Deloitte Access Economics

Forecast growth in labour costs in NEM regions of Australia

Report prepared for the AER

22 February 2016

Deloitte.

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Arek Gulbenkoglu
Director
Australian Energy Regulator
Level 37, 360 Elizabeth Street
Melbourne, Victoria 3000

22 February 2016

Dear Arek,

Report on State utilities sector WPI

Our report on the Wage Price Index (WPI) for Victoria, South Australia, the Northern Territory and the ACT is attached.

This report has been drafted on the basis of the material and data available that fed into the December quarter 2015 issues of our *Business Outlook* and *Investment Monitor* publications.

Yours sincerely,

Chris Richardson
Director
Deloitte Access Economics Pty Ltd

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Glossary

ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
DAE	Deloitte Access Economics
EBA	Enterprise Bargaining Agreement
GDP	Gross Domestic Product
GFC	Global Financial Crisis
LNG	Liquefied Natural Gas
WPI	Wage Price Index

Executive Summary

For the States and Territories covered in this report, the ABS only releases WPI estimates in the utilities and construction sectors for Victoria. Deloitte Access Economics uses a range of related data to estimate utilities and construction sector WPIs for South Australia, the Northern Territory and for the ACT.

Australia's economic growth is below trend

China's slowdown is gathering pace, and for global growth that is a matching offset to the good news generated by the United States. But China's woes and the associated winding down of resource-related construction activity in this nation are more important than are the positives from the US for the Australian economy. That has left current economic growth below trend, and national income growth well below trend.

On the other hand Australia's job growth is strong. It helps that the stronger sectors are heavy users of workers, whereas the weaker sectors rely more on capital equipment. And it also helps that weak wage growth has combined with solid productivity gains to make workers more attractive to employers.

Utilities output is recovering

Demand for electricity in the National Electricity Market (NEM) declined or remained flat for six years to mid-2015. The decline in energy use and in output were largely the result of huge price hikes, a part of which have been unwound recently. Those higher prices saw consumers being more careful in their energy usage (including by adopting new technologies), and they were also central to energy saving in industry too. Some heavy users of industrial energy (such as smelters) were closing down at the same time

But the removal of the carbon tax, regulatory reform and a sharp fall in world energy prices have changed the outlook for utilities. And although heavy consumers of industrial energy are still closing, the lower $A gives hope. Finally, new housing construction starts are at record highs, that is leading to demand for the full range of utilities to be connected to those sites.

Utilities sector output growth is recovering as a result. However, even so, it remains weaker than the growth in the Australian economy as a whole, meaning that the utilities sector continues to shrink as a share of naitonal activity.

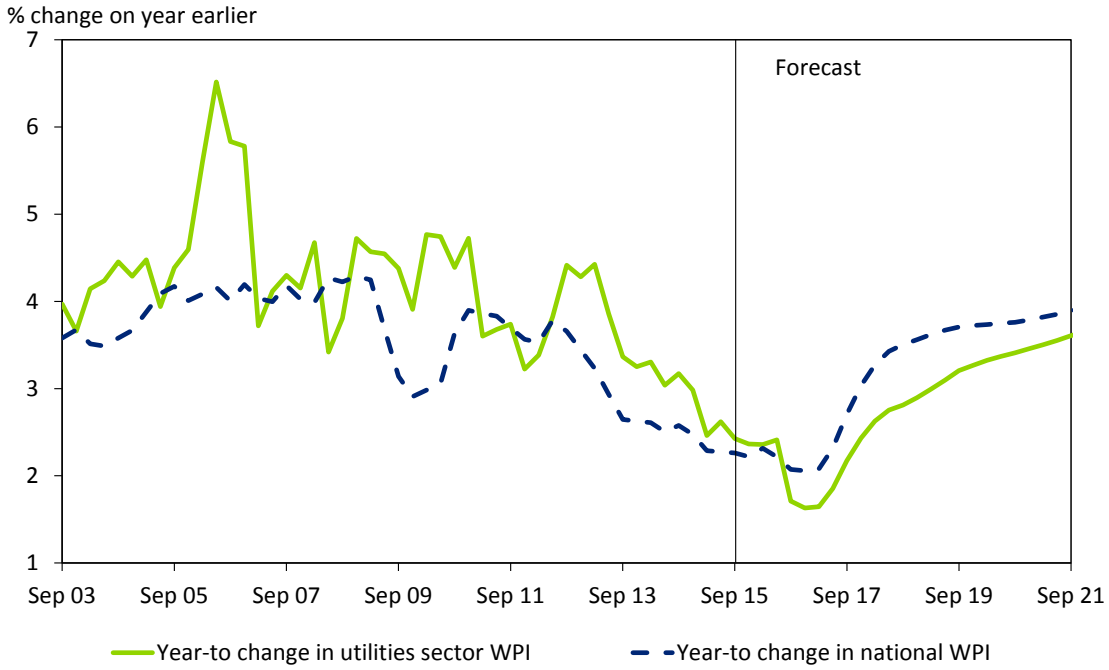
Australia's wage growth remains near record lows

