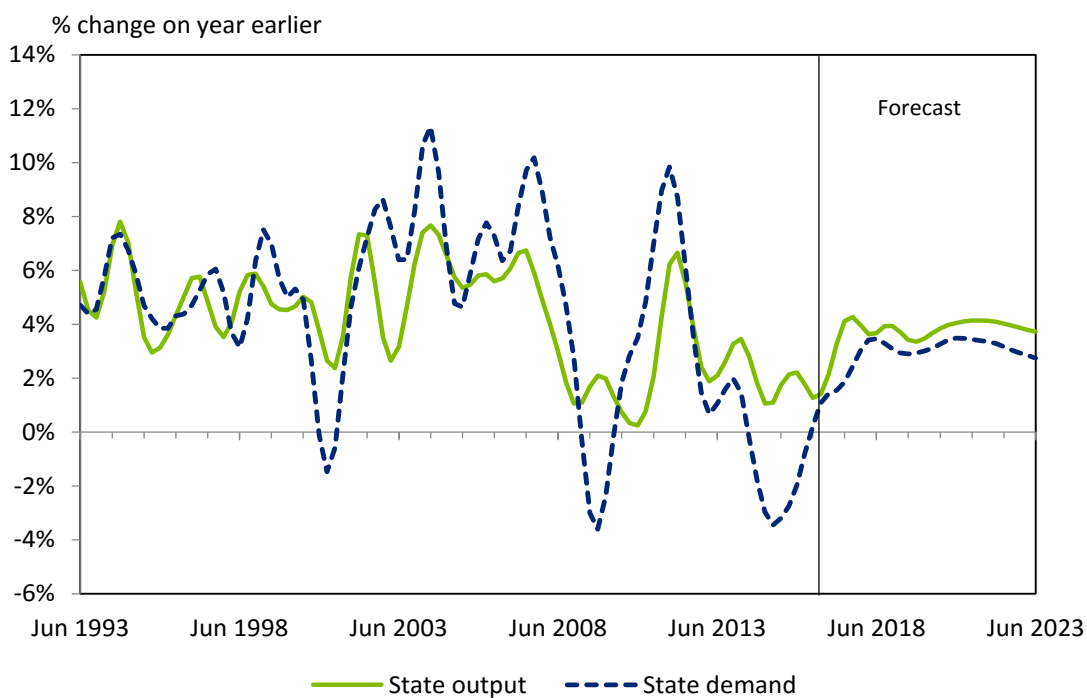
- Although the State's house prices are still rising, its finance commitments and building approvals are not. Brisbane is steadily developing a glut of inner-city apartments, which is likely to lead to oversupply and a corrective slowdown over the next few years.
- Population growth remains well below the national rate, employment growth is negative and underemployment is a growing issue. Indeed, underemployment in Queensland is now above the national average, particularly in regional Queensland.
- Queensland wages have dropped below the national average, while the State's share of the Australian economy has been in decline since 2011-12. Queensland's share of the total economy is now back to 2005 levels.
- Similarly, business investment as a share of the State's economy has halved since mid-2013, following the recent completion of construction on Queensland's three LNG mega-projects.
- Car sales have been sinking, and room occupancy rates in hotels and motels remain low.
- Despite all the investment in new capacity over some years, export earnings today have fallen compared to a year ago.

There are, however, some positives for the State. The lower Australian dollar was relatively slow to assist economic growth in Queensland, but its impact can now be readily seen in indicators such as tourist nights and numbers of foreign students, which have both shown signs of lifting in recent months. Favourable weather conditions over the past year have assisted growth too, by boosting agriculture output and income.

Australia will soon be the world’s largest exporter of gas, and Queensland will be a major contributor to that. Although shipments to world markets may fall shy of \$10 billion in 2016-17, they should move comfortably north of that figure thereafter.

Chart 2.6 indicates that growth of the Queensland economy in the next year or two look solid. But further ahead, housing construction and retail spending may be less impressive relative to the rest of Australia, and the State’s population gains may moderate.

Chart 2.6 Queensland output and demand



Source: Australian Bureau of Statistics, Deloitte Access Economics

Table 2.1 sets out Deloitte Access Economics’ current forecasts for the Queensland economy.

Table 2.3 Queensland output and demand forecasts

Financial year changes in Queensland key economic variables								
	History		Forecast					
Annual % change (unless noted)	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumption								
Private sector	2.6	2.8	3.3	2.9	2.7	2.6	2.8	2.9
Public sector	5.0	2.1	2.0	2.5	3.0	2.7	2.7	2.6
Private sector investment								
Dwelling investment	14.6	4.8	2.8	-1.5	1.6	9.0	6.4	-1.4
Non-residential building	-32.0	-13.2	3.0	8.6	2.1	1.8	1.1	2.1
Engineering construction	-46.4	-19.9	5.3	9.9	2.0	0.3	-0.7	0.0
Machinery and equipment	-14.6	3.5	3.6	7.0	3.9	4.2	4.0	5.0
IP and livestock	-6.3	-10.0	-5.8	-2.2	8.4	8.3	7.7	8.4
Public investment								
General Government	-8.3	2.9	6.7	1.9	11.8	9.4	8.1	7.2
Public enterprises	-4.0	-3.8	8.0	12.8	5.8	4.0	3.3	4.0
Real final demand								
Private sector	-2.1	1.3	3.1	3.0	2.7	3.3	3.2	2.7
Public sector	2.1	1.9	3.1	3.1	4.6	4.0	3.7	3.5
Gross State output								
	2.0	2.6	3.9	3.8	3.6	4.1	4.1	3.8
Population								
	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4
Employment								
	1.6	0.5	2.4	1.5	1.4	1.5	1.4	1.4
Unemployment rate (%)								
	6.1	6.0	5.9	5.9	5.9	5.7	5.4	5.3

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms

Source: Australian Bureau of Statistics, Deloitte Access Economics

2.5 South Australia

South Australia did not experience the mining booms of Western Australia or Queensland, nor has it had the boom in housing construction currently underway in New South Wales or Victoria.

An absence of booms, however, is not always such a bad thing, as booms are usually followed by busts. Even so, however, South Australia still has a number of economic headwinds to contend with, the largest of which has been the decline in its manufacturing base.

The lower Australian dollar has not been enough to halt the closure of the States' car assembly plants, with Holden set to leave by the end of 2017. And although iron ore prices are now higher, depressed prices over previous years have placed the steel maker Arrium in significant trouble.

The decline in these key employers is expected to have flow on effects for the rest of the economy. Although, the extent to which these direct job losses lead to additional indirect job losses remains more uncertain.

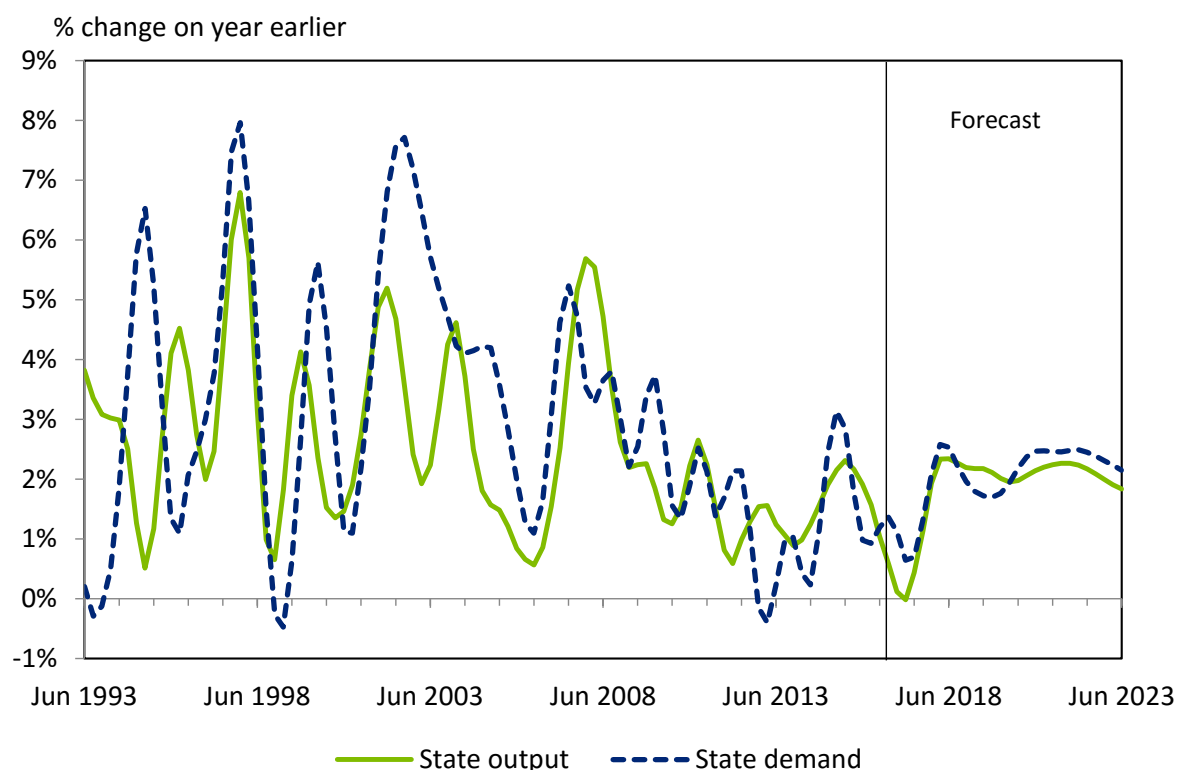
With few other options, South Australia has also become more dependent on assistance from the Commonwealth to cover this gap. This leaves the State in a pressured position as there is also a significant amount of pressure on the Commonwealth Government's Budget position.

Adding to this South Australia's population has the second highest median age in Australia (behind only Tasmania). This means that the headwind of an ageing population will add further pressure on the South Australian economy relative to other States.

Moreover, there are feedback risks here. Most notably, weakness in the State's economy means less opportunities, and fewer people to fill those that are there. Lower population growth eventually leads to further weakness in its economy, creating additional negative feedback loops.

As Chart 2.7 below shows, output growth is expected to slow in South Australia over the short term. In fact the State's share of Australia's population and output is forecast to continue shrinking.

Chart 2.7 South Australia output and demand



Source: Australian Bureau of Statistics, Deloitte Access Economics

Yet, despite those problems, there has been some recent better news:

- The growth in retail turnover across the past year has been easily ahead of that seen in most other States, housing finance is holding up better than in most other States, and car sales are solid.
- Job gains have also been reasonable and they've been steady – a double that's relatively rare.
- House price rises have also been more modest than in other places, which limits some downside risks to the outlook for the State.

Overall, our view remains that there are still more negative than positives. The State's economy hasn't grown at all over the past year, and there are known challenges ahead – both short and long term. However, on balance, those challenges still look manageable to us.

Table 2.4 below sets out Deloitte Access Economics current forecasts for the South Australian economy.

Table 2.4 South Australia output and demand forecasts

Financial year changes in South Australia key economic variables

Annual % change (unless noted)	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumption								
Private sector	2.7	2.0	3.0	2.4	2.0	1.8	2.0	2.1
Public sector	2.7	2.3	0.5	1.4	2.1	1.9	1.9	1.8
Private sector investment								
Dwelling investment	1.4	4.6	5.8	-4.0	-0.8	6.7	5.1	-0.9
Non-residential building	-10.5	-12.4	7.8	0.6	-1.0	1.7	1.0	2.3
Engineering construction	-3.1	-10.0	8.6	-2.8	-3.1	0.8	-0.4	0.4
Machinery and equipment	-8.4	-5.3	5.9	8.2	4.3	5.6	5.4	6.3
IP and livestock	-7.5	-1.5	-6.4	-1.0	4.8	6.4	7.4	8.3
Public investment								
General Government	0.3	1.9	-5.0	4.8	3.8	5.4	5.6	5.2
Public enterprises	12.0	-4.2	-18.4	-0.2	-0.2	0.5	0.9	2.0
Real final demand								
Private sector	0.7	0.6	3.1	2.0	1.8	2.5	2.5	2.3
Public sector	2.7	2.0	-0.8	1.8	2.2	2.3	2.3	2.2
Gross State output								
	1.9	0.1	2.0	2.2	2.0	2.2	2.2	2.0
Population								
	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.7
Employment								
	0.3	0.6	0.6	1.0	0.9	1.0	0.9	0.7
Unemployment rate (%)								
	7.3	6.9	7.1	7.0	6.9	6.6	6.2	6.0

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms

Source: Australian Bureau of Statistics, Deloitte Access Economics

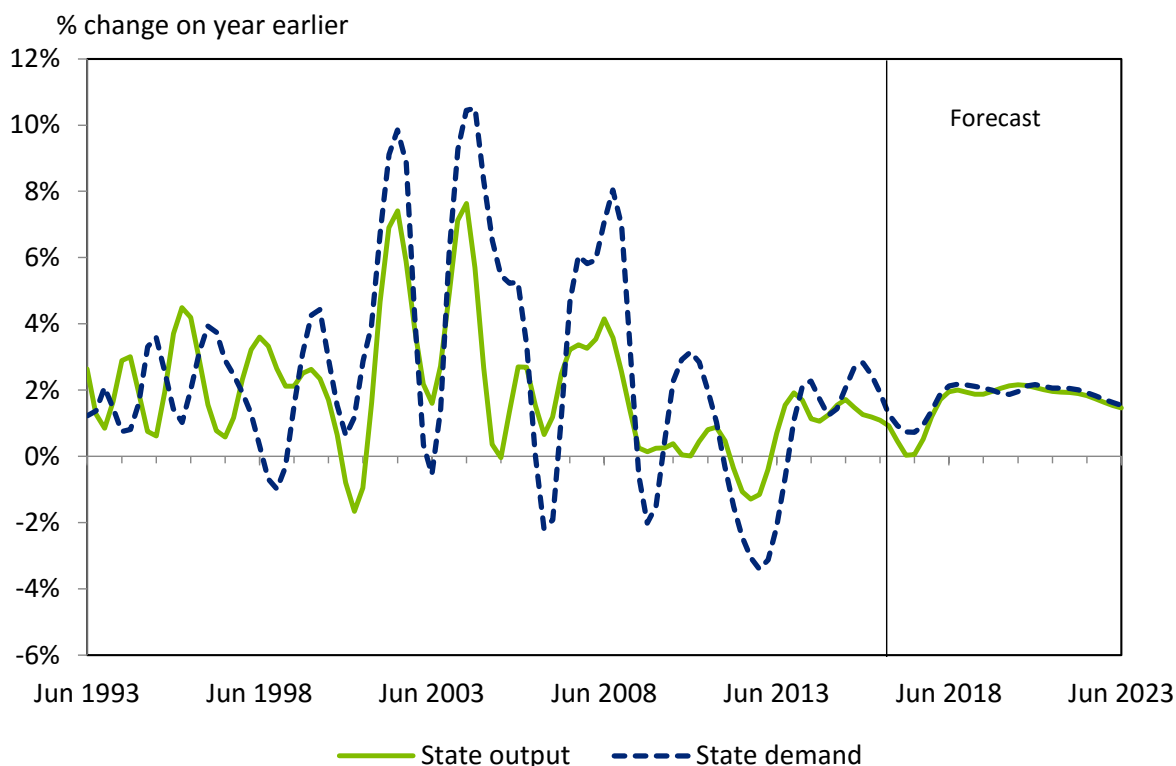
2.6 Tasmania

Tasmania's real GDP grew by 1.3% over 2015-16, the slowest of any State or Territory. This relative underperformance has been true for a while now, with the State recording an annual average output growth rate of just 0.8% over the last five years, well below the overall Australian figure of 2.8%. More recently, there have been signs that conditions have improved somewhat:

- The pace of spending growth in the State has matched that elsewhere in Australia since the middle of 2013 – and it has managed to achieve that despite seeing weaker population growth.
- Growth in retail turnover has lifted to 4.9% over the year to November 2016, well ahead of the national rate of 3.9%.
- But the main reason why overall spending has kept up with national trends is because business investment in Tasmania is flattening at a time when Australian business investment has been dropping fast (weighed down by large falls in mining States in the nation's north and west).
- At the same time room occupancy rates have finally caught up to other Australian regions, with both international and domestic tourism being aided by the cheaper cost of travel.
- Yet there's bad news mixed in with the good. Employment figures are poor, with overall job numbers in the State little changed over the past five years. In fact, the State is home to fewer full-time jobs today than in 2011.

All up, that's not bad. But housing construction has dropped back of late. And whereas States such as New South Wales are getting a boost from State government spending on transport projects, and States such as Victoria are doing the same and adding to public sector employment and wages as well, Tasmania's government has less space to stimulate the economy through fiscal policy.

Chart 2.8 Tasmania output and demand



Source: Australian Bureau of Statistics, Deloitte Access Economics

That means that some of the key drivers of growth in other States – public investment and consumption – are less prevalent in Tasmania. This headwind is part of a backdrop that is likely to see only moderate output growth in the State:

- Tasmania’s population growth may be the best it has been in five years, but it is still weak (not much above a third of the national rate).
- Not only is the growth in the State’s population modest, but Tasmania has the oldest median age of any Australian State or Territory. As a result the retirement among baby boomers will weigh on Tasmania’s future output growth more than most States.
- And although lower energy costs have cut transport cost handicaps faced by local businesses selling to the rest of Australia and the rest of the world, energy prices appear to have begun to lift. This will make the cost of doing business in Tasmania more expensive.
- More broadly, a lack of economies of scale – through an age in which those economies are being more exploited than ever – is also set to linger as a disadvantage.

Yet it is worth remembering that these headwinds are long-term themes. On balance, the outlook for State output and demand Chart 2.8 remains moderate.

Table 2.5 Tasmania output and demand forecasts

Financial year changes in Tasmania key economic variables

Annual % change (unless noted)	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Consumption								
Private sector	3.7	1.7	1.8	1.5	1.3	1.2	1.4	1.5
Public sector	3.9	1.8	1.1	1.2	2.0	1.6	1.6	1.5
Private sector investment								
Dwelling investment	2.4	-4.9	3.9	-1.0	2.3	9.8	6.8	-1.5
Non-residential building	-6.5	-6.7	11.6	10.2	1.7	1.2	0.5	1.5
Engineering construction	-18.8	-10.1	23.5	15.9	1.0	-0.9	-2.2	-1.5
Machinery and equipment	-5.2	-0.3	-5.6	2.0	1.4	2.6	2.4	3.5
IP and livestock	0.7	-6.9	-6.5	-5.1	4.3	5.8	5.9	6.9
Public investment								
General Government	2.7	2.2	5.8	16.7	10.3	8.4	6.7	5.5
Public enterprises	-28.4	10.3	10.7	13.1	5.4	3.1	2.2	2.8
Real final demand								
Private sector	2.5	0.9	1.5	2.1	1.9	2.1	2.0	1.7
Public sector	2.7	0.4	1.4	1.5	1.4	1.9	1.9	1.5
Public sector	1.8	2.2	2.1	3.8	3.3	2.7	2.4	2.2
Gross State output								
	1.3	0.3	1.4	1.9	2.1	2.0	1.9	1.6
Population								
	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2
Employment								
	-0.2	0.1	1.6	0.5	0.2	0.2	0.1	0.1
Unemployment rate (%)								
	6.6	6.6	6.4	6.3	6.3	6.0	5.8	5.7

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms

Source: Australian Bureau of Statistics, Deloitte Access Economics

2.7 Utilities

The 'utilities' sector is the broad term applying to the electricity, gas, water and waste services industry, which is Division D of the Australian and New Zealand Standard Industrial Classification (ANZSIC).

This sector covers activity in the provision of electricity; gas through mains systems; water; drainage; and sewage services. Electricity (across the supply chain from generation to retail) accounts for half the industry's employment, while water and waste services accounts for the second greatest share, and gas accounts for a minor share of the industry.

The utilities sector has been shrinking as a share of Australia's economy since 1993. In part that is simply because, over time (1) economic growth has favoured other industries, particularly service sectors, while (2) new technologies and new policy priorities have seen a marked uplift in energy efficiency.

Those trends are not going away. Electricity demand is still contracting in the southern States, though New South Wales's stronger economy kept electricity demand flat in 2016, while Queensland's new LNG operations boosted demand in that State.

Falls in demand for electricity in Victoria, Tasmania and South Australia reflect ongoing challenging conditions among industrial users amid closures in manufacturing, petroleum refining and metal refining, with those effects are exacerbated by the weak population growth in both South Australia and Tasmania.

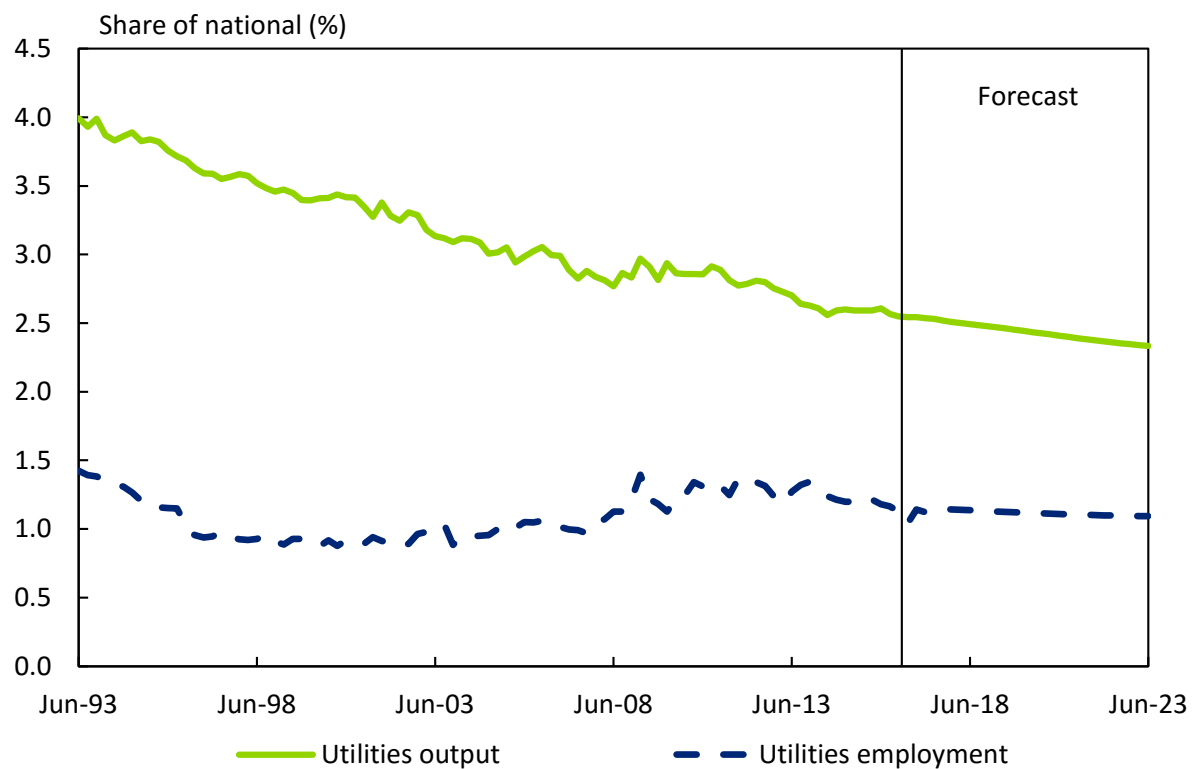
Output in the utilities sector grew 1.4% over the year ending September 2016, a pace which was slightly ahead of the decade average.

Looking ahead, industry demand may remain on the back foot as the economy continues a swing towards services and away from manufacturing (and parts of mining), while population growth – having already slowed in recent years – is projected to ease back further.

At the same time a range of technical and regulatory developments could further reduce sectoral demand (such as household solar, batteries for storing energy, and energy efficiency on the one hand, and the implications of the 2015 Paris Climate Accord on the other). The AEMO is forecasting a 16% decrease in NEM grid electricity consumption from the residential sector over the next 20 years. Those negatives may outweigh potential positives for the sector such as the rise of electric vehicles and good gains in LNG output (which means more business demand for electricity).

On balance, the utilities sector is projected to continue growing at a moderate pace over the period forecast in this report (to 2022-23). That said, the growth in utilities is expected to remain weaker than growth in the Australian economy as a whole (see Chart 2.9), meaning that the utilities sector will continue to shrink as a share of national activity.

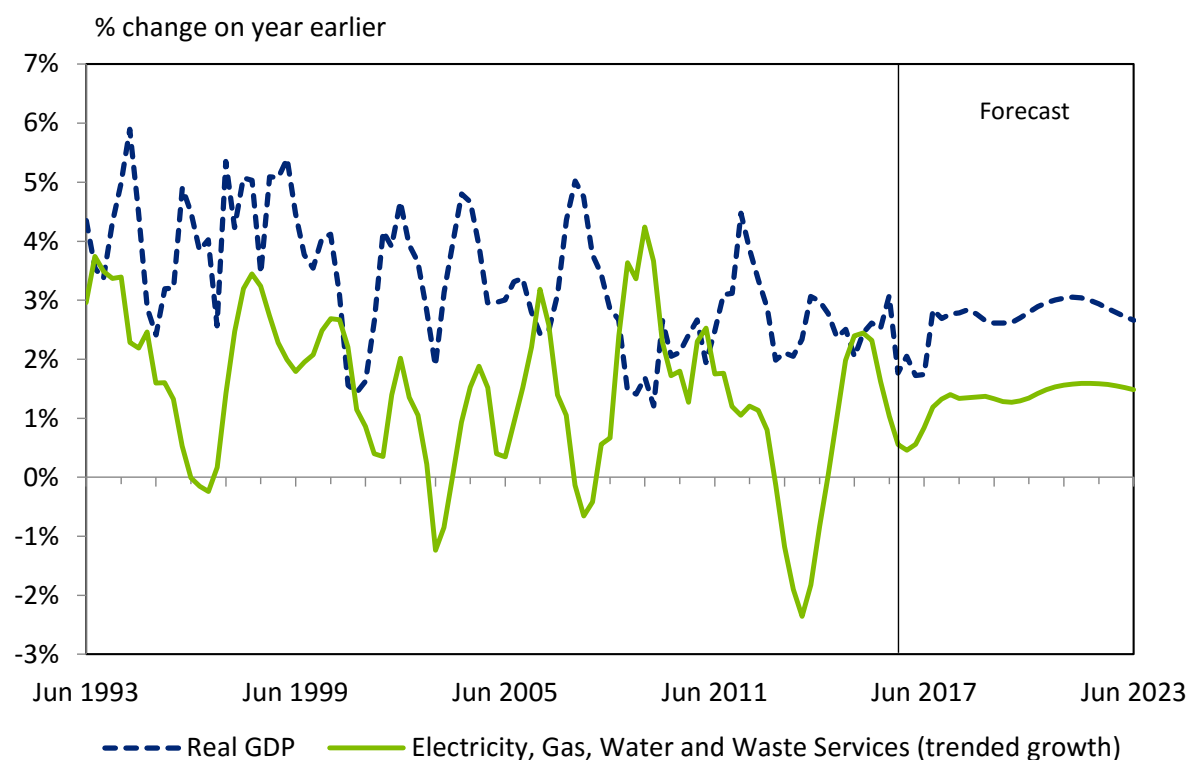
Chart 2.9 Utilities share of national output and employment



Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 2.10 shows that utilities output is expected to grow at a slower rate than Australian GDP over the forecast period. This reflects the ongoing adjustments occurring in response to the factors discussed earlier in this section.

Chart 2.10 Utilities output and GDP



Source: Australian Bureau of Statistics, Deloitte Access Economics

There are a number of developments that present risks to the base case as well as the potential for longer term positives that are not reflected in Deloitte Access Economics' forecasts.

Looking ahead, there are potential positives with continued innovation in electricity markets and the rise of electric cars, battery storage as well as the growth of renewables:

- Electricity storage can assist in **integrating larger amounts of intermittent renewable energy into the power grid**. This will become increasingly important as the December 2015 *Paris Climate Accord* requires Australian industries to significantly reduce their emissions. Australia is to reduce its emissions by 26-28% on 2005 levels by 2030, an increase from 5% below 2000 levels by 2020.
- Battery storage solutions can **fill in capacity shortfalls during spikes in usage**. This would reduce the need for expensive transmission and distribution infrastructure upgrades.

Yet it is also true that these technologies are disruptive for utilities businesses, and a number of negatives remain for the utilities sector:

- The increased **competitiveness and availability of distributed generation** such as rooftop solar systems, battery storage and solar hot water systems are likely to remain a source of cuts to household electricity use over the medium term.
- Despite recent falls in global energy prices and the introduction of flexible and market pricing arrangements, **the increased production of gas in Australia will likely lead to price hikes in coming years**, which may discourage household reliance on gas.
- Although conditions have moderated of late, **Australia's manufacturing base remains under competitive pressure**. Continued weakness in manufacturing is likely to weigh on utilities demand in coming years.

Growth in alternative energy sources and disruptive technologies (such as the more widespread use of batteries) raises some longer term risks around the long term outlook for electricity generation and network businesses.

Networks have high fixed costs, and if changing technologies and distribution models were to lead, for example, to a sharp take up of solar energy use with associated battery usage, then that could result in a sustained fall in demand for network electricity. In turn, the fixed costs of the network would then be spread over a smaller base of customers.

Although it may be many years before battery storage is cheap enough to compete on a mass market scale, with one in five households having already installed solar panels, there is potential for existing network providers to be disrupted in coming years. As noted above, these developments are a risk rather than a base case, and are not reflected in Deloitte Access Economics' forecasts.

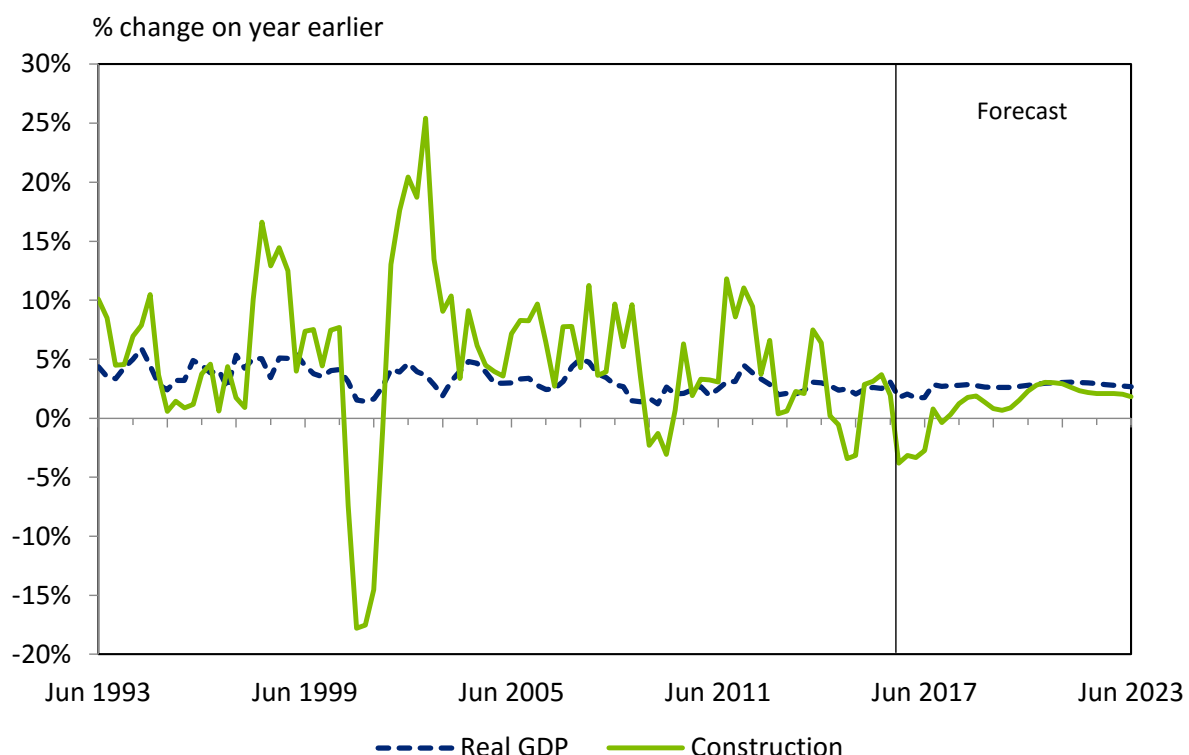
2.8 Construction

The construction sector is comprised of engineering construction, residential building and non-residential building (commercial construction), and each component is driven by a varied set of economic conditions.

Construction has been generally outperforming the Australian economy for the last fifteen years or so (see Chart 2.11), but this outperformance is now starting to falter. Output in the Australian construction sector was driven by engineering construction during the mining boom and more recently by residential construction during the housing boom.

Engineering construction has fallen since the end of the resource boom and residential construction is now easing, with the added risk of apartment oversupply lurking in the back of Australia's mind. Unfortunately, commercial construction hasn't been making up for the lower level of output from engineering and residential construction. The next few years are looking downhill for the Australian wide construction sector, with output set to fall by around 3% over 2016-17 (see Chart 2.11).

Chart 2.11 Construction output and GDP



Source: Australian Bureau of Statistics, Deloitte Access Economics

The value of work done in **engineering construction** has been falling sharply since around 2012. It's now tracking at around the same level as late 2010, when the second round boom in engineering construction was only just taking off. Deloitte Access Economics expects engineering construction

to fall even further as large projects wrap up and few projects in the pipeline are likely to replace them in the short to medium-term.

Public sector engineering construction has been performing relatively strongly, but not enough to change the direction of overall engineering construction activity. In saying this, public sector engineering construction has been increasing steadily, with a pipeline that's promising. Transport is making up a significant portion of this work.

In New South Wales, road construction is led by the \$11.5 billion WestConnex project and the \$3 billion NorthConnex development. Sydney also hosts the two largest rail projects in the country, with the \$8.3 billion Sydney Metro Northwest and the \$2 billion CBD and South East light rail projects both under construction. Since New South Wales has under-invested in its infrastructure for some time, the benefits of spending now are higher, while lower interest rates mean that the cost of financing infrastructure is now relatively low.

Melbourne wants to connect better to its west too, so it is undertaking the \$5.5 billion Western Distributor project, which includes the Monash Freeway upgrade, Webb Dock access improvements and vital second river crossing. Western Australia is also spending on transport infrastructure, with freight link and airport rail link projects underway.

Despite that good news, however, engineering activity will still get worse before it gets better. We see further large falls through the course of 2017, before an extended flat spot.

Table 2.6 Engineering construction projects (December 2016 levels and annual change), National

		% change		% change		% change	
		on Dec	In planning	on Dec		on Dec	
	Definite \$m	2015	\$m	2015	Total \$m	2015	2015
Manufacturing	1,743	-36%	17,253	7%	18,996	1%	
Transport	108,110	69%	114,898	-20%	223,008	8%	
Communication	46,375	0%	350	-46%	46,725	-1%	
Mining	174,313	-10%	185,567	10%	359,880	0%	
Power & water	7,462	11%	21,461	-3%	28,923	0%	
Rural and forestry	251	6%	637	0%	888	2%	
Total (\$m)	338,254	8.1%	340,166	-3.1%	678,420	2.2%	

Source: Deloitte Access Economics *Investment Monitor* database

Commercial construction is currently the flattest of the three segments of the construction sector. The value of commercial work has been broadly the same every year since the turn of the decade. There has been an easing in activity recently, but better approvals data of late suggest that's unlikely to be a long term trend.

Table 2.7 Commercial construction (December 2016 levels and annual change), National

	Definite \$m	% change on Dec 2015	In planning \$m	% change on Dec 2015	Total \$m	% change on Dec 2015
Trade	8,003	-11%	7,414	28%	15,417	4%
Business parks	2,945	5%	230	-86%	3,175	-28%
Hotels and Resorts	5,427	49%	11,456	-41%	16,883	-26%
Offices	2,934	-42%	5,311	-5%	8,245	-23%
Education	2,255	30%	2,090	100%	4,345	57%
Health and community services	14,490	-13%	4,206	25%	18,696	-6%
Culture, recreation & other	7,966	-4%	6,150	48%	14,116	14%
Business services	654	-6%	2,275	3%	2,929	1%
Government	1,718	-19%	251	-46%	1,969	-24%
Mixed use	15,667	-9%	2,660	-9%	18,327	-9%
Total in \$m	62,059	-7.5%	42,043	-9.6%	104,102	-8.3%

Source: Deloitte Access Economics Investment Monitor database

The lower \$A has been good for approvals, especially for office buildings, which have only recently come out of some tough times. Looking forward, hospitals and aged care facilities are likely to be key drivers of commercial construction due to Australia's growing and ageing population.

While the outlook for commercial construction is relatively positive, it's not enough to make a big impact on the construction sector as a whole. With the current position of engineering construction, even a great outlook wouldn't be enough.

The outlook for **residential building** remains positive, but not as strong as previously. Looking ahead, residential building demand across the country may slow as population growth – having already slowed in recent years – is projected to ease back further.

However, in Sydney and Melbourne, we've got solid population growth, record-low interest rates and phenomenal house price growth. Vacancy rates in Sydney and Melbourne have broadly kept up with the recent apartment construction, despite fears of an imminent oversupply.

This is partially due to the fact that most of the millennial generation can't afford to buy, so they're renting the new apartments dotted around the inner rings of major Australian cities. The lower \$A is bringing in some international students as well, who are also filling up some of the new space.

There are some risks to consider in the residential construction sector:

- The further that house prices in Sydney and Melbourne climb, the further they have to fall in the event of a housing market crash.
- Outside of Sydney and Melbourne, the rental market in Brisbane is already softening, with the risk of an apartment glut feeling much more real in the short to medium term. Adding to this, rental markets in Perth and Darwin are particularly weak.
- More generally, it's risky to have such a high geographical concentration of apartments. They're being filled now, but as more apartments are built, it's less and less likely that vacancy rates in even the strongest markets will remain this low.
- In 2016, major financial institutions began restricting lending to foreign buyers and tightening up their mortgage approvals to domestic buyers. On the other side of this equation, the Chinese government is trying to retain their investment by restricting residents from investing elsewhere, including in Australia. On top of this, State governments have added extra taxes.

Once this is all taken into account, the development approval pipeline is not a great indicator of what's actually going to happen. Indeed, the biggest thing that's going up in the residential construction sector right now is risk. We expect to see housing commencements (particularly for

apartments) drop off over the next couple of years, as supply that's being constructed now becomes available for renters.

Our outlook for the construction sector is modest. The mining boom was essentially a one-off, so the investment and construction that came along with it was never going to be sustained. For all the good news in global commodity markets at the moment, it's unlikely that the massive resources projects we are seeing wrap up at the moment will be replicated. The new projects taking their place are marked by their relatively small size.

Therefore this is effectively a structural change for the economy post-mining boom, one which reflects China's structural transition from investment to production. In fact, that structural change has never really been questioned.

Looking ahead, while healthy commodity prices might raise profits for miners, chances are that they won't raise profits by quite enough or long enough to push those miners into investing in more capacity. And no interest rate or borrowing incentive will make up for the fact that housing, at least in the short term, may soon be at risk of oversupply, especially in inner-city apartment markets.

Instead, other sectors will push new construction projects:

- **Health care and social assistance** – these sectors are already the favourite for predicted jobs to be generated over the short to medium term. More Australians going into retirement means more aged care, retirement home and hospital facilities. This is reflected in a number of large hospital developments underway across the country.
- **Short term accommodation** – the \$A is lower, the global tourism market is growing and the emerging middle class of Asia is at our doorstep. More hotels will be needed to keep up with demand as visitors keep flocking to our shores. Student accommodation facilities are also a key factor in this category, as international student enrolments are projected to grow to almost a million by 2025. And don't forget related facilities that come with the tourism market – such as dining, entertainment and casinos.

3 The outlook for wages

This chapter considers a series of related issues affecting the wage outlook, including the national wage outlook, the wage outlook for relevant States, and the wage outlook for the utilities and construction sectors.

Table 3.1 provides a summary of Deloitte Access Economics' wage forecasts.

Table 3.1 National and State WPI forecasts

Yearly changes in nominal WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
New South Wales	2.1	2.1	2.5	3.2	3.4	3.4	3.6	3.5
Victoria	2.4	2.1	2.6	3.1	3.3	3.5	3.6	3.5
Queensland	1.9	2.1	2.7	3.0	3.3	3.5	3.7	3.6
South Australia	2.3	1.9	2.5	3.3	3.6	3.6	3.7	3.6
Tasmania	2.2	2.1	2.3	3.0	3.4	3.4	3.5	3.5
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	2.7	2.1	2.3	2.9	3.2	3.4	3.5	3.6

Yearly changes in real WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	0.8	0.1	0.5	0.9	1.2	1.1	1.1	1.2
New South Wales	0.6	0.0	0.2	0.8	1.1	1.0	1.1	1.1
Victoria	0.8	0.2	0.6	1.0	1.2	1.1	1.1	1.1
Queensland	0.3	0.2	0.9	0.9	1.2	1.2	1.2	1.2
South Australia	1.4	0.0	0.6	1.2	1.4	1.2	1.2	1.2
Tasmania	0.9	0.5	0.3	0.8	1.2	1.1	1.0	1.0
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	0.8	0.5	0.3	0.7	1.2	1.2	1.1	1.0

Yearly changes in real productivity adjusted WPI

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	0.3	-0.5	-0.9	-0.5	-0.2	-0.5	-0.5	-0.3
New South Wales	1.0	-1.3	-0.8	-0.4	0.0	-0.1	-0.3	-0.3
Victoria	-0.1	0.9	-1.8	-0.8	-0.4	-0.4	-0.3	0.0
Queensland	0.0	-2.0	-0.5	-1.3	-1.1	-1.6	-1.5	-1.2
South Australia	0.1	0.5	-1.4	-0.1	0.1	-0.1	-0.2	-0.1
Tasmania	-0.3	0.3	0.0	-0.7	-0.8	-1.0	-0.9	-0.6
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	0.1	0.3	-0.6	-1.6	-0.4	-0.5	-0.3	-0.2

Yearly changes in nominal utilities sector WPI

Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	2.4	2.4	2.5	2.8	3.0	3.2	3.4	3.4
New South Wales	1.3	1.7	2.3	3.2	3.3	3.4	3.6	3.5
Victoria	3.3	3.0	2.8	2.9	3.1	3.3	3.4	3.4
Queensland*	2.5	2.8	2.8	2.8	2.9	3.2	3.4	3.4
South Australia*	3.5	2.1	2.2	2.8	3.1	3.2	3.4	3.4
Tasmania*	2.6	2.5	2.4	3.1	3.4	3.5	3.5	3.5
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	3.6	3.3	2.8	2.8	3.0	3.2	3.4	3.4

Yearly changes in real utilities sector WPI

Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
National	1.0	0.5	0.4	0.7	0.8	0.8	0.9	1.0
New South Wales	-0.2	-0.5	0.0	0.9	1.0	1.0	1.1	1.2
Victoria	1.7	1.1	0.8	0.8	1.0	0.9	0.9	1.0
Queensland*	0.9	0.9	0.9	0.7	0.8	0.8	0.9	1.0
South Australia*	2.6	0.2	0.4	0.7	1.0	0.9	0.9	1.0
Tasmania*	1.2	0.9	0.4	0.9	1.2	1.1	1.0	1.1
	2015	2016	2017	2018	2019	2020	2021	2022
Victoria (year ending 31 Dec)	1.6	1.7	0.8	0.6	1.0	0.9	0.9	0.9

*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics.

Source: Australian Bureau of Statistics, Deloitte Access Economics

3.2 Australia

Wage growth within Australia has dropped to a new low of just 1.9% in the year to September 2016 – not that different to consumer price inflation. Almost all sectors and States are feeling that weakness. The industries with the fastest wage gains in the past year are health (at 2.4%), followed by utilities, education and accommodation (all at 2.3%). At the other end of the scale, mining wages rose by just 1.0% in the past year, with administration services at 1.2% and professional services at 1.6%. South Australia had the fastest wage growth of any State (at 2.3%), with Tasmania and the Northern Territory next (at 2.2%), followed by New South Wales (2.1%), Victoria (2.0%), Queensland (1.9%) and Western Australia (at 1.7%).