Wage growth continues to bump along the bottom, at just 2.3% over the past year. And there is little sign of any lift in the near term. Even though inflation is low, real wages have been at a standstill since late 2013. The weakness of wage gains at present is partly a response to their earlier strength during the resources boom (meaning that wage gains need to be lower now to help restore some competitiveness to Australian businesses on the world stage). The slow growth is also partly because inflation itself is also weak.

Utilities wage growth has not fully responded to the national or utilities slowdowns

As the chart below shows, wage growth in the utilities sector has slowed over the past decade, with that deceleration gathering pace more recently. Yet even so, and despite the sector's ongoing shrinkage as a share of the Australian economy, wages in the utilities sector have mostly continued to outpace the gains evident in national wages.

Chart i: Utilities Wage Price Index forecasts



Source: ABS, Deloitte Access Economics' labour cost model

The forecasts in this report see wage gains in the utilities level pegging with those across the nation as a whole in the near term, but handing back a portion of their relative gains over the past decade from 2016-17 to 2020-21. Notably:

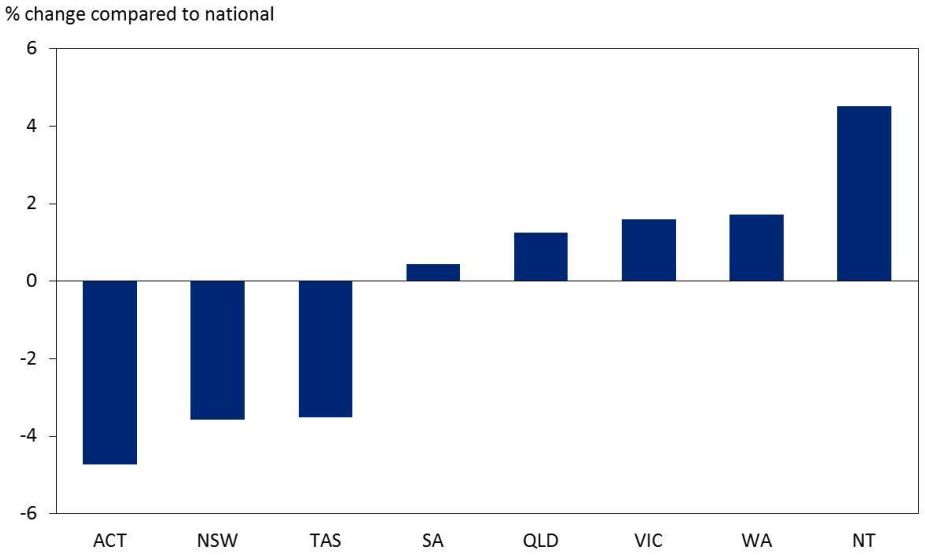
- **Competition from other sectors is easing**. Falling commodity prices have forced resources businesses to seek efficiencies and pursue vigorous cost cutting strategies. This will contribute to lower competition for workers, stunting wage growth in the utilities sector as employers no longer compete with the resources sector for labour.
    - **Electricity demand is expected to remain under a degree of pressure** in the short term. This will be driven by **lower industrial demand**, owing to the pending closure of car making in Victoria and SA, and the shutdown of aluminium smelters in Victoria and NSW, as well as **constrained residential demand** as demand is stifled by the increased use of energy efficient devices. The Australian Energy Market Operator (AEMO) continues to forecast residential consumption to fall.
- Dampened demand is coupled with **oversupply of electricity in the NEM**. There is approximately 20% excess generation capacity and, according to the AEMO, no additional power generation is likely to be required for the next decade.
- Weak demand and strong supply is an unhealthy mix for **electricity prices and revenue**, which in turn may contribute to slow wage gains in the utilities sector.