This deceleration in the pace of wage increases, as the Reserve Bank has noted, is also evident in the fast falling share of wage increases that generate annualised wage gains of more than 4%. Just ahead of the GFC, 40% of wage increases fell in that category, whereas less than 10% do today.

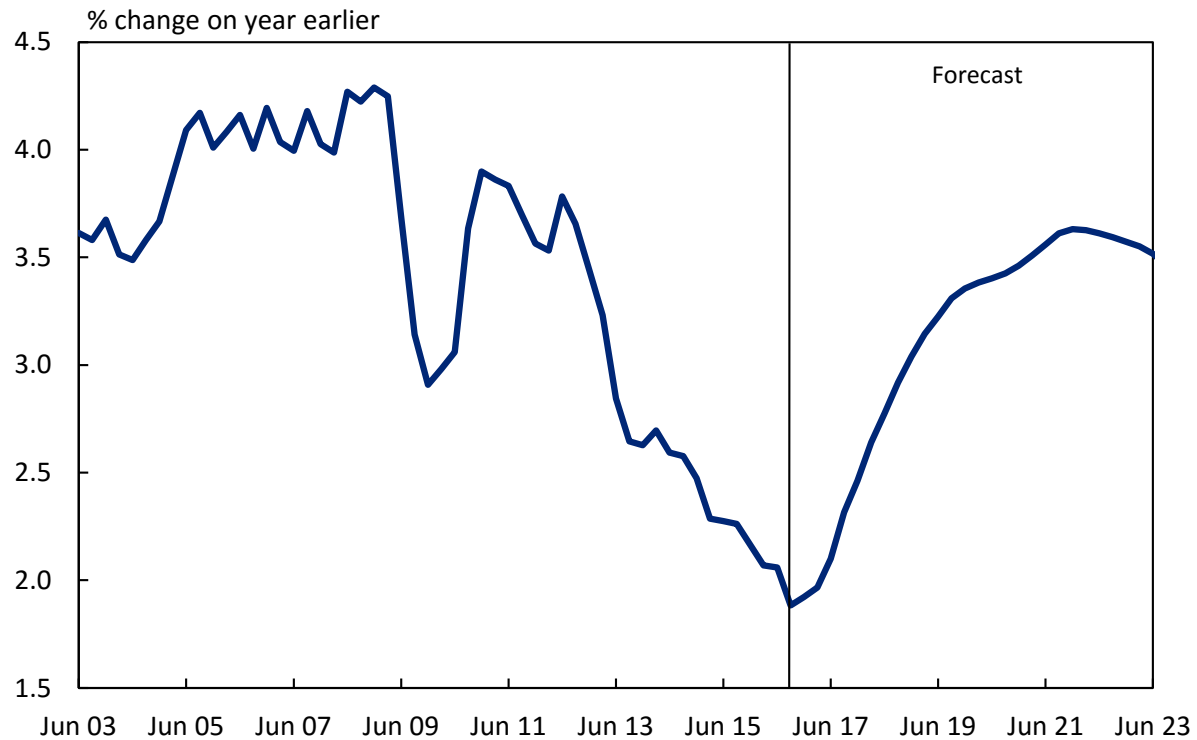
Looking ahead, although Deloitte Access Economics doesn't see wage growth being stuck forever at today's record lows, we do see it struggling to gain much traction over the next year or two:

- Inflation is set to stay pretty low – and ordinary Australians are increasingly aware of that.
- Profits remain under pressure in many businesses, so employers are keen to hold the line.
- Although unemployment is relatively low, underemployment is relatively high – meaning that there's more competition for jobs (and hours) than often recognised.
- An ageing workforce and higher levels of household debt mean that employees are often more interested in job security than incomes increases, pushing less for wage rises.
- An increasingly casualised workforce means that employees possess more limited wage bargaining power.

Those are all good reasons why wage growth won't spring back towards a 4% rate any time soon.

Yet although current trends will last some time (see Chart 3.1), there will be an eventual reversion to faster wage growth. One reason will be because some of those negatives noted above are rather more likely to be temporary rather than permanent: they hold back wage gains now, but not forever.

Chart 3.1 National WPI forecasts



Source: Australian Bureau of Statistics, Deloitte Access Economics

Another is changing demographic dynamics. Baby boomers are retiring at a relatively rapid rate, while a drop off in birth rates many years ago means that there are relatively fewer potential workers finishing their studies. And that combination of demographic effects sits atop a slowdown in net migration – which is quite important here too, given that most migrants are of working age.

Perhaps most importantly of all, wage gains in Australia slowed dramatically across a period in which national income growth dropped notably. Profits took a rather larger hit than wages did. But the fact that wages shared in the pain helped Australia during a difficult transition – lower wage growth showed up as higher job growth than would otherwise have occurred.

Yet 2016 saw a loosening of the national income noose. Commodity prices are back up. And while we don't think the news on commodity prices will stay quite as good, it is now likely the worst has passed. Other things equal, that points to better national income growth in the next few years than we had in the last few – and some of that better news will show up as an acceleration in wage gains.

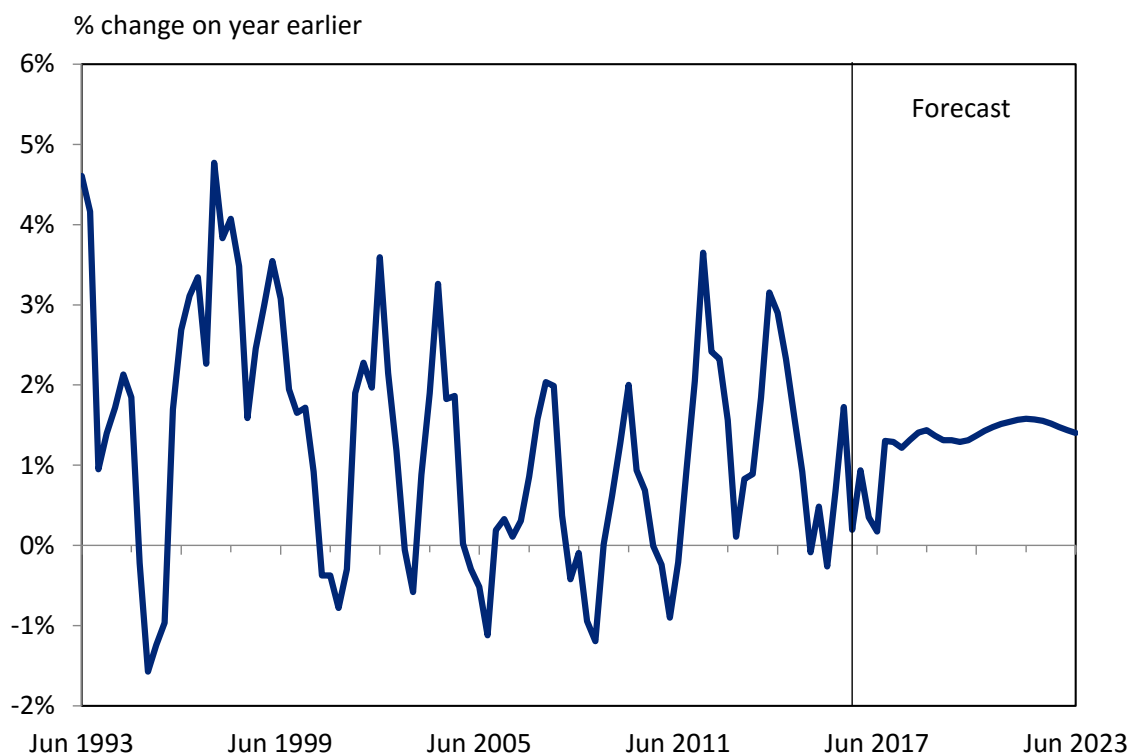
Again, Deloitte Access Economics doesn't project a rapid rebound in wage growth. But we do see a gradual turnaround from the record lows in wage growth seen at present.

Chart 3.2 shows that that labour productivity has lifted somewhat through 2016 following the weakness observed in 2014. The combination of low wage growth and reasonable productivity gains has kept unit labour costs – the effective cost to employers of the time of their employees – flat, because the impact of modest wage gains has been offset by the greater efficiency with which we are working.

Deloitte Access Economics forecasts labour productivity to grow slowly over the first half of 2017, before returning to the long-run average through to 2021-22 (supported by a large volume of minerals and energy exports coming online). Other things equal, this would help to support

Australian industries improve their cost competitiveness, keep price pressures in check, and make workers more attractive to employers.

Chart 3.2 National productivity growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

Table 3.2 National wage forecasts

Financial year nominal wages forecasts

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Wage price index	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
Average weekly earnings	1.7	2.5	2.6	3.1	3.3	3.3	3.3	3.1
Ordinary time earnings	1.9	1.8	2.7	3.8	3.9	3.8	3.7	3.6
Unit labour costs	0.4	1.8	1.2	1.4	1.7	1.4	1.9	1.8

Financial year real wages forecasts

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Wage price index	0.8	0.1	0.5	0.9	1.2	1.1	1.1	1.2
Average weekly earnings	0.3	0.6	0.5	1.0	1.2	0.9	0.8	0.7
Ordinary time earnings	0.5	0.0	0.6	1.6	1.7	1.4	1.2	1.2
Unit labour costs	-0.9	0.0	-0.9	-0.8	-0.5	-0.9	-0.6	-0.5

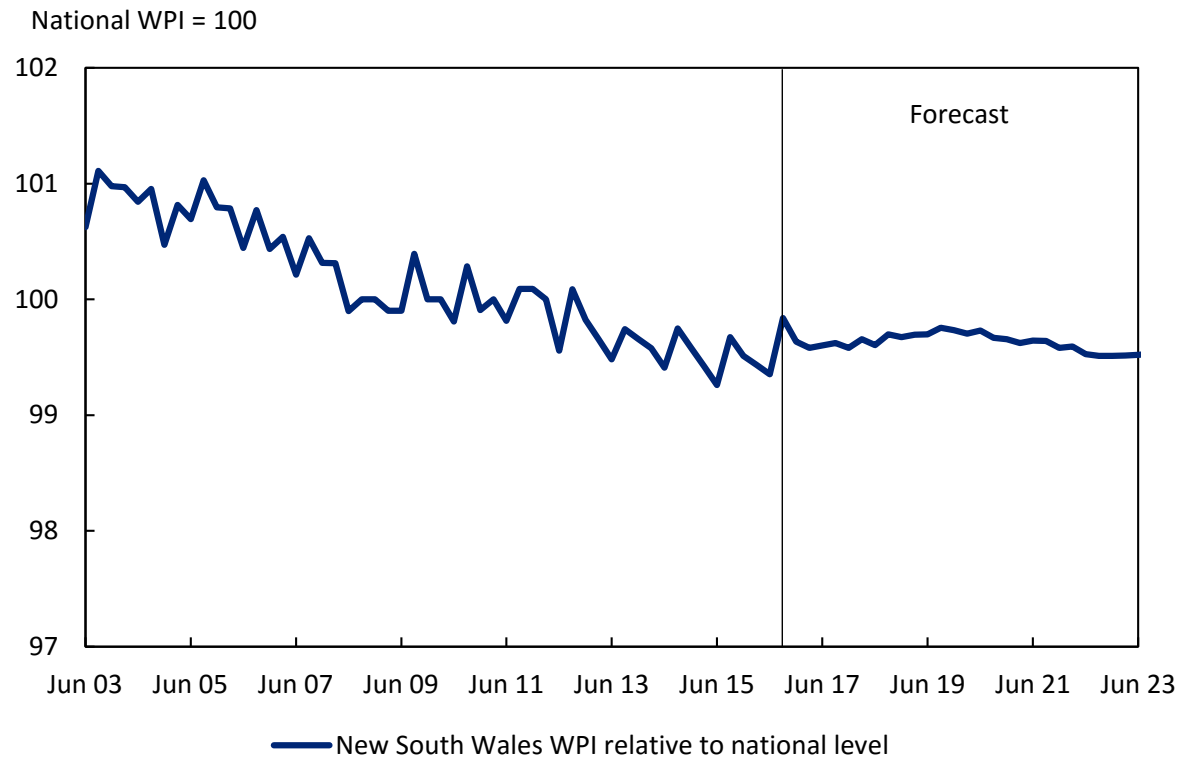
Source: Australian Bureau of Statistics, Deloitte Access Economics

3.3 New South Wales

All States are feeling the weakness of the national wage growth drop to a low of 1.9% over the year to September 2016. New South Wales wage growth over the year to September 2016, at 2.1%, was above the national average.

Chart 3.3 shows the State’s WPI relative to the national equivalent. The period of relative decline up until 2011 was partly a reflection of booming levels of economic activity in the resource rich States. Recent data indicates the New South Wales WPI picked up in September 2016 compared to the national equivalent.

Chart 3.3 New South Wales WPI relative to national WPI



Source: Australian Bureau of Statistics, Deloitte Access Economics

Recent years have seen economic strength across the nation move from the resource rich States of Western Australia and Queensland back in favour of Australia’s south-eastern States. Overall economic growth is now very much a New South Wales and Victoria story. The New South Wales economy grew by 3.5% in 2015-16 in compared with 2.7% across the nation.

Housing construction continues to be a key driver of economic growth in New South Wales. Over the last five years the number of dwelling units under construction has more than doubled in New South Wales, while approvals for construction are almost three times higher today than during 2009.

Higher housing prices also meant that household wealth has increased, supporting strength in retail spending. Retail spending grew by 5.3% in 2015-16, outperforming the Australian average for the fourth straight year. While there have been recent indications of slowing growth, New South Wales continues to outperform the national average. And given that consumption accounts for more than two-thirds of State output, the recent strength has made a significant contribution to overall GSP growth.

New South Wales is also leading other Australian States on infrastructure spending. Stamp duty revenue from the housing boom and funds from asset recycling are being directed into large transport projects. Public investment in New South Wales grew by 11.2% in 2015-16, significantly higher than the equivalent Australia-wide growth rate of 2.3%.

Population growth remains solid in New South Wales, with the State’s population growing at a faster rate than the overall Australian population in 2015. This outperformance faded over 2016, but New South Wales population growth still remains above the decade average for the State.

New South Wales has also benefited from the lower Australian dollar, with Sydney tourist numbers increasing and with room occupancy rates that are well above the national average. Moreover, a wet winter means a great harvest for a State whose farmers have been on the wrong side of fickle weather patterns in some years of late.

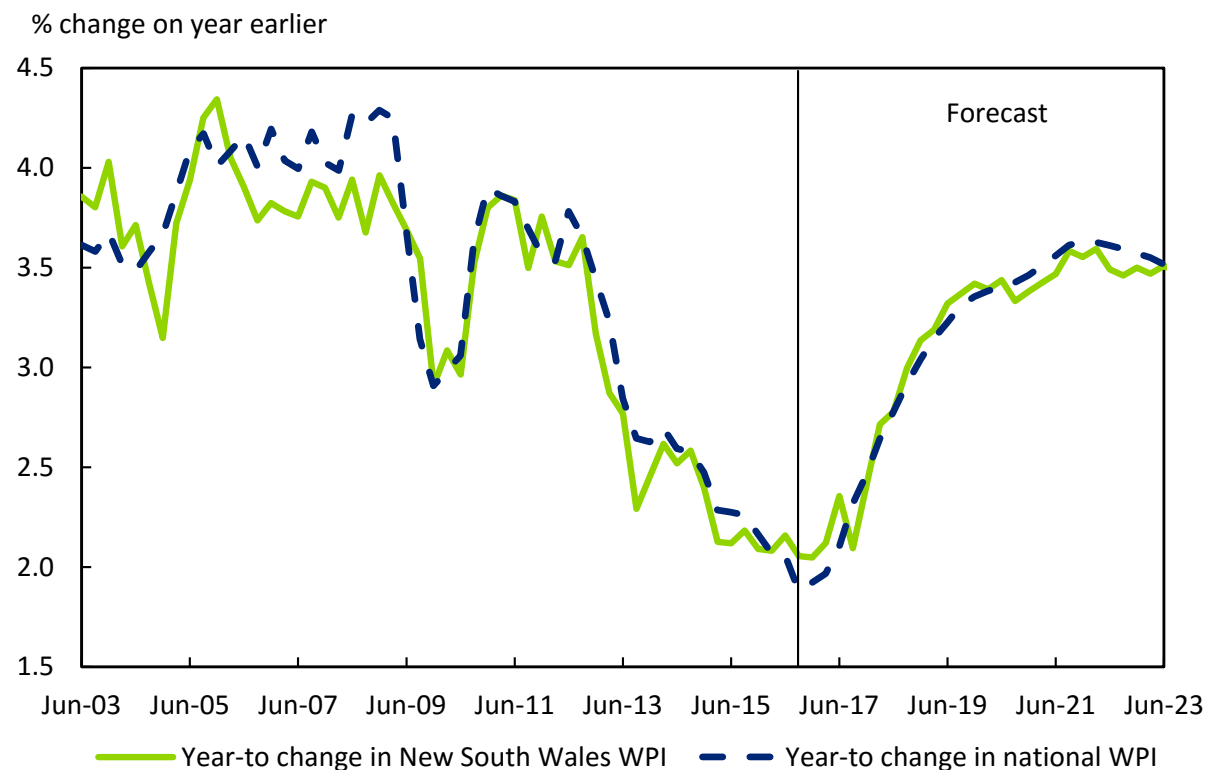
However, a number of factors that are supporting current growth are likely to contribute less in the years ahead. The retail and housing construction sectors, and the State Budget, are all currently being supported by elevated house prices. Deloitte Access Economics expects property prices to grow more slowly over coming years. As a result, a key driver of economic growth for the State will erode. In addition, New South Wales is likely to be hit relatively hard by an ageing population, which will weigh on the size of the labour force and, ultimately, economic output.

The New South Wales labour market outperformed the nation in 2015-16. High job growth has moved the State's unemployment rate even further below the national level, as well as shifting it below the benchmark rate of 5% in September 2016. The State's labour market performance reflects its recent strong economic performance relative to the rest of the nation, as discussed in Chapter 2.

More recently, labour market conditions have softened and wage growth has moderated to 2.1% over the year to September 2016. Despite this slowdown it remains ahead of national wage growth of 1.9% over the same time period (shown in Chart 3.4).

In the immediate future, we expect wage growth in the State to remain above the national average, before returning to similar levels to the national average over the remainder of the forecast period. We expect annual wage growth for the State to be between 3-4% by the end of the forecast period.

Chart 3.4 New South Wales general labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

3.4 Victoria

Chart 3.5 illustrates that Victorian wages have grown relative to national wages over the last three years, after a period of relative decline. However, Deloitte Access Economics predicts that Victorian

wages will converge back to the national average over the next year or so. Victorian WPI is likely to closely track the national WPI going forward.

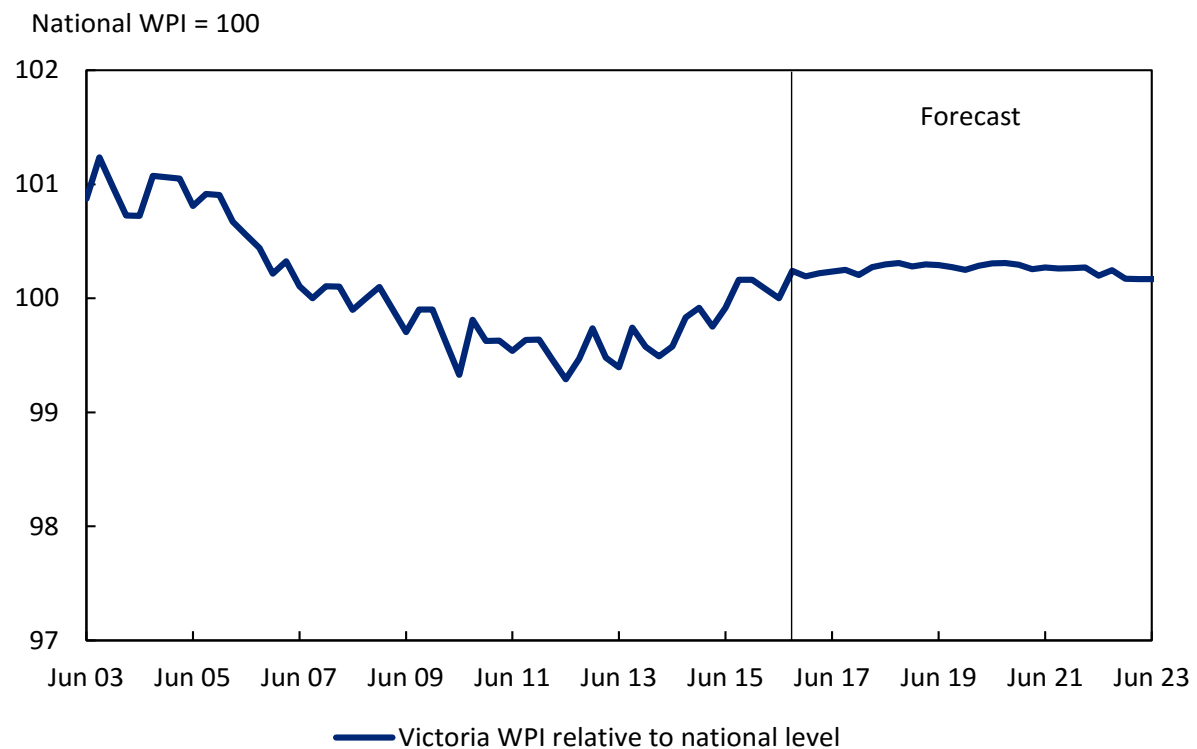
Before 2011, Victorian WPI underperformed compared to the national average. While other States such as Queensland, Western Australia and the Northern Territory were recording strong wage growth due to the mining construction boom, Victoria's economy didn't benefit from the same tailwind.

Indeed, the mining construction boom hurt Victoria's economy more than it helped. The appreciation of the Australian dollar due to commodity demand made the State's manufacturing and agriculture exports relatively more expensive to foreign buyers.

That said, the upside of Victoria missing out on the mining boom is that the State also missed out on the investment cliff that followed. The relative recovery of the Victorian WPI was a reflection of extremely weak wage growth observed in resource-rich States. Industrial relations reforms in Victoria also boosted wage growth relative to other states, particularly in the construction sector.

The depreciation of the Australian dollar after the peak of the mining construction boom also gave a boost to Victoria's economy. The lower Australian dollar assisted exports in Victoria, particularly education and tourism. Indeed, Victoria recently overtook Queensland to become the second highest Australian State by visitor numbers (after New South Wales).

Chart 3.5 Victorian WPI relative to national WPI



Source: Australian Bureau of Statistics, Deloitte Access Economics

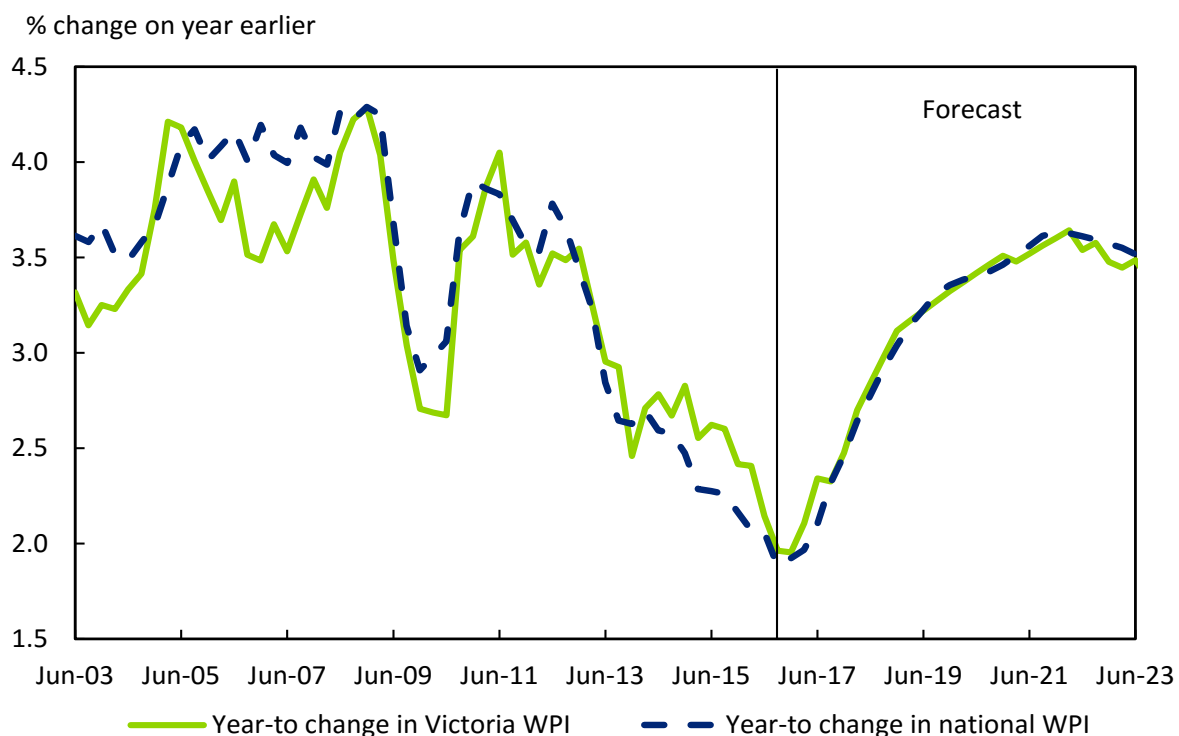
Victoria currently has the fastest growing population of any Australian State or Territory. International students migrate to Victoria from emerging economies overseas and interstate Australian residents migrate from weaker State economies to the north and west. A range of economic indicators within the State have been supported by strong population growth, including above-average retail turnover growth and strong growth in housing construction.

However looking ahead, Victoria's wage growth is expected to be limited by the following factors:

- **Victoria’s economic growth is still modest.** Many businesses continue to lack competitiveness on a global scale (particularly manufacturers). This will keep the pressure on employers to limit wage gains.
- **National wage growth is at record lows.** The growing importance of part-time jobs and casualisation nationally has led to spare capacity in the workforce. This, combined with weak inflationary expectations, means that Victoria is likely to closely track the Australian trend of low wage and price growth.
- **The manufacturing sector in Victoria (and Australia) is shrinking.** The lower Australian dollar also played a protective role for Victoria’s manufacturing sector, but only slowed the structural change. The exodus of car (and other) manufacturing from Victoria and Australia will add to spare capacity in the State’s workforce. This, in turn, will lead to downward pressure on wages across the State.

While Victoria’s WPI is expected to stay flat relative to the Australian WPI, a recovery is expected in absolute terms. Chart 3.6 illustrates Victoria’s wage growth to June 2023. Victorian wage growth is expected to make a rapid recovery over the next three to four years, aligning with national growth. Indeed, the recovery of wage growth in Victoria is set to outpace the national average at first, before converging to national growth rates.

Chart 3.6 Victorian general labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

3.5 Queensland

The transition away from mining employment has been a negative for Queensland wages. Employment growth in Queensland, much like the rest of Australia, is dominated by part-time, services sector employment. This does not attract high wages like mining related employment growth did at the peak of the mining construction boom. While the export phase of the mining boom is likely to boost the Queensland economy, it does not translate to the significant employment growth seen during the construction phase.

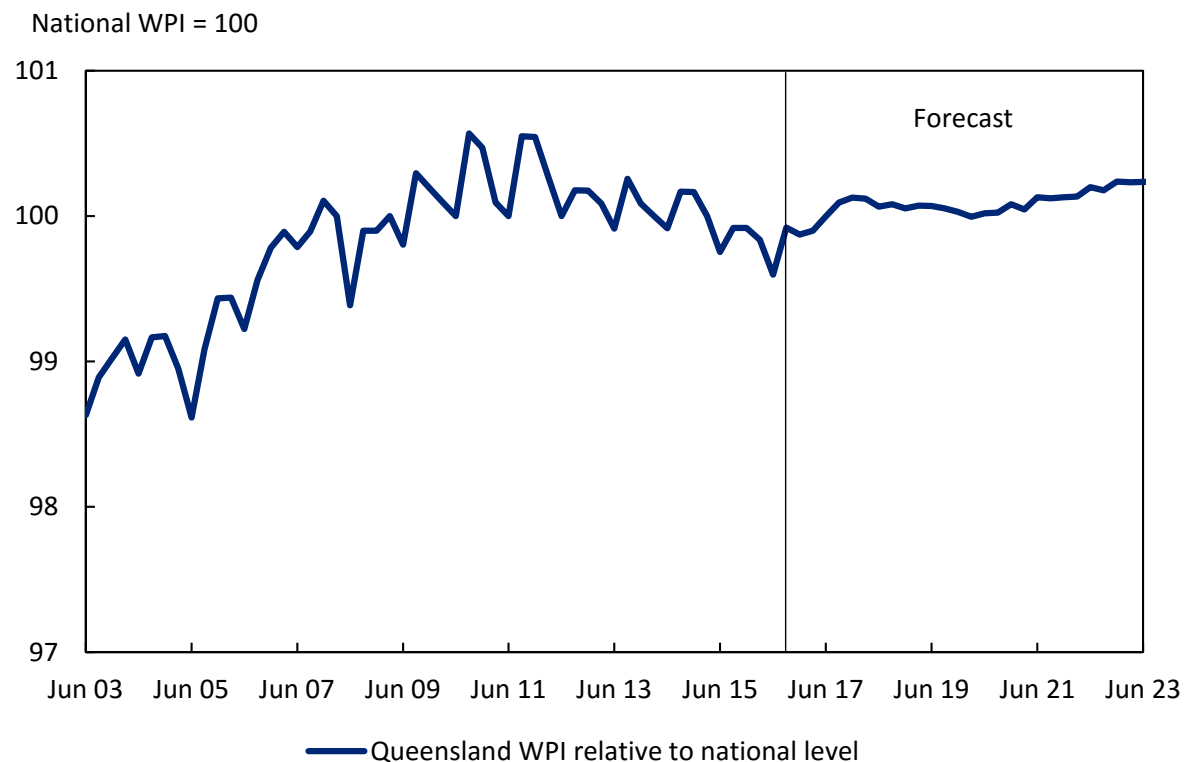
That said, the moderation of Queensland’s growth after the mining construction boom has been partially offset by some key positives. Low interest rates have facilitated growth in Queensland’s construction sector. Residential construction in Brisbane is still growing, despite the risk of a glut of apartments in the inner-city. While construction and house price growth in Queensland is modest compared to Melbourne or Sydney, residential construction is still a key driver of State output growth.

The other key sector for Queensland’s is tourism, which has been boosted by the lower Australian dollar. Growth in tourism has brought several multi-million dollar projects to Queensland’s construction pipeline. Indeed, the largest accommodation project underway in Australia – the \$970 million Jewel three-tower project – is located in Surfers Paradise on the Gold Coast. Other major accommodation projects in the pipeline include a \$5 billion Airlie beach resort development; a \$2 billion Aquis Great Barrier Reef Project which is set to include eight 20-storey hotel towers; and the \$2 billion redevelopment of the Great Keppel Island Resort. Adding to this, the 2018 Commonwealth Games on the Gold Coast is set to assist tourism further in 2018.

Tourism demand in Queensland also spurs on employment growth in retail, accommodation and food services. This somewhat fills the gap left by mining employment. However, the spare capacity that arises as Queensland residents take part-time work but want full-time work is likely to put downward pressure on wages.

Chart 3.7 illustrates Queensland’s wage growth relative to national WPI. On balance, Queensland wage growth is expected to converge with, then eventually exceed the national WPI.

Chart 3.7 Queensland WPI relative to national WPI



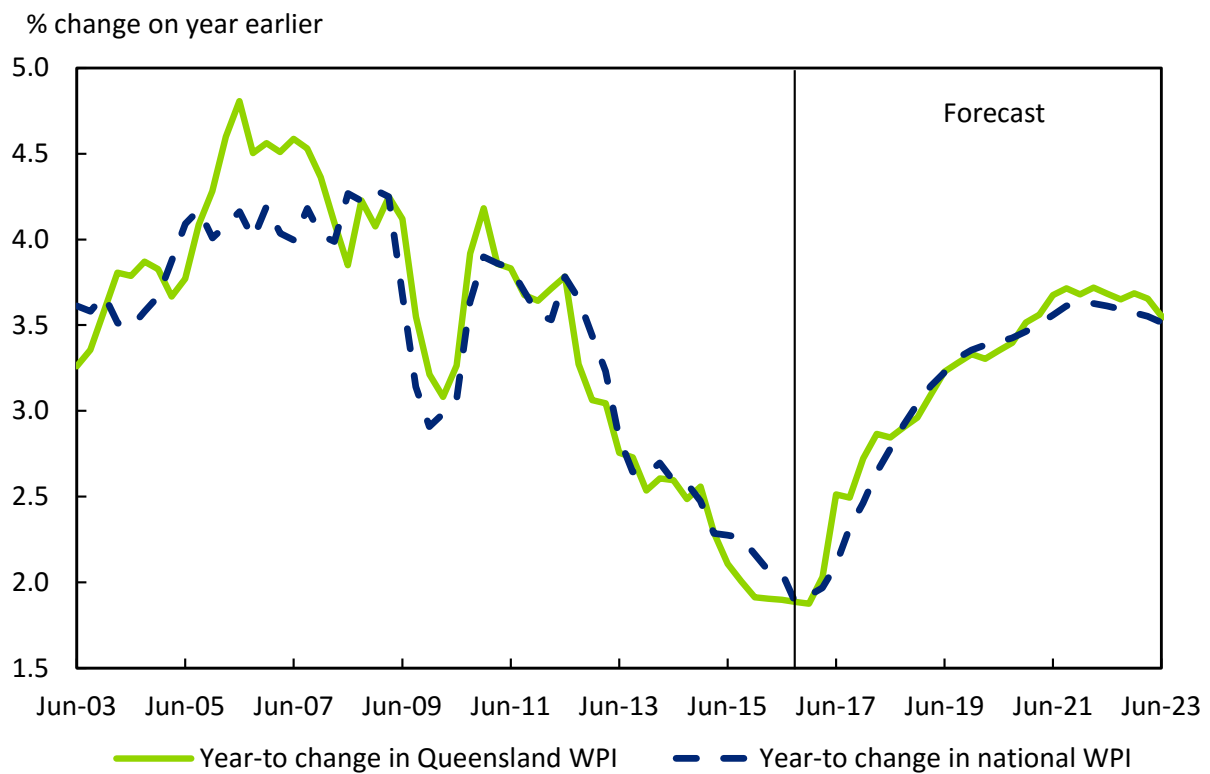
Source: Australian Bureau of Statistics, Deloitte Access Economics

And in regional areas in Queensland, the employment gap created by the mining sector’s transition has not been filled. Recent employment growth has been concentrated in south east Queensland, with conditions remaining poor in many regional areas, particularly those with large mining construction workforces. The higher unemployment level in regional Queensland adds further

downward pressure to wages. Without any more LNG projects in the pipeline, this trend is set to continue.

It should be noted that weak wage growth in Queensland mirrors national trends. Chart 3.8 illustrates Queensland’s wage growth, as well as the national average wage growth to June 2023. Wage growth in Queensland is expected to exceed the national average in 2017-18, and from 2021 onwards.

Chart 3.8 Queensland general labour cost growth

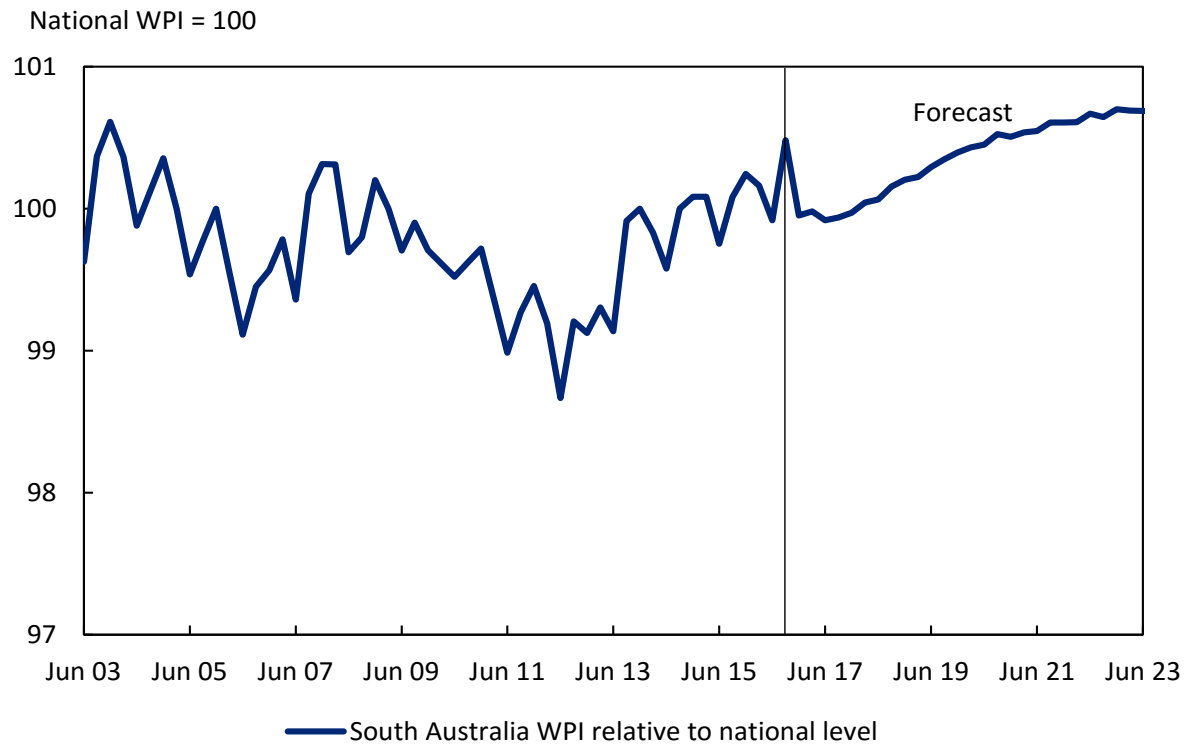


Source: Australian Bureau of Statistics, Deloitte Access Economics

3.6 South Australia

Wage growth in South Australia is expected to stay slightly below that of the national average over the next year, before moving ahead of national wage growth over the rest of the forecast period (Chart 3.9).

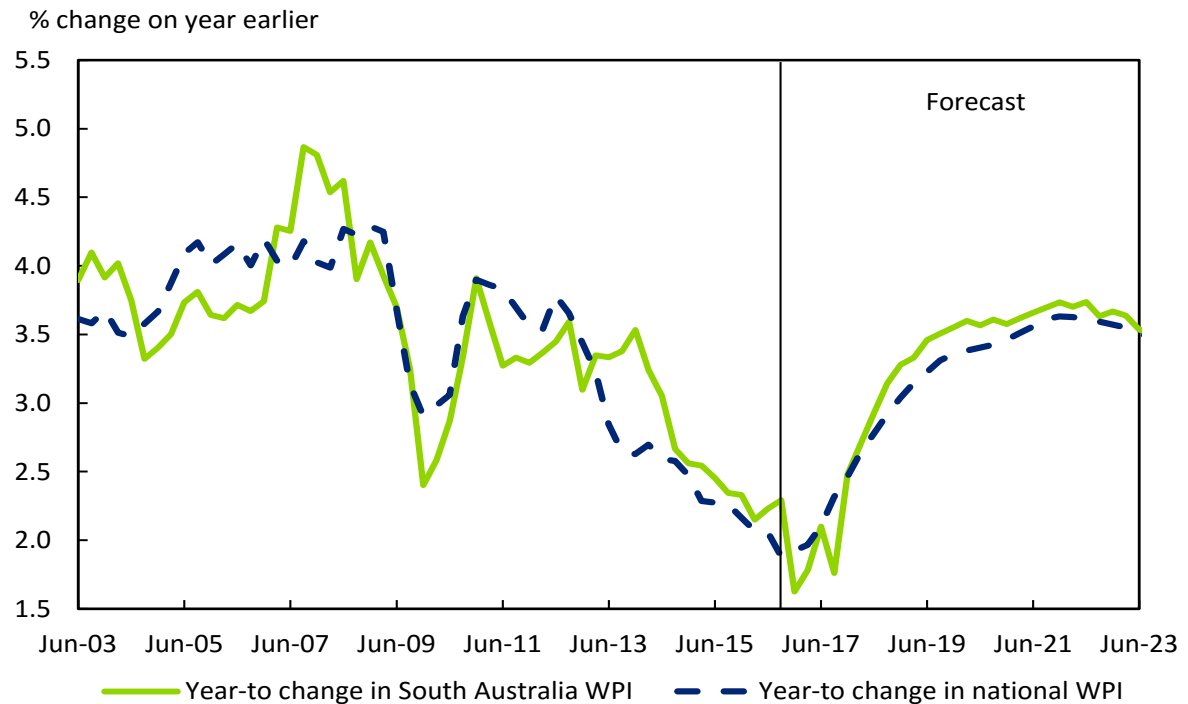
Chart 3.9 South Australia WPI relative to national WPI



Source: Australian Bureau of Statistics, Deloitte Access Economics

The period of relatively weaker wage growth represents a break in the trend towards faster wage growth in South Australia relative to the rest of the country.

Chart 3.10 South Australia general labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

However, the recent period of faster relative wage growth in South Australia is as much due to weakness elsewhere in the country as it is due to local strength. The rate of wage growth in South Australia has still declined, just to a lesser degree than other States (see Chart 3.10).

South Australia did not benefit to a substantial degree from the mining investment boom, which means it has been spared from the worst of the downturn unlike the mining states of Queensland, Western Australia and Northern Territory.

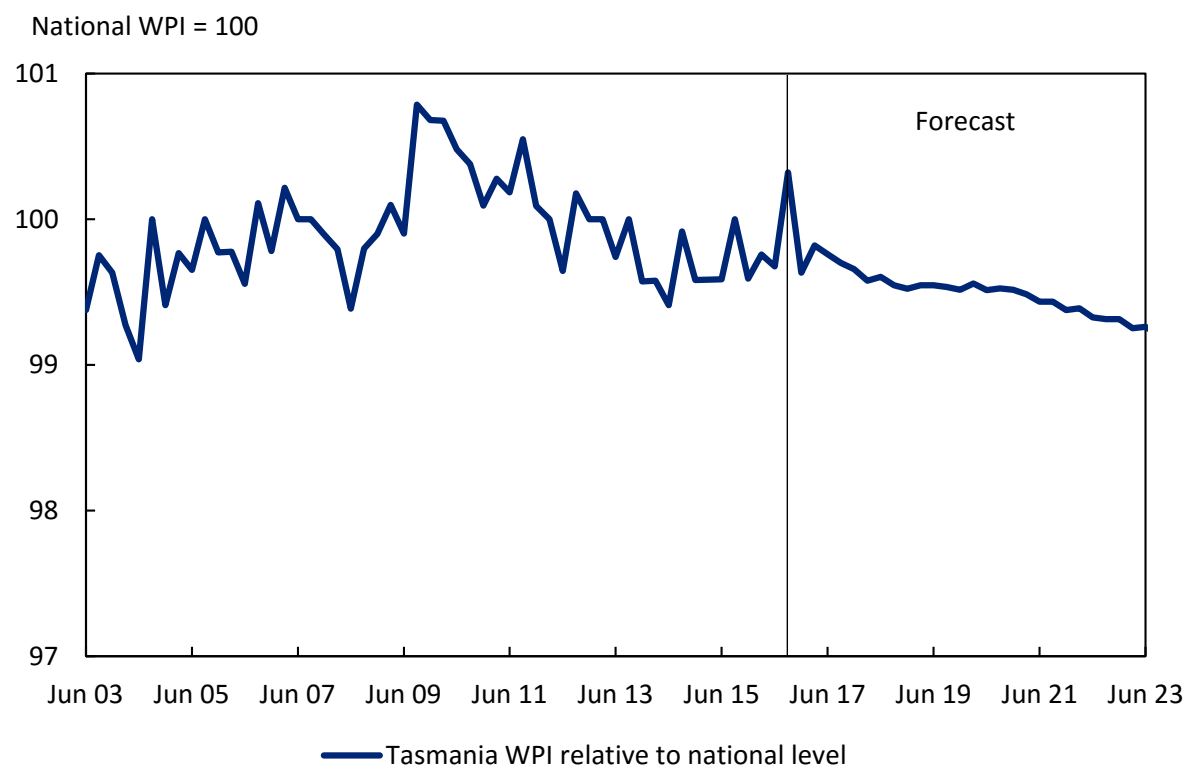
Even without the effect of the downturn in mining, wage growth is expected to be weaker than the national average over 2017. This is due to the reduction in employment flowing from the closure of the car assembly industry and uncertainty over the future of Arrium. These events will reduce employment in the manufacturing sector, with likely flow-on effects for other sectors. Increased unemployment will keep downwards pressure on wages growth, as employees forgo a portion of their pay increases for improved job security.

Over the longer term, we expect wage growth to run at or above the national average. The Commonwealth Government has committed to building much of Australia's new submarine fleet in Adelaide. This will involve a substantial investment and is expected to provide a boost to the states manufacturing base over time.

3.7 Tasmania

Chart 3.11 shows that Tasmania's WPI relative to the national equivalent peaked in late 2009. Wage outcomes in the State have since fallen, moving in-line with wage outcomes seen at the national level. Deloitte Access Economics expects Tasmania's relative WPI to moderate from its September 2016 spike, and to remain below the national average over the next five years.

Chart 3.11 Tasmania WPI relative to national WPI

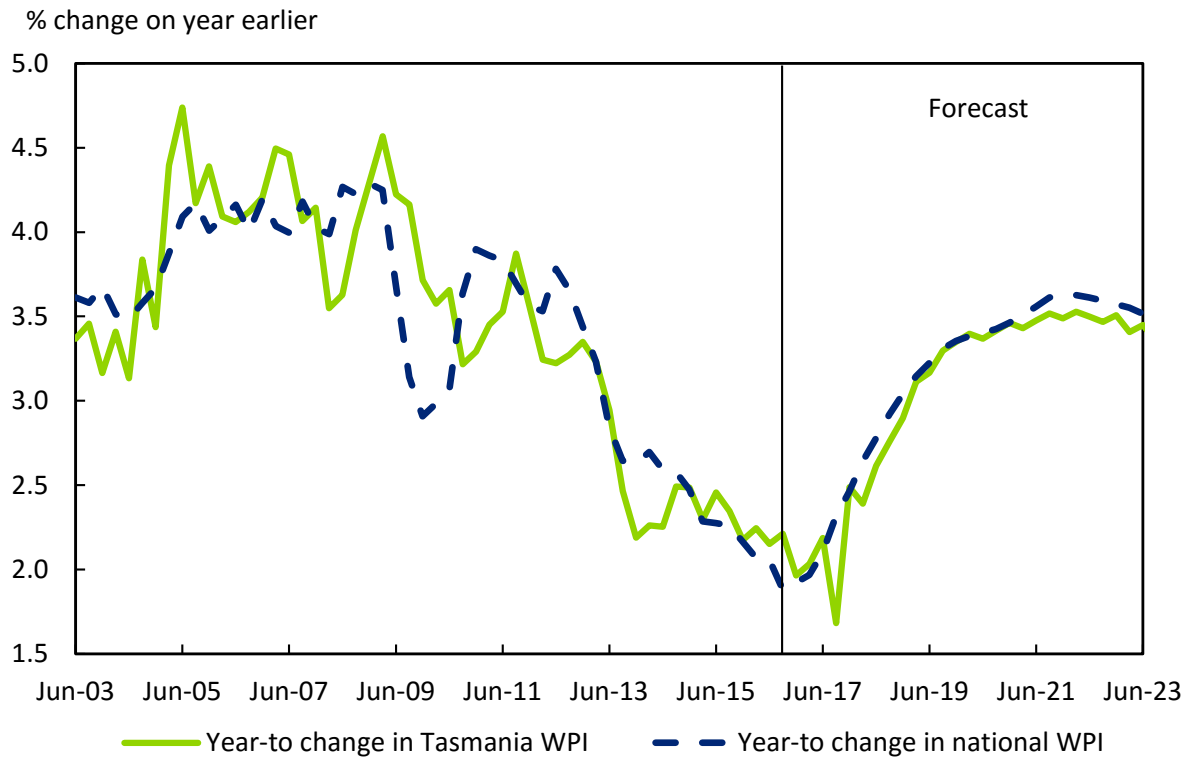


Source: Australian Bureau of Statistics, Deloitte Access Economics

Tasmania has not been immune to the very low wage growth seen throughout the nation over the course of 2016. Over the year to September 2016, Tasmania experienced wage growth of 2.2%, whereas the national level was just 1.9%.

That said, Tasmania’s recent outperformance of the nation in terms of wage growth has not been due to particularly strong performance in this State, but poor growth in the country’s resource rich States.

Chart 3.12 Tasmania general labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

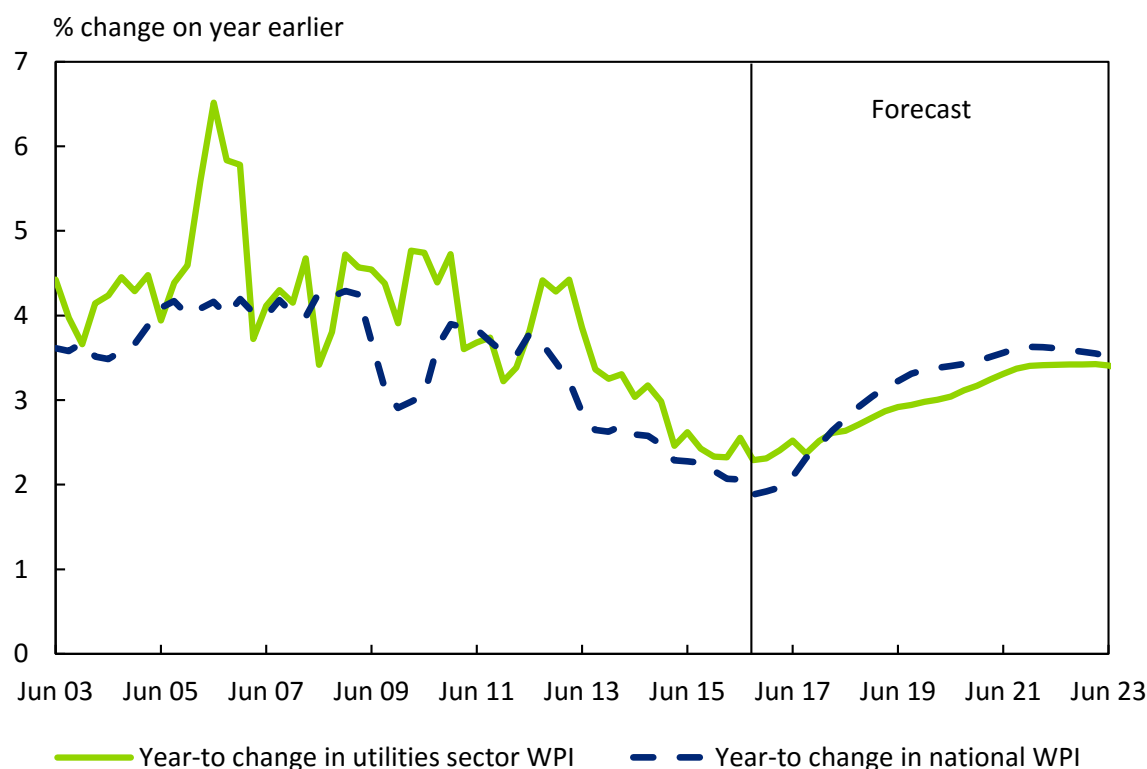
Over the next year, the State’s wage growth is expected to be slightly ahead of the national average, however over the medium term, Tasmania’s wage growth is expected to lag behind the national average. Within Tasmania, the education and health sectors are expected to see the strongest wage growth.

3.8 Utilities

For the decade through to 2012-13, wage growth in the Australian utilities sector didn’t stray too far from annual rates of 4%. However, the slowdown in wage growth across all industries – which began back in 2008 – has dragged down the pace of wage gains in the utilities sector over the last four years.

Chart 3.13 shows that there has been a slowdown in utilities wage growth since its most recent peak (4.4% at the start of 2013), with wage growth over the past year – at 2.3% – near record lows.

Chart 3.13 Utilities Wage Price Index forecasts



Source: Australian Bureau of Statistics, Deloitte Access Economics

There has been a long-running trend for higher relative wages in the utilities sector (see Chart 3.14). What is less clear, however, is why there should have been such a trend – neither fundamentals (improved relative productivity making utilities workers more valuable than before) or the business cycle (great growth in either the utilities or in competitor sectors, bidding up wages) have been present:

- The utilities sector accounted for between 3.5% and 4% of the Australian economy through the 1980s and 1990s, but has consistently shed market share since the turn of the century to currently represent 2.5% of the economy. Its share of the national job pool saw an earlier decline, more than halving in the decade to the mid-1990s, and broadly flat-lining ever since.
- Accordingly, productivity – relative to that elsewhere in the economy – fell sharply from 2000 onwards. And although there has been a modest recovery since late 2013, that comes after a striking period of underperformance (some but not all of which would be attributable to the changed energy mix evident since 2000). That would seem to suggest little linkage between changes in the effectiveness of workers in the sector and the wages paid to those workers.
- Construction is a competitor sector, and is discussed in detail in this report. In brief, it has been shrinking as a share of the Australian economy since mid-2014. Employment has held up better, but it too is off its peak share of the nation’s jobs, which it reached back in early 2008.
- Mining too is a competitor – or, at least, an occasional competitor. Its share of Australia’s economy is continuing to climb relatively fast as the investments of the past decade come on-stream, but the passing of the heights of the mining boom (and associated construction) means mining has lost about a third of its national job share since the peak in 2012.
- A further competitor is the manufacturing sector, but not even the lower \$A of recent years has stemmed that industry’s job pain. As recently as 1984, one in every six workers in Australia was employed in manufacturing. Now that ratio is at one in every thirteen workers.

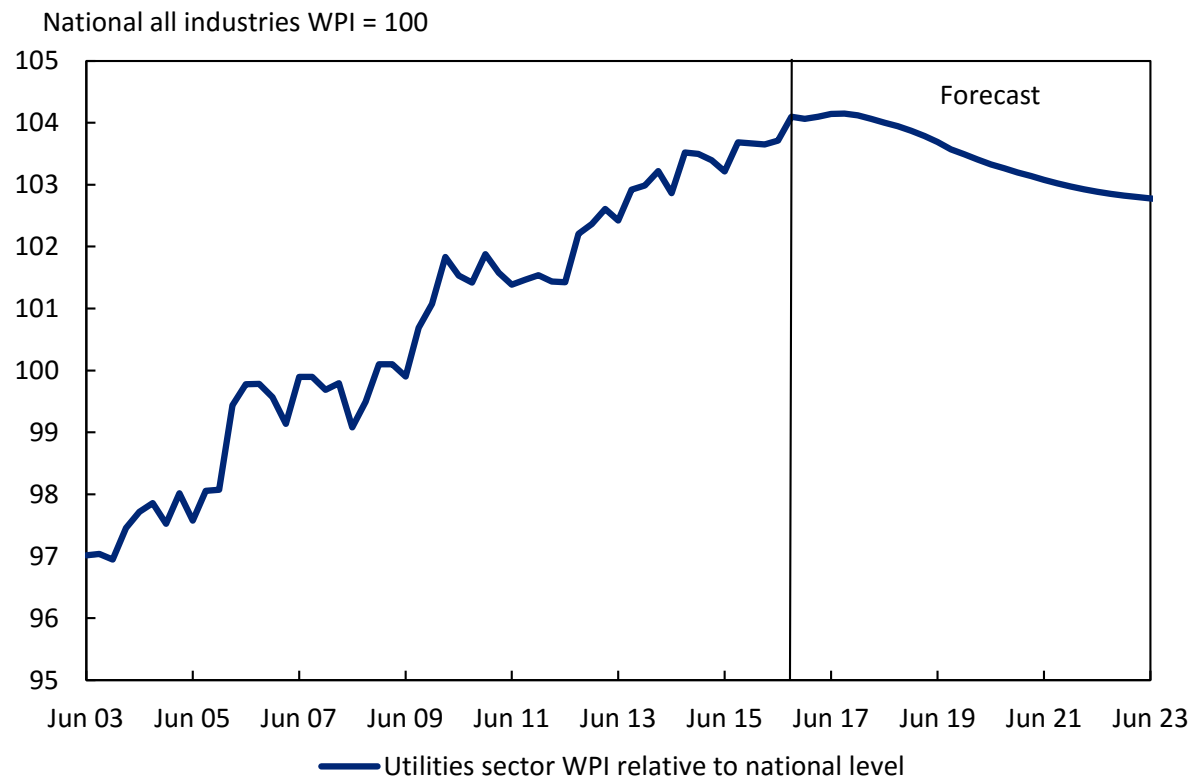
So neither this sector’s own fundamentals nor the pressures placed on it by competitor sectors can readily explain the jump in relative wages that it pays. Deloitte Access Economics is not well-equipped to consider a final possible reason for rising relative wages, however:

- Perhaps wages have gone up because (1) the requisite skills have gone up, but (2) changing regulations have prevented better skilled staff from actually increasing the sector’s output.
- That said, were there to be substance to this latter argument, the more logical conclusion may be to reform the regulatory backdrop to increase its effectiveness against its policy aims, rather than to lift wages and thereby pass the costs of any regulatory inefficiencies on to consumers.

Looking ahead, the utilities WPI is expected to see a gradual recovery from its current growth rate of 2.3%, reaching 3.0% by 2019-20, and running at 3.4% in both 2021-22 and 2022-23. The gradual recovery in wage growth should mirror the gradual recovery in national income growth over the next few years, supported by a relative tightening in the availability of workers (as more baby boomers head into retirement, and with migration lagging its recent peaks).

That said, wage gains in the utilities sector are expected to be more modest than improvements across all industries (see Chart 3.14). In part this is because output in the utilities sector is forecast to grow more slowly than the national average.

Chart 3.14 Utilities Wage Price Index relative to National Wage Price Index



Source: Australian Bureau of Statistics, Deloitte Access Economics

The dominant drivers of State level utilities wage outcomes are a range of national trends. Yet State influences are also relevant. Other things equal:

- Some States will grow faster and, within those States, the outlook for the utilities is stronger.
- For example, although there is bad news on much of the industrial landscape (including the loss of car-making in Victoria and South Australia), there are bright spots, including the boost to demand from new LNG operations in Queensland, and a bailout for the Alcoa smelter in Victoria.

- Equally, there's a ranking of population growth, from very fast in Victoria and good in New South Wales (with both those States also seeing a boom in apartment building that may peak in 2018), to slow in Queensland, and even slower in South Australia and Tasmania.
- And there are other factors too, ranging from potential responses to supply disruptions in South Australia, plus potential developments relating to competitive metering in New South Wales and Queensland.

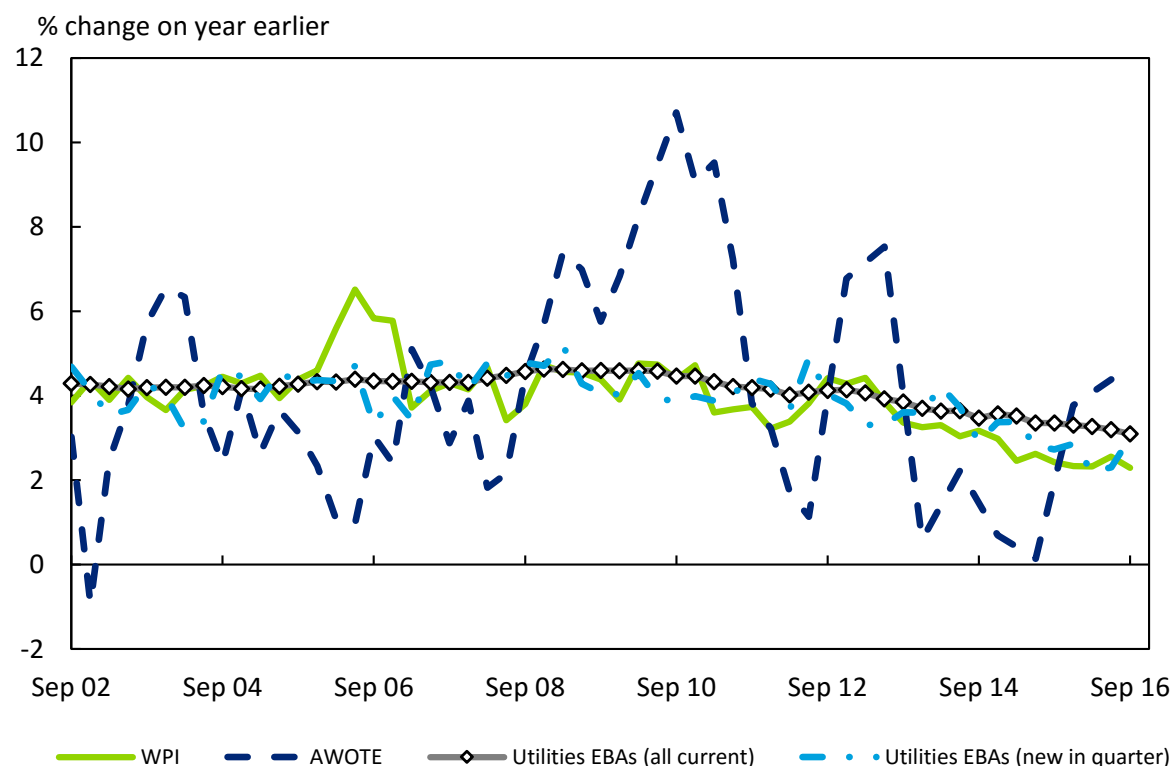
Given these factors, plus others – current momentum, past performance on wages and the like – wages in the utilities sector are expected to grow at an average rate of 3.1% a year in Victoria and Tasmania, 3.0% for Australia, New South Wales and Queensland, and 2.9% in South Australia over the forecast period (2016-17 to 2022-23).

3.8.2 Comparison with results from enterprise bargaining agreements.

A number of wage growth measures have signalled lower wage growth in the utilities sector. Chart 3.15 shows that, despite a small recent uptick in Average Weekly Ordinary Time Earnings (AWOTE), the downward trend in utilities WPI is mirrored by several other wage growth measures that are produced on a regular basis.

These include Enterprise Bargaining Agreements (EBAs) (which are sourced from the *Trends in Federal Enterprise Bargaining* publication produced by the Department of Employment).

Chart 3.15 Measures of utilities sector wage growth



Source: Australian Bureau of Statistics, Department of Employment

The AWOTE series fluctuates considerably and is consequently limited in its use in forecasting wage growth. In the Average Weekly Earnings latest publication released in August 2016, the ABS indicated that the biannual survey was '*designed to provide estimates of the level of average gross weekly earnings associated with employee jobs in Australia, at a point in time. While not designed for movements in earnings, the frequency of collection supports a time series of these level estimates.*' Data on the average level of earnings is useful for comparing what an individual earns relative to the average. It is therefore used in the Deloitte Access Economics labour cost model as an indicator only.

The utilities EBA data provides a good partial indicator of the future trend growth in the utilities WPI measure.²

As at the September quarter of 2016, there were 399 EBAs active in the utilities sector, covering some 46,500 employees. In brief:

- Wages in 'all current EBAs' grew at 3.1% for the utilities sector, down from 3.3% at the same time in 2015.
- Wage growth in new utilities sector EBAs was 3.0% in the September quarter of 2016, up from the 2.3% growth observed in June 2016. This, however, is still below the average growth over the past five years of 3.4%.
- And while the mining sector had the lowest Average Annualised Wage Increase (AAWI) recorded for new EBAs over the year to September 2016, the utilities sector was the second worst performer (at just 2.6%).

3.8.3 Forecasting wages – the role of EBAs

Although EBAs feed into Deloitte Access Economics' short term forecasts for wage gains, there are important reasons why EBA data is not the sole driver of utilities wage movements going forward:

- **Coverage issues** – EBA data includes only those employees who are covered under an agreement. While the percentage of those covered by EBAs will vary from State to State, the EBA database indicates that 46,500 utilities employees were covered by an EBA in September 2016. The labour force data indicates that there are approximately 133,000 employed in the utilities industry nationwide, indicating that approximately just over one third of workers in the utilities sector are employed under EBAs.
- The 'all current' EBA series depicts wage growth under all EBAs current during the quarter – this series broadly follows the WPI. The 'new in quarter' EBA series shows annual wage growth under any agreements commencing in the quarter. Thus, this series is a fairly good predictor of future trends in the 'all current' EBA series, although, depending on the number of new EBAs struck in the quarter, the number of employees covered by new agreements can be quite small. Recent EBAs lodged with the Department of Employment indicate that wage growth is trending back down towards WPI growth.
- **Circularity issues** – There is a risk that relying too heavily on EBA data to forecast wage growth could result in a level of 'circularity'. Wage costs of businesses whose employees are covered by the enterprise bargaining system will rise at a similar rate to EBAs, particularly those that have been negotiated more recently (as a result, in the short term our expected rate of overall EBA growth will move towards the rates seen in more recent agreements). However, newer EBAs themselves will be affected by economic developments over the forecast period, as well as trends in competitor industries and demand for utilities services.
- **Forward looking inputs** – More broadly, Deloitte Access Economics' forecasts – of the Australian and global economies, of the utilities sector, and of factors affecting wage trends – are important inputs to our forecasts of wage growth in the utilities sector. To rely too much on EBAs would be to miss the benefits of those forward looking inputs.

Greater detail on the methodology used and related issues are covered in Appendix D.

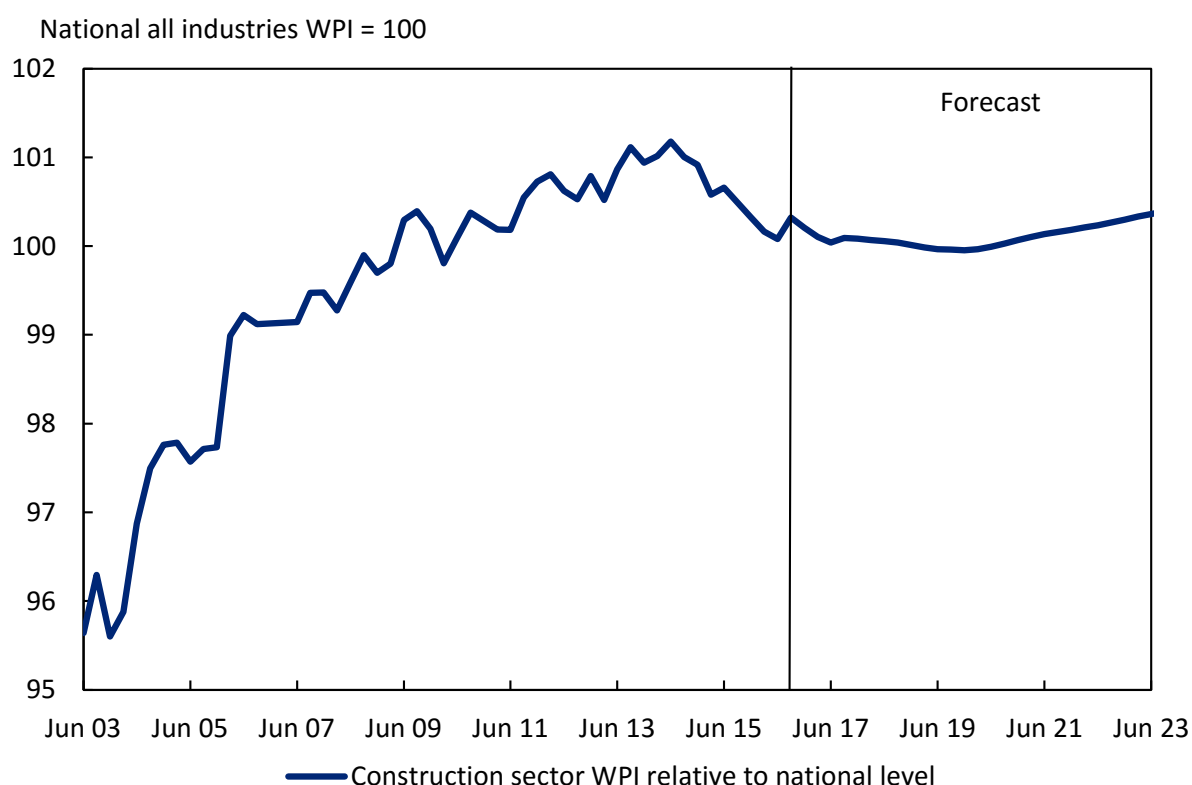
² Deloitte Access Economics' forecasts are developed using a more formal modelling approach rather than a more 'institution-based' approach which is based on increases in minimum wages and collective agreements. As such, while EBA data is taken into account, it is not the primary driver of our model.

3.9 Construction

The construction sector is comprised of engineering construction, residential building and non-residential building (commercial construction), and each component is driven by a varied set of economic conditions. Engineering construction activity, for example, has recently been determined by the resources boom, while residential and non-residential building activity is linked to movements in interest rates and population growth rates.

The construction sector WPI has grown faster than the national average over the last decade, supported initially by a boom in engineering construction and more recently by residential construction. Over the decade to September 2016, wages in the construction sector grew at an average annual rate of 3.4%, compared with 3.3% across all industries. Over the last few years, however, construction WPI has been moderating relative to national WPI (see Chart 3.16).

Chart 3.16 Construction WPI relative to national WPI



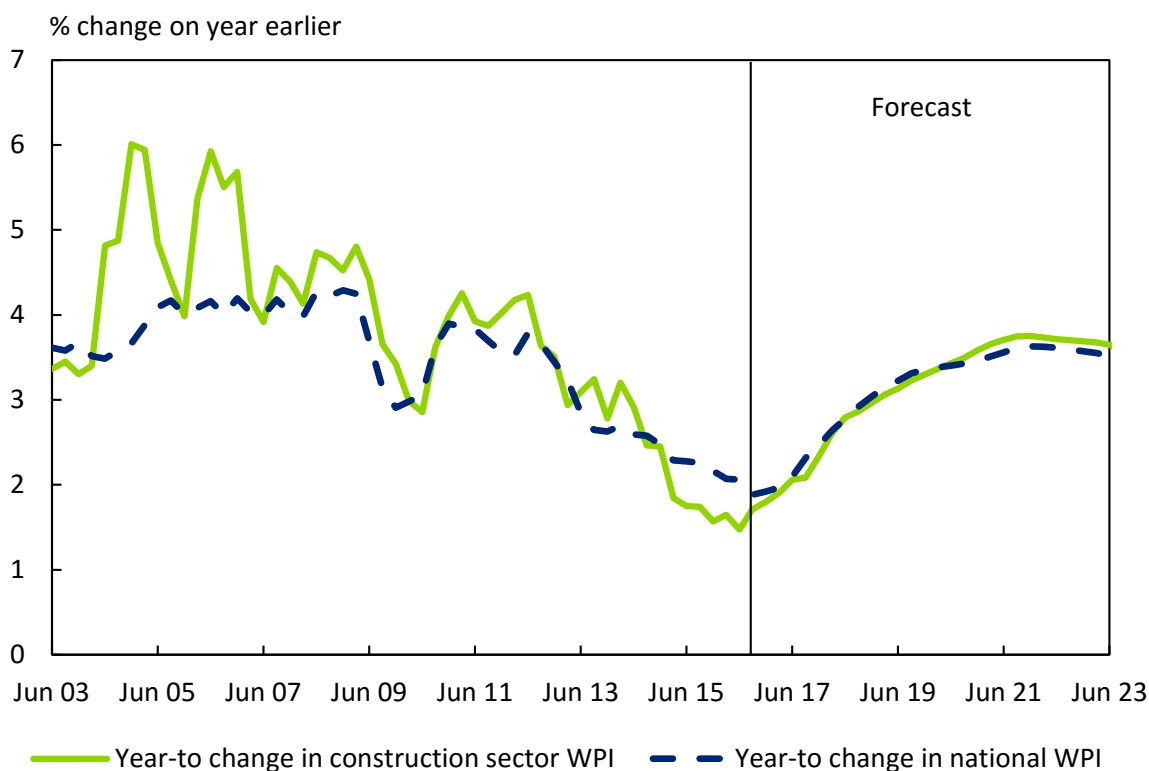
Source: Australian Bureau of Statistics, Deloitte Access Economics

Looking forward, Deloitte Access Economics expects growth in the construction sector WPI to remain around the national average in the short term, and begin to pick up gradually in the medium term.

A series of interest rate cuts by the Reserve Bank of Australia (RBA) have led to higher house prices, and an associated increase in building approvals and dwelling commencements (particularly apartments in Sydney and Melbourne). However, the fall in engineering and commercial construction as a result of a fading resources boom and lower business investment is expected to continue outweighing the short term boost in residential construction.

And labour cost growth that runs ahead of productivity gains is an impediment to the cost competitiveness of industries. Chart 3.17 shows that construction wages are no exception, falling behind the national average in late 2014, and only just starting to pick up again.

Chart 3.17 National construction general labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

Looking ahead, we expect construction wage growth to begin to pick up in 2017, continuing to recover over the forecast period (although not returning to the levels seen in the early 2000s). Wage growth is forecast to reach 3.6% in 2022-23.

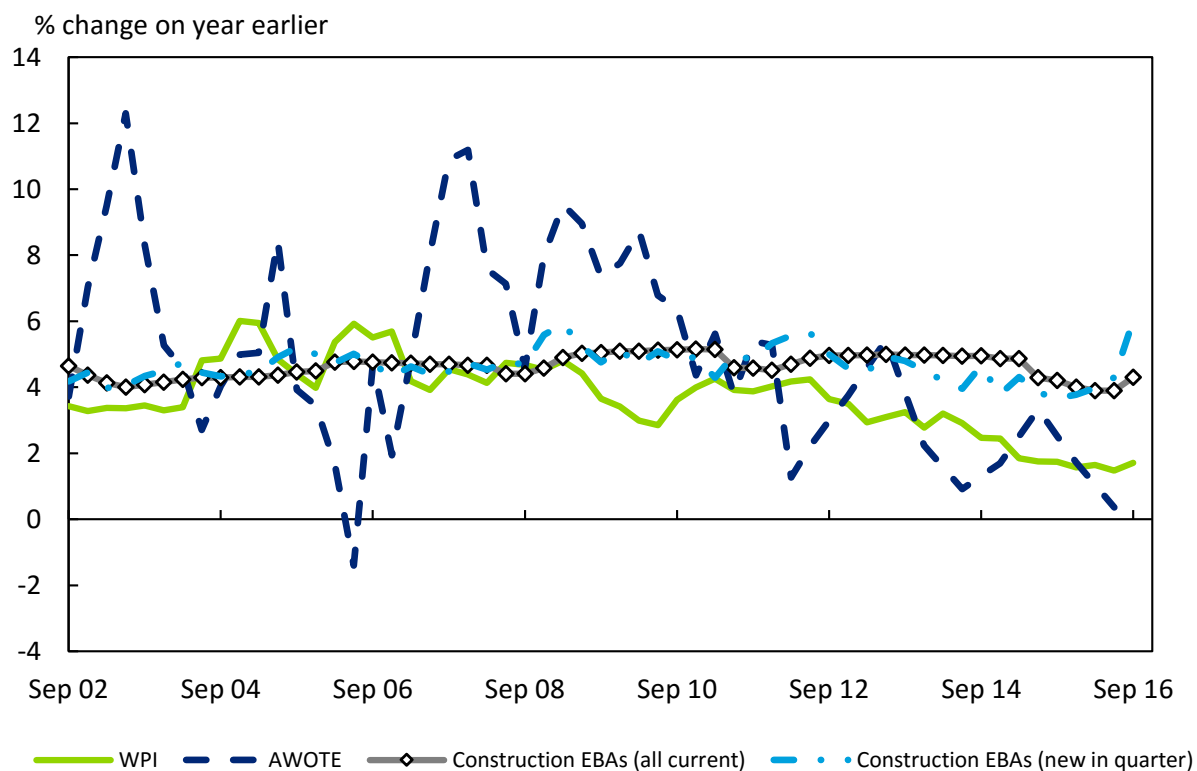
3.9.2 Comparison with EBA results

The continued slowdown in construction sector output and WPI has been mirrored in other measures of wage growth. Chart 3.18 highlights that AWOTE for the construction sector grew by just 0.4% in the year to June 2016, well below the decade average of 4.8%.

Current EBAs continue to yield higher wage outcomes in the construction sector than indicated by either the WPI or AWOTE measures:

- In the September quarter of 2016, wages in all current EBAs grew at 4.3% for the construction sector, up from the 4.2% recorded in the previous September quarter, and considerably faster than the growth seen in the utilities sector (3.1% in September 2016).
- New EBAs, however, serve as a better indicator of future wage trends. Wage growth in new construction sector EBAs was 6.0% in the year to September 2016, the fastest growth since June 2012. The Average Annualised Wage Increase (AAWI) for new construction sector EBAs has continued to lift after reaching a low of 3.7% in September 2015. While the AAWI for new EBAs has moved higher for utilities, the outperformance of the construction sector has accelerated of late.
- The gap between the WPI and EBA measures has also widened considerably in the past three years (seen in Chart 3.18), in part reflecting the strength of construction sector unions. In September 2016, around 111,500 construction sector employees were covered by EBAs, while labour force data indicates that more than one million people are employed in the sector across Australia. With only a tenth of workers represented, WPI may have a closer resemblance to the trends in the wider construction industry, and in particular the recent weakness of the construction sector.

Chart 3.18 Measures of national construction sector wage growth



Source: Australian Bureau of Statistics, Department of Employment

3.10 Summary results

Forecasts for national and sectoral wage growth are shown in Table 3.3. Forecast components include real (inflation-adjusted) and nominal WPI, and real and nominal productivity-adjusted WPI.

Table 3.3 National sectoral wage forecasts

Financial year changes in nominal national industry sector WPI								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	2.1	2.0	2.5	3.1	3.4	3.5	3.6	3.6
Utilities	2.4	2.4	2.5	2.8	3.0	3.2	3.4	3.4
Construction	1.6	1.9	2.5	3.0	3.3	3.6	3.7	3.7
Financial year changes in real national industry sector Wage Prices								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.8	0.1	0.5	0.9	1.2	1.1	1.1	1.2
Utilities	1.0	0.5	0.4	0.7	0.8	0.8	0.9	1.0
Construction	0.2	0.0	0.4	0.8	1.2	1.2	1.3	1.3
Financial year changes in nominal productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.7	1.4	1.1	1.7	2.0	1.9	2.0	2.0
Utilities	1.9	1.5	1.3	1.4	1.6	1.7	1.8	1.9
Construction	1.1	1.7	1.2	1.6	2.2	2.2	2.2	2.2
Financial year changes in real productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.3	-0.5	-0.9	-0.5	-0.2	-0.5	-0.5	-0.3
Utilities	0.5	-0.3	-0.8	-0.8	-0.5	-0.7	-0.6	-0.4
Construction	-0.2	-0.1	-0.8	-0.5	0.1	-0.1	-0.2	-0.2

Source: Australian Bureau of Statistics, Deloitte Access Economics

4 New South Wales wage growth forecasts

This chapter sets out the projections for labour costs in the utilities sector in New South Wales, and provides additional State level projections for the construction industry in New South Wales.

4.1 State trends

Key factors to consider for the New South Wales economic outlook include:

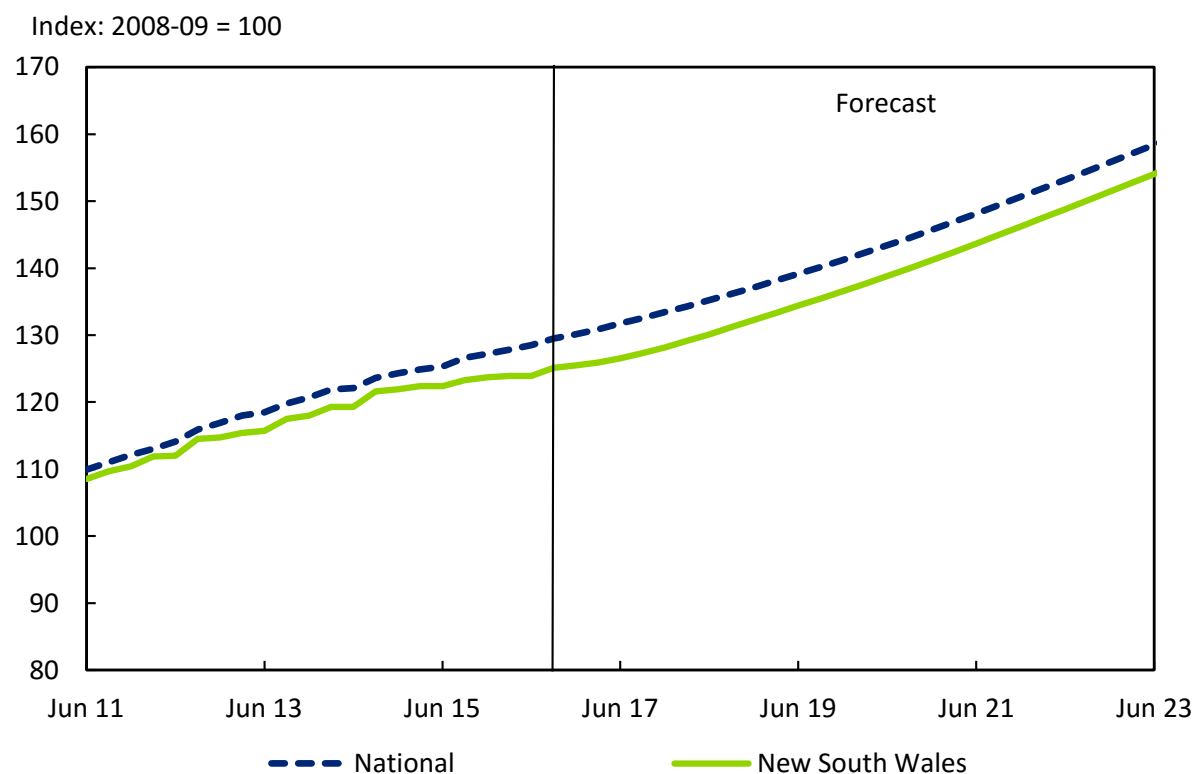
- Recent years have seen economic strength shifting from resource rich States in the nation's north and west towards the south-east. New South Wales had strong economic growth of 3.5% over 2015-16, ahead of the national level of 2.7%.
- New South Wales has benefited from record low interest rates, which have provided a boost to the State's housing market. Higher house prices have supported growth in retail turnover and private consumption in the State.
- Although gap has been narrowing, the State's retail turnover has been outperforming the nation for several years. The impact of new found wealth from high housing prices has also been evident in car sales, and recent job growth moved the State's unemployment rate below the benchmark rate of 5% in September 2016.
- The population is still growing in the State even with high house prices. And although population growth in New South Wales is no longer above the national average (as it was in 2015), it has been lifting again for the first time in a few years. However, high house prices in Sydney may deter some people from moving to the city, and encourage those with properties in the city to sell and relocate elsewhere.
- Another major factor at play in this State is big spending on infrastructure. Current construction is led by the \$16.8 billion Westconnex and the \$3 billion NorthConnex road projects, while rail work includes the \$8.3 billion Sydney Metro Northwest and \$2.1 billion CBD and South East light rail developments.

4.2 The utilities sector

Wage growth in the New South Wales utilities sector has previously been lower than the national level. Chart 4.1 shows that wage growth in New South Wales utilities has typically followed national wage growth in the industry closely in previous years.

That said, additional volatility has been present at the State level. Wages are typically regulated at the national level in the utilities sector, so it is expected that wage growth is relatively similar across States. However, significant movements can be observed in individual jurisdictions over short periods of time.

Chart 4.1 Utilities sector WPI forecasts, New South Wales and national

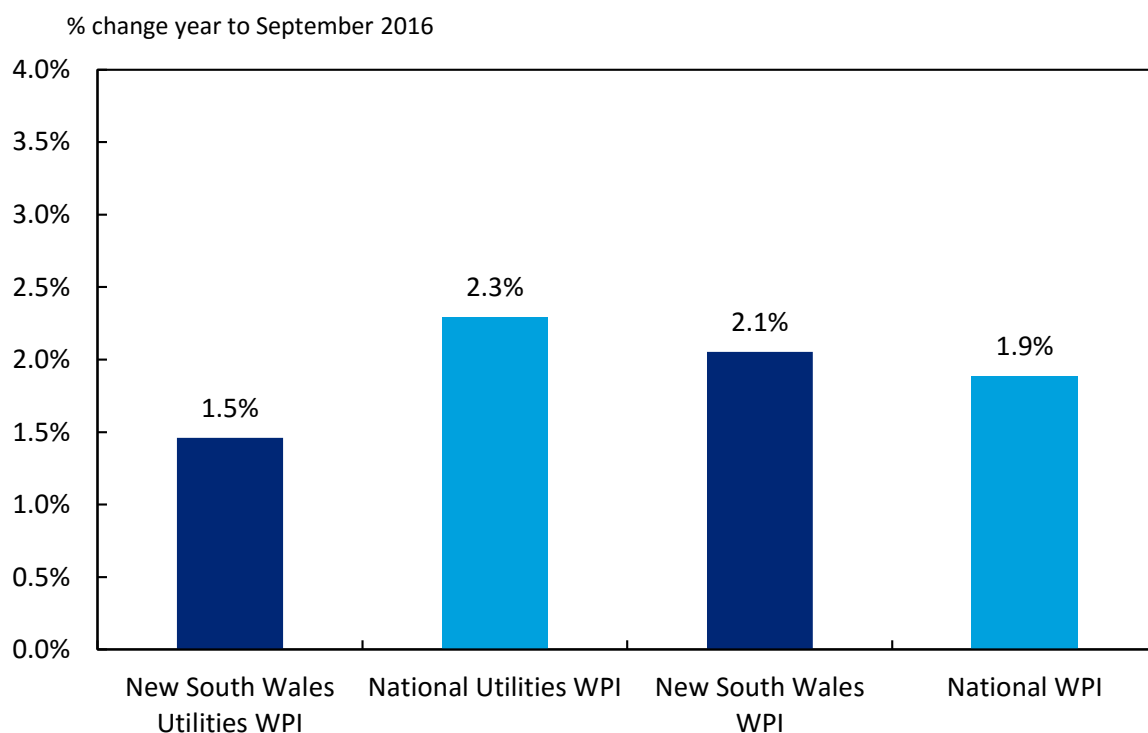


Source: Australian Bureau of Statistics, Deloitte Access Economics

Looking forward, we expect utilities WPI in New South Wales to grow at a similar rate to that in the national utilities sector. Deloitte Access Economics forecasts average annual wage gains between 2016-17 and 2022-23 of 3.0% for both Australia and New South Wales.

Over the year to September 2016 the New South Wales utilities sector grew by only 1.5%, below both the national wage growth across all industries in New South Wales (at 2.1%) and wage growth in the national utilities sector (at 2.3% – see Chart 4.2).