None of these factors will disappear fast, with the utilities sector still underperforming in comparison to the national economy, future demand in the sector uncertain, and competing sectors also showing signs of economic stress, plus a national slowdown in wage growth set to linger into 2017. Specifically, the outlook for utilities sector wage growth is for a moderate decreases in the rate of growth throughout 2015-16, following a slight pickup in the last quarter of 2014-15. The average growth over the next decade is projected to track well below historical trends; an average of 3.1% through to September 2025 compared to an average of 4.1% over the last decade.

Wage gains have been weaker outside of WA and the NT

This report focuses on wage developments in Victoria, SA, the Northern Territory and the ACT.

Chart ii: Relative shifts in State utilities WPI levels since 2008



Source: ABS, Deloitte Access Economics estimates

Chart ii shows that wage gains have not been evenly distributed across the country. The relative increases since 2008 have largely accrued to those States with the strongest construction and mining booms – Western Australia and the Northern Territory. Even Queensland, itself a beneficiary of the mining upswing, has lagged well behind the gains seen in those areas. The remaining jurisdictions have seen their relative wages fall – albeit modestly so – relative to utilities wages in the economy as a whole.

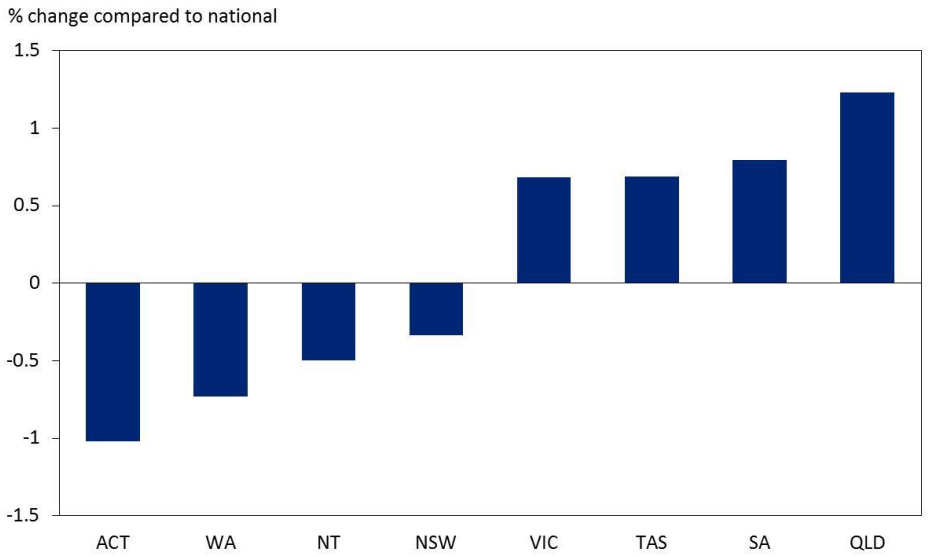
Forecast trends are for relatively faster utilities wage gains in SA and Queensland

The results for the forecast period are shown in Chart iii. In brief:

- With the exception of Queensland, wage gains in the utilities sector in the resource rich jurisdictions of Western Australia and the Northern Territory may hand back some of the relative gains they chalked up since 2008 as their economies go through a slower phase.
- Queensland's relative performance may buck that trend. The State's growth prospects are less at risk, and its outperformance in utilities wages since 2008 was more muted.
- With Federal Budget cost cutting remaining an ever present threat, the ACT may see a further tightening in its utilities wage relativities.

- Despite the risks posed to demand from key industrial users of energy in both Victoria and South Australia, utilities wages in these two States may add somewhat to their recent track record of outperformance as their economies benefit from the lower $A.

Chart iii: Forecast shifts in State utilities WPI levels to 2021



Source: Deloitte Access Economics' macroeconomic model

Summary results

Table i: State WPI forecasts

Yearly changes in nominal Wage Price Index forecasts

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	2.4	2.3	2.1	3.1	3.6	3.7	3.8
South Australia	2.6	2.2	2.0	3.2	3.7	3.8	3.9
Northern Territory	2.6	2.4	2.1	3.0	3.2	3.4	3.6
Australian Capital Territory	1.8	2.0	2.3	3.3	3.8	3.9	3.9
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	2.5	2.1	2.5	3.3	3.6	3.7	3.8

Yearly changes in real Wage Price Index forecasts

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	0.7	0.7	-0.2	0.6	1.2	1.3	1.3
South Australia	1.0	0.8	-0.4	0.7	1.3	1.5	1.4
Northern Territory	1.2	2.2	1.0	1.0	0.9	1.1	1.2
Australian Capital Territory	0.6	0.9	-0.2	0.8	1.4	1.6	1.4
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	1.2	0.1	-0.1	0.8	1.2	1.3	1.2