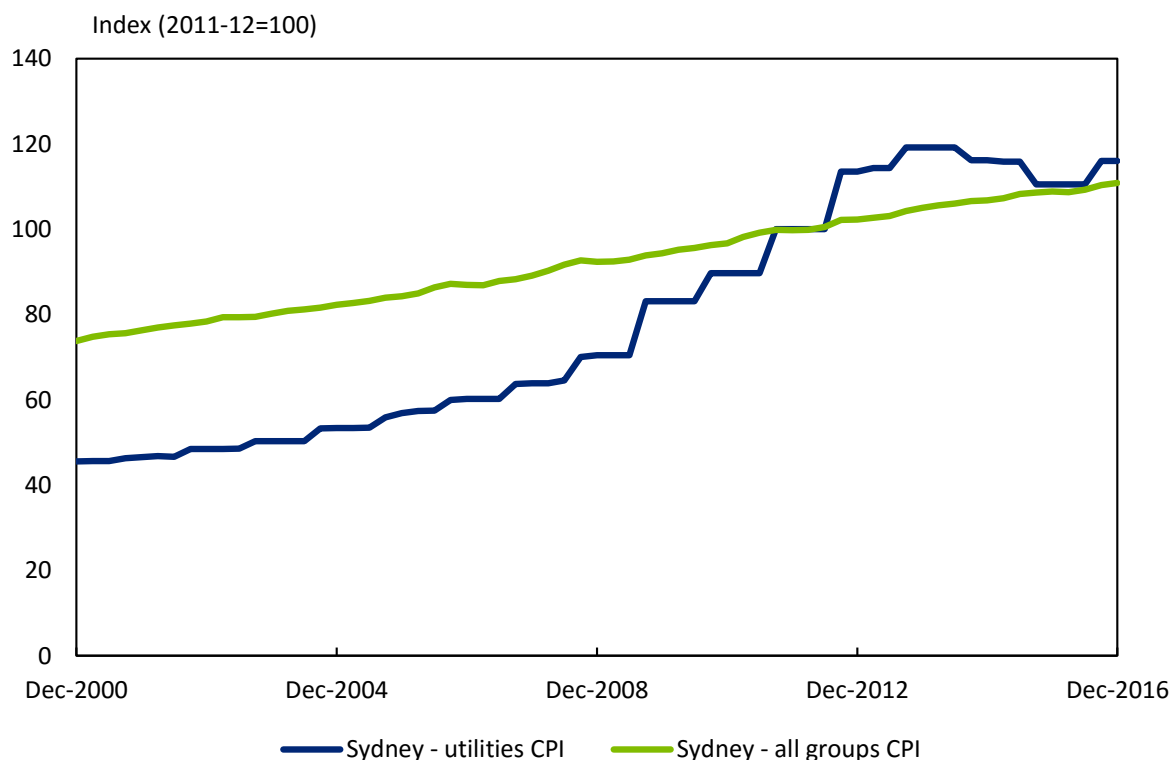
Chart 4.2 Comparative WPI growth rates in the 12 months to September 2016



Source: Australian Bureau of Statistics, Deloitte Access Economics

Sydney electricity prices moderated in 2012 following continuous growth over the previous five years (see Chart 4.3). Utilities prices within Sydney grew at an average annual rate of 6.8% over the decade up to September 2016. Over the previous five years, however, this growth was substantially lower at 3.0% per annum, although still above general price growth.

Chart 4.3 Sydney utilities prices

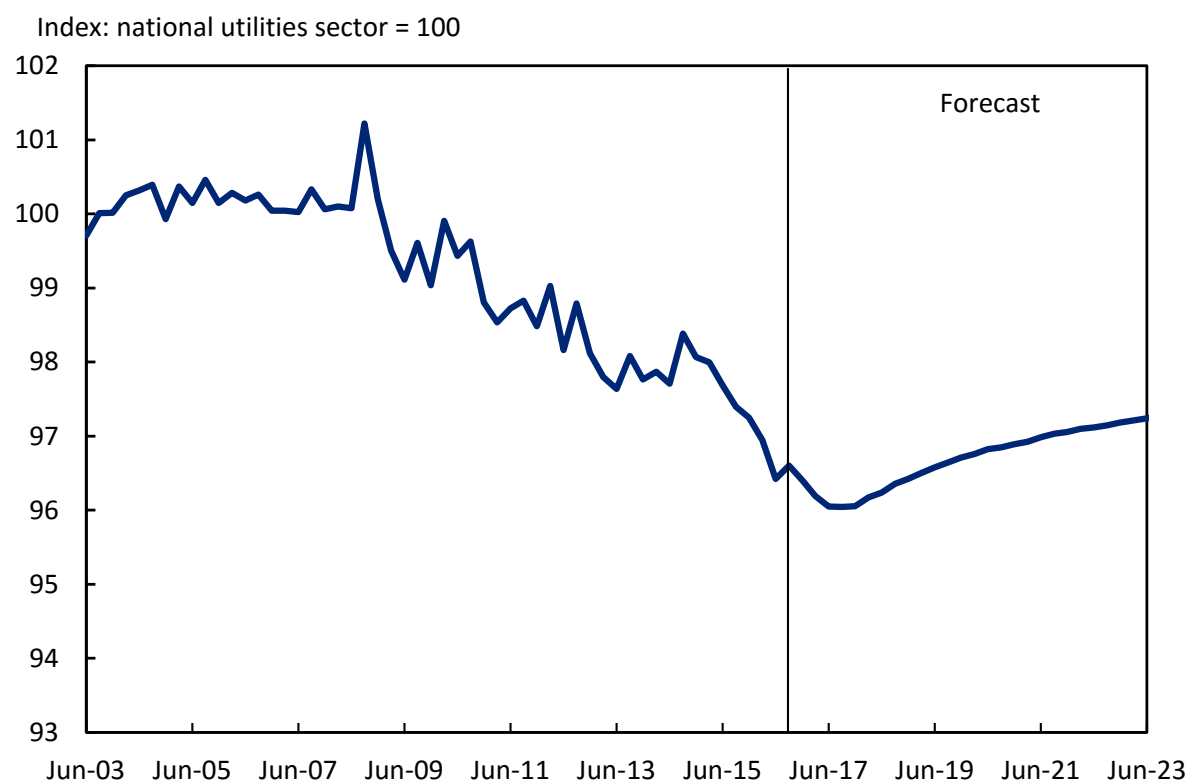


Source: Australian Bureau of Statistics

Chart 4.4 shows that the State’s relative utilities WPI has been declining since early 2009. The initial decrease was partly due to the mining boom, which drove a wedge between wage growth rates seen in the mining States and those in New South Wales.

This more recent fall in the relative utilities WPI has partly been due to the relatively poor performance of the sector over recent years. Output in the New South Wales utilities sector rose by 3.0% in 2015-16, faster than the matching 2.0% increase in output across the national utilities sector over the same time period. However, that simply restored utilities output in the State to the levels last seen in 2010-11.

Chart 4.4 New South Wales utilities WPI relative to national utilities WPI



Source: Australian Bureau of Statistics, Deloitte Access Economics

Looking ahead, we expect the New South Wales utilities relative WPI to fall slightly further in 2017, but then moderate and begin recovering in comparison to the national average for utilities over the forecast period.

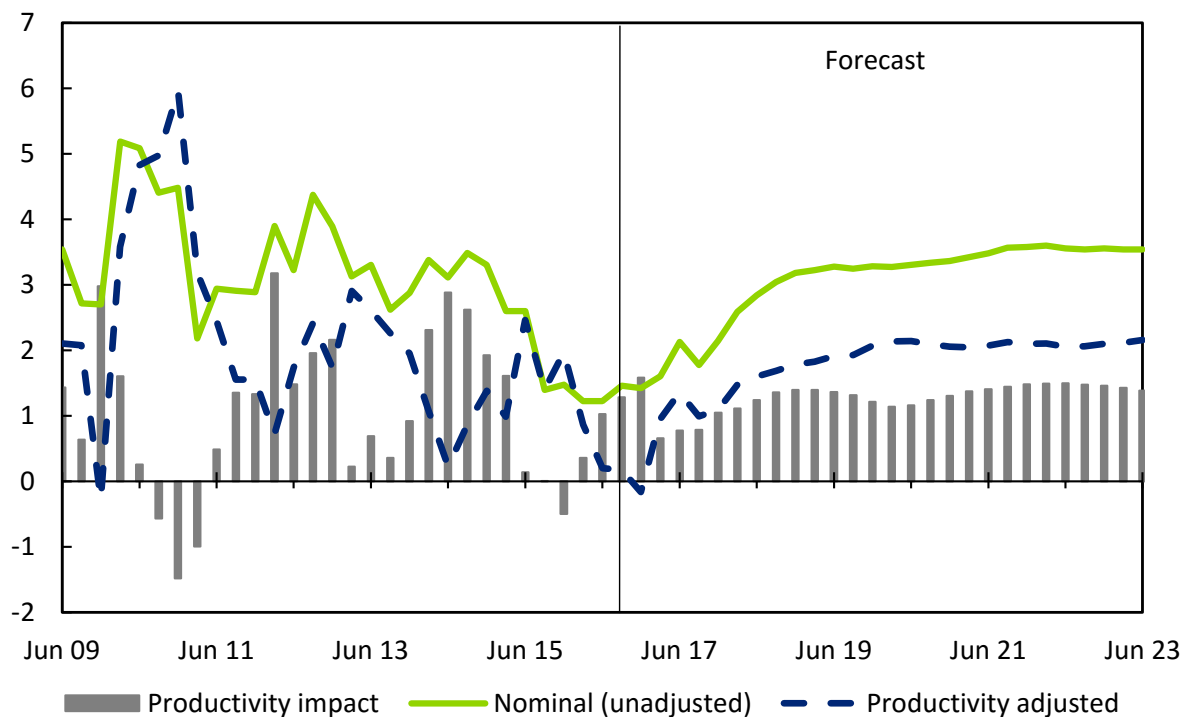
A detailed outlook for the State's utilities sector is presented in Chart 4.5. Deloitte Access Economics expects wage growth in the New South Wales utilities sector to increase gradually over the next five years, returning to 3.0% by 2021.

It is also worth noting that the volatility in State indices implies that actual movements in State-by-industry WPI in the future are unlikely to be as smooth as shown in our projections. Movements in recorded data may therefore move against what might be expected from the underlying economic drivers.

That means that forecasting growth rates based on a point-to-point comparison of results can be volatile. For that reason Deloitte Access Economics recommends that it is better to concentrate on the longer run underlying trends indicated in Chart 4.5.

Chart 4.5 New South Wales utilities detailed WPI forecasts

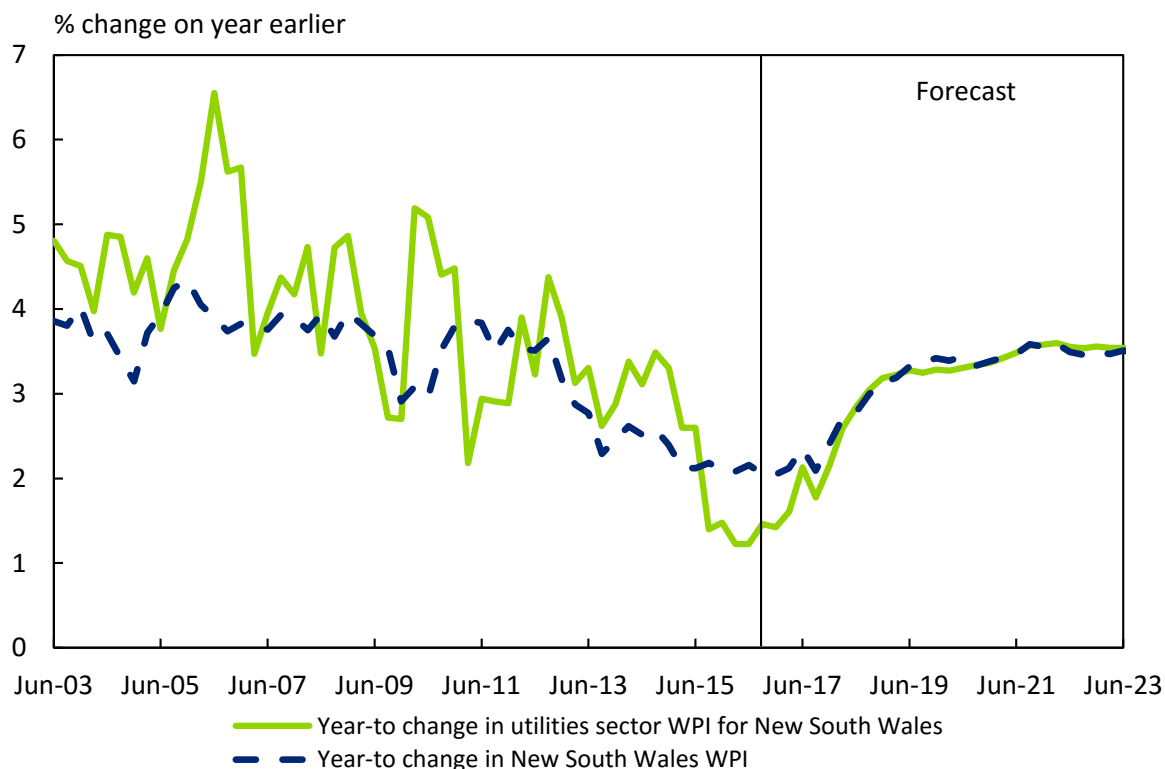
Year-to % change in WPI (utilities sector in New South Wales)



Source: Australian Bureau of Statistics, Deloitte Access Economics

Wage growth within the utilities sector in New South Wales has fluctuated above and below the State average for all industries over the past 15 years, and has remained below the average for the State since mid-2015 (see Chart 4.6). Recently, low wage growth for the State’s utility sector reflects – at least in part – its weak output performance relative to other States over this time period.

Chart 4.6 New South Wales utilities general labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

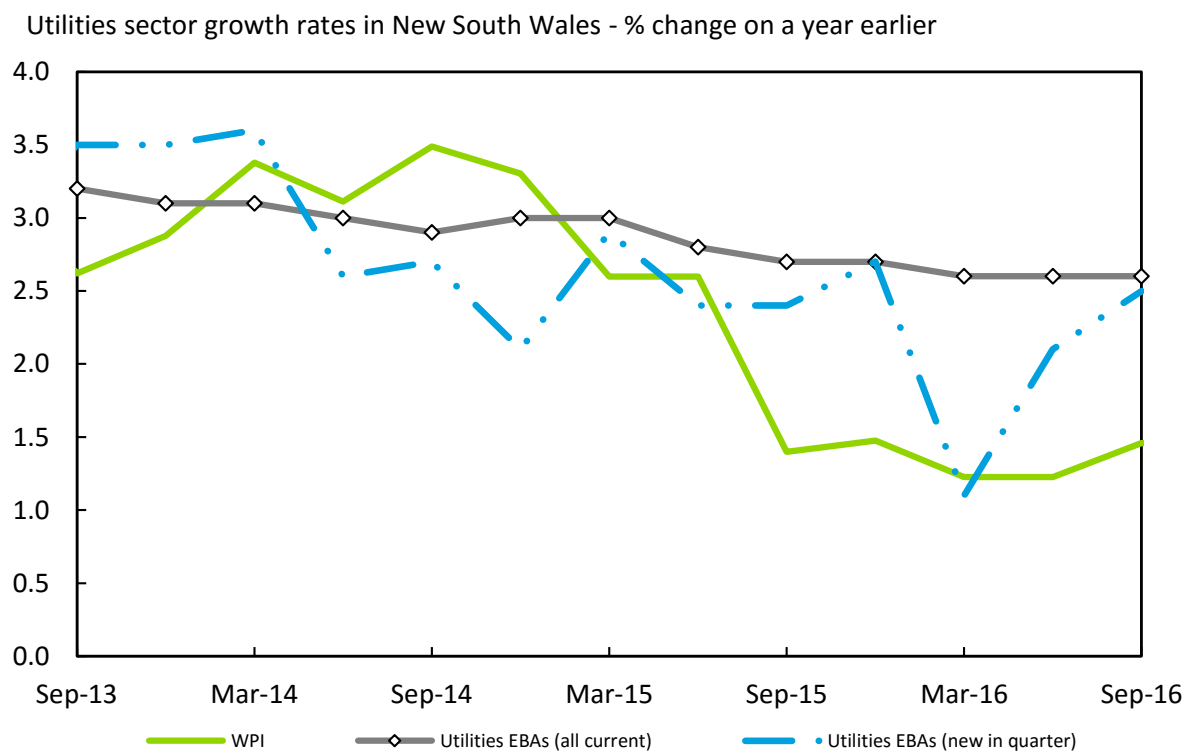
Looking forward, we expect the New South Wales utilities WPI to return to the State level within the next year and follow a similar trend to the State average over the remainder of the forecast period.

4.2.2 Comparison with EBA outcomes

The following section compares growth in the New South Wales utilities sector WPI against outcomes in State EBAs for the sector. Chart 4.7 shows that:

- The Average Annual Wage Increase (AAWI) across all current utilities EBAs in New South Wales has been moderating over the last few years.
- After reaching a low of just 1.1% at the start of 2016, the AAWI for new utilities sector EBAs in New South Wales lifted to 2.6% in September 2016. This brings the wage increase in new EBAs back up to around the same levels observed in September 2015, but still remains below the decade average of 3.2%.
- EBA wages in the New South Wales utilities sector have historically underperformed the Australian average. EBA wages in the New South Wales utilities sector were 0.5 percentage points below the Australian average in September 2016.
- With the exception of Tasmania, New South Wales recorded the slowest AAWI across current utilities sector EBAs in the September quarter of 2016.

Chart 4.7 Comparative measures of wage growth in the New South Wales utilities sector



Source: Australian Bureau of Statistics, Department of Employment

4.3 The construction sector

Construction has been outperforming the Australian economy for the last fifteen years or so, but its robust performance is now starting to falter. In the resource rich States, the resources boom was an important factor driving construction growth over this time. In New South Wales, the strength of the moment in the State’s construction sector lies predominantly in its engineering construction (transport infrastructure) and residential building.

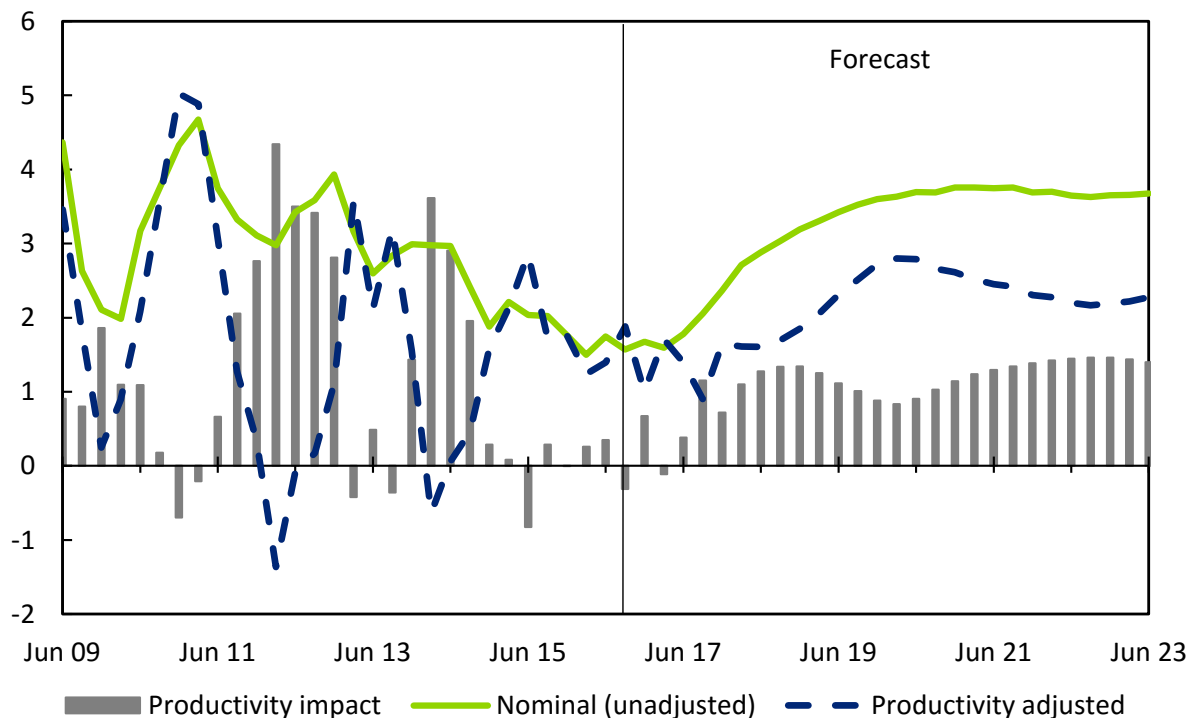
On the residential building front, the State’s outlook remains good, but not as strong as it has been previously. Solid population growth, record low interest rates and phenomenal house price growth in Sydney are helping this sector. Vacancy rates in Sydney have broadly kept up with the recent apartment construction, despite fears of an imminent oversupply. This is being helped by the fact that most of the millennial generation can’t afford to buy and are renting these new apartments, and with the low \$A bringing in an increased number of international students.

However, there are some risks to consider in the State’s housing market. The further that house prices climb, the further they can fall in the event of a housing market correction or crash. Risk is building in the residential construction sector in NSW, and we expect to see housing commencements (particularly for apartments) drop off over the next couple of years as the new supply that’s being constructed now becomes available for renters.

Engineering construction in New South Wales is being boosted by considerable public investment in transport infrastructure. Major transport projects include two of the biggest road projects under construction in Australia – the \$16.8 billion WestConnex and the \$3 billion NorthConnex projects, while rail work is led by the \$8.3 billion Sydney Metro Northwest and the \$2.1 billion CBD and South East light rail developments.

Chart 4.8 New South Wales construction detailed WPI forecasts

Year-to % change in WPI (construction sector in New South Wales)

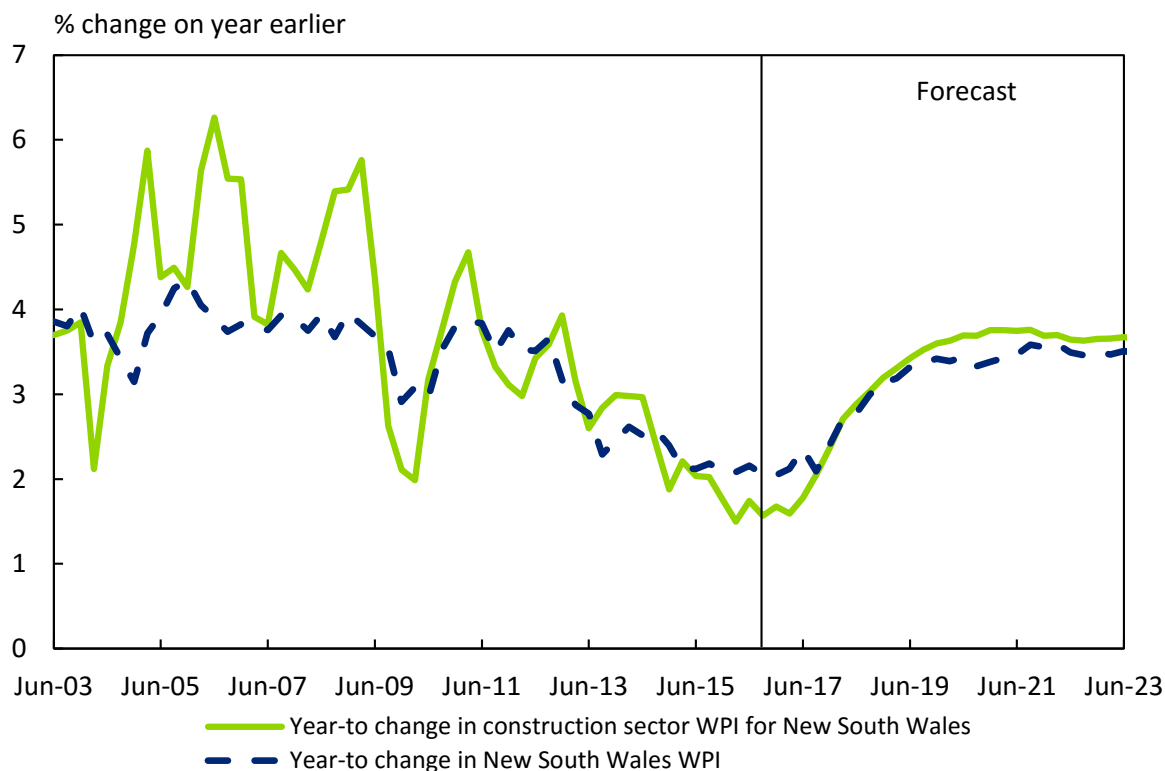


Source: Australian Bureau of Statistics, Deloitte Access Economics

Wage growth for New South Wales construction was 1.6% over the year to September 2016, while national construction sector wage growth was 1.7%. This is relatively low both on a State and national level in comparison to historic levels (see Chart 4.8).

Chart 4.9 shows that wage growth for the State’s construction sector has been lower than the State level across all industries over the past two years. This is due to the relatively weak performance of the New South Wales construction sector in comparison to the strong New South Wales economy.

Chart 4.9 New South Wales construction labour cost growth



Source: Australian Bureau of Statistics, Deloitte Access Economics

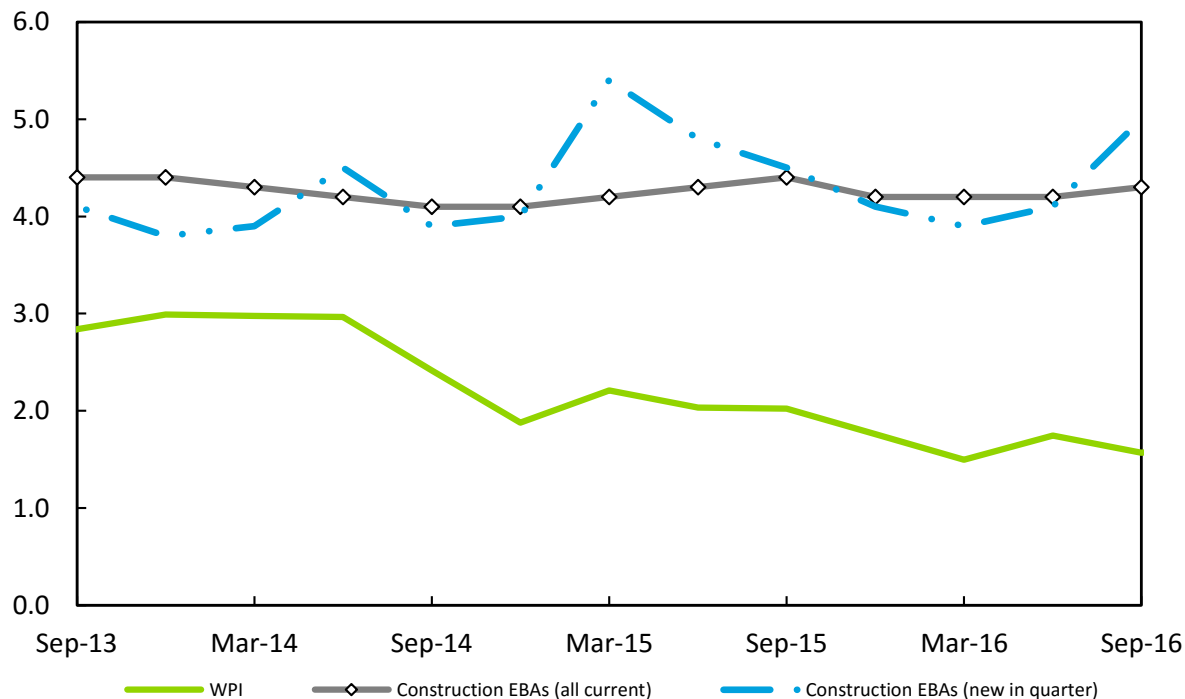
In the immediate future, we expect wage growth in the New South Wales construction sector to remain below that of the national average. However, this is projected to recover over the forecast period, returning to levels between 3% and 4%, thereby once more outpacing State wage growth.

As Chart 4.10 shows:

- While the New South Wales' construction sector WPI has been falling over the past few years, wage growth in EBAs has remained fairly constant. The Average Annual Wage Increase (AAWI) for all EBAs reached 4.3% in September 2016, compared to WPI growth of just 1.6%.
- New construction sector EBAs have also lifted, with wage growth of 5.0% in September 2016, up from 4.5% at the same time in 2015. This reverses the previous trend which saw the AAWI for new construction EBAs fall from a peak of 5.4% in March 2015 to a trough of 3.9% in March 2016. Strong growth in new agreements is likely to see the gap between WPI and EBA wage outcomes continue to widen.
- That said, it is worth noting that of the almost 340,000 New South Wales construction sector employees listed in the ABS labour force survey, only 16,100 were covered by EBAs in September 2016, equating to less than 5% of the construction workforce in New South Wales.

Chart 4.10 Comparative measures of wage growth in the New South Wales construction sector

Construction sector growth rates in New South Wales - % change on a year earlier



Source: Australian Bureau of Statistics, Department of Employment

4.4 Summary results

Forecasts for sectoral wage growth New South Wales are shown in Table 4.1 below. These forecasts include real and nominal WPI, and real and nominal productivity-adjusted WPI.

Table 4.1 New South Wales wage forecasts

Financial year changes in New South Wales nominal Wage Price aggregates									
Annual % change	History		Forecast						
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	
All industries	2.1	2.1	2.5	3.2	3.4	3.4	3.6	3.5	
Utilities	1.3	1.7	2.3	3.2	3.3	3.4	3.6	3.5	
Construction	1.8	1.7	2.5	3.2	3.6	3.7	3.7	3.7	
Financial year changes in New South Wales real Wage Price aggregates									
Annual % change	History		Forecast						
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	
All industries	0.6	0.0	0.2	0.8	1.1	1.0	1.1	1.1	
Utilities	-0.2	-0.5	0.0	0.9	1.0	1.0	1.1	1.2	
Construction	0.2	-0.5	0.2	0.9	1.3	1.3	1.2	1.3	
Financial year changes in New South Wales nominal productivity adjusted Wage Price aggregates									
Annual % change	History		Forecast						
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	
All industries	2.6	0.8	1.4	1.9	2.3	2.3	2.2	2.0	
Utilities	1.1	0.6	1.3	1.8	2.1	2.1	2.1	2.1	
Construction	1.5	1.5	1.4	2.0	2.7	2.6	2.3	2.2	
Financial year changes in New South Wales real productivity adjusted Wage Price aggregates									
Annual % change	History		Forecast						
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	
All industries	1.0	-1.3	-0.8	-0.4	0.0	-0.1	-0.3	-0.3	
Utilities	-0.4	-1.6	-1.0	-0.5	-0.2	-0.3	-0.3	-0.2	
Construction	0.0	-0.7	-0.8	-0.3	0.4	0.2	-0.1	-0.1	

Source: Australian Bureau of Statistics, Deloitte Access Economics.

5 Victorian wage growth forecasts

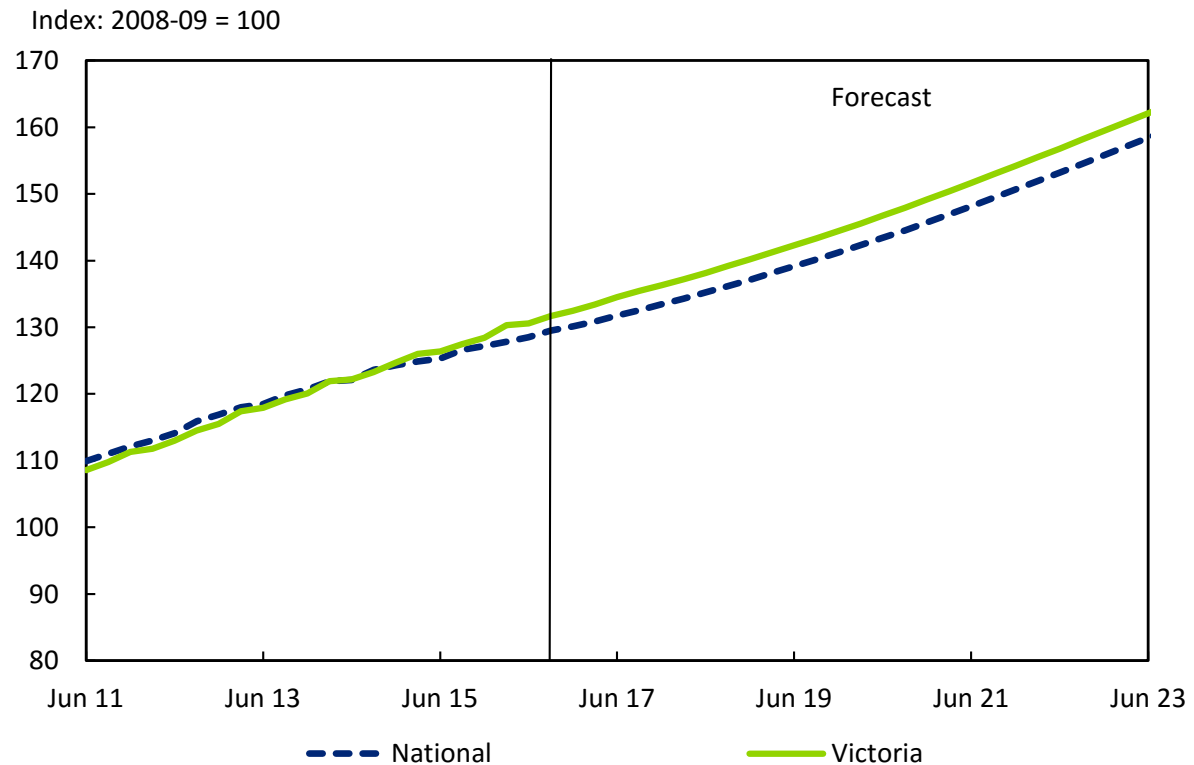
This chapter sets out the projections for labour costs in the utilities sector in Victoria, and provides additional State level projections for the construction industry in Victoria.

5.1 State trends

On Deloitte Access Economics' estimates, Victoria is currently among the fastest-growing State economies in Australia. Key factors for the economic outlook of Victoria are summarised as follows:

- **Victoria is largely insulated from the mining investment downturn** as the State never experienced a large mining boom in the first place. Instead, the lower exchange rate and interest rates at the end of the resources boom have underpinned strength in the Victorian economy in recent years.
- Forecast **population growth in Victoria is faster** than any other State in Australia. Population growth spurs demand for a range of goods and services in Victoria.
- The **lower \$A has increased international visitation to the State**, particularly in the form of international students. Tourists raise demand in Victoria for short-term accommodation services, while international students assist demand for long-term and student accommodation.
- **Residential construction is still in a boom period in Victoria.** The housing cycle has started to cool, but a significant number of inner city Melbourne apartments are still under construction or in planning. Transport infrastructure projects across Victoria are expected to replace residential construction as a key driver of construction growth over the longer term.
- On the other side of the spectrum, **manufacturing in Victoria (and the rest of Australia) is shrinking.** Manufacturing is a key sector in Victoria, in terms of both employment and output.

Chart 5.1 Utilities sector WPI forecasts – national and Victoria



Source: Australian Bureau of Statistics, Deloitte Access Economics

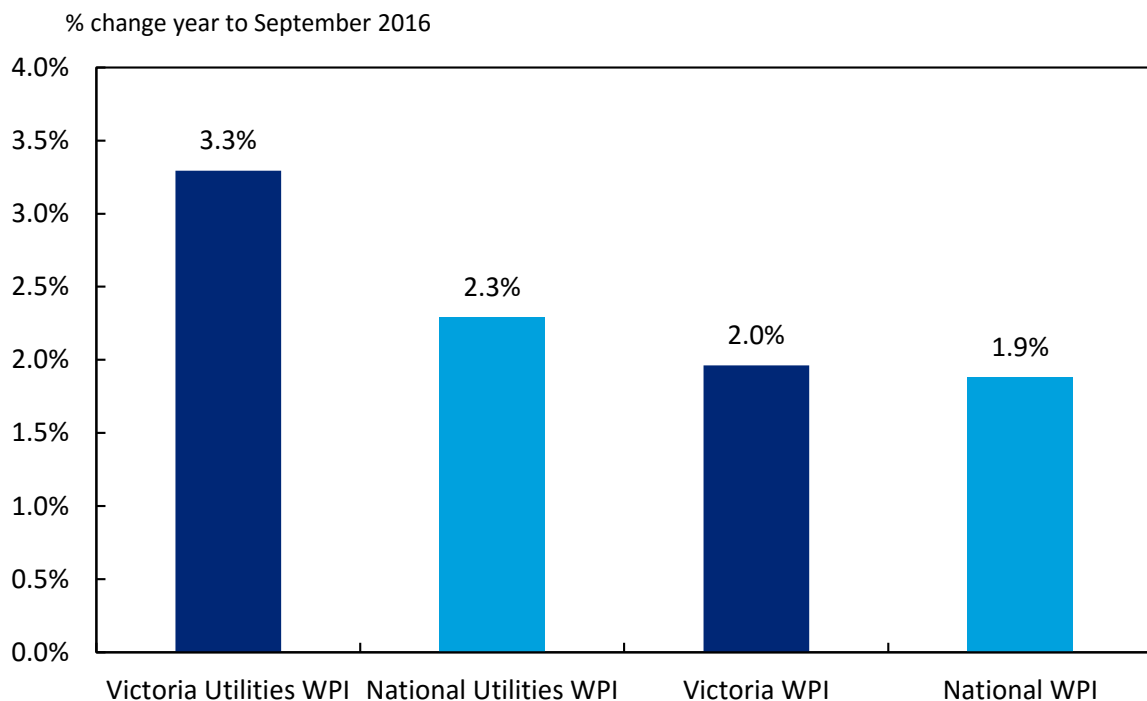
Wage growth across utility employment in Victoria has slightly outpaced the Australian average since mid-2014. This trend is expected to continue across the forecast period (refer Chart 5.1), aided by generally solid economic conditions. That said, and as noted elsewhere in this report, some of the positives of the moment are ultimately expected to be temporary in nature, and projected wage growth in Victoria closely aligns to the national average over the long term.

Note that wage growth in Victoria is also more stable than in smaller States and Territories, albeit in part probably due to measurement error in those smaller jurisdictions.

5.2 The utilities sector

Chart 5.2 illustrates recent wage growth in the utilities sector and total economy for both Victoria and Australia. In brief, Victoria’s utilities wage growth outpaced the Australian average. Total wage growth in Victoria also marginally outpaced the national average. Over the same period, wage growth in the utilities sector was 3.3% in Victoria (compared to growth of 2.3% nationally).

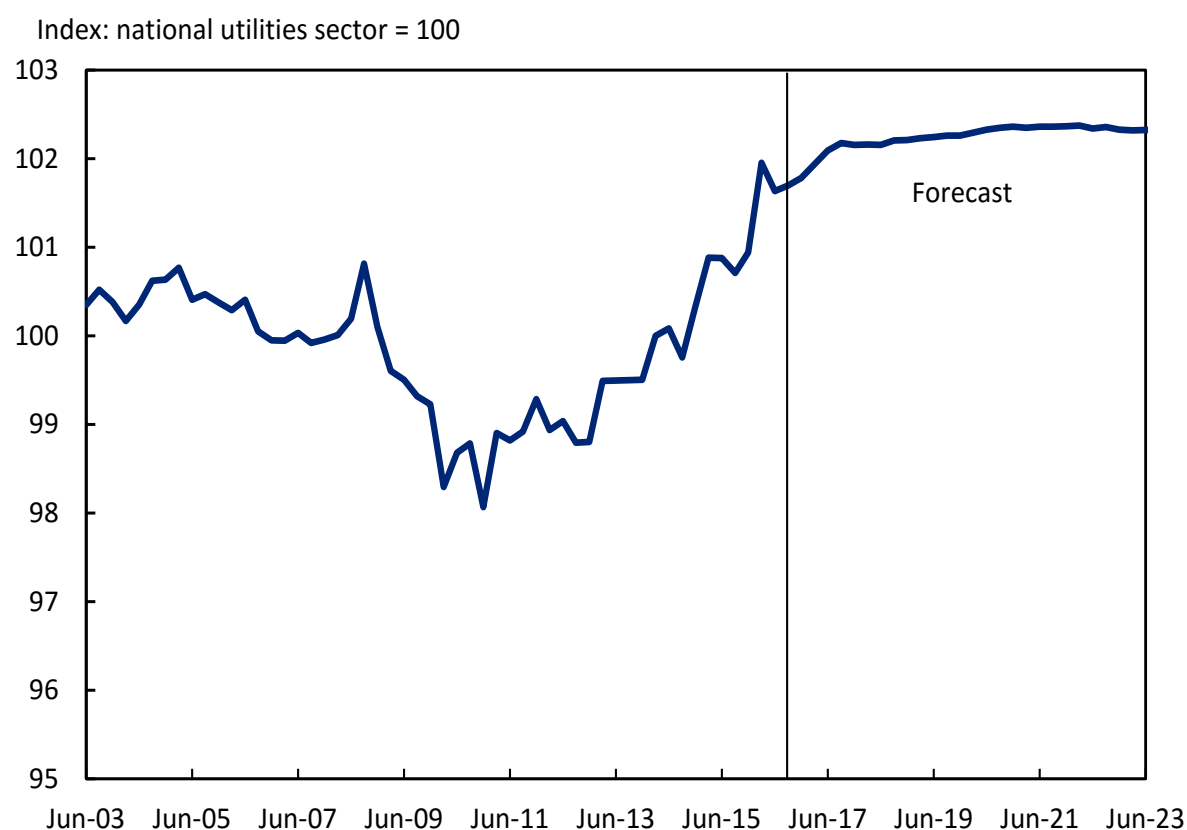
Chart 5.2 Comparative WPI growth rates in the 12 months to September 2016



Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 5.3 illustrates Victorian utilities WPI relative to national utilities WPI. Wage growth in Victorian utilities has outpaced national utilities wage growth since 2011, surpassing the national average in mid-2014. However, this period of relative increase in Victorian utilities wages has most likely reached its peak, and is expected to now moderate, albeit at a relatively higher level than for national utilities.

Chart 5.3 Relative utilities WPI forecasts for Victoria



Source: Australian Bureau of Statistics, Deloitte Access Economics

Looking ahead, Deloitte Access Economics forecasts that growth in Victorian utilities WPI will stabilise at around 2% higher than the national utilities WPI. This is largely due to the following factors:

- Wage growth across the wider State economy is expected to moderate back towards the national average.
- The exchange rate is expected to stabilise at around its current level, which means Victorian wage growth no longer benefits from a 'falling' exchange rate.
- This will have a particular impact on the manufacturing sector in Victoria. Closures of a number of manufacturing plants, including Ford, Toyota and Holden, adds downward pressure to Victorian WPI growth.
- The potential oversupply of inner-city apartments in Melbourne may lead to downward pressure on property prices and demand for construction and property related services.

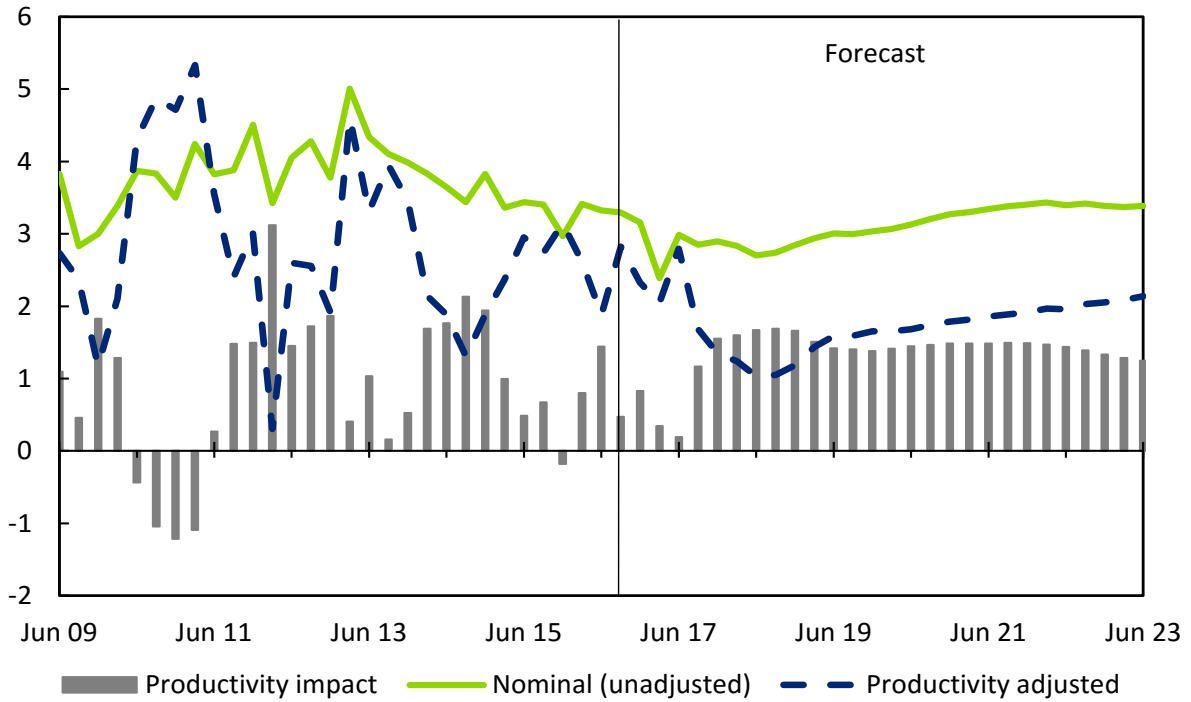
Chart 5.4 presents the outlook for wage growth in the Victorian utilities sector. Victorian utilities WPI is expected to recover during 2017, reaching growth rates of 3-4% over the medium term.

It should be noted that Victorian utilities wages are likely to include more short-term fluctuations than what is estimated by Deloitte Access Economics. However, the movement of recorded historical data away from these predictions does not necessarily translate to inaccuracy of the forecasts in the long term.

Forecasting growth rates based on a point-to-point comparison of results can be volatile. Deloitte Access Economics recommends concentrating on longer-run underlying trends indicated in Chart 5.4.

Chart 5.4 Victoria utilities WPI forecasts

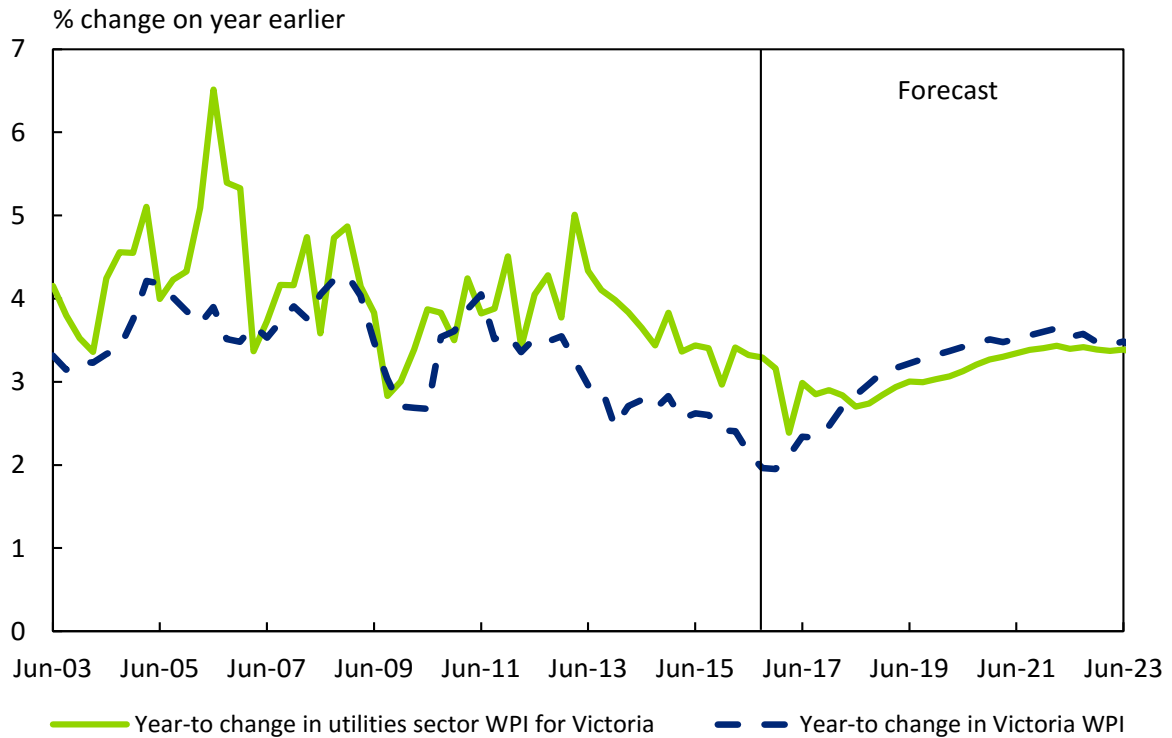
Year-to % change in WPI (utilities sector in Victoria)



Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 5.5 shows that for most of the decade to 2016, growth in Victoria’s utilities sector WPI was higher than growth in the WPI for all sectors for Victoria. Deloitte Access Economics expects that the Victorian utilities WPI will fall below the broader Victoria WPI going forward.

Chart 5.5 Victoria utilities forecast comparison



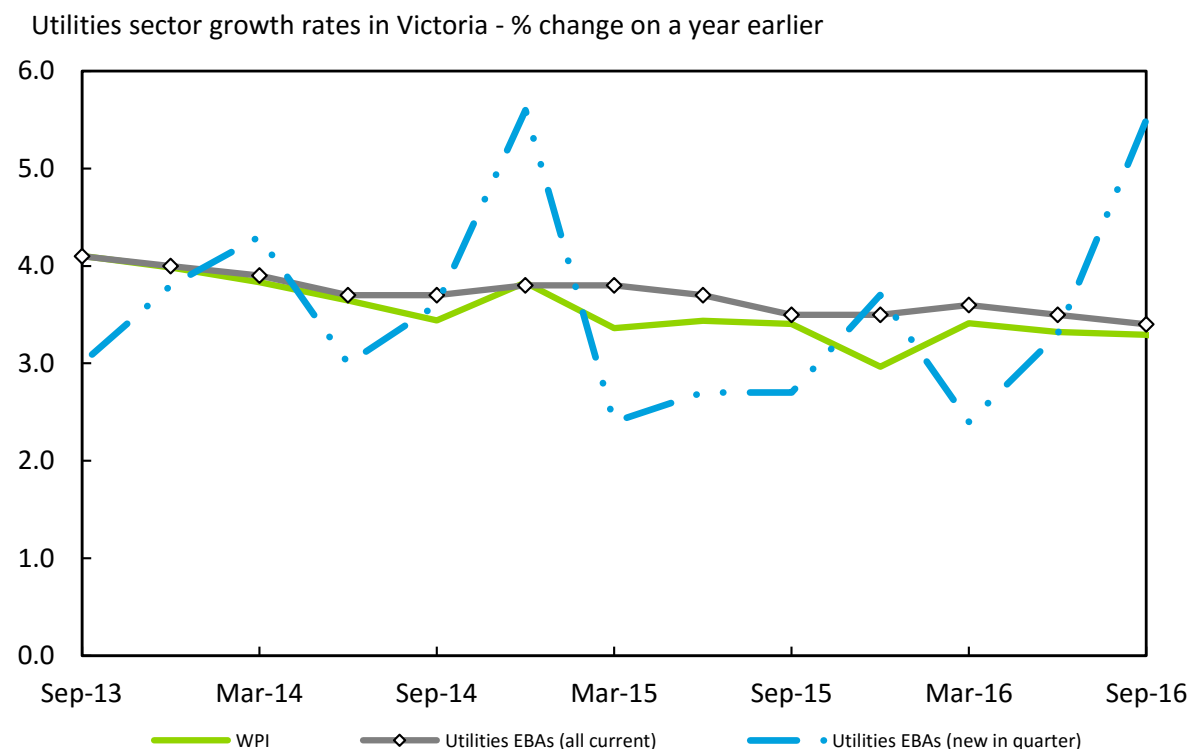
Source: Australian Bureau of Statistics, Deloitte Access Economics

From 2017-18 onwards, total Victorian wage growth is expected to recover, while wage growth in the Victorian utilities sector is expected to remain more stable. Overall, Victorian utilities wages are expected to grow more slowly than the broader Victorian wage level over the medium term.

5.2.2 Comparison with EBA outcomes

The following section compares growth in Victoria’s utilities sector WPI against outcomes in EBAs. Chart 5.6 shows that wage growth in current utilities sector EBAs grew by 3.4% in the September quarter of 2016, around the same growth as the WPI.

Chart 5.6 Comparative measures of wage growth in the Victorian utilities sector



Source: Australian Bureau of Statistics, Department of Employment

More recently, the Average Annualised Wage Increase (AAWI) in new EBAs has accelerated. After falling to a low of 2.4% in June 2016, the AAWI for new EBAs lifted to 5.5% in the September quarter of 2016 – the fastest increase seen since the peak at the end of 2014. As new EBAs are a barometer for future wage outcomes, there is likely to be upward pressure on wage growth across all current EBAs in the short term.

5.3 The construction sector

The number of housing approvals in Victoria exceeded those of any other State for a number of years, before being overtaken by New South Wales in recent months. Rising house prices and very strong population growth (2.1% over the last year) are additional supports for housing construction and the wider economy.

While housing finance commitments have been trending downwards since late 2015 and residential building approvals have been edging lower since mid-2016, the housing market is still solid. Plenty of building has been happening in the State and the vacancy rate has edged lower through the course of 2016. Victoria’s strong population growth is a key driver of increasing housing demand.

Meanwhile, the pace of growth in dwelling rents has moderated, but not to the same extent as seen nationally.

After a long lasting housing boom, there are some signs the housing cycle in Victoria is cooling. Housing finance commitments have been trending downwards since late 2015 and while house price growth is still robust, it is down from its earlier peaks. Latest data show that residential building approvals have been edging lower since mid-2016. While housing construction continues to be a strong contributor to growth, there are clear risks of oversupply in the inner city of Melbourne, where construction activity has been significant.

Strong population growth across Victoria is boosting **engineering construction**. The Victorian Government is investing in significant transport infrastructure, especially since the \$11 billion windfall sale of the Port of Melbourne. Projects currently underway include the:

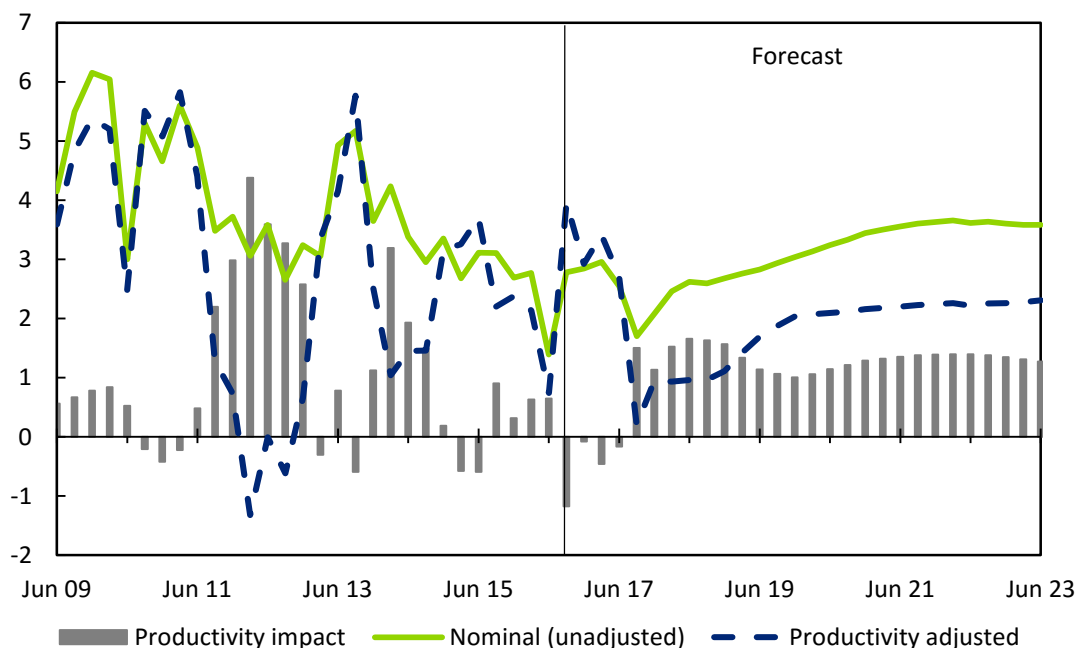
- \$1.6 billion Port of Melbourne redevelopment;
- \$1.6 billion Cranbourne-Pakenham rail upgrade; and
- \$1.3 billion Transurban CityLink upgrade.

In addition to these projects currently underway, there are also a number of other large transport projects in the pipeline:

- \$11 billion Melbourne Metro rail project (expected to start in 2018);
- \$5.5 billion North East Link road project; and
- \$5.5 billion Western Distributor road project.

Chart 5.7 Victoria construction WPI forecasts

Year-to % change in WPI (construction sector in Victoria)



Source: Australian Bureau of Statistics, Deloitte Access Economics

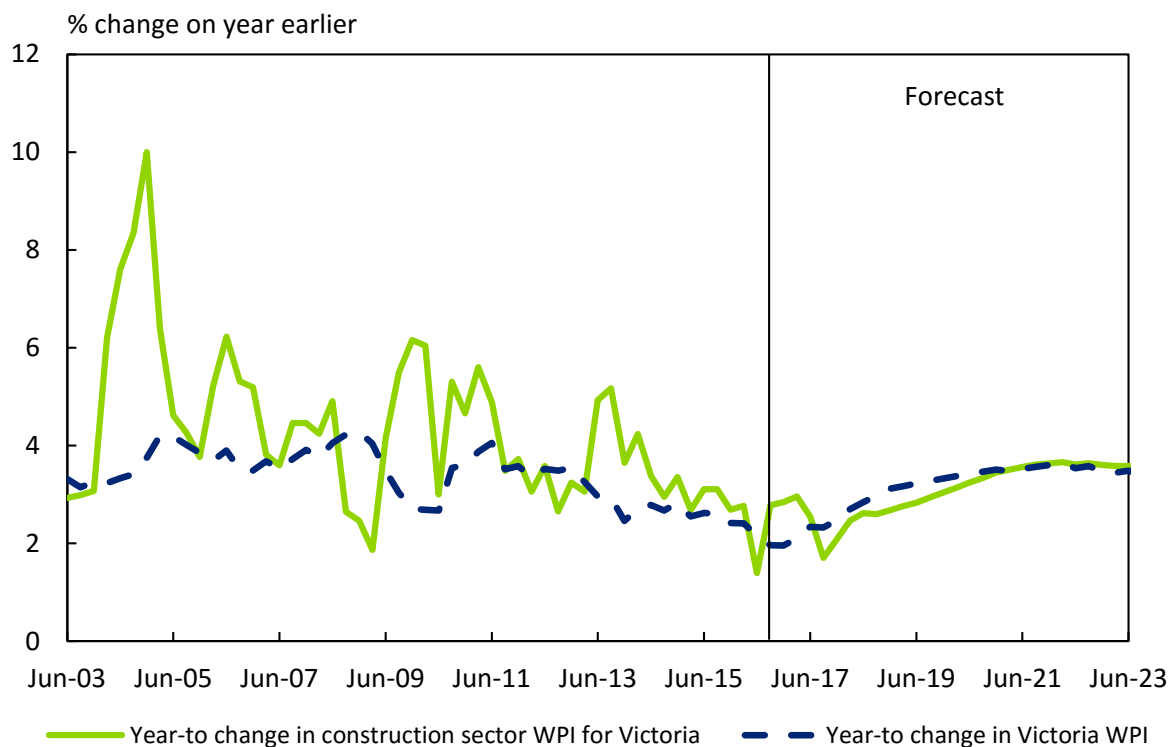
Victoria's commercial construction sector is also relatively healthy compared with that in other States, thanks largely to office and retail construction. Work underway in the State continues to be led by the \$2.5 billion Collins Square project, where construction is now drawing to a close. There are also several other developments with a cost in excess of \$500 million. However, only two of these developments have construction schedules that are expected to extend beyond 2017. It

should be noted that, in the absence of new additions to the State’s pipeline of commercial investment, construction activity in Victoria is at risk of a downturn in the years ahead.

Despite the risks of a downturn, transport infrastructure and housing construction will provide some support to Victoria’s construction sector over the next few years. In part, the demand for construction workers from this activity may be met by movement of workers from resource States, as resource investment continues to decline.

Chart 5.8 illustrates nominal Victorian construction WPI is forecast to grow faster than overall State WPI in the first half of 2017. Construction WPI is then expected to moderate, falling below the Victorian growth rate until around 2021.

Chart 5.8 Victoria construction WPI forecast comparison



Source: Australian Bureau of Statistics, Deloitte Access Economics

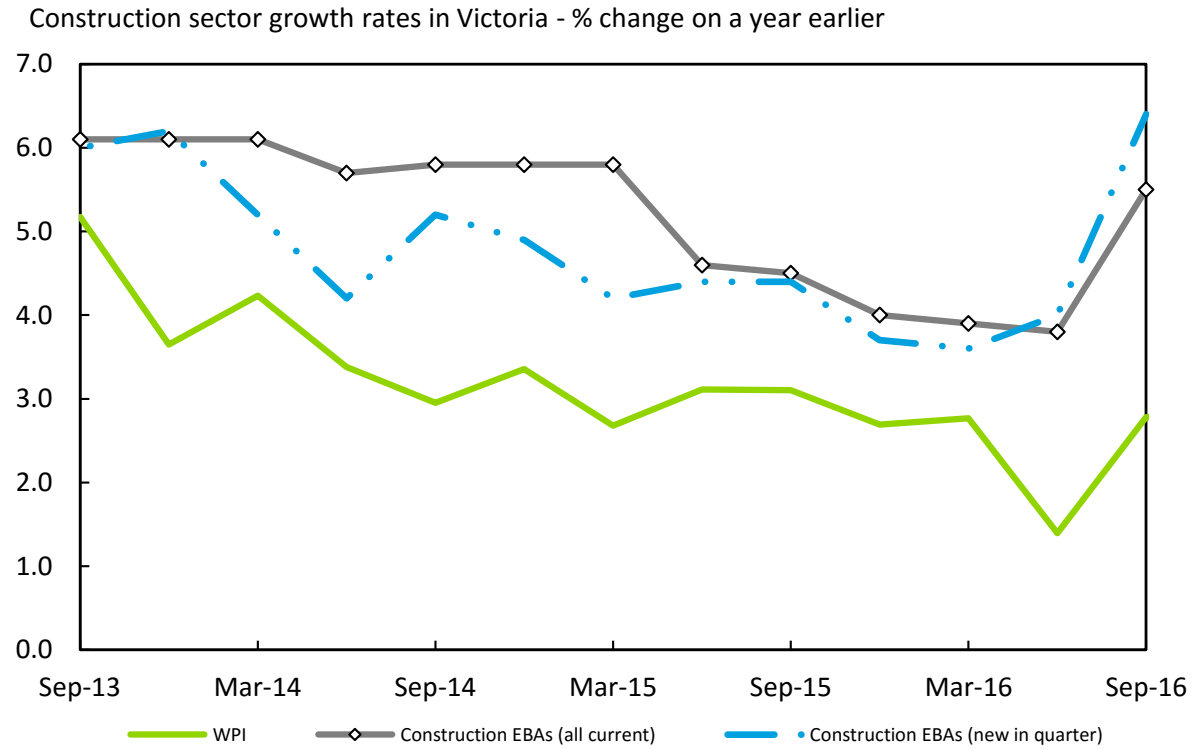
As Chart 5.9 shows:

- Wage growth in construction sector EBAs fell from the start of 2015 to mid-2016. More recently, the Average Annualised Wage Increase (AAWI) in Victorian construction sector EBAs lifted to 5.5% in the September quarter of 2016.
- Wages in new EBAs grew by 6.4% in the September quarter of 2016, the fastest AAWI since the start of 2012. Over 550 agreements, covering some 13,300 employees were signed in the September quarter – almost 200 more than were signed over the whole of 2015-16.
- This has been driven by a high number of CFMEU agreements being completed over recent months, with AAWIs ranging from 6.0% to 7.3%.³

³ Department of Employment (2016), *Trends in Federal Enterprise Bargaining September Quarter 2016*, p.6, https://docs.employment.gov.au/system/files/doc/other/trends_s16_0.pdf.

- A relatively high proportion of construction sector workers in Victoria are covered by EBAs. More than 23,000 Victorian construction sector employees were covered by an EBA in September 2016, around 9.2% of the total workforce (according to the ABS labour force survey). This is higher than the national average of 8.4% and is almost double the coverage observed in States such as New South Wales.

Chart 5.9 Comparative measures of wage growth in the Victorian construction sector



Source: Australian Bureau of Statistics, Department of Employment

5.4 Summary results

Forecasts for sectoral wage growth in Victoria are shown in Table 5.1 below. The forecasts include real and nominal WPI, and real and nominal productivity-adjusted WPI.

Table 5.1 Victoria wage forecasts, financial year

Financial year changes in Victoria nominal Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	2.4	2.1	2.6	3.1	3.3	3.5	3.6	3.5
Utilities	3.3	3.0	2.8	2.9	3.1	3.3	3.4	3.4
Construction	2.5	2.8	2.2	2.7	3.1	3.5	3.6	3.6
Financial year changes in Victoria real Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.8	0.2	0.6	1.0	1.2	1.1	1.1	1.1
Utilities	1.7	1.1	0.8	0.8	1.0	0.9	0.9	1.0
Construction	0.9	0.9	0.2	0.6	1.0	1.1	1.1	1.2
Financial year changes in Victoria nominal productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.5	2.7	0.1	1.2	1.7	1.9	2.2	2.4
Utilities	2.6	2.5	1.3	1.3	1.6	1.8	1.9	2.1
Construction	1.9	3.3	0.8	1.3	2.0	2.2	2.2	2.3
Financial year changes in Victoria real productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	-0.1	0.9	-1.8	-0.8	-0.4	-0.4	-0.3	0.0
Utilities	1.0	0.6	-0.7	-0.7	-0.4	-0.6	-0.5	-0.3
Construction	0.3	1.4	-1.2	-0.8	-0.1	-0.2	-0.2	-0.1

Source: Australian Bureau of Statistics, Deloitte Access Economics

Table 5.2 Victoria wage forecasts, calendar year

Calendar year changes in Victoria nominal Wage Price aggregates

Annual % change	History		Forecast					
	2015	2016	2017	2018	2019	2020	2021	2022
All industries	2.5	2.1	2.3	2.9	3.2	3.4	3.5	3.6
Utilities	3.3	3.3	2.8	2.8	3.0	3.2	3.4	3.4
Construction	2.9	2.4	2.3	2.6	2.9	3.3	3.6	3.6

Calendar year changes in Victoria real Wage Price aggregates

Annual % change	History		Forecast					
	2015	2016	2017	2018	2019	2020	2021	2022
All industries	1.2	0.5	0.3	0.7	1.2	1.2	1.1	1.0
Utilities	1.9	1.7	0.8	0.6	1.0	0.9	0.9	0.9
Construction	1.5	0.8	0.3	0.4	0.9	1.0	1.1	1.1

Calendar year changes in Victoria nominal productivity adjusted Wage Price aggregates

Annual % change	History		Forecast					
	2015	2016	2017	2018	2019	2020	2021	2022
All industries	2.4	1.9	1.3	0.6	1.6	1.7	2.1	2.4
Utilities	2.8	2.4	2.0	1.1	1.6	1.7	1.9	2.0
Construction	2.9	2.4	1.8	1.0	1.8	2.1	2.2	2.2

Calendar year changes in Victoria real productivity adjusted Wage Price aggregates

Annual % change	History		Forecast					
	2015	2016	2017	2018	2019	2020	2021	2022
All industries	1.0	0.3	-0.6	-1.6	-0.4	-0.5	-0.3	-0.2
Utilities	1.4	0.8	0.0	-1.0	-0.4	-0.5	-0.5	-0.5
Construction	1.5	0.8	-0.2	-1.2	-0.2	-0.1	-0.2	-0.3

Source: Australian Bureau of Statistics, Deloitte Access Economics

6 Queensland wage growth forecasts

This chapter sets out the projections for labour costs in the utilities sector in Queensland, and provides additional State level projections for the construction industry in Queensland.

Note that WPI data for the utilities sector in Queensland is not available from the ABS. Deloitte Access Economics uses estimates for the sector. Details are given in Appendix A.

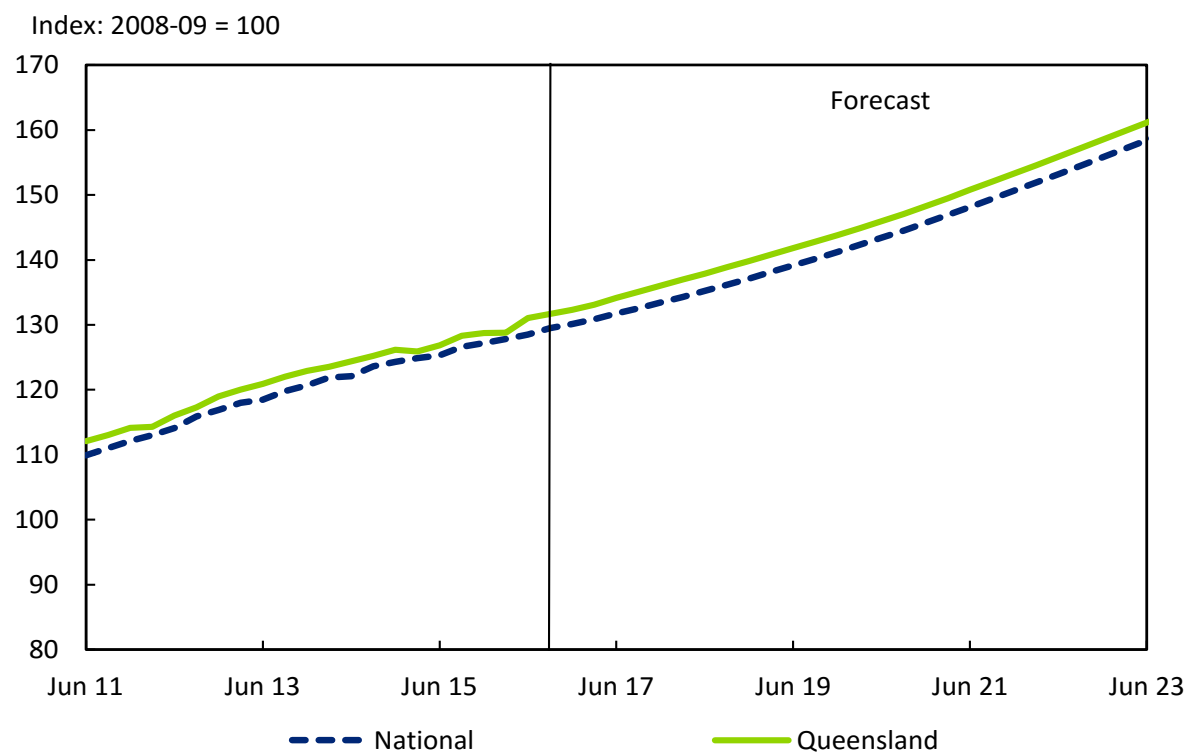
6.1 State trends

Output growth in Queensland is accelerating due to growing exports. Key drivers for Queensland's economic outlook in the future include the following:

- The **lower Australian dollar** is boosting Queensland's tourism sector. The emerging Asian middle class are likely to be a key driver for Queensland's tourism, particularly in the form of international students.
- **Higher commodity prices** are a positive for the State's mining sector, especially considering that production at new gas fields is ramping up. Gas exports are set to be a significant contributor to growth over the coming years.
- **Housing construction** in Queensland is still solid, but is at risk of a downturn. Construction of apartment buildings in Brisbane is leading to the risk of oversupply and housing finance approvals are falling. Weakening population growth in Queensland may translate to a moderation in demand for new dwellings. This would also lead to less demand growth for utilities.
- **Business investment** as a share of the Queensland economy has been halved since mid-2013, following the completion of three large gas projects, though that downswing has now mostly run its course.

Chart 6.1 illustrates the utilities sector WPI forecasts for Queensland and Australia. Queensland's utilities wages have tracked closely to national trends in recent years, which is set to continue into the medium term. Utility wages in Queensland are likely to remain slightly above the national average over the next five years, aided by a return to relatively faster rates of economic growth in Queensland relative to other States.

Chart 6.1 Utilities sector WPI forecasts – national and Queensland



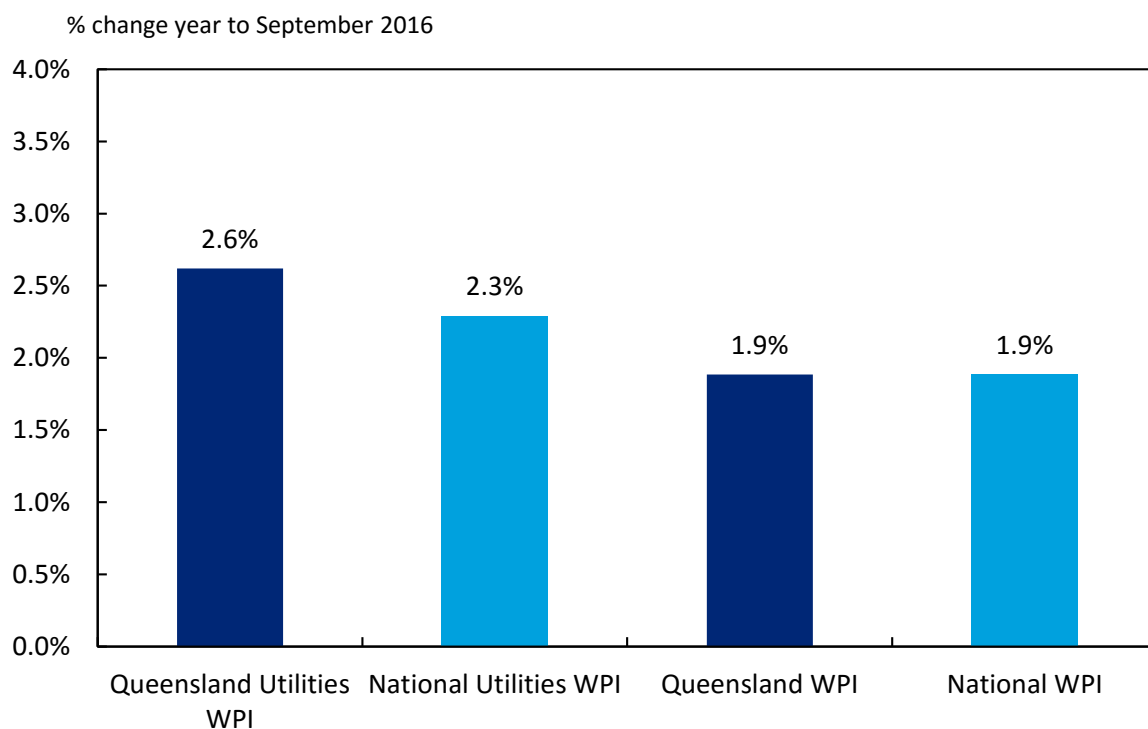
Source: Australian Bureau of Statistics, Deloitte Access Economics

6.2 The utilities sector

In the absence of ABS data for the Queensland utilities WPI, Deloitte Access Economics estimates that Queensland utilities sector wages grew by 2.6% over the year to September 2016, slightly below the 3.1% growth over the year to June 2016.

Chart 6.2 illustrates Queensland’s and Australia’s wage growth for utilities and all sectors. Queensland utilities sector WPI is estimated to have grown faster than both national utilities sector wages (at 2.6%) and overall State WPI (1.9%) over the year to September 2016.

Chart 6.2 Comparative WPI growth rates in 12 months to September 2016



*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics

Source: Australian Bureau of Statistics, Deloitte Access Economics

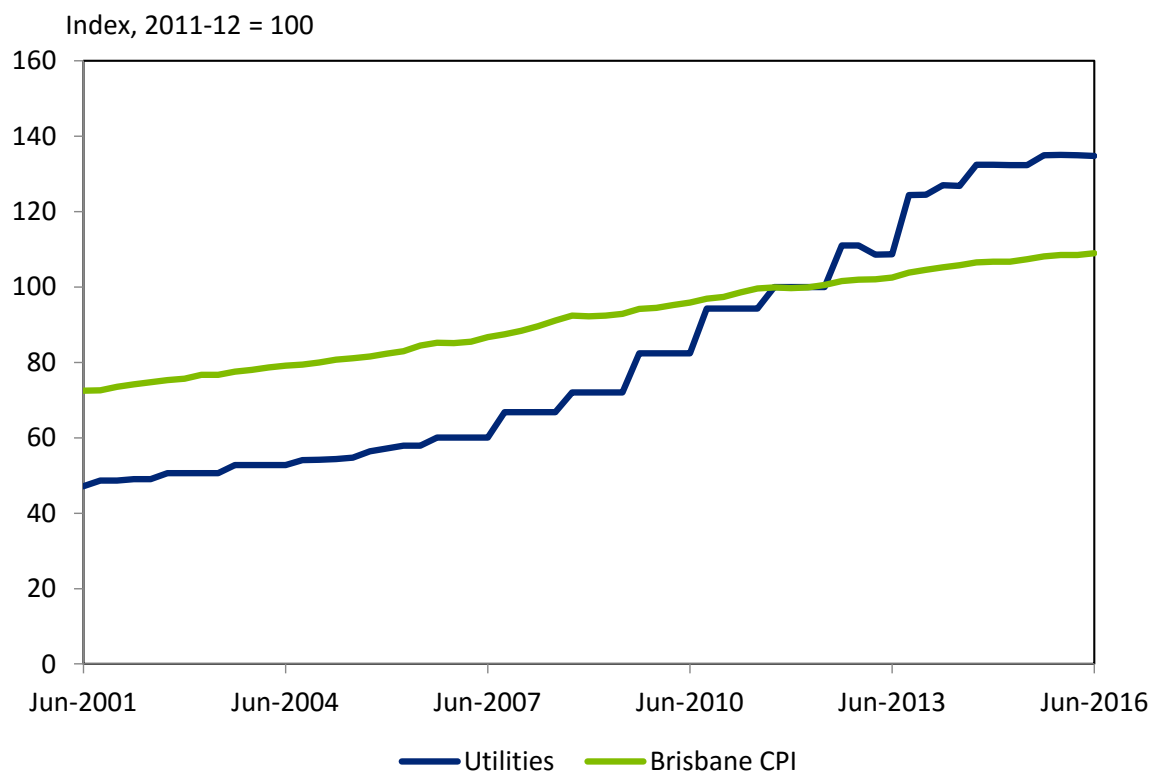
Wage growth for the Queensland utilities sector has been slowing since 2012. The following factors have contributed:

- **Wage growth is at record lows** across the economy as a whole. Taking the wider economic context into account, growth of Queensland utilities wages has proved to somewhat resilient over recent years.
- **Intense competition** is pushing retailers to look for ways to cut costs.
- **Consumer energy use is falling on a per person basis.** Household are increasingly able to save energy through the use of efficient appliances. Cost and environmental concerns also encourage consumers to limit their energy use. However, this falling use of energy is more than offset by population growth and declining persons per household.
- **Network businesses** are responding to changes to the national regulatory framework so as to make investments in infrastructure more efficient.

The **rapid increase of electricity prices** in Queensland have also been a factor pushing wages down. Queensland's electricity prices have almost doubled since 2006-07. Chart 6.3 illustrates the change in Brisbane electricity prices since June 2001. As that chart shows, utilities prices in Brisbane grew more rapidly than the total CPI between June 2007 and June 2014, but utilities price growth has since slowed, partly reflecting the removal of the carbon tax.

Growing electricity network costs have been a key factor of Queensland's strong utility price growth. Over the decade to June 2015, over \$22 billion was spent on network infrastructure, largely to facilitate increasing peak demand. The cost of the *Solar Bonus Scheme* and the Commonwealth's government's *Renewable Energy Target* also supported price growth. As the cost of providing utilities grows, network businesses fall under increasing pressure to cut costs. This has added further downward pressure on utilities wages.

Chart 6.3 Brisbane utilities prices



Source: Australian Bureau of Statistics

Although growth in Queensland's economy is on the rise, that projected lift is dominated by exports. While exports are good for State output, the resultant economic growth does not benefit wage growth and employment as much as domestically-oriented output.

The exception to this rule, however, is found in utilities. Recently opened LNG operations across Queensland have generated growth in electricity demand. New LNG facilities are likely to use increasing amounts of electricity. Electricity demand by LNG facilities is forecast by AEMO to see 3.4% average annual growth over the next two decades. This will help to underpin demand in the Queensland utilities sector relative to other States.

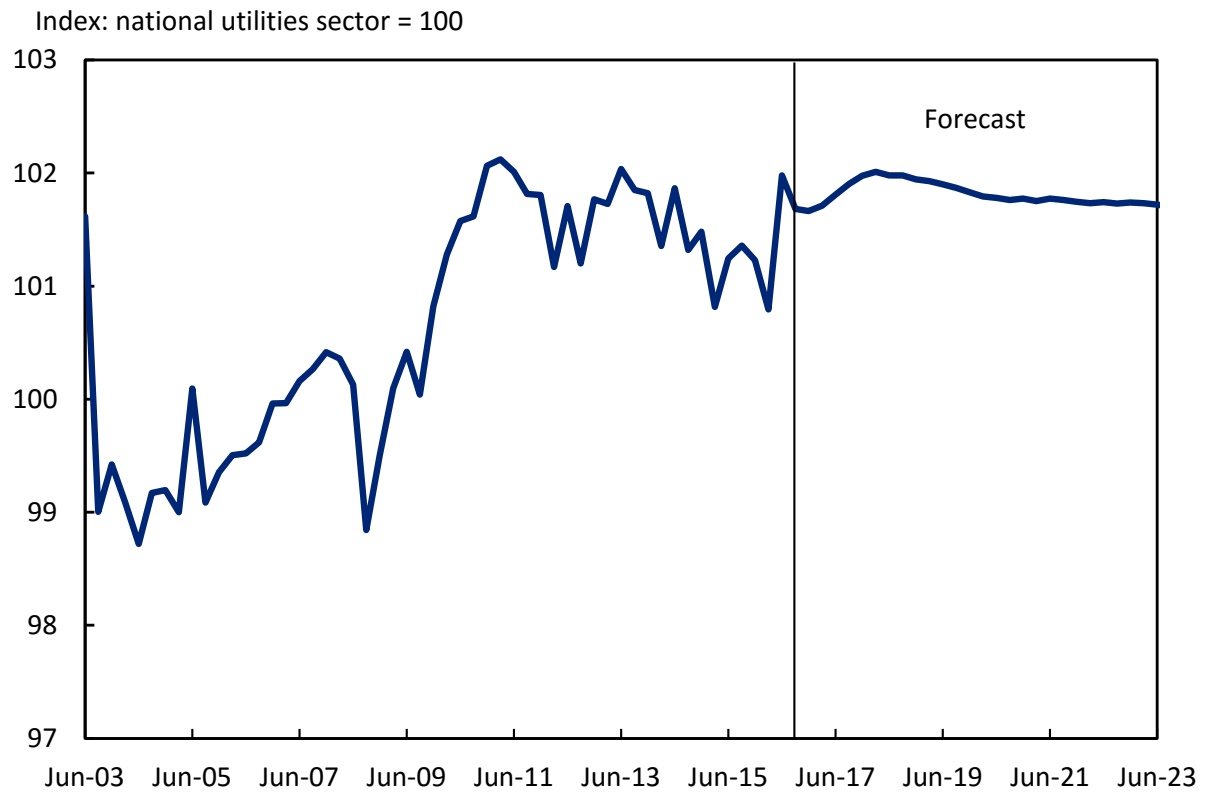
Deloitte Access Economics expects that Queensland utilities WPI growth will therefore modestly outpace national utilities WPI growth over the forecast period, as shown in Chart 6.4.

Chart 6.5 illustrates Queensland's utilities wage growth against the total Queensland WPI. The utilities sector in Queensland is likely to experience stronger wage growth than other industries in the very short term, before dipping below the Queensland WPI.

In saying this, it should be noted that, despite growing slower than the State average, the utilities WPI will slightly accelerate over the forecast period. The low wage growth seen across Queensland in the short term, as well as recovery from 2018 onwards, mirrors national trends.

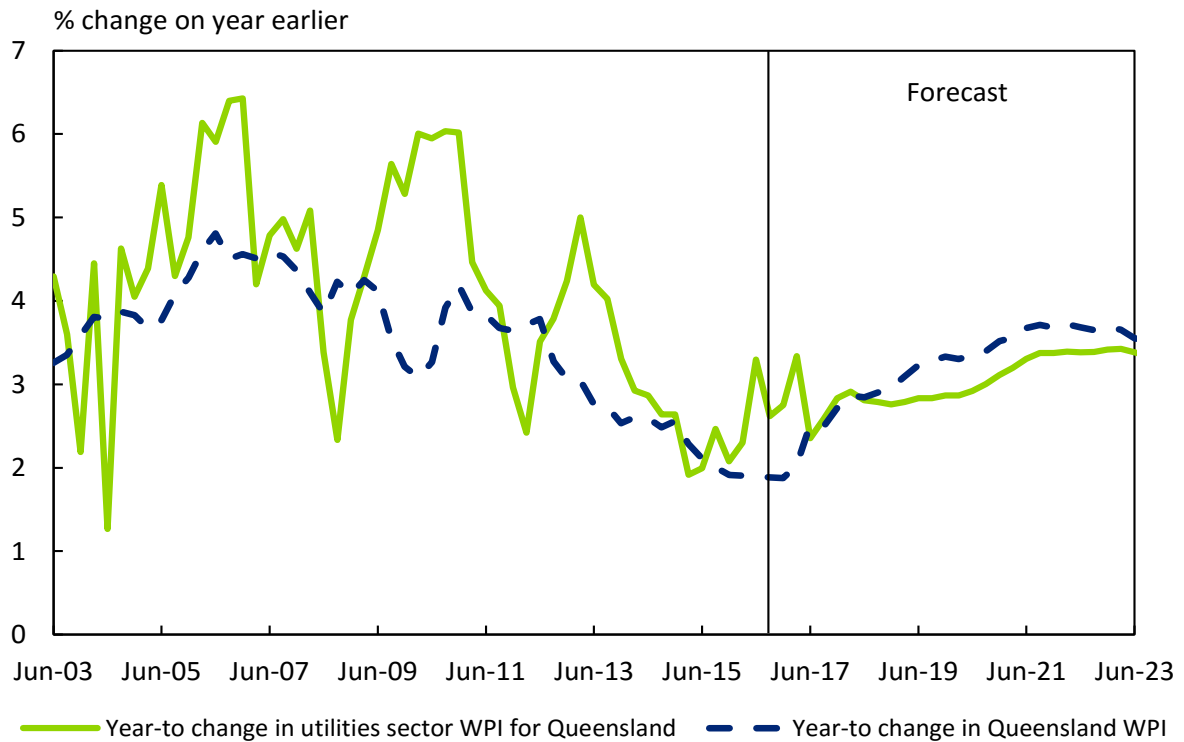
Chart 6.5 also shows that utilities sector wages in Queensland are now experiencing slower growth compared to recent years. The mining investment boom in the earlier part of the decade brought on competition for workers in the construction and mining sectors. This added significant upward wage pressure on the utilities sector, which largely attracts workers from the same pool. However, as mining construction subsided, so did demand for workers. Spare capacity in the workforce grew as major mining projects wrapped up. This put downward pressure on construction, mining and utilities wages.

Chart 6.4 Relative utilities WPI forecast for Queensland



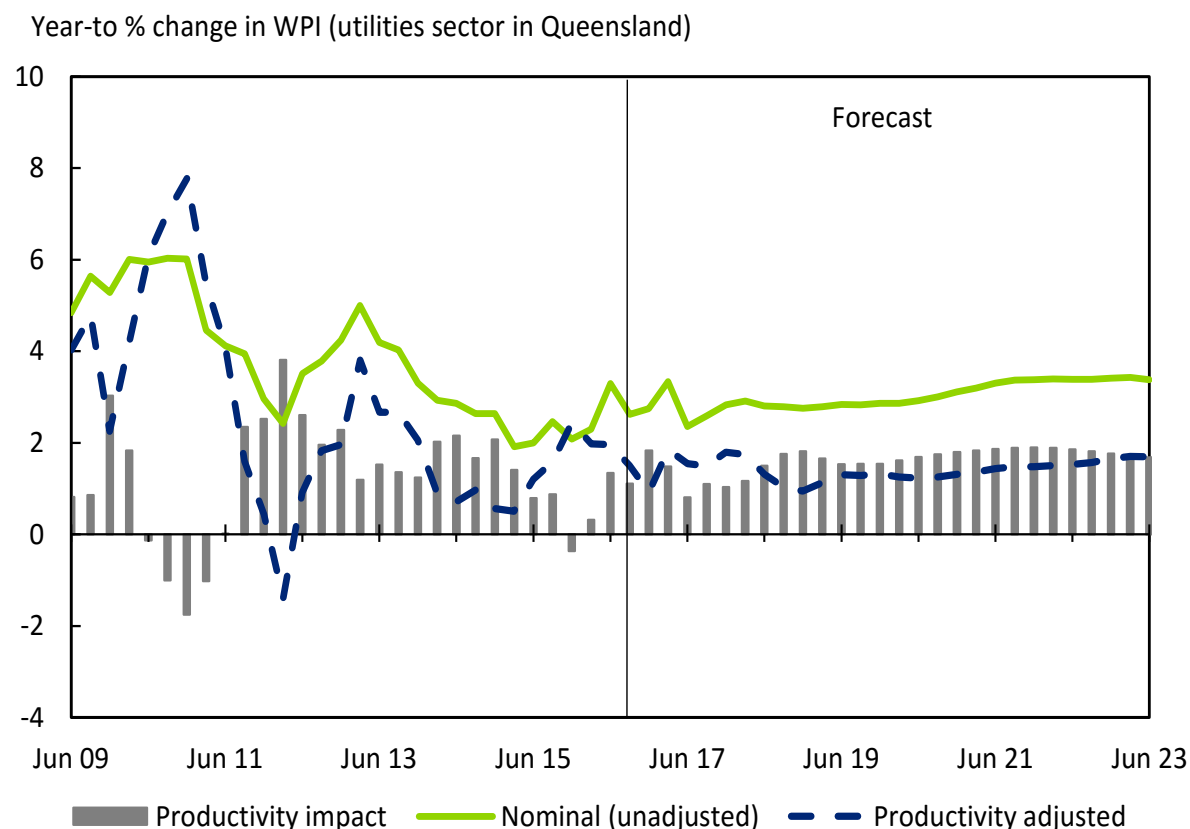
Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 6.5 Queensland utilities WPI forecast comparison



Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 6.6 Queensland utilities WPI forecasts



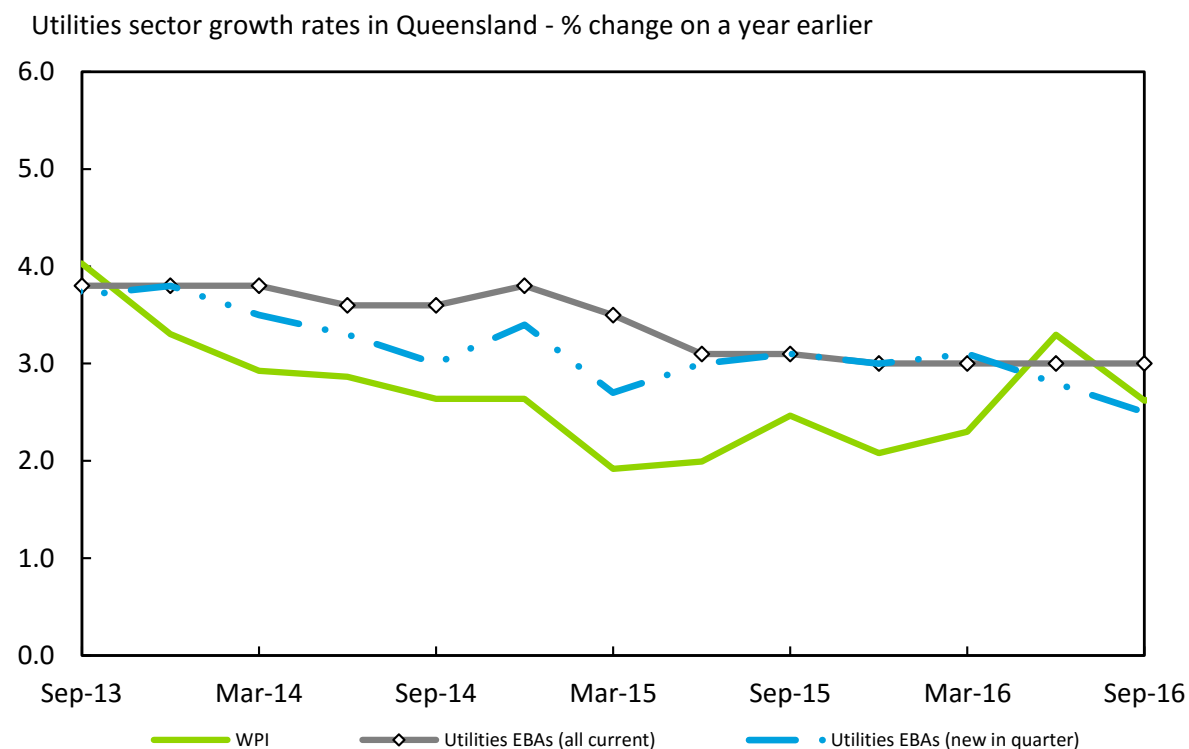
Source: Australian Bureau of Statistics, Deloitte Access Economics

Volatility in the State indices implies that actual movements in State-by-industry WPI in the future are likely to be far less smooth than shown in the charts here. Forecasting growth rates based on a point-to-point comparison of results can amplify that volatility. For that reason Deloitte Access Economics recommends that it is better to concentrate on the longer running underlying trends indicated in Chart 6.6 above.

6.2.2 Comparison with EBA outcomes

Chart 6.7 highlights that growth in utilities sector EBA wages has remained relatively constant over the last year. The Average Annualised Wage Increase (AAWI) for utilities EBAs was 3.0% in September 2016, slightly lower than the 3.1% growth observed at the same time a year earlier. Wage outcomes in new utilities EBAs have fallen for the second straight quarter, with an AAWI of just 2.5% in September 2016 – below the 3.5% average AAWI over the last five years.

Chart 6.7 Comparative measures of wage growth in the Queensland utilities sector



Source: Australian Bureau of Statistics, Department of Employment

6.3 The construction sector

Housing construction in Queensland is still showing annual growth rates of almost 10%. Housing prices are still increasing and housing finance commitments haven't slowed as much as they have in New South Wales and Victoria.

That said, however, there are some signs that the Queensland housing market is starting to cool:

- Residential building approvals have been trending lower at a relatively rapid rate since early 2016.
- The residential accommodation vacancy rate has continued to increase, while growth in dwelling rents remains weak and below the national average.
- There are growing risks around oversupply in inner city apartments in Brisbane, as residential construction continues to add significantly to apartment stock.
- Queensland's population growth has slowed from its peaks of a few years ago.

So although housing construction activity is still at a relatively high level, it is likely that the growth in the State's housing construction sector will continue to moderate.

Indeed, Queensland's engineering construction sector is already moderating in the absence of LNG projects. The \$21.5 billion Curtis Island project was completed in mid-2015, while the \$19 billion Gladstone LNG project was completed not long after. And the recent completion of the \$25.3 billion Australia Pacific LNG project marks the end of large-scale gas investment in Queensland.

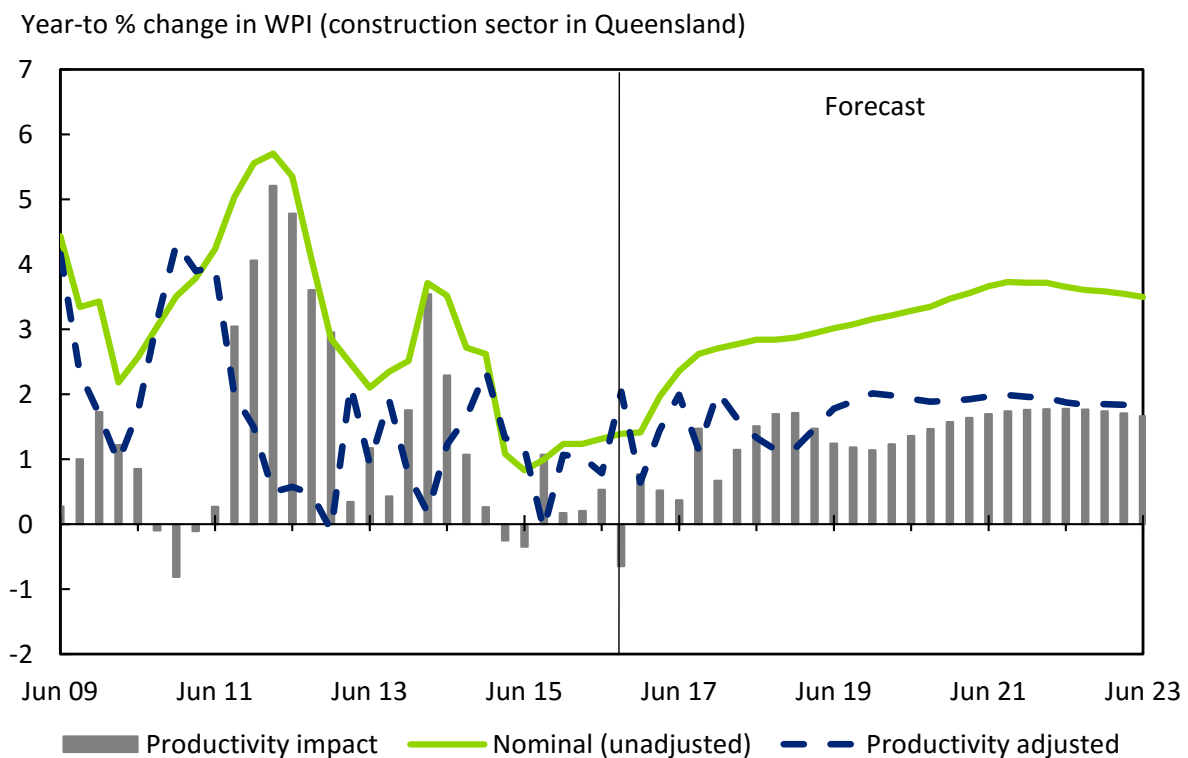
Despite the pick-up in LNG prices over 2016, new large-scale LNG investment in Queensland remains highly unlikely in the short term.

Despite the remarkable lift in coal prices over the later months of 2016, the value of coal projects under construction in Queensland has dropped to just \$3.4 billion. This follows the recent completion of the \$2 billion Grosvenor mine expansion. Adding to this, the \$1.8 billion Byerwen project and the \$1.3 billion Eagle Downs development are both due to wrap up by mid-2017. Indeed, the value of engineering construction in Queensland has fallen to the lowest level recorded by Deloitte Access Economics' *Investment Monitor* since June 2006.

Coal related construction has a slightly more positive outlook in Queensland. There are a number of planned projects for coal in Queensland, including the \$21.7 billion Adani Carmichael coal mine, which is still in the approval process. Planning is also underway for the \$8.3 billion China First project in the Galilee Basin. Overall, there is almost \$60 billion worth of proposed coal investment in Queensland. However, it remains unlikely that the majority of these projects get underway.

Tourism remains the bright spot of Queensland's commercial construction sector. The lower \$A, falling costs of air travel, and proximity to China's rising middle-class have combined to boost tourist numbers. Hotels and resorts now make up around half of the total commercial project pipeline for Queensland. Investment is led by the planned \$5 billion Airlie beach resort, the redevelopment of Great Keppel Island resort and the Aquis Great Barrier Reef project – both valued at \$2 billion. In fact, of the almost \$20 billion national tourism project pipeline, around two-thirds is being invested in Queensland.

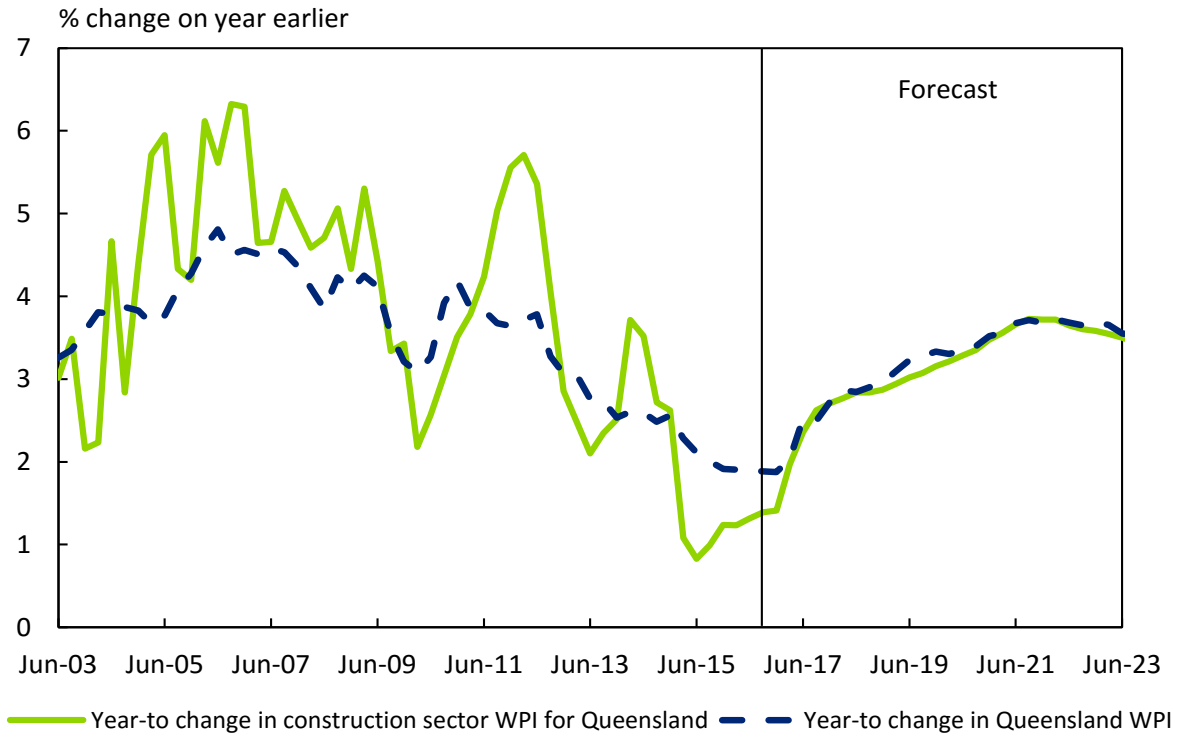
Chart 6.8 Queensland's construction WPI forecasts



Source: Australian Bureau of Statistics, Deloitte Access Economics

Over the medium term, expectations for wages in the Queensland construction sector match expectations for overall wage growth in the State. Chart 6.9 illustrates Queensland's overall wage growth against the State's construction sector wage growth. While construction sector wage growth is expected to remain weaker than overall WPI in Queensland in the short term, recovery is imminent. It is expected that the Queensland construction sector will track closely with State-wide wage growth over the medium term.

Chart 6.9 Comparative measures of wage growth in Queensland construction



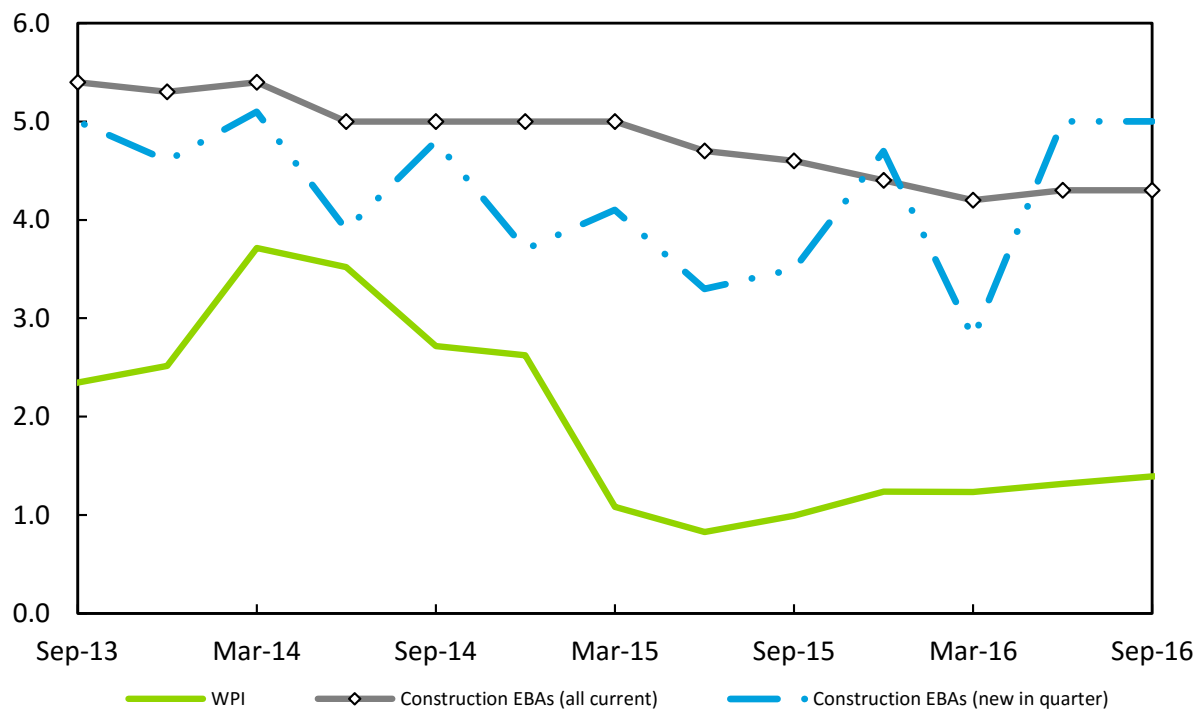
Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 6.10 compares the growth in Queensland’s construction sector WPI with results from EBAs. The chart shows that:

- After falling over 2014 and 2015, the Average Annualised Wage Increase (AAWI) in construction sector EBAs has moderated. The AAWI for current construction sector EBAs has grown to 4.3% in September 2016, after reaching a low in March of that year. This has been driven by an improvement in wage outcomes in new EBAs signed over the course of 2016.
- New EBAs, which are a barometer for future wage growth, grew by just 2.8% in the March quarter of 2016. The AAWI for new EBAs has subsequently increased to 5.0% in the June and September quarters. This is higher than the average wage increase of 4.7% over the last five years, and follows a similar spike observed at the national level for the construction sector.
- A relatively high proportion of construction sector workers in Queensland are covered by EBAs. More than 20,000 construction sector employees were covered by an EBA in September 2016, around 9.3% of the total workforce (according to the ABS labour force survey). This is higher than the national average of 8.4% and is almost double the coverage observed in States such as New South Wales.

Chart 6.10 Comparative measures of wage growth in the Queensland construction sector

Construction sector growth rates in Queensland - % change on a year earlier



Source: Australian Bureau of Statistics, Department of Employment

6.4 Summary results

Forecasts for sectoral wage growth in Queensland are shown in Table 6.1. Forecasts include real and nominal WPI, and real and nominal productivity-adjusted WPI.

Table 6.1 Queensland wage forecasts

Financial year changes in Queensland nominal Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.9	2.1	2.7	3.0	3.3	3.5	3.7	3.6
Utilities*	2.5	2.8	2.8	2.8	2.9	3.2	3.4	3.4
Construction	1.2	1.8	2.7	2.9	3.2	3.5	3.7	3.6

Financial year changes in Queensland real Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.3	0.2	0.9	0.9	1.2	1.2	1.2	1.2
Utilities*	0.9	0.9	0.9	0.7	0.8	0.8	0.9	1.0
Construction	-0.4	-0.1	0.9	0.8	1.1	1.2	1.2	1.2

Financial year changes in Queensland nominal productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.6	-0.2	1.4	0.8	1.0	0.7	0.9	1.1
Utilities*	2.0	1.5	1.6	1.1	1.3	1.3	1.5	1.7
Construction	0.7	1.5	1.5	1.4	2.0	1.9	1.9	1.8

Financial year changes in Queensland real productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.0	-2.0	-0.5	-1.3	-1.1	-1.6	-1.5	-1.2
Utilities*	0.4	-0.4	-0.3	-1.0	-0.8	-1.0	-0.9	-0.7
Construction	-0.9	-0.3	-0.3	-0.7	-0.1	-0.4	-0.5	-0.5

*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics.

Source: Australian Bureau of Statistics, Deloitte Access Economics

7 South Australia wage growth forecasts

This chapter sets out the projections for labour costs in the utilities sector in South Australia, and provides additional State level projections for the construction industry in South Australia.

Note that WPI data for the utilities and construction sectors in South Australia is not available from the ABS. Deloitte Access Economics uses estimates for these sectors. Details are given in Appendix A.

7.1 State trends

South Australia's economy has been an average performer. The State has not suffered from the downturn in mining investment, but at the same time it has not experienced the boom in housing construction that the east coast States have.

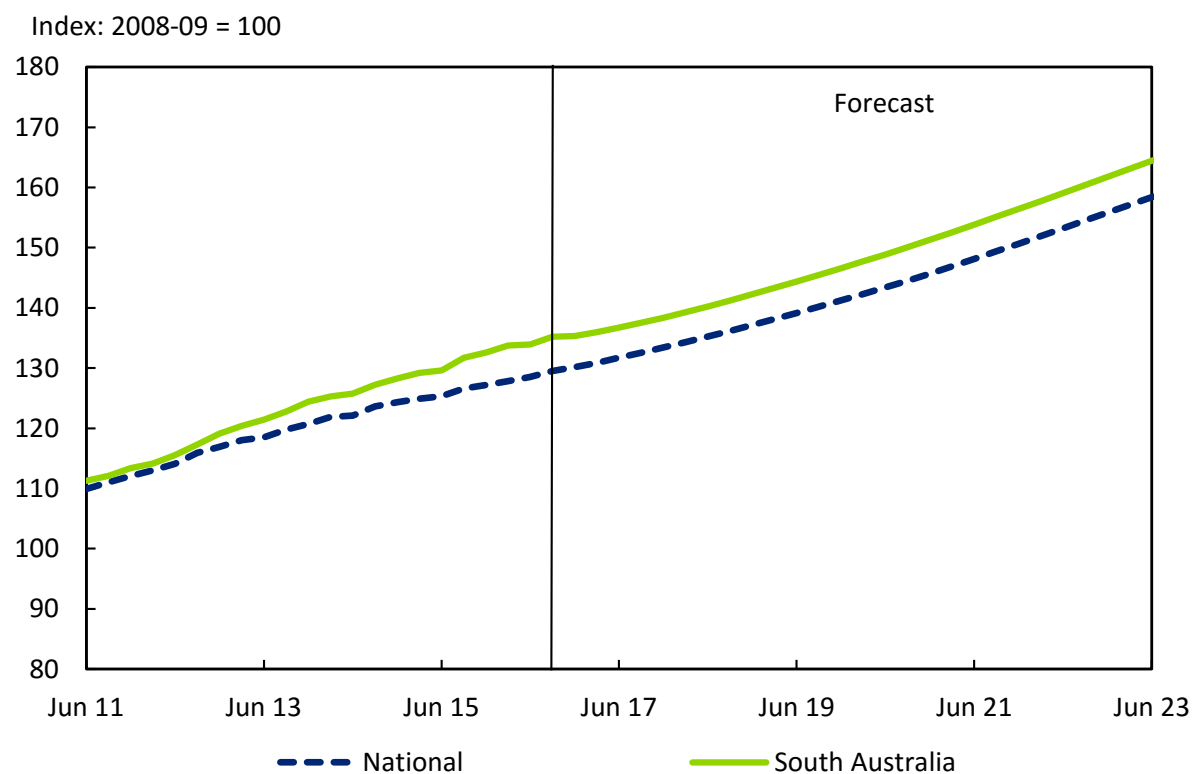
Looking ahead, key drivers for the State's economic outlook include:

- **The expected closure of key employers in the manufacturing sector**, including the departure of Holden from the State by the end of 2017, is expected to have significant direct and indirect effects on employment growth in the State. Add to this the uncertainty surrounding the future of the steel maker Arrium and there may be a large decline in industrial demand for electricity in the State.
- **The over reliance of government contracts for future growth remains a key risk.** The Commonwealth Government has pledged substantial investment in South Australia's defence industry, which should help to keep the States manufacturing sector afloat as other producers close down. However, placing a number of the State's eggs in one basket is risky, all the more so considering that federal funds are limited due to ongoing Budget constraints and pressure to spread the gains across the whole country.
- **South Australia's electricity generation sector made headlines** recently following the severe weather events in September 2016 that resulted in a state wide blackout.⁴ A number of key decisions still need to be made including on the possible construction of new interconnectors between South Australia and the rest of the National Energy Market. The increase in power generation from renewable energy sources (solar and wind) also presents decision makers with new challenges to ensure the continuation of supply.

Chart 7.1 below shows that wage growth in the utilities sector in South Australia is projected to be less than the wage growth projected for the national utilities sector. This is in contrast to recent history, which has seen wage growth in the South Australia utilities sector at a higher rate than for the Australian utilities sector.

⁴ This event triggered the COAD Energy Council to launch an independent review into the security of Australia's energy system. It is being led by Australia's Chief Scientist, Dr. Alan Finkel, and a public consultation process is currently underway on the preliminary report.

Chart 7.1 Utilities sector WPI forecasts – national and South Australia

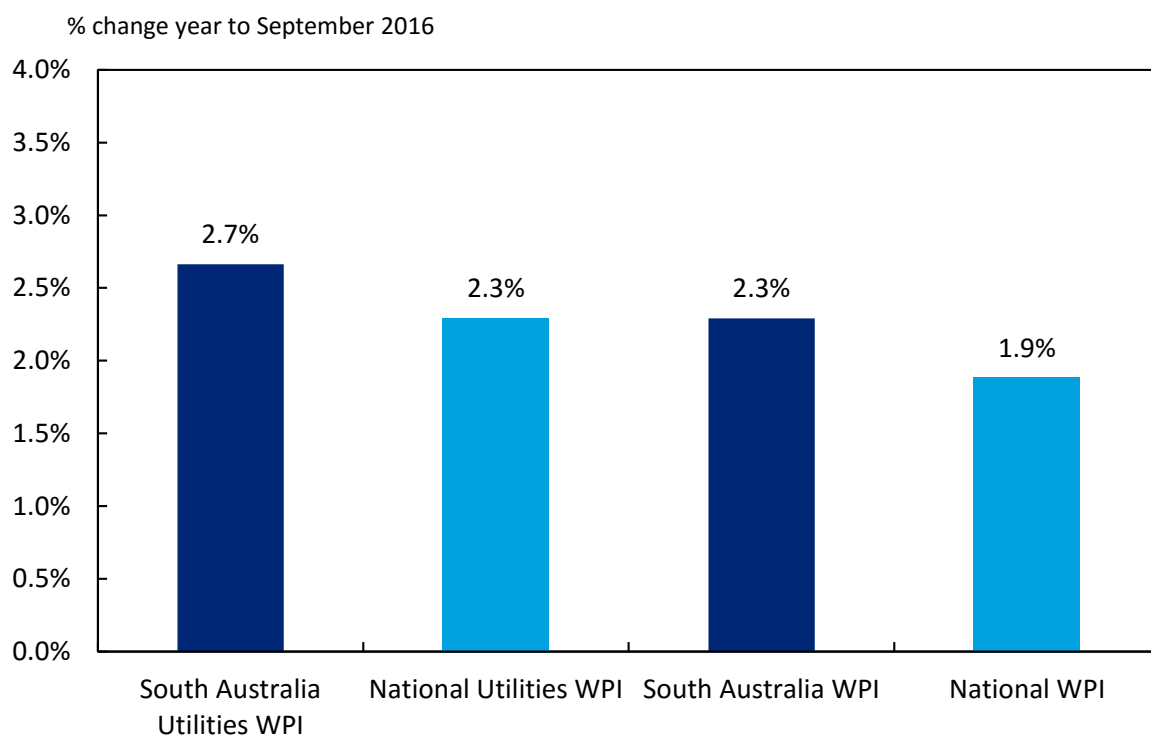


Source: Australian Bureau of Statistics, Deloitte Access Economics

7.2 The utilities sector

In the absence of ABS data for the South Australian utilities sector, Deloitte Access Economics estimates that the South Australia utilities WPI grew by 2.7% over the year to September 2016. As shown in Chart 7.2, this is slightly above average wage growth for the Australian utilities sector (at 2.3%), and above wage growth across all industries in South Australia (2.3%) and nationally (1.9%), over the same period.

Chart 7.2 Comparative WPI growth rates in 12 months to September 2016



*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics

Source: Australian Bureau of Statistics, Deloitte Access Economics

Estimated wage growth in the South Australian utilities sector is relatively stronger than wage growth in the national utilities sector or in the overall South Australian economy. However, wage growth in this sector has not been immune from the broader trend across the economy towards lower rates of growth. Private sector wage growth remains at record lows in Australia, as the excess slack in the labour market produced by the mining investment downturn has reduced the bargaining position of workers.

Apart from national trends, there are also State-specific factors which are effecting wage outcomes in South Australia's utilities sector. South Australia has been at the forefront of the push towards generating electricity from renewable energy sources. The South Australian Government has implemented a policy which will see 50% of the State's energy requirements come from renewable sources by 2025. This is expected to spur investment in sector, increasing demand for qualified technicians and other workers with the right skills, which may increase pressure on wages.

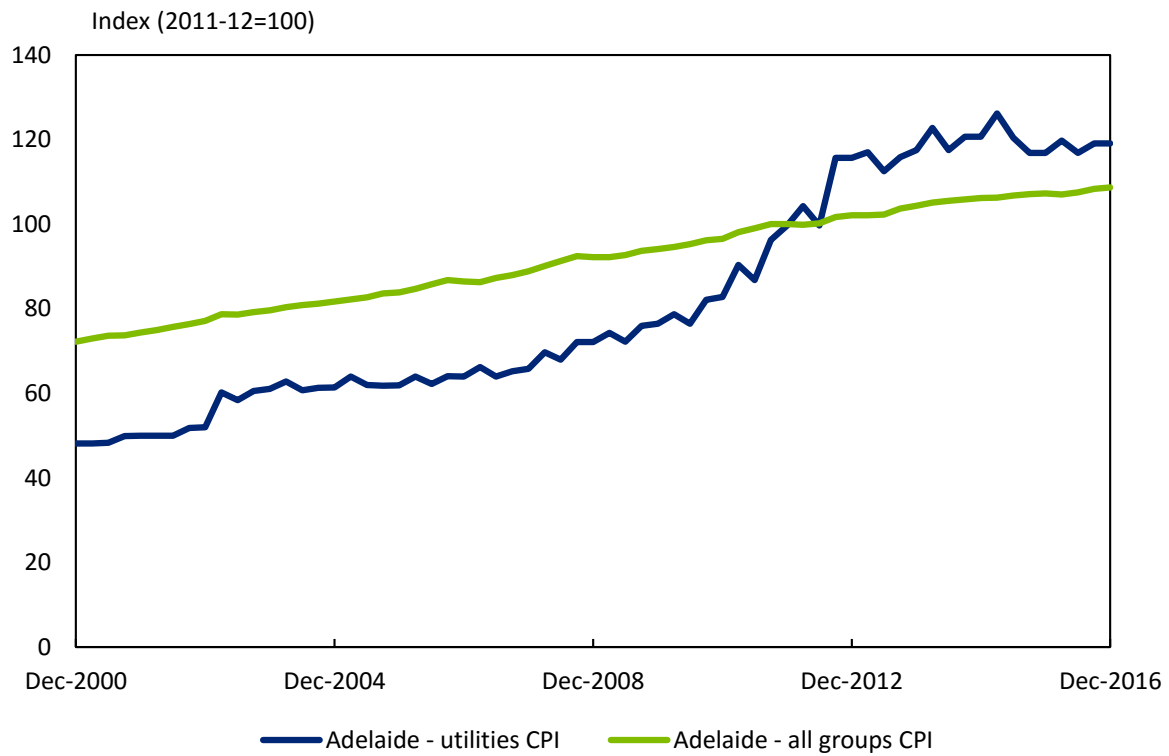
However, this also presents a number of other challenges for existing investments in other power producing assets, as well as the electricity network. This will have implications for employment and wages elsewhere in the sector.

The States renewable energy policy and what it means for the sector came into focus in September 2016 as a series of severe weather events caused a State-wide blackout. Even though most experts agree that the policy did not cause the blackout, it has prompted them to question whether the policy is leading to the correct level and types of investment in energy infrastructure in the State.

Even with all this new investment, there is little evidence to show that this has resulted in substantial price rises. If anything, electricity price growth has moderated in Adelaide since 2012 (which coincides with the introduction of the carbon tax). Prices grew by an average of 0.5% per annum over the three years to December 2016 (considerably lower than the annual average growth over

the three years prior of 12.4%). This is significantly lower than the rate of overall price growth in the State of 1.4% over the same period.

Chart 7.3 South Australia utilities prices



Source: Australian Bureau of Statistics

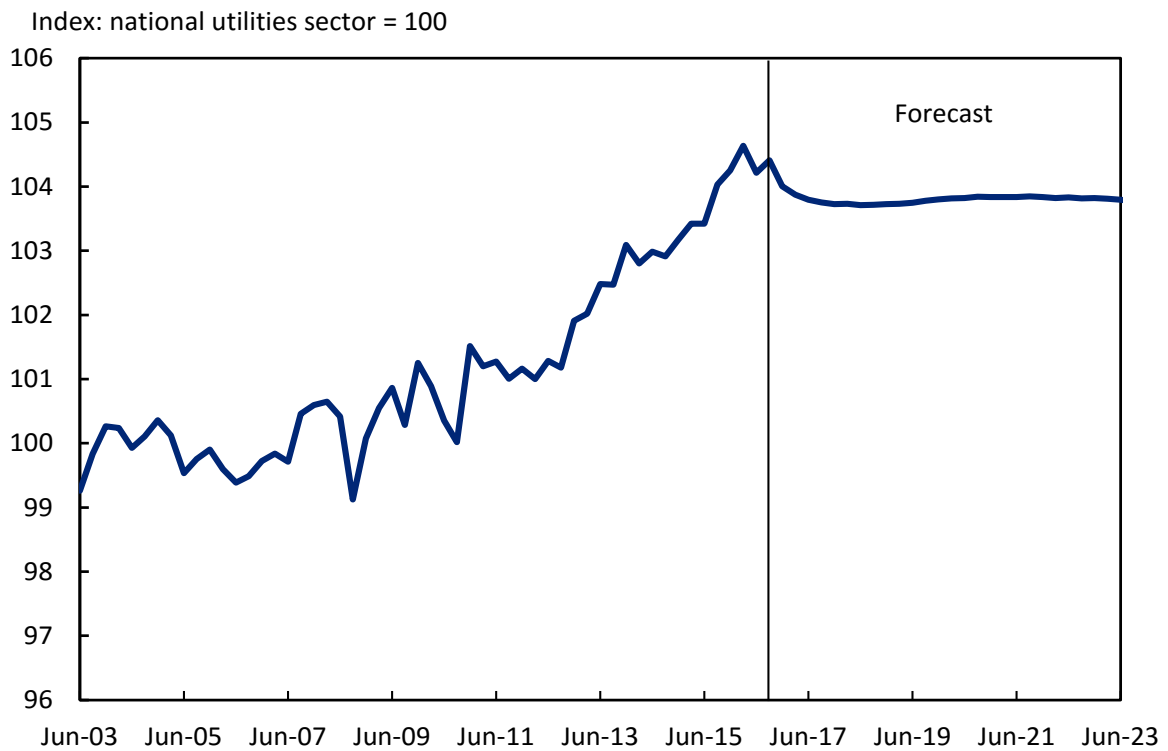
Lower price growth is due to a number of factors:

- Low rates of population growth remains a drag on the utilities sector as the demand for utilities increases along with the size of the community.
- Previous price rises and concern about the environment have prompted the installation of energy saving devices which lower energy consumption.
- The continued downturn in key energy intensive sectors in the State such as manufacturing has also reduced demand for energy. This is a trend which is expected to continue as the last car assembly plants close and the future of the Arrium smelter remains uncertain.

These State-specific factors means that we expect employment growth in this sector to be moderate at best, which will keep downwards pressure on wages growth. As Chart 7.4 below shows, we expect wage outcomes in the South Australian utilities sector to be mostly consistent with the national average for the sector. However, this still puts wage growth in this sector below that for the State as whole (Chart 7.5).

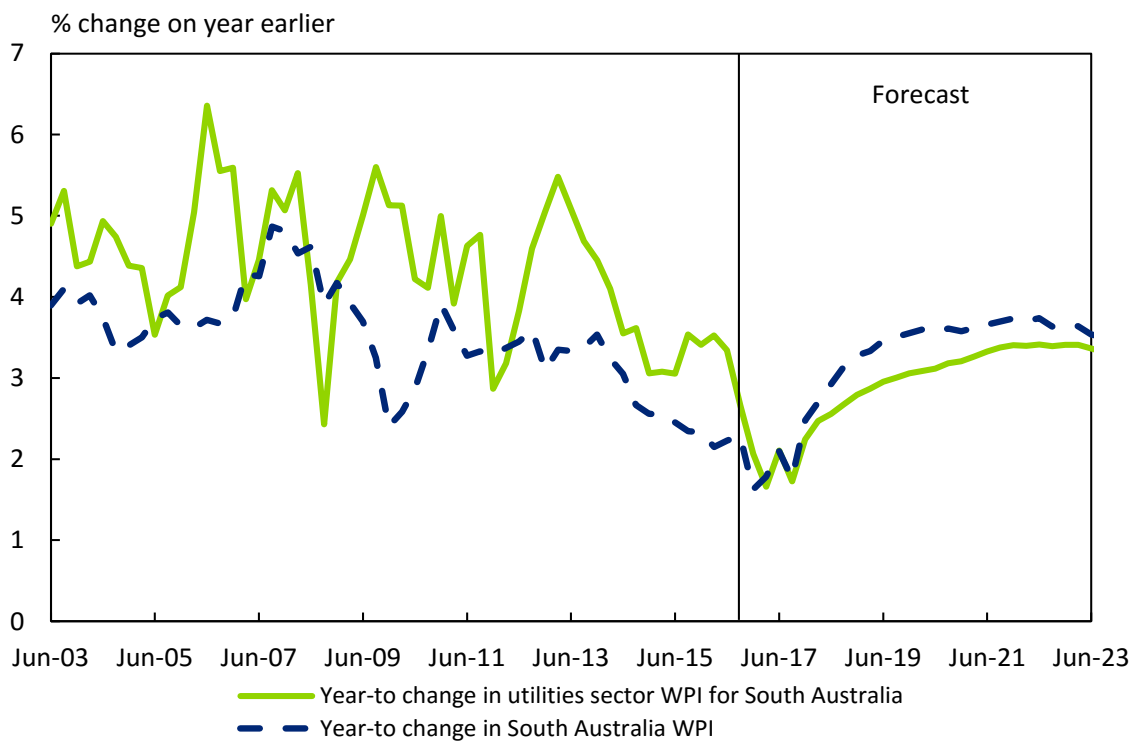
This is a reversal of the historical trend which has seen wage growth in the South Australian utilities sector outpace that of the economy as a whole. The change in fortunes reflects the period of difficulty that the sector is currently facing due to weaker demand from continued slow population growth and, more importantly, from the closure of energy intensive industries.

Chart 7.4 Relative utilities WPI forecast for South Australia



Source: Australian Bureau of Statistics, Deloitte Access Economics

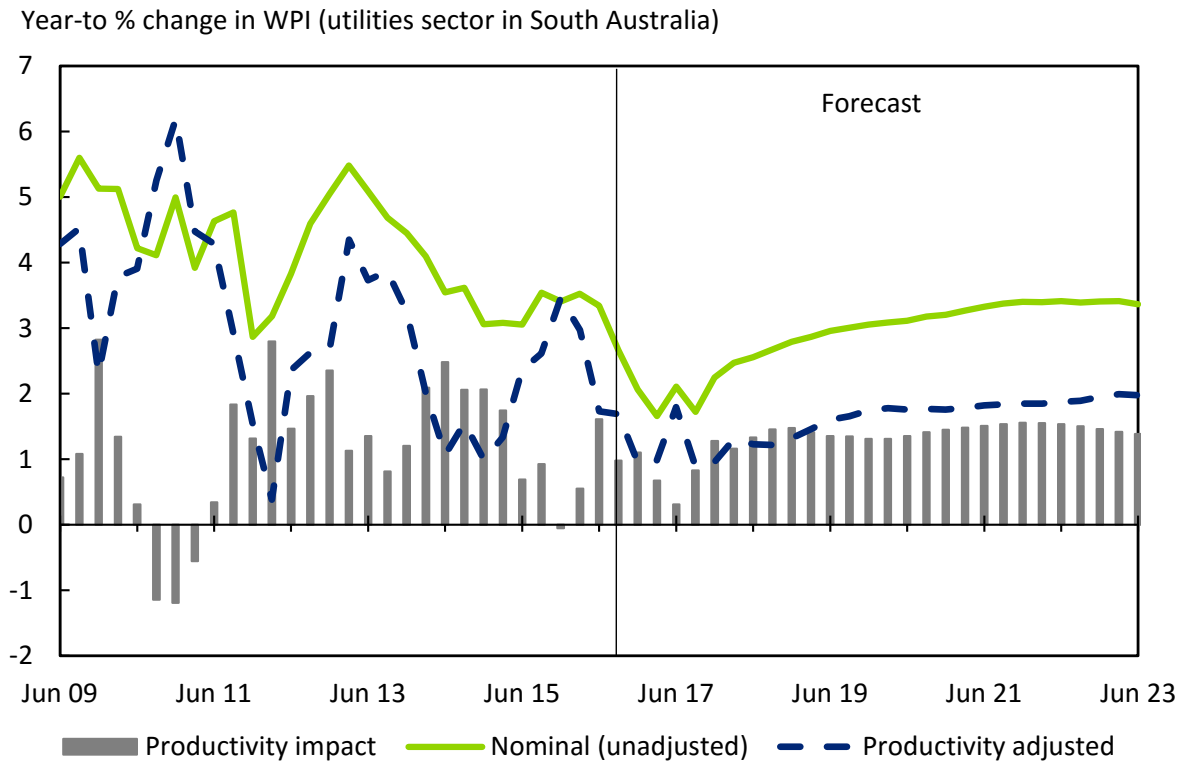
Chart 7.5 South Australia utilities WPI forecast comparison



Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 7.6 below separates out our forecast for wage growth in the South Australian utilities sector into its productivity and 'other' components. Productivity growth is expected to be consistent with recent historical trends. However, productivity-adjusted wages are expected to grow at a slower rate than in history, showing the effect of the current low inflation, low income growth environment on the sector.

Chart 7.6 South Australia utilities WPI forecasts



Source: Australian Bureau of Statistics, Deloitte Access Economics

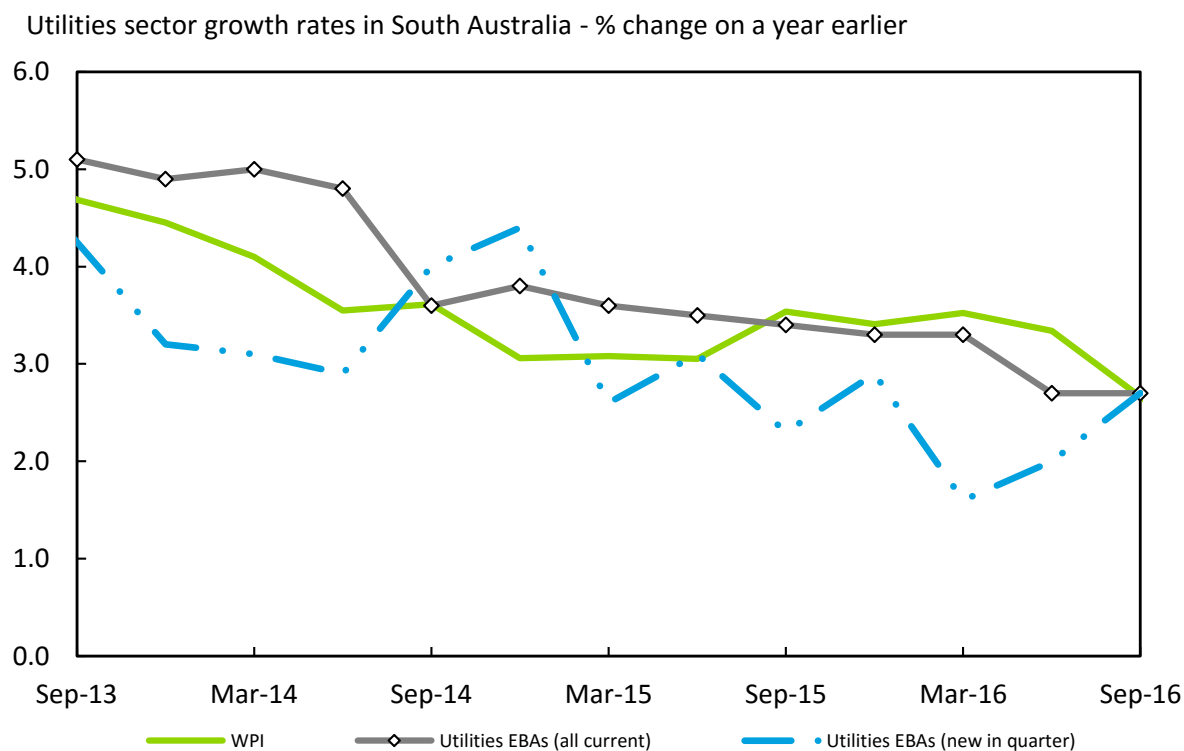
Volatility in the State indices implies that actual movements in State-by-industry WPI in the future are likely to be far less smooth than shown in the charts here. Forecasting growth rates based on a point-to-point comparison of results can amplify that volatility. For that reason Deloitte Access Economics recommends that it is better to concentrate on the longer running underlying trends indicated in Chart 7.6 above.

7.2.2 Comparison with EBA outcomes

The following section compares growth in South Australia's utilities sector WPI against outcomes in EBAs. Chart 7.7 shows that:

- Wage growth in current utilities sector EBAs has been falling over the last three years, reaching a low of 2.7% in the September quarter of 2016.
- This is down from the 3.4% growth seen at the same time in 2015, and is 0.5 percentage points below the Australian average for the utilities sector.
- New EBAs, however, have been trending up since mid-2016. The Average Annualised Wage Increase (AAWI) for new EBAs reached 2.7% in the September quarter of 2016, the same result for wage growth across all existing utilities sector EBAs. This is the first quarter that wage growth for new EBAs was at least as high as wage growth in existing EBAs since December 2014.

Chart 7.7 Comparative measures of wage growth in the South Australian utilities sector



Source: Australian Bureau of Statistics, Department of Employment

7.3 The construction sector

The South Australian **housing construction sector** has not benefited from the same trend towards substantial increases in housing construction that have occurred in the east coast capital cities. Part of this is due to the lower rates of dwelling price growth in Adelaide, which have continued to moderate over the past year. There is also less underlying demand in the state due to weak population growth, as well as a lower levels of investor activity which tends to drive housing cycles.

Overall, the State's housing construction outlook is relatively moderate, reflecting the State's slow population growth.

The outlook for South Australia's **engineering construction** sector remains relatively subdued. There is currently only one large mining construction project underway, the \$975 million Carrapateena copper project.

The good news is that there are more than \$15 billion worth of mining projects planned in the State, including the \$4.5 billion Central Eyre iron ore project and the \$3.2 billion Arckaringa coal project. However, it is not certain that these will go ahead, although the higher prices for key commodities currently on offer do increase their chances.

There is more activity in the transport construction sector, with the value of road and rail projects tripling over the last two years. There are currently six major road projects underway in South Australia worth a combined value of more than \$3 billion, with another \$6 billion in the planning stages. The largest project currently underway is the South Road upgrade, valued at around \$900 million. There are also two, billion dollar projects south of Sir Donald Bradman Drive in planning, which if they were occur would provide significant opportunities for the sector.

There is not much good news for **commercial construction**. The \$2.3 billion New Royal Adelaide Hospital is due for completion in the first half of 2017, and with another \$2 billion in construction set to wrap up by the end of the year, the value of work underway will decline.

However, there are some smaller projects which will continue. This includes the \$354 million expansion of the Adelaide Convention Centre, as well as a number of retail projects such as the \$350 million redevelopment of Westfield Marion Shopping Centre and the \$250 million Playford City CBD project.

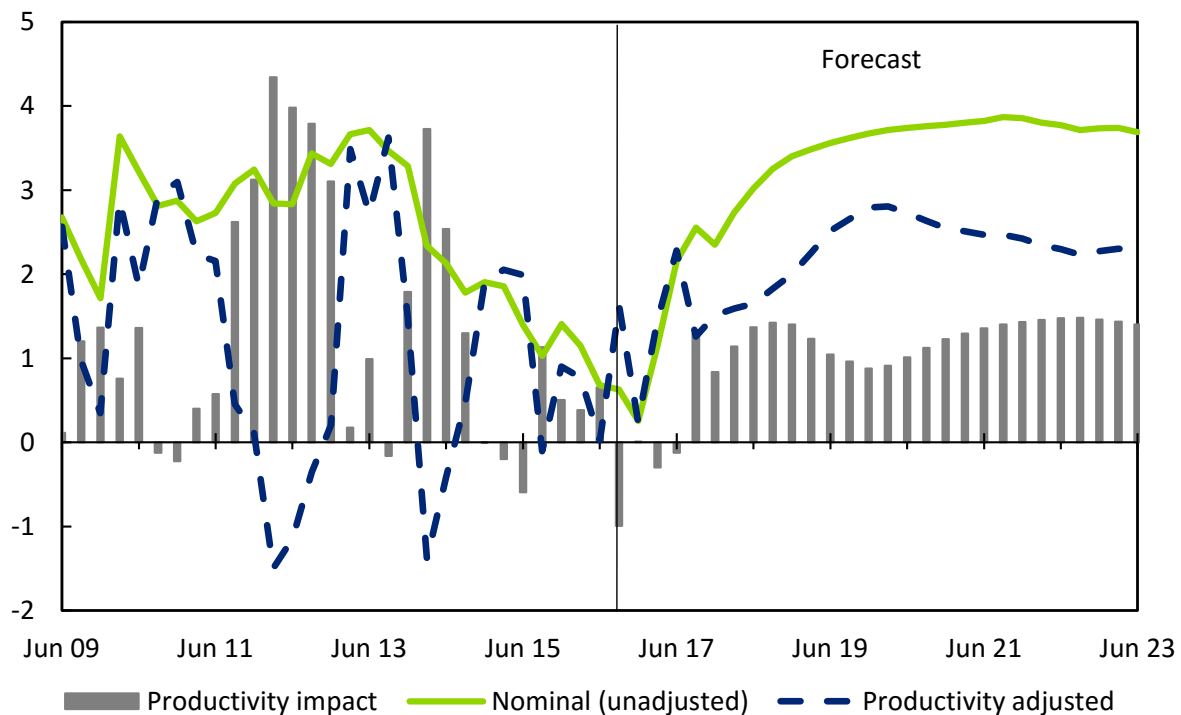
Health and education projects are also well represented in South Australia, with the University of South Australia’s \$230 million Health Innovation Centre and the \$206 million Adelaide University Medical and Nursing School both under construction.

The pipeline received a boost over recent months with plans announced for a \$400 million redevelopment of Central Market Arcade and for a \$240 million health care hub adjacent to Lyell McEwin hospital.

Low levels of activity in the construction sector has kept downwards pressure on wages. We expect this to continue over 2017, as major projects currently underway come to fruition. Over the rest of the forecast period we expect wage growth to return to more historically normal levels. Over the forecast period to June 2023, nominal wages are expected to grow at an average annual rate of 3.5% and productivity-adjusted wages are projected to grow at 2.2% over the same period.

Chart 7.8 South Australia’s construction WPI forecasts

Year-to-% change in WPI (construction sector in South Australia)

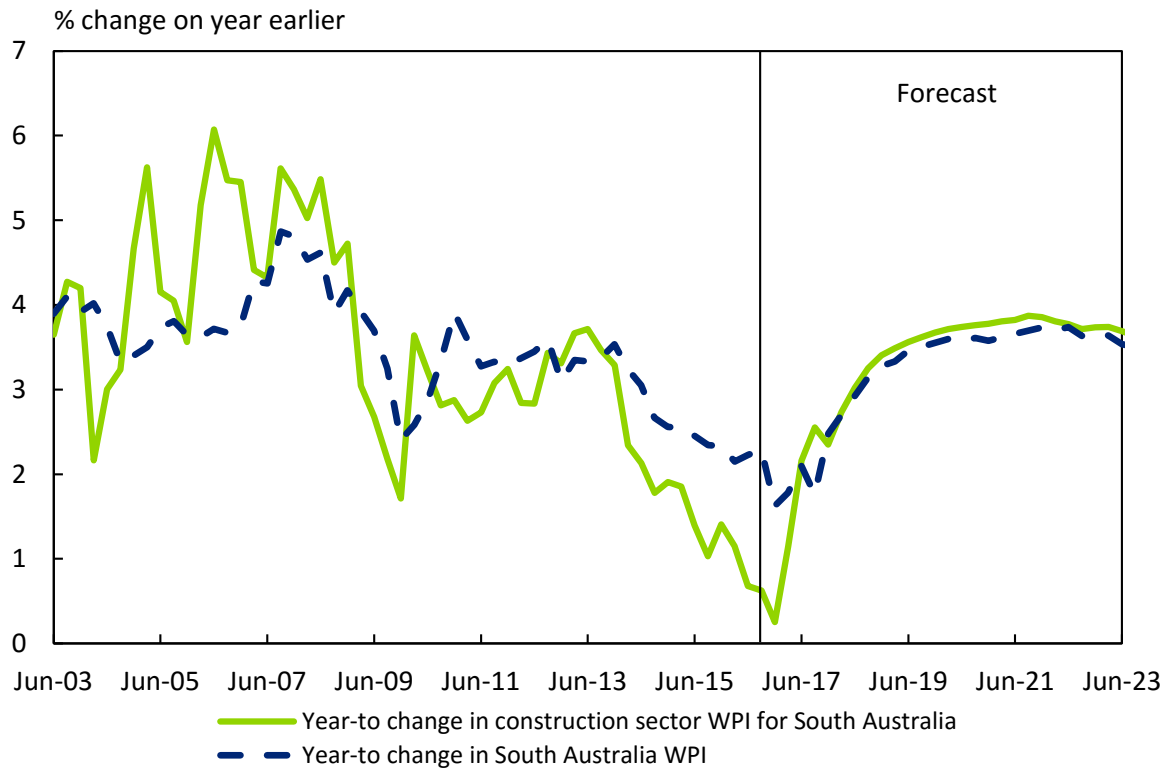


Source: Australian Bureau of Statistics, Deloitte Access Economics

Over the medium term, wages growth expectations for the South Australian construction sector are in line with overall wage growth expectations for the State. Chart 7.9 shows that the South Australian construction sector has experienced a fall in wage growth in excess of that experienced in the broader South Australian economy. This reflects the lack of activity in the sector, which has

not benefited from the big increases in residential construction seen in other states including New South Wales and Victoria.

Chart 7.9 Comparative measures of wage growth in South Australia construction

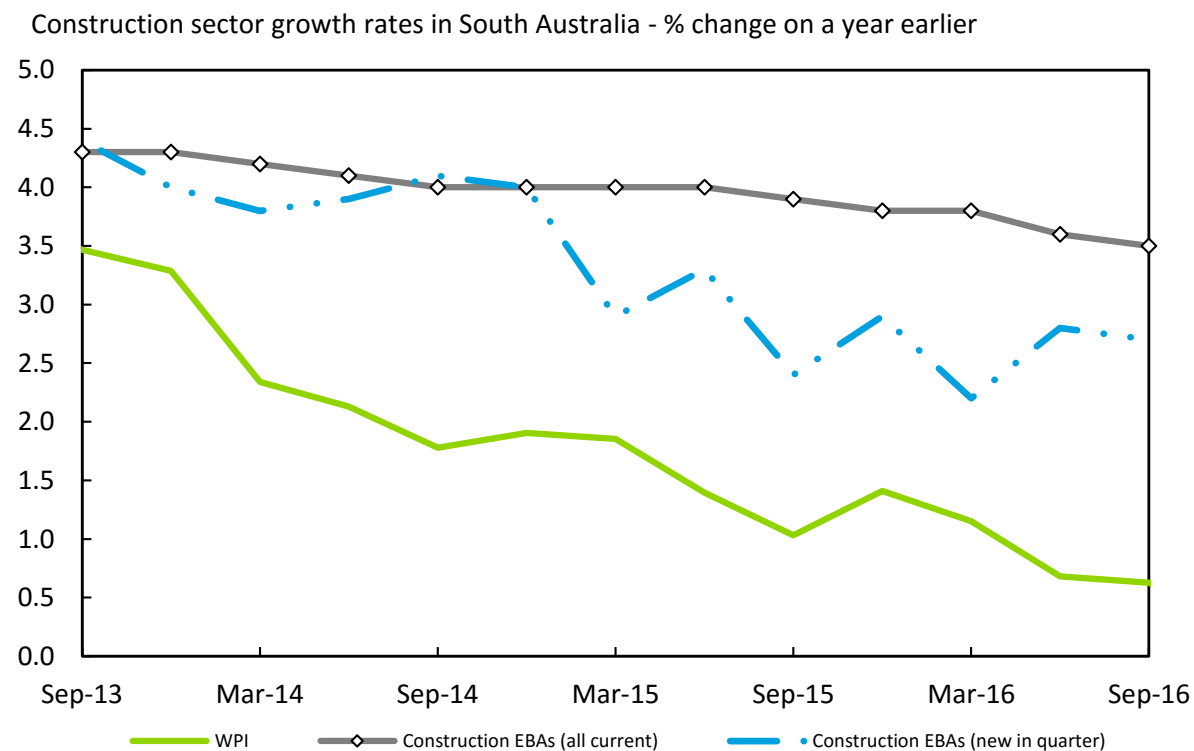


Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 7.10 compares the growth in South Australia’s construction sector WPI with partial results from EBAs. The chart shows that:

- Wage growth in new and existing construction sector EBAs has moderated, but still remains well above broader WPI outcomes for the sector as a whole. Wage growth for new EBAs, which are a barometer for future wage growth, fell back to 2.7% in the September 2016 quarter.
- The decline in wage growth in new agreements continues to push down the overall rate of wage growth across South Australian construction sector EBAs, which was at 3.5% over the year to September 2016.
- It is worth remembering that of the almost 70,000 people employed in the South Australian construction sector (according to the ABS labour force survey), only 4,200 were covered by active EBAs in the September quarter of 2016. This equates to 6.2% of the total construction sector workforce, significantly lower than the 8.4% coverage seen at the national level.

Chart 7.10 Comparative measures of wage growth in the South Australian construction sector



Source: Australian Bureau of Statistics, Department of Employment

7.4 Summary results

Forecasts for sectoral wage growth in South Australia are shown in Table 7.1. Forecasts include real and nominal WPI, and real and nominal productivity-adjusted WPI.

Table 7.1 South Australia wage forecasts

Financial year changes in South Australia nominal Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	2.3	1.9	2.5	3.3	3.6	3.6	3.7	3.6
Utilities*	3.5	2.1	2.2	2.8	3.1	3.2	3.4	3.4
Construction*	1.1	1.0	2.7	3.4	3.7	3.8	3.8	3.7

Financial year changes in South Australia real Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.4	0.0	0.6	1.2	1.4	1.2	1.2	1.2
Utilities*	2.6	0.2	0.4	0.7	1.0	0.9	0.9	1.0
Construction*	0.2	-0.9	0.8	1.3	1.6	1.4	1.3	1.3

Financial year changes in South Australia nominal productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.0	2.5	0.5	1.9	2.2	2.3	2.2	2.3
Utilities*	2.7	1.4	1.1	1.4	1.7	1.8	1.9	2.0
Construction*	0.4	1.4	1.5	2.2	2.7	2.5	2.4	2.3

Financial year changes in South Australia real productivity adjusted Wage Price aggregates								
Annual % change	History		Forecast					
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.1	0.5	-1.4	-0.1	0.1	-0.1	-0.2	-0.1
Utilities*	1.8	-0.6	-0.8	-0.7	-0.3	-0.6	-0.6	-0.4
Construction*	-0.5	-0.5	-0.4	0.1	0.7	0.2	-0.1	-0.1

*Historical data estimated using Deloitte Access Economics' labour cost model. Unavailable from the Australian Bureau of Statistics

Source: Australian Bureau of Statistics, Deloitte Access Economics

8 Tasmania wage growth forecasts

This chapter sets out the projections for labour costs in the utilities and construction sectors in Tasmania.

Note that WPI data for the utilities and construction sectors in Tasmania is not available from the ABS. Deloitte Access Economics uses estimates for these sectors. Details are given in Appendix A.

8.1 State trends

Tasmania's economy has managed to match the spending growth evident elsewhere in Australia since the middle of 2014, despite weaker population growth than other States. Growth in retail turnover is moving just ahead of the national rate and business investment is flattening at a time when national business investment is diving (and if there is no mining boom in the first place, there's no mining bust).

In addition, international and domestic tourism have seen room occupancy rates catch up to other Australian regions.

On the downside, however, job numbers are poor, with overall job numbers having changed very little over the past five years, and with the State being home to fewer full-time jobs today than in 2011. Housing construction has also dropped back lately, and Tasmania's government is less able to fund large infrastructure projects or increase public sector employment and wages.

Looking forward, the backdrop for Tasmania is modest:

- Tasmania's population growth may be the best it has been in five years, but it is still weak (at not much above a third of the national rate).
- Not only is the growth in the State's population modest, but that population is older than average, which is a reason why retirement among baby boomers is a continuing drag on future growth.
- And although lower energy costs have cut transport cost handicaps faced by local businesses selling to the rest of Australia and the rest of the world, energy prices appear to have begun what may be a long climb back up – and those transport costs affecting the cost of doing business in Tasmania.
- More broadly, a lack of economies of scale – through an age in which those economies are being more exploited than ever – is also set to linger as a disadvantage.

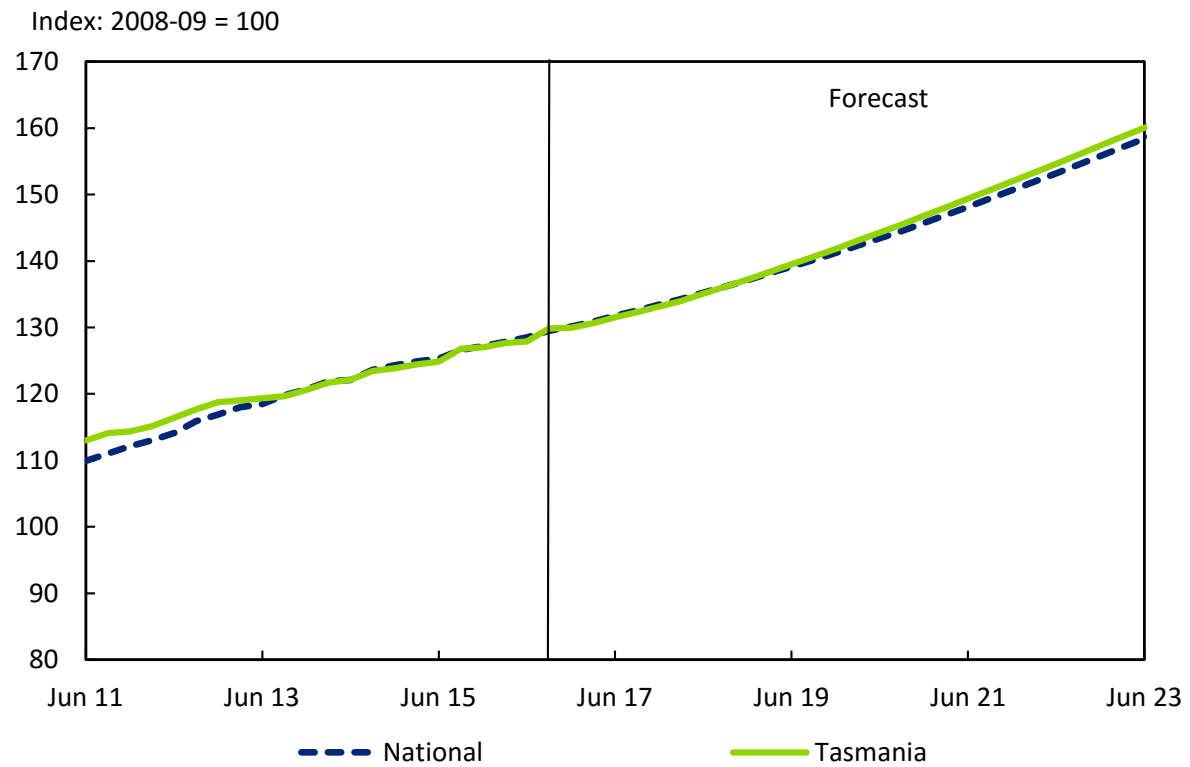
8.2 The utilities sector

The fall in demand for utilities within Tasmania reflects the ongoing challenging conditions among industrial users amid closures in manufacturing, petroleum refining and metal refining, with those effects accelerated by the weak population growth in Tasmania.

It is important to note that, according to the ABS Labour Force, there are less than 5,000 people employed in the utilities sector in Tasmania. As a result, the WPI figures (both historical and forecast) should be interpreted with caution.

Wage growth in the Tasmanian utilities sector has remained on trend with the national level for utilities for the last three years. Chart 8.1 below shows that the utilities sector in Tasmania is projected to remain strongly influenced by national trends over the short to medium term.

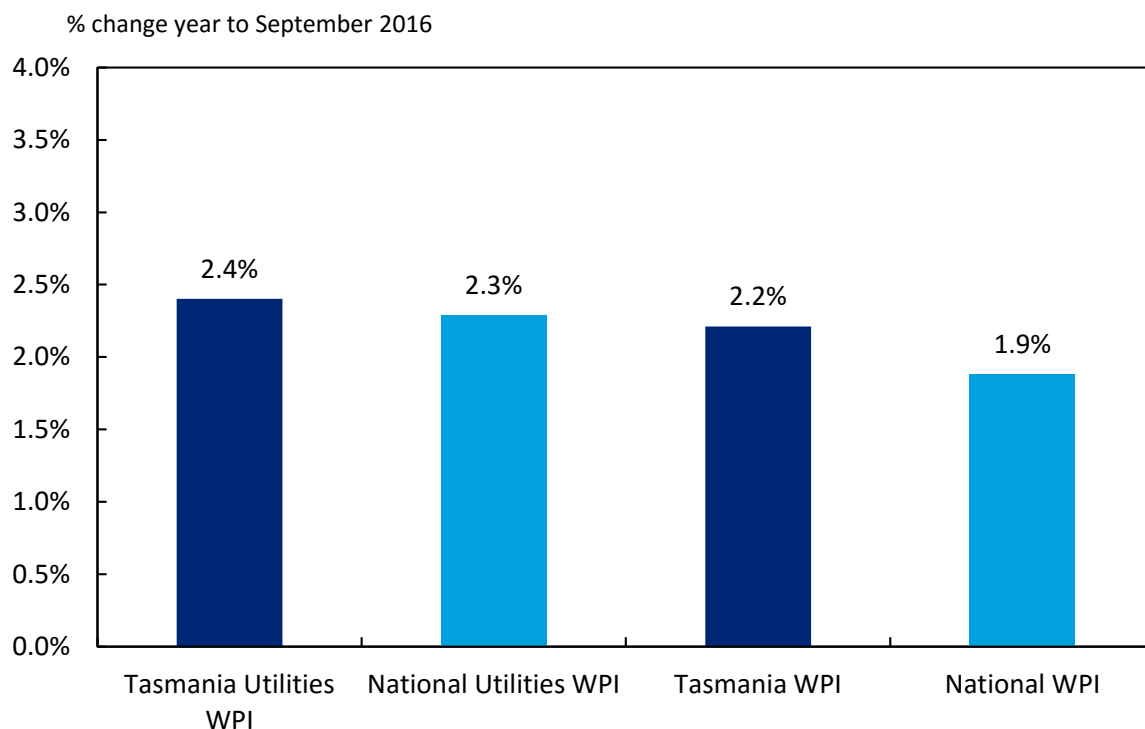
Chart 8.1 Utilities sector WPI forecasts – Tasmania and national



Source: Australian Bureau of Statistics, Deloitte Access Economics

Deloitte Access Economics estimates that Tasmania utilities WPI grew 2.4% over the year to September 2016. As shown in Chart 8.2, this is slightly above average wage growth for the Australian utilities sector (at 2.3%), and above wage growth across all industries in Tasmania (2.2%) and nationally (1.9%), over the same period.

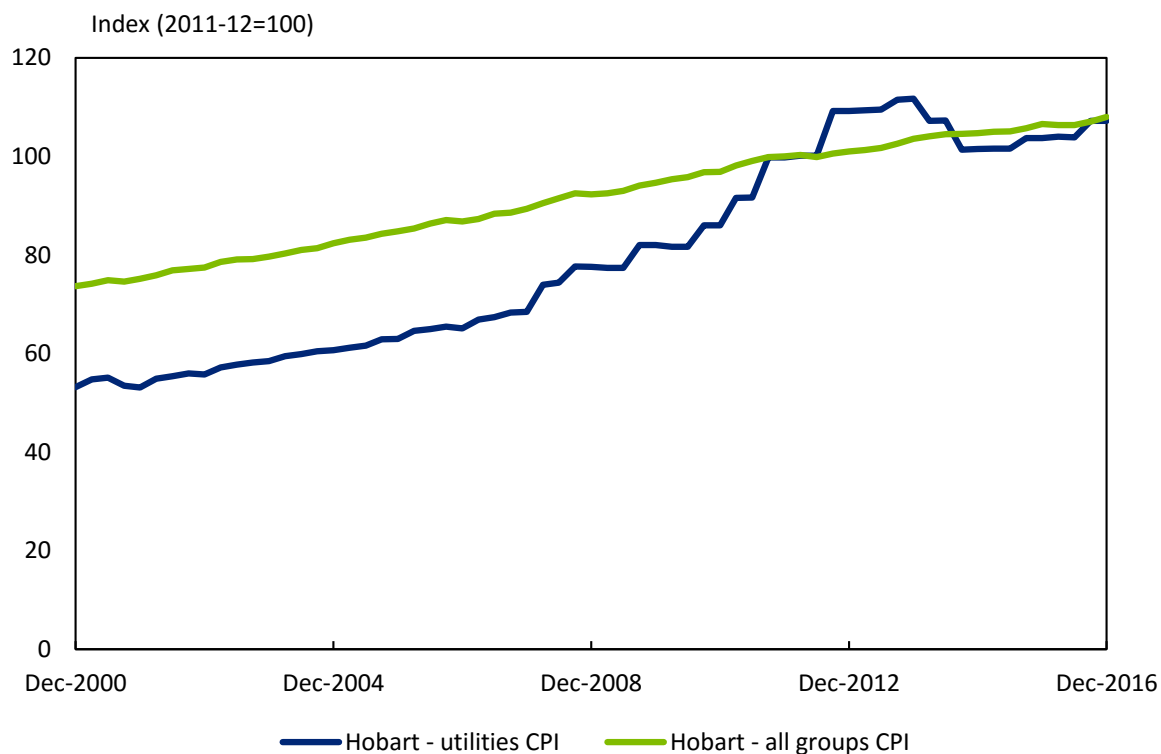
Chart 8.2 Comparative WPI growth rates in 12 months to September 2016



Source: Australian Bureau of Statistics, Deloitte Access Economics

Chart 8.3 compares utilities price growth to the level of overall price growth within Hobart. Hobart electricity prices began to moderate in 2012 following an extended period of consistent growth. Utilities prices within Hobart grew at an average annual rate of 5.0% over the decade up to September 2016. Over the previous five years, however, this growth was substantially lower at 1.4% per annum.

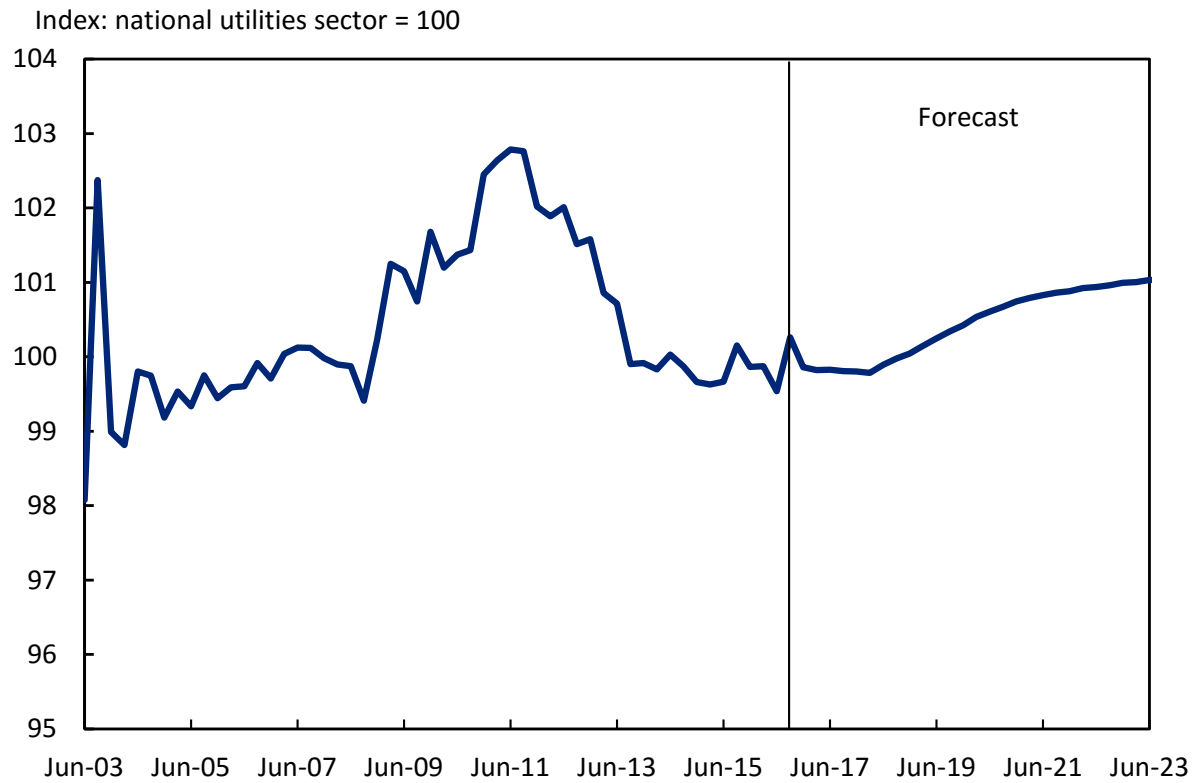
Chart 8.3 Sydney utilities prices



Source: Australian Bureau of Statistics

Chart 8.4 shows Deloitte Access Economics’ estimates of the Tasmanian relative utilities WPI. There has been substantial volatility in the relative WPI for Tasmanian utilities, with strong growth leading up to 2011. Tasmania saw wages in the utilities lift sharply relative to other States during the GFC, before those gains were unwound and replaced by drops due to strong growth elsewhere associated with the mining boom. The State’s relative utilities WPI has since levelled off – though this measure remains volatile.

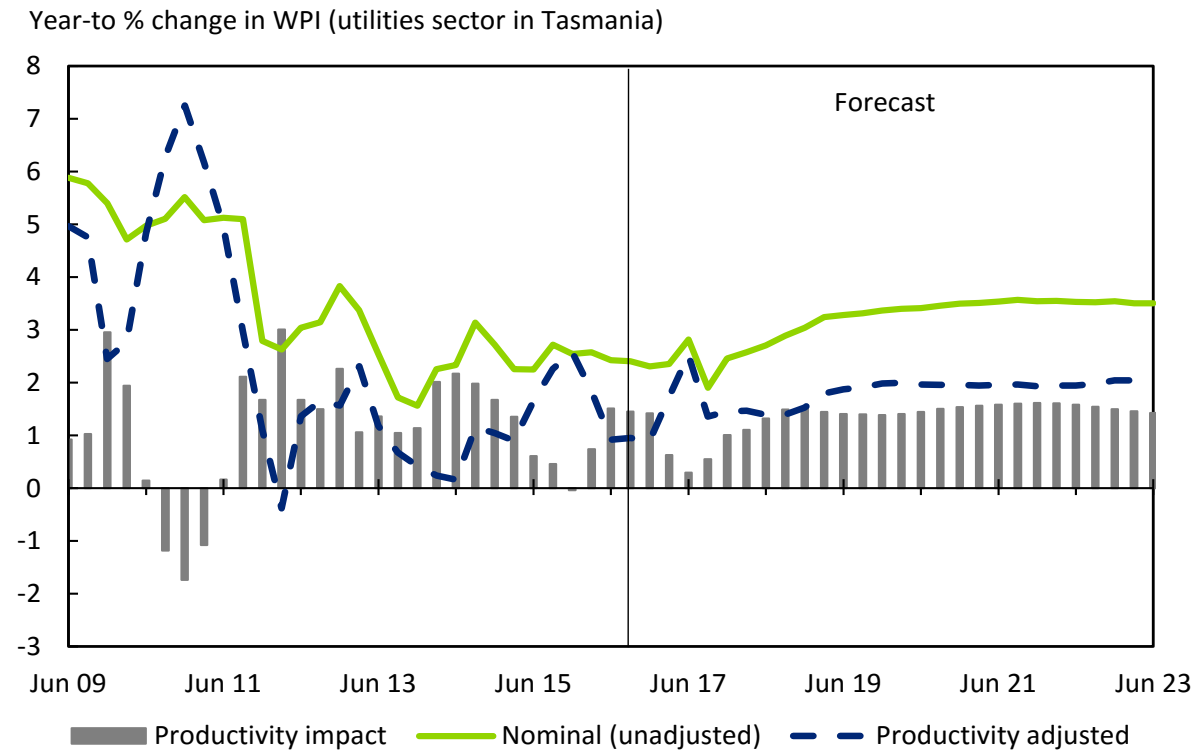
Chart 8.4 Tasmania utilities WPI relative to national utilities WPI



Source: Australian Bureau of Statistics, Deloitte Access Economics

Detailed forecasts for the State’s utilities sector are presented in Chart 8.5.

Chart 8.5 Tasmania utilities detailed WPI forecasts



Source: Australian Bureau of Statistics, Deloitte Access Economics

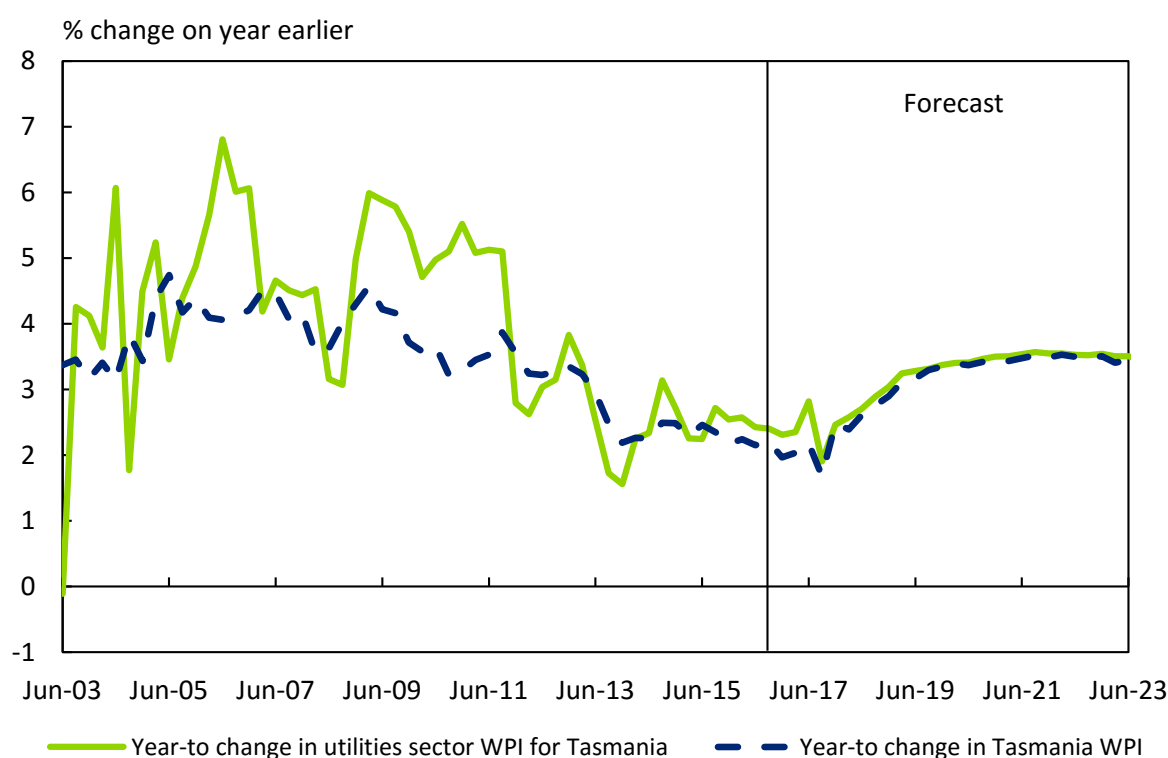
Deloitte Access Economics projects wage growth in the Tasmanian utilities sector to remain relatively flat over the forecast period, albeit with some volatility in the shorter term. We expect the five year average for wage growth in the Tasmanian utilities sector to reach around 3.3% by 2018-19.

It is important to note that the volatility in State indices implies that actual movements in State-by-industry WPI in the future are unlikely to be as smooth as shown in our projections. Movements in recorded data may therefore be against what might be expected from the underlying economic drivers.

This means that forecasting growth rates based on a point-to-point comparison of results can be volatile. For that reason Deloitte Access Economics recommends concentrating on the longer run underlying trends indicated in Chart 8.5.

Looking forward, the dominant drivers of State level utilities wage outcomes are a range of national trends. However, there are some State effects present. Demand for the output from the Tasmanian utilities sector will not benefit from high population growth, however we do expect Tasmanian wage growth in the utilities sector to remain above the national level in the immediate future. We expect wage growth to return to similar levels to the nation for the remainder of the forecast period.

Chart 8.6 Tasmania utilities general labour cost growth



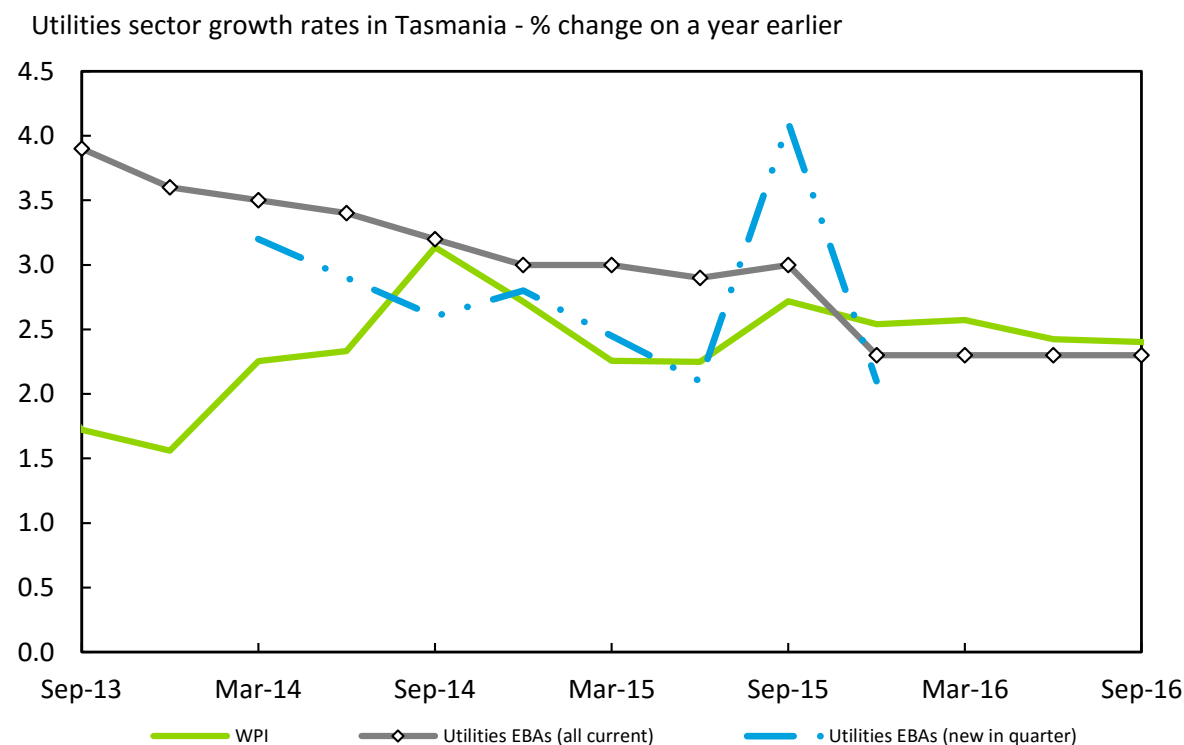
Source: Australian Bureau of Statistics, Deloitte Access Economics

8.2.2 Comparison with EBA outcomes

The following section compares growth in the Tasmanian utilities sector against outcomes in State EBAs. Chart 8.7 shows that:

- The AAWI across all current utilities EBAs in Tasmania has fallen to 2.3% in September 2016, down from almost 4% three years ago.
- These falls have largely mirrored the falls seen in the WPI over the last two years.

Chart 8.7 Comparative measures of wage growth in the Tasmanian utilities sector



Source: Australian Bureau of Statistics, Department of Employment

According to the ABS labour force survey there are fewer than 5,000 people employed in the utilities sector in Tasmania. As a result there are often a limited number of new EBAs lodged over the quarter. In fact, there have been no new EBAs captured by the Department of Industry's *Trends in Federal Enterprise Bargaining Agreements* publication since late 2015. And notwithstanding a spike in September 2015, wage outcomes for new EBAs have similarly been trending downward.

8.3 The construction sector

Tasmania's construction sector experienced high growth up to 2015 while residential construction was performing well. Housing construction in the State has since dropped back.

There are several projects in engineering construction currently underway, but few in the pipeline confirmed to replace those that begin wrapping up this year. The largest project underway in engineering construction in Tasmania is the Midland Highway upgrade, worth \$535 million.

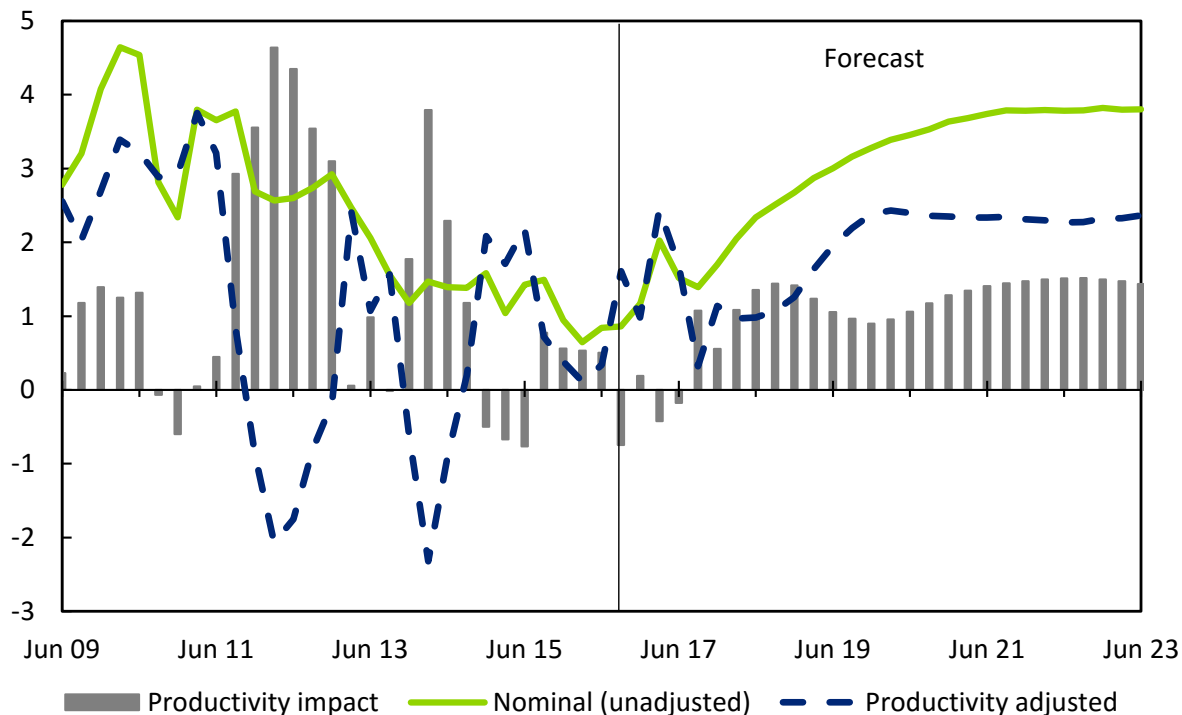
Other projects include major road and freight rail upgrades, the Hobart International Airport upgrade and a number of relatively small mine expansions. That said, all of these projects are due to complete by 2020, and there are few confirmed projects in the pipeline.

Commercial construction is currently providing the most support to Tasmania's construction sector. The largest project in Tasmania is the \$689 million Royal Hobart hospital redevelopment, due for completion mid-2019. Other major projects underway in the State include the \$250 million Devonport urban renewal development and the \$100 million Parliament Square project.

Our forecasts for wage growth in the Tasmanian construction sector are presented in Chart 8.8. On Deloitte Access Economics' estimates, the pace of wage growth in this sector is currently low at 0.9%. This is on the rise since its low of 0.6% in early 2016 following the falls in wage growth since 2012.

Chart 8.8 Tasmania construction detailed WPI forecasts

Year-to % change in WPI (construction sector in Tasmania)



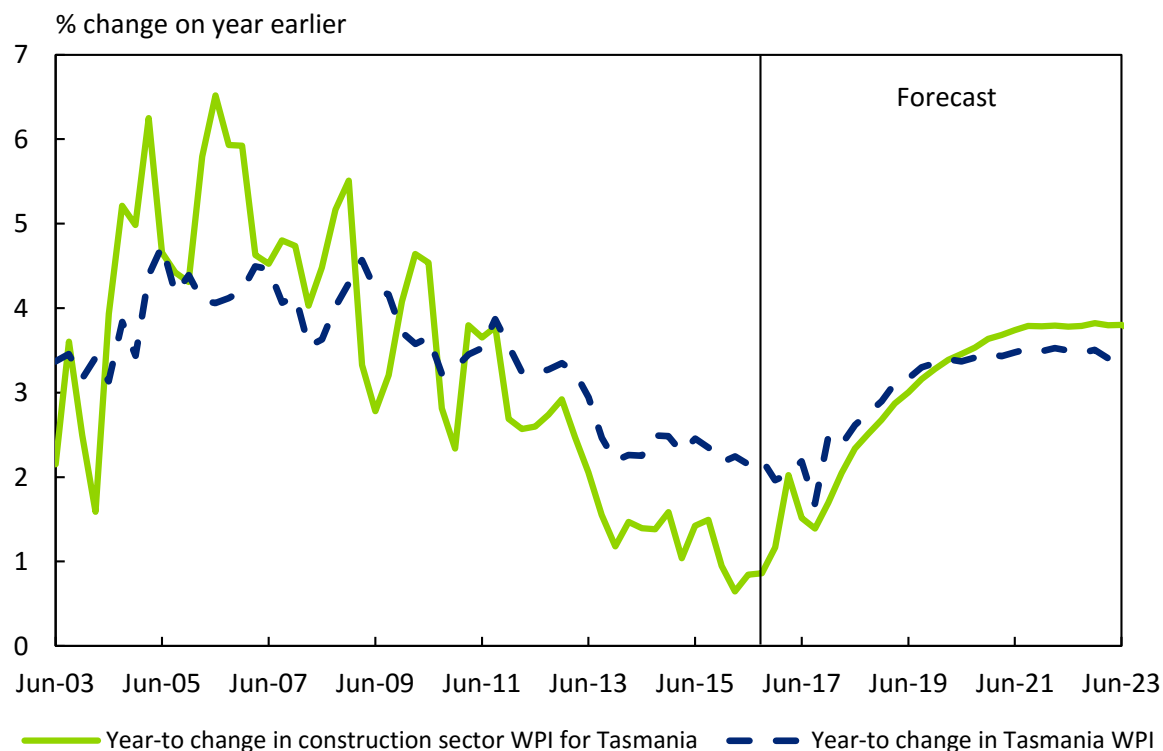
Source: Australian Bureau of Statistics, Deloitte Access Economics

We expect wage growth to continue picking up from its low in 2016 over the forecast period with some level of volatility in the short term. By 2020, our forecast is that wage growth will have returned to its 2010-11 levels of 3-4%.

Chart 8.9 shows construction sector wage growth in Tasmania and the State average for all industries. The industry has seen some volatility in wage growth over this period, with relatively large and consistent falls in wage growth below the State average since 2012. Most notable here is the decline in 2013, which came at a time when there was weakness in construction activity and uncertainty in the State’s construction sector.

We expect wage growth in the Tasmanian construction sector to return to similar levels to the State average for all industries over the next year. For the remainder of the forecast period, wage growth in the Tasmanian construction sector is forecast to follow a similar trend to that of the State average.

Chart 8.9 Tasmania construction labour cost growth



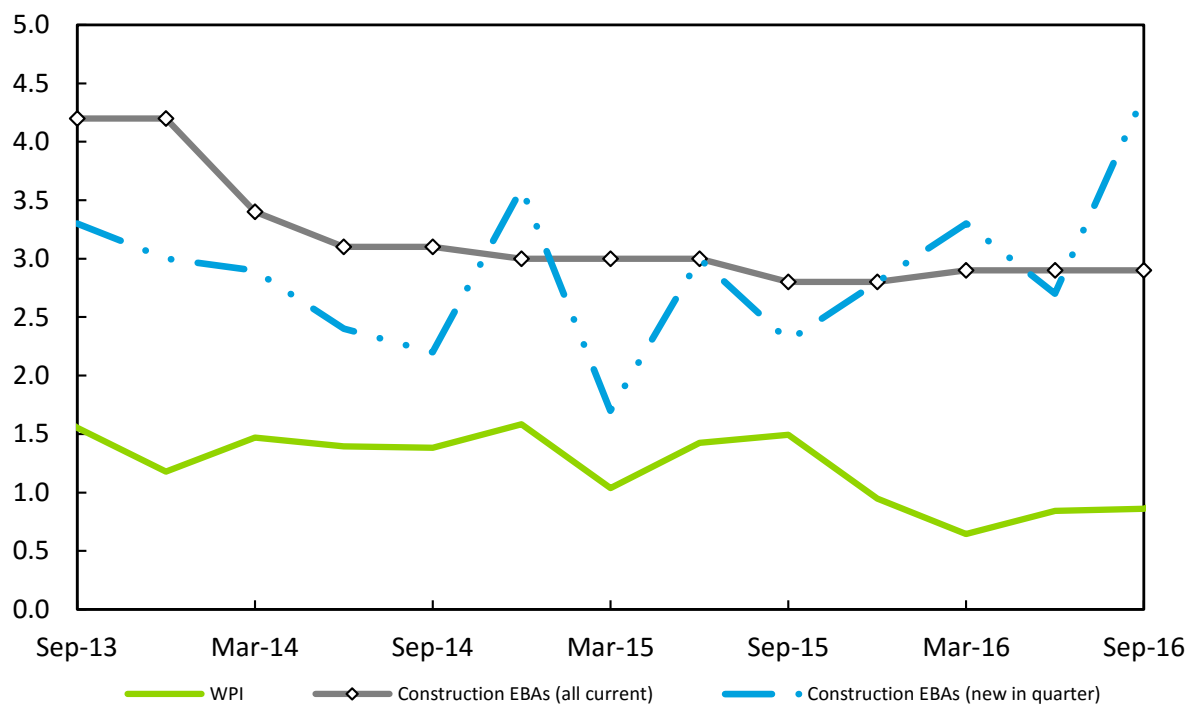
Source: Australian Bureau of Statistics, Deloitte Access Economics

As Chart 8.10 shows, wage growth in EBAs has remained fairly constant over the last two years. The AAWI for current EBAs was 2.9% in September 2016, only 0.2 percentage points lower than the same period two years ago. In contrast, the WPI has fallen from 1.5% to 0.9% over the same two year period.

That said, only a small fraction of Tasmania’s construction workforce is covered by EBAs. The ABS labour force survey highlights that more than 20,000 people are employed in the State’s construction sector, only 1,200 of whom are covered by an EBA.

Chart 8.10 Comparative measures of wage growth in the Tasmanian construction sector

Construction sector growth rates in Tasmania - % change on a year earlier



Source: Australian Bureau of Statistics, Department of Employment

8.4 Summary results

Forecasts for sectoral wage growth in Tasmania are shown in Table 8.1. The forecasts include real and nominal WPI, and real and nominal productivity-adjusted WPI.

Table 8.1 Tasmania wage forecasts

Financial year changes in Tasmania nominal Wage Price aggregates

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	2.2	2.1	2.3	3.0	3.4	3.4	3.5	3.5
Utilities*	2.6	2.5	2.4	3.1	3.4	3.5	3.5	3.5
Construction*	1.0	1.4	1.9	2.8	3.3	3.6	3.8	3.8

Financial year changes in Tasmania real Wage Price aggregates

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	0.9	0.5	0.3	0.8	1.2	1.1	1.0	1.0
Utilities*	1.2	0.9	0.4	0.9	1.2	1.1	1.0	1.1
Construction*	-0.4	-0.2	-0.1	0.5	1.2	1.3	1.3	1.4

Financial year changes in Tasmania nominal productivity adjusted Wage Price aggregates

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	1.1	1.9	2.0	1.5	1.3	1.4	1.6	1.8
Utilities*	1.9	1.5	1.4	1.6	2.0	2.0	1.9	2.0
Construction*	0.4	1.7	0.9	1.5	2.4	2.3	2.3	2.3

Financial year changes in Tasmania real productivity adjusted Wage Price aggregates

Annual % change	History Forecast							
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
All industries	-0.3	0.3	0.0	-0.7	-0.8	-1.0	-0.9	-0.6
Utilities*	0.5	0.0	-0.6	-0.6	-0.2	-0.4	-0.5	-0.4
Construction*	-1.0	0.1	-1.1	-0.7	0.2	0.0	-0.2	-0.1

Source: Australian Bureau of Statistics, Deloitte Access Economics

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Appendix A – Technical notes on WPI data and forecasts

The ABS' historical WPI data is not necessarily released for each sector by State. This is due to small sample sizes and reasons of confidentiality. In some cases, where a specific WPI series is not available, a comparative series for AWOTE can be obtained. However all sectoral by State AWOTE estimates were discontinued at the end of 2011.

Table A.1 shows which data is available in time series for the WPI. These are data series provided on the new ANZSIC06 basis. WPI data has been provided across the period from September quarter 2008 to June quarter 2016.

Where AWOTE data is shown as being available, only estimates from May 2009 to November 2011⁵ have been calculated by the ABS. Beyond this point data is imputed.

Table A.1 ABS WPI data availability by sector

State	Utilities	Construction
New South Wales	Available	Available
Victoria	Available	Available
Queensland	Not available*	Available
South Australia	Not available*	Not available*
Western Australia	Not available*	Available
Tasmania	Not available	Not available*
Northern Territory	Not available	Not available*
Australian Capital Territory	Not available	Not available*

*denotes AWOTE data available to November 2011.

Source: ABS

Where utilities sector WPI is not published, Deloitte Access Economics imputes the value, based on a combination of:

- WPI for utilities as a whole, and the relevant States, as well as relative movements in those industries with the States that do have an official estimated WPI.⁶
- When and where previously published, AWOTE for the sector in question. Note that all sectoral by State AWOTE estimates were discontinued at the end of 2011.
- Data on enterprise bargaining agreements.

The same method is used to estimate an imputed value for the construction and administration sectors.

Note this means **there is no longer any officially released time series estimate for utilities wages outside of New South Wales and Victoria** (in terms of WPI measures). **Therefore extreme care needs to be taken in analysing these series over time.** The modelling here implicitly assumes that overall Tasmanian, Northern Territory and Australian Capital Territory WPI wage growth, overall utilities sector wage movements, data for enterprise bargaining agreements, as well as the data published for other States, can be used to create a reasonable estimate of the

⁵ AWE/AWOTE measures are defined for the mid-month of quarter, so the initial AWE/AWOTE data here is from the May 2009 publication. The LPI data is referred to by the entire quarter.

⁶ ACT sectoral WPI indices are currently published only for the public administration sector.

specific WPI series in history. However, there is no guarantee that the data used matches what the ABS data would show were it to be released.⁷

As Table A.1 shows, the ABS produces all the required WPI data for New South Wales and Victoria, but not for the utilities sectors in Queensland, South Australia or Tasmania, and not for the construction sectors in Tasmania and South Australia, which are discussed in this report. AWOTE data for the utilities sectors in Queensland, South Australia and Tasmania, and for the construction sectors in Tasmania and South Australia were available until the end of 2011, but have now been discontinued. In addition, the overall AWOTE data itself is not consistent with the WPI data for Australia, so rather than using the raw data, to obtain a State by industry WPI we have used the deviations in the AWOTE growth from State AWOTE averages and applied a consistent ratio to the known State WPIs.

In other words, if the Queensland utilities sector AWOTE measure rose faster than the overall State AWOTE measure, then we allow the Queensland utilities sector WPI measure to rise faster than Queensland's overall WPI. Because the AWOTE data was far more volatile than WPI in later years, we limit the deviations that this might imply. We do that by comparing the variations in published AWOTE and WPI measures within each State and adjust the unknown deviations accordingly.

In addition to the AWOTE methodology (and in the most recent quarters, in place of it) we have used trends from EBAs to drive deviations in WPI growth rates. In all cases where WPI data is not published, the estimated results are normalised to ensure that the totals for the States are consistent with the levels of the industry components.

⁷ The ABS does estimate these values, but does not release them externally due to the small number of businesses that are included in the sample, and the possibility that individual results could be estimated from the data if it were to be released.

Appendix B – Some rules of thumb for wage forecasting

Inflation has three main drivers:

- wage gains (or, to be more exact, wages relative to productivity),
- import prices, and
- the degree of pressure on prices coming from the spare capacity (or the lack of it) in the economy.

The Reserve Bank aims to keep consumer price inflation (CPI) at an average of 2 to 3% a year across the business cycle. That is an average both across time and across categories. For example, retail prices for imports have grown relatively slowly across the past decade, while prices for services have tended to grow faster.

Aiming for average CPI of 2 to 3% also requires aiming for average inflation in labour costs of the same.

- That is exactly what does occur – growth in nominal unit labour costs is close to growth in the CPI over time.
- However, there are two other steps to take account of in translating wage growth into labour cost growth.
 - **First**, the workforce sees entries and retirements each year, with those retiring on higher earnings than the juniors who are entering. To look at the wage growth of individuals as a proxy for wage growth more widely is to forget that the group of individuals gains a year in experience and seniority every year whereas, due to retirements, the workforce as a whole sees rather less of an increase in experience and seniority every year.
 - **Second**, whether considering a specific group of individuals or the workforce as a whole, you have to remember that we get better at working over time – for example, thanks to working with better equipment. This growth in labour productivity saves money. For example, the work that last year took an hour may this year take 58 or 59 minutes. In turn, that productivity growth reduces the impact of rising wages on labour costs.

The above therefore helps to identify some rules of thumb:

- Across a long enough period, growth in prices will tend to average somewhere in the Reserve Bank's target range of 2 to 3% a year – perhaps 2.5%.
- The same is true for labour costs for a unit of output (nominal unit labour costs) – also averaging somewhere close to 2.5%.
- However, wages for the 'average' worker will tend to grow faster – the sum of both prices and productivity. As the latter has averaged around 1.5% over the past three decades that might suggest that wages for the 'average' worker will grow by perhaps 4.0% in a typical year.
- There will be a divergence between wage growth on the one hand and price and productivity growth on the other over the course of a business cycle. When demand is strong relative to the available supply of workers, wage growth will exceed this rule of thumb measure and vice versa.
- Moreover, wages for the typical 'specific' worker will tend to grow faster still, as their seniority and experience increases each year. It is harder to identify a general rule of thumb here, as the reward for seniority and experience varies notably across sectors and occupations, as well as across the business cycle. That said, wages for the typical 'specific' worker will tend to grow by perhaps 5.0% in a typical year.

Appendix C – Macroeconomic and wage forecasting methodology

Introduction

The model used by Deloitte Access Economics to forecast the WPI by State and by industry has been created as a subsidiary component of our Deloitte Access Economics Macro (DAEM) model. Key aggregates, including overall wage and productivity movements and projections for output and employment by State and for Australia are used to drive WPI measures at more detailed levels.

The following summarises the full model documentation that covers the key drivers of the detailed labour cost.

Macroeconomic forecasting

DAEM is a macro-econometric model of the Australian economy. It is made up of numerous accounting identities and behavioural equations which describe the aggregate actions of households, businesses, government and international entities. The formulation of these behavioural equations is based on mainstream economic theory. The model is best described as a small open economy model in which all foreign (world) prices and interest rates are taken as given (that is, they are exogenous to the model).

In the model, business sector factors of production (capital and labour) produce non-farm business sector output, which is non-farm GDP less the service flow from housing and the value of government services. The level of business sector output is the sum of potential output and the output gap. Fluctuations in the output gap are driven by a number of cyclical factors, including fluctuations in interest rates, foreign GDP and the terms of trade.

Potential business sector output is the level of output that would exist if there were no temporary or cyclical influences. In constructing potential business sector output, considerable attention is paid to the population characteristics which influence labour force participation, the growth rate of residual total factor productivity and the expected rate of capital deepening. The output gap is the gap between actual and potential business sector output. Negative output gaps imply the economy is operating below its potential, while positive gaps imply the economy is operating above its potential.

Model parameters are estimated using quarterly data extending from September 1974 to the most recent quarter for which data are available. Quarterly data is used because annual data is too aggregated to allow analysis of turning points and interest rate movements. Using monthly data is not feasible because most key ABS collections are produced on a quarterly basis – notably the national accounts, the balance of payments, CPI and international investment data.

DAEM forecasts all components of aggregate demand. To ensure consistency between aggregate expenditure and aggregate output, the model uses adjustment factors which trim individual expenditure components so that aggregate expenditure equals aggregate output.

Domestic production

Domestic production is divided into farm and non-farm. Non-farm production is further divided into household, general government and business sector production. Farm output is an exogenous input to the model.

The household sector produces housing rental services. This is the household sector's only output. The service flow is modelled as a fixed proportion of the housing capital stock.

Public sector production is limited to general government output, which comprises general government services (equal to the wage cost of the general government employees) and general government gross operating surplus (equal to the depreciation of general government capital).

All other non-farm production takes place in the business sector, which incorporates private and public enterprises. Business sector output is produced using capital and labour via a standard constant returns production technology. Business sector production is also influenced by the level of total factor productivity.

Imports are effectively intermediate goods in the DAEM model. They are combined with domestically produced traded goods to produce gross national expenditure on traded goods. Higher domestic demand raises the demand for imports. The level of exports is determined by foreign demand conditions rather than domestic supply conditions. Just as stronger domestic demand raises the demand for imports, stronger foreign demand raises the demand for exports.

Labour market

The size of the labour force is forecast using exogenous assumptions about age specific population growth and labour force participation. There are two measures of employment in the model. There is the potential employment that underlies the estimate of potential output and actual employment. The output gap to a large extent reflects the gap between the actual and potential employment.

Potential employment is the actual labour force less the level of unemployed workers implied by the natural rate of unemployment, where the natural rate of unemployment is the level of unemployment that would exist in the absence of cyclical fluctuations. Actual employment is the actual labour force less the level of unemployed workers implied by the actual rate of unemployment.

Business sector employment is driven by a standard labour demand function that relies on labour productivity, real wages and business sector output growth.

Prices and wages

The model also includes a number of measures of prices, wages and price deflators. Price and wage inflation in DAEM are governed by the behavioural equations of the:

- business sector output gap;
- real exchange rate;
- import prices;
- monetary policy reaction function;
- average quarterly wages

The way these equations interact is best observed through some examples.

A positive shift in domestic demand that raises the gap between actual and potential output (a positive output gap) will have a direct impact on price inflation by raising the underlying CPI. Wages respond with a lag to changes in underlying CPI inflation, with the long run real wage tied to CPI inflation and labour productivity growth.

A positive output gap also has a direct and indirect effect on real interest rates via the monetary policy reaction function, with the typical reaction to a widening output gap and higher price inflation being higher nominal interest rates. Higher interest rates dampen domestic demand which narrows the output gap and relieves upward pressure on price and wage inflation. Over time this mechanism forces the output gap back to zero, interest rates to a neutral position and inflation to return to the RBA target level.

A change in real wages that exceeded the change in labour productivity raises price inflation in the short run. Since wages increase by more than labour productivity this raises nominal unit labour costs, which in turn raises underlying CPI inflation. Wages in turn respond to changes in underlying CPI inflation. Over time wage inflation will equal price inflation (plus changes in productivity growth). In the long run, price inflation is governed by the same mechanism at work in the output gap example above, which forces the CPI inflation rate to return to the RBA target level.

While the real exchange rate and import prices do not have an import role in the output gap and real wage scenarios, they are key players in the next foreign price shock example. Holding other things constant, higher world prices raise domestic import prices. Higher import prices have a direct impact on price inflation by raising the underlying CPI. Higher price inflation causes nominal interest rates to rise via the monetary policy reaction function. Higher domestic interest rates and incomplete pass-through of world price changes to domestic prices causes the differential between domestic and world real interest rates to rise.

Ordinarily this would imply an appreciation of the real exchange rate but in the Australian case this is more than offset by a deterioration of the terms of trade due to higher import prices which causes a depreciation of the real exchange rate. Combined with incomplete price pass-through the nominal exchange rate appreciates in the short run, which partly offsets the rise in domestic import prices due to rising world price. Over time there is full pass-through of world prices to domestic prices, which eliminates the gap between domestic and foreign real interest rates and returns the terms of trade to its pre-price shock level. Just as in the domestic inflation example, wages respond with a lag to changes in underlying CPI inflation, with the long run real wage tied to CPI inflation and labour productivity growth.

Industry forecasts

Industry output and employment are forecast following the top down methodology set out above. Industry output is determined through the forecasts of industry final demand. Industry final demand can be thought of as the total value of goods and services that are produced by a specific industry.

For example, if commodity exports increase in response to international demand this will generate an increase in mining output, measured in real gross value added terms. Similarly, if construction investment increases in response to low interest rates, this will generate an increase in construction output.

Industry employment is linked to output through exogenously determined levels of productivity. Considering the mining example from above, if the increase in commodity exports generates a 2% increase in output for the next quarter with no changes to a productivity assumption of 100% mining employment will increase by 2%. A final adjustment is made for both output and employment so that their respective sums equal the national totals.

State forecasts

Gross State Product is determined by distributing Gross Domestic Product based on State GSP and population relativities. GSP relativities are influenced by the gross value add of industry within each state. As with other demographic variables, population relativities are exogenously determined. Continuing with the mining example above, the increase in mining output will result in a more than proportionate increase in GSP for the mining intense states such as Western Australia, Queensland and the Northern Territory.

Industry output by State is driven by a combination of industry output at the national level, and a combination of State variables, including GSP, consumption and investment. Industry relativities between the States are also utilised. For example, Victoria has a relatively higher share of manufacturing output when compared to the national manufacturing share of total output. This means that if manufacturing output is forecast to decline nationally, a larger portion of that decline will be felt in Victoria.

The industry output forecasts are then normalised over several iterations, to ensure that state industry output adds to national, and each industry within a State adds to total State GSP.

Wage forecasting

The wage forecasting methodology adopted in this report involves estimation of the deviations between industry – and State-specific wage measures and the broadest measures of wages in the Australian economy. In other words, the DAEM model has provided an overall picture for how the WPI will move, and the remainder of the modelling determines which industry, State and industries within States will see their WPI measures grow faster or slower than this value.

Industry and State Labour Price Indices

Modelling of specific labour price indices (WPIs) begins with the movements in the total Australian WPI – taken from the DAEM. This measure serves as an anchor to overall wage rates in every part of the economy, in part because it provides a measure of the wage rises that other employees are receiving, making it a common starting point for negotiations.

From this initial index, the model adds in deviations from the average. Three key factors will drive these wage differentials:

- **Business cycle factors.** Deviations in industry (or State) performance from the national average. Faster growing industries and States will tend to see faster growth in wages and vice versa. In this model, the key factor is how fast the industry (or State) is growing relative both to the national average, as well as to historical averages. So, while manufacturing growth in the future may be below the national average, if the gap is relatively less than has been seen in recent years, this is viewed as an out-performance by the sector and would see some upward pressure on wages. In this model the methodology is forward-looking, with forecast growth across the next six months (as well as the past twelve) used to determine the current performance of an industry.
- **Productivity factors.** The model assumes that industries with faster growth in productivity will see faster growth in wages – workers across an industry being rewarded for increasing the average amount of output per employee faster than the national average. As these factors take some time to become evident (and due to the inherent volatility in productivity measures at the State and industry level) an average productivity trend across the past two years is used.
- **Competition (relative wage) factors.** Depending on the nature of the industry, workers will have skills that are relatively more or less transferable to other sectors where wages may be rising faster than in their own. Indeed, many workers will be performing effectively the same task (or same occupation – effectively their job description) across different industries (as their industry classification is determined by what their employer produces, rather than what they do). This will tend to limit the ability of wage rates to diverge. As wage rates in (say) mining rise higher, companies in (say) the construction sector will be forced to pay higher wages to keep their staff. Similar factors operate across States – although they are likely to be less significant (and react only to relatively larger discrepancies in wages). The modelling here will see wages in competitor industries tend to move more closely together – with industries that are benefiting from the two previous factors tending to be drawn back towards the average, and wages in otherwise slow growing industries boosted.

In addition to these three ‘mechanical’ factors, there is often the need to use judgement to determine movements in wages – particularly when other data is volatile (which employment data currently is) and when factors not relevant to wage determination are having effects on broader output and employment measures.

It is important to remember that the WPI for an industry is a composite measure and can, in certain situations, behave in the perverse manner. When there is a significant change in the occupational structure of an industry, movements in the WPI may not be reflective of movements in the wages of individual employees. In an extreme case, it would be possible for (say) all the workers in an industry to take a pay cut but the overall WPI measure in the industry to rise if all the low-paid workers left the industry all together – shifting the average wage towards the higher level.

Labour prices versus labour costs

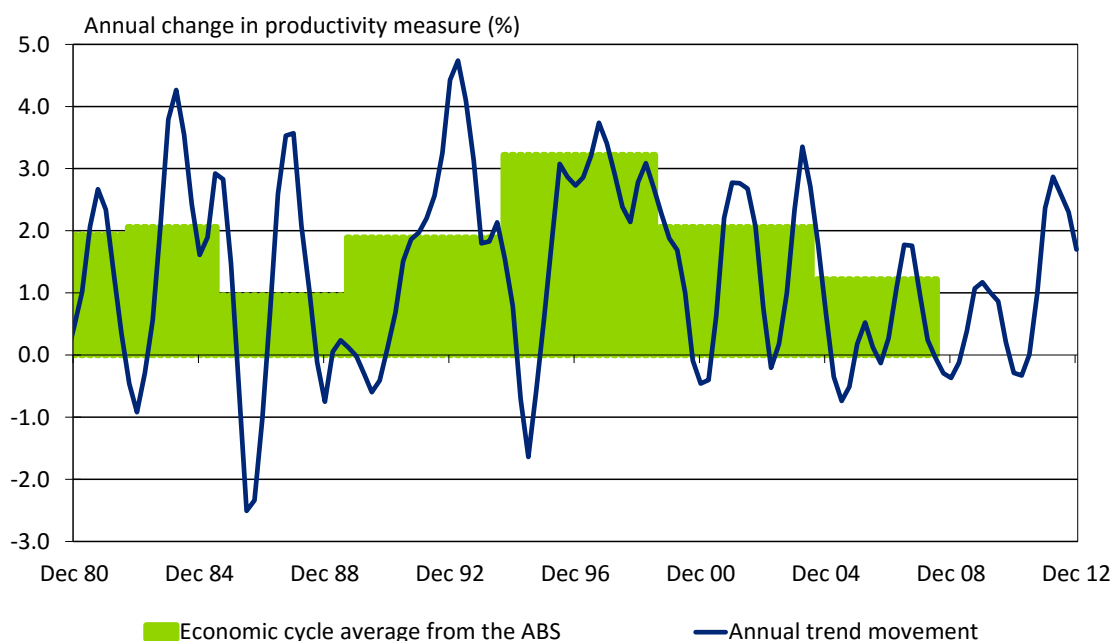
The methodology above estimates movements in labour prices – the cost of employing the average employee, whether broadly in the Australian economy, or in a specific industry in a specific State.

However, labour costs will rise at a different rate due to the effects of labour productivity growth. Effectively, labour productivity measures the number of units of output an individual employee can produce in a given time period. The more units of output each worker can produce, the fewer workers are required to create a given level of industry output. If productivity is rising, the total cost of labour (the price of each employee multiplied by the number of employees) will rise less rapidly than the individual employee's price.

The measure adopted for increases in labour costs is the growth in productivity-adjusted labour prices. Because so many factors can influence productivity (for example, during times of rapid expansion in employment, productivity may fall as new workers are often less productive than those who have been working in an industry for longer, but productivity may also rise as 'economies of scale' become available, and workers who may have been underemployed in their workplace increase their effective level of output) it is often best measured over an entire economic cycle. The chart below shows annual growth in a simple productivity measure against the ABS' cyclical average measure (the last published cycle ends in 2007-08, so the last few years have no official cyclical productivity growth measure).

For the last two economic cycles (1998-99 to 2003-04 and 2003-04 to 2007-08) the ABS has produced a labour productivity measure adjusted for the quality of hours worked. This measure is closer to the basic measure (output per employee) over the cycle than the simpler output per hour worked measure over this period.

Chart C.1 : Growth in productivity – annual methodology vs economic cycle methodology

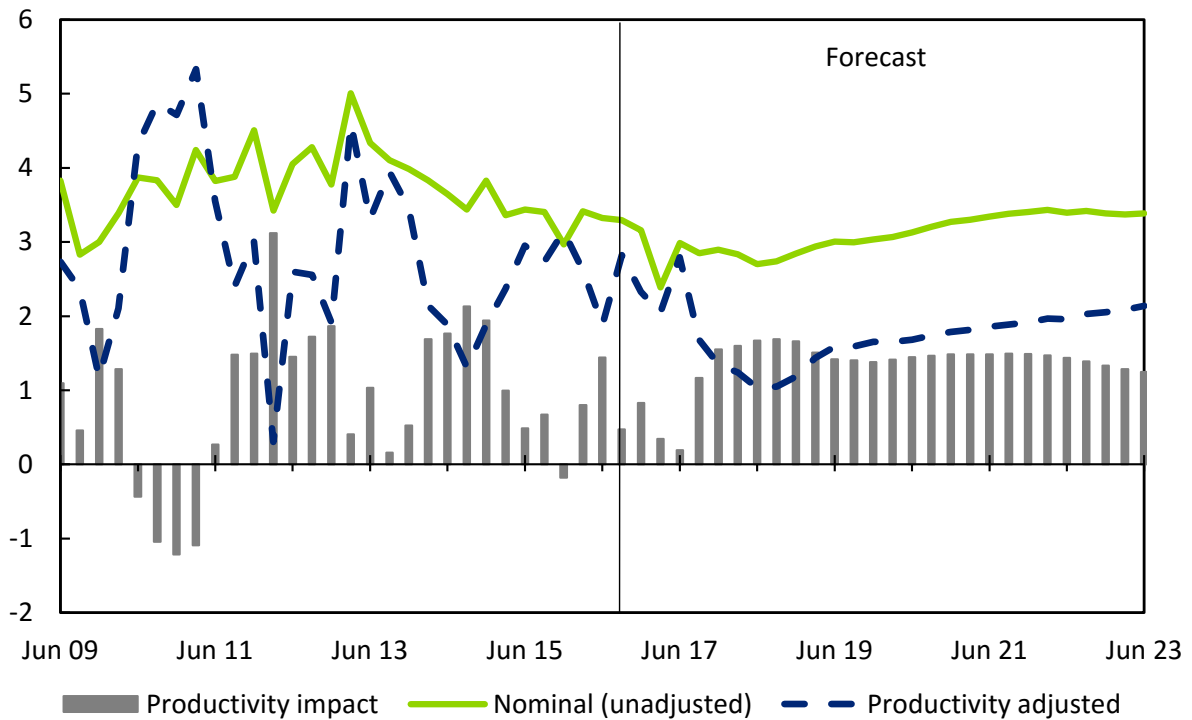


Source: ABS

However, in the methodology used here the volatility in the underlying productivity data is minimised by creating a composite productivity measure based on national, industry and State-specific productivity movements – where the relative impact of movements in the smaller and more volatile States and industries is lessened.

Chart C.2 : Sample measure of forecast productivity effects

Year-to % change in WPI (utilities sector in Victoria)



Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics labour cost model

In the example above, the cyclical impact of productivity becomes clearer. Across the forecast period, the nominal (or unadjusted) WPI rises on average by 3.2% per year, while the rate of increase adjusted for productivity improvements is on average 1.8% per year – the gap implying productivity improvements of 1.3% per year.

Appendix D – Different measures of wage growth

The ABS published an article in the October 2005 issue of Australian Labour Market Statistics (catalogue 6105.0) which discussed the comparative features and relative merits of the measures they produce.⁸ The following reproduces part of that article, and then adds some observations.

Introduction

Statistics on employee remuneration are in demand from a wide range of users, including economic analysts, social researchers, policymakers, and employer and employee associations. The ABS publishes a number of measures relating to the remuneration of employees to meet the different needs of users. These measures include average weekly earnings, changes in the price of labour, and compensation of employees.

The variety of measures available can sometimes lead to misunderstanding and misapplication. The choice of measure will depend on what type of analysis is being undertaken. This section explores the differences between the various measures of employee remuneration.

Measures of employee remuneration

Three distinct measures of employee remuneration are discussed below: earnings; wage price index; and compensation of employees.

Earnings

Estimates of the level of earnings are produced from a number of surveys: the Survey of Average Weekly Earnings (AWE); the Survey of Employee Earnings and Hours (EEH); and the Survey of Employee Earnings, Benefits and Trade Union Membership (EEBTUM).

The AWE survey is one of the major sources of data on earnings, and is designed to provide a quarterly measure of the level of earnings. Three earnings series are produced from AWE:

- average weekly ordinary time earnings for full-time adults;
- average weekly total earnings for full-time adults; and
- average weekly total earnings for all employees.

While the AWE survey provides a frequent time series, data are only available for full-time adult employees and all employees, and can only be cross-classified by a small number of variables, such as sex, state, sector, and industry. The EEH and EEBTUM surveys provide additional detail, although on a less frequent basis. The EEH survey is run every two years and provides a large number of variables important in the analysis of weekly earnings, including: managerial/non-managerial status; state; sector; level of government; industry; occupation; employer size; sex; full-time/part-time status; adult/junior status; and type of employee (e.g. permanent/fixed-term contract or casual). The EEH survey therefore supplements AWE survey data by providing detailed information on the composition and distribution of employee earnings and hours.

The annual EEBTUM survey is a household survey, in contrast to the AWE and EEH surveys which are business surveys. The EEBTUM survey, which is conducted as a supplement to the monthly

⁸ ABS 2005.

Labour Force Survey, collects weekly earnings data cross-classified by a range of socio-demographic information, including: sex; age; marital status; relationship in household; geographic region; school attendance; birthplace and year of arrival in Australia. The EEBTUM survey also collects details about the type of employment, including: occupation; industry; hours worked; full-time or part-time status; sector; size of workplace and leave entitlements.

While the EEH and EEBTUM surveys are run less frequently than the AWE survey, they are a valuable source of information as they enable detailed analysis of earnings levels.

Wage Price Index

Information on changes in the price of labour is available from the quarterly Labour Price Index (LPI). The LPI is compiled from information collected from businesses on changes in wage and non-wage costs. Information collected on wages is used to produce a Wage Price Index (WPI).

The WPI was first compiled for the September quarter 1997 and is the main ABS measure of changes in wages. The WPI measures quarterly changes over time in the cost to an employer of employing labour, and is unaffected by changes in the quality or quantity of work performed. The WPI does not include the superannuation guarantee levee.

The ABS publishes four WPIs each quarter. The headline WPI series is the index of total hourly rates of pay excluding bonuses. This series excludes bonus payments (which generally relate to the individual performance of the employee or to the organisation's performance), and so represents a pure price measure for combined ordinary time and overtime hourly rates of pay.

In the WPI, index numbers are compiled using information collected from a representative sample of employee jobs within a sample of employing organisations. Price-determining characteristics of the jobs are fixed to ensure that changes in these characteristics do not contribute toward index movements. The following are examples of changes in price-determining characteristics which are not reflected in index movements:

- changes in the nature of work performed (e.g. different tasks or responsibilities)
- changes in the quantity of work performed (e.g. the number of hours worked)
- changes in the characteristics of the job occupant (e.g. age, apprenticeship year, successful completion of training or a qualification, grade or level, experience, length of service, etc.)
- changes in the location where the work is performed.

Changes in the price of wages and salaries resulting from changes in the composition of the labour market are also excluded from index movements. To achieve this, a longitudinal survey methodology is used to measure a similar sample of jobs over time.

Compensation of employees

Compensation of employees (CoE) is a quarterly measure of the total remuneration paid to employees in return for work done and is published as part of the national accounts. CoE is a broader measure than earnings as it includes irregular payments (e.g. annual bonuses) and social contributions paid by the employer (e.g. severance, termination and redundancy payments; employer superannuation contributions; and workers compensation premiums). These payments are excluded from measures of earnings, which have a narrower focus.

A quarterly measure of the average CoE per employee, known as Average Earnings National Accounts (AENA), is produced by dividing the total CoE for the quarter by the total number of employees. The total number of employees is estimated using Labour Force Survey data, calculated as an average of the three months in each quarter. Some adjustments are made to this estimate of employment. Two measures of AENA are produced: average non-farm compensation per employee; and average compensation per employee. The average non-farm compensation per

employee estimate is the key series, as it is a more stable estimate. This is because employee earnings in the agricultural sector can fluctuate due to seasonal effects.

Summary of the surveys and their key series

Table D.1 (found at the end of this chapter) provides a comparison of each of the surveys discussed. It outlines the key series produced, what each survey is designed to measure, the frequency and type of data source, the benefits and limitations of each survey, and the related publication.

Using the WPI measure

While Deloitte Access Economics views the WPI as the best measure for use in the context of this report, 'best measure' is not the same as 'perfect measure', and there are also drawbacks to using the WPI.

The WPI is published by State and by sector separately, but not by State and by sector. That is, the WPI for New South Wales is published, and the mining sector WPI is also published, however the New South Wales mining sector WPI is not. The latter data is only available by special request and, in the case of small sample sizes, the ABS does not release their estimates.

More series were previously available 'by State and by sector' for AWOTE from the ABS 6302.0 release. The ABS ceased producing this information 'by State and by sector' which eliminated one of the remaining arguments in favour of using AWOTE or AWE over the WPI measures

A key reason was the high standard errors for these series. In the case of the AWE/AWOTE publication, sample selection is stratified across States and across industries, but not both. That means that as the businesses in the sample change from quarter to quarter (and about 8% of the 5,000 do each time) there is no guarantee that the State by industry samples can be readily compared. This led to questionable comparability of detailed AWE/AWOTE results from quarter to quarter as the changes may be driven by changes in the sample, rather than changes in wages.

The WPI, by contrast, suffers as little as possible from this problem because its sample follows specific 'jobs' over an extended period (at least five years). This limits the rotation problems that the AWE/AWOTE series suffered from.

It is possible to 'back out' reasonable estimates of WPI at the 'by State and by sector' level. Appendix B discusses how Deloitte Access Economics does that. The resultant series are rather less volatile than the matching ABS AWOTE series.

One drawback to using the WPI, is that it is sometimes relevant that the composition of the workforce is changing. That is particularly true in analysing the implications of wage developments for the Australian economy as a whole. For example, promotions are easier to get during a sustained expansion, reflecting the strength of cyclical demand rather than pure productivity. Other things equal, that adds to total incomes in the economy, but doesn't show up in the WPI (which does not 'recognise' that people at a certain seniority today are, on average, different to those who were at that level some years past).

EBAs and contract rates

Deloitte Access Economics' forecasts are developed using a more formal modelling approach rather than a more 'institution-based' approach.

The latter focuses on:

- increases in the **Federal Minimum Wage / Fair Pay Commission decisions**,
- increases in **collective agreements** under enterprise bargaining,
- increases in **individual agreements**.

That said, close attention to such institutional factors can assist in short term forecasting (as opposed to longer term forecasts), given that such decisions have lingering effects on wage outcomes.

Accordingly, Deloitte Access Economics notes developments in the Department of Employment's Trends in Federal Enterprise Bargaining reports⁹, and takes account of these in its short term forecasting if they appear likely to have a material impact.

⁹ Department of Employment, March 2016

Table D.1 National wage surveys

	AWE Survey	EEH Survey	EEBTUM Survey	LPI	CoE
Key series produced	Average weekly total earnings (AWTE) for full-time adult employees and all employees. Average weekly ordinary time earnings (AWOTE) for full-time adult employees	Average weekly earnings for all employees. Average weekly earnings for full-time adult non-managerial employees	Median and mean weekly earnings of full-time, part-time and all employees	Labour Price Indexes. Wage Price Index (WPI) of total hourly rates of pay excluding bonuses.	Non-farm Average Earnings National Accounts (AENA)
Designed to measure	Level estimates of weekly earnings and the distribution of earnings	Level estimates of weekly and hourly earnings and the distribution of earnings	Level estimates of earnings and the distribution of earnings	Changes in the price of labour	Level estimates of average compensation of employees
Frequency and basis of survey	Quarterly survey of businesses	Biennial survey of businesses	Annual survey of households	Quarterly survey of businesses	Quarterly national accounts series based on quarterly survey of businesses
Benefits of the methodology	Quarterly time series (original, seasonally adjusted and trend estimates available)	Provides detailed job information allowing analysis by industry, occupation, hourly rates etc. Source of distributional data (e.g. quartiles)	Provides detailed demographic and job information. Source of distributional data (e.g. medians)	Provides estimates of wage and non-wage inflation	Broad measure of remuneration
Limitations of the methodology	Few cross-classificatory items	Survey run infrequently (two-yearly)	Only provides average weekly total earnings (no series on ordinary time earnings). Includes payments not related to the period of work performed (e.g. backpay and pay in advance)	No level estimates or in-depth cross-classificatory items	Few cross-classificatory items
Publication description and ABS catalogue number	Average Weekly Earnings, Australia (cat. no. 6302.0)	Employee Earnings and Hours, Australia (cat. no. 6306.0)	Employee Earnings, Benefits and Trade Union Membership, Australia (cat. no. 6310.0)	Labour Price Index, Australia (cat. no. 6345.0)	Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0)

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