Source: ABS, Deloitte Access Economics labour cost model

Table ii: Summary results – key variables

Financial year changes in key variables

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Output	2.2	2.2	2.1	3.0	2.7	2.7	3.0
Consumer price index	1.7	1.6	2.4	2.5	2.4	2.3	2.5
Wage Price index	2.4	2.3	2.1	3.1	3.6	3.7	3.8
Ave. weekly earnings	1.3	2.1	2.2	3.1	3.6	3.7	3.8
Ave. weekly ordinary time earnings	2.6	0.7	2.5	3.6	4.1	4.2	4.3

Source: ABS, Deloitte Access Economics macroeconomic model

Table iii: Summary results – economic variables

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

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Consumption							
Private sector	2.5	2.9	3.2	3.1	2.9	2.6	2.4
Public sector	1.3	1.0	0.6	2.9	2.8	2.8	2.6
Private sector investment							
Non-business housing	7.7	6.8	4.1	1.8	-2.9	1.2	9.2
Non-business real estate	2.2	-4.9	-0.3	1.0	-3.0	0.5	7.6
Non-residential building	4.9	2.0	3.2	-0.4	2.4	3.1	2.5
Engineering construction	-18.9	-26.5	-27.7	-7.3	-1.8	0.1	-0.5
Machinery and equipment	1.9	-14.6	-11.8	6.7	8.9	5.2	4.6
IP and livestock	-1.9	-9.1	-0.1	3.1	6.9	7.0	6.3
Public investment							
General Government	-3.0	-5.7	4.3	2.5	2.4	2.4	2.4
Public enterprises	-13.7	-11.6	1.5	1.6	1.1	3.1	2.7
Domestic final demand	0.7	-0.3	0.8	2.6	2.6	2.7	3.0
Private sector	0.9	-0.1	0.8	2.6	2.6	2.7	3.1
Public sector	-0.3	-0.6	1.1	2.8	2.7	2.8	2.6
Gross national expenditure	0.8	-0.3	0.8	2.6	2.6	2.7	3.0
International trade							
Exports	6.6	5.2	4.9	4.2	3.6	3.8	4.4
Imports	0.1	-6.2	-1.6	2.4	3.3	4.0	4.7
Net (% additon to growth)	1.7	0.7	0.3	0.3	0.4	0.2	0.3
Total output (GDP)	2.2	2.2	2.1	3.0	2.7	2.7	3.0
Non farm output	2.2	2.1	2.0	3.0	2.8	2.7	3.0
Employment	1.3	2.1	1.0	1.3	1.5	1.4	1.4
Unemployment rate (%)	6.1	6.0	6.0	6.0	6.0	5.9	5.9

Source: ABS, Deloitte Access Economics macroeconomic model

Table iv: Summary results – wages and prices

Financial year changes in national wage and prices variables

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Consumer price index (CPI)	1.7	1.6	2.4	2.5	2.4	2.3	2.5
Wage Price Index (WPI)							
Nominal	2.4	2.3	2.1	3.1	3.6	3.7	3.8
Real	0.7	0.7	-0.2	0.6	1.2	1.3	1.3
Average weekly earnings (AWE)							
Nominal	1.3	2.1	2.2	3.1	3.6	3.7	3.8
Real	-0.4	0.5	-0.2	0.6	1.2	1.3	1.3
Average weekly ordinary time earnings (AWOTE)							
Nominal	2.6	0.7	2.5	3.6	4.1	4.2	4.3
Real	0.9	-0.9	0.1	1.1	1.7	1.9	1.8
Unit labour costs							
Nominal	-0.1	1.6	1.0	1.3	2.2	2.3	2.0
Real	-1.8	0.1	-1.3	-1.2	-0.2	0.0	-0.5

Source: ABS, Deloitte Access Economics macroeconomic model

Table v: Summary results – National sectoral wages

Financial year changes in nominal national industry sector Wage Price Index

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	2.4	2.3	2.1	3.1	3.6	3.7	3.8
Utilities	2.8	2.4	2.1	2.6	3.0	3.3	3.4
Construction	2.1	1.9	1.9	3.0	3.5	3.7	3.9

Source: ABS, Deloitte Access Economics labour cost model

Table vi: Summary results – State utilities sector nominal wages

Yearly changes in nominal utilities sector WPI

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	2.8	2.4	2.1	2.6	3.0	3.3	3.4
South Australia*	2.6	2.8	2.1	2.7	3.0	3.4	3.5
Northern Territory*	3.2	3.6	2.0	2.5	2.5	2.9	3.2
Australian Capital Territory*	2.4	3.1	1.7	2.4	2.7	3.1	3.3
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	3.3	2.0	2.3	3.0	3.3	3.5	3.6

* Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavaliable for the ABS

Source: ABS, Deloitte Access Economics labour cost model

Table vii: Summary results – State utilities sector real wages

Yearly changes in real utilities sector WPI

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	1.1	0.8	-0.3	0.1	0.5	0.9	0.9
South Australia*	1.0	1.4	-0.3	0.2	0.7	1.0	1.0
Northern Territory*	1.8	3.4	0.8	0.6	0.3	0.7	0.8
Australian Capital Territory*	1.3	2.0	-0.7	-0.2	0.3	0.7	0.8
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	2.0	0.1	-0.2	0.5	0.9	1.1	1.1

* Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavaliable for the ABS

Source: ABS, Deloitte Access Economics labour cost model

Deloitte Access Economics

5 February 2016

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) industry to 2020-21 for Victoria, South Australia, the Northern Territory and the Australian Capital Territory, as well as for Australia as a whole.

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:

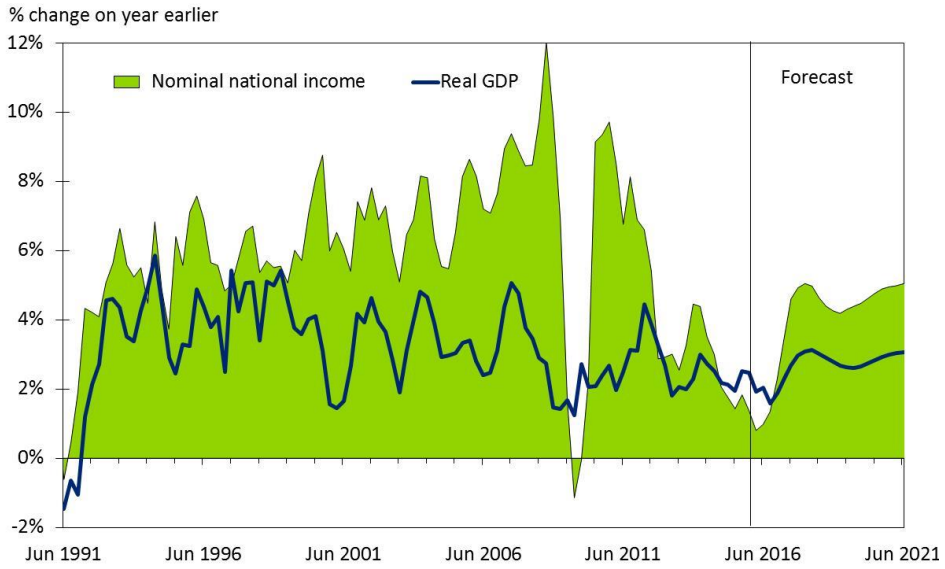
- **Discussion of the economic outlook**, including national and State commentary, as well as a broad look at the utilities and construction sectors.
- **Discussion of the outlook for wages**, including a brief discussion at the national and State level, followed by analysis at the industry level.
-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

2 The economic outlook

2.1 Australia

Usually producing more means earning more, but the two measures in Chart 2.1, production and national income, are showing unusual patterns.

Chart 2.1: Australian production and national income growth



Source: ABS, Deloitte Access Economics' macroeconomic model

China is central to both these trends. On the one hand production growth over the past year (at 2.5%) is a good outcome. Given the size of Australia's earlier boom, there was always the risk that we'd suffer a bust. But that clearly hasn't eventuated. And continuing growth is lending itself to some welcome side-effects: 2.5% growth may be below trend, but it is still good enough to help shift unemployment back below 6%.

The keys to that solid growth have been rapidly rising resource exports (with the latest big mover being gas) alongside respectable gains in housing construction and consumer spending. The boost in the quantity of exports we're selling to the world is occurring because China's bull-like growth in the past decade encouraged miners to spend up on developing new mines. Because that is a very slow process, it is only now that much of that additional capacity is coming onstream.

Equally, however, China's subsequent slowdown has led to falls in Australian interest and exchange rates that has supported activities such as home building and retail spending.

Yet the reasonable results evident in output are notable for their absence in national income. Like output, the latter also grew by 2.5% over the past year. But whereas output over the past two decades average gains of 3.1% a year, national income averaged 6.1% – so it is much more below trend.

China is also the key to the income story. Australia may be exporting more tonnes of iron ore, gas and coal, but the price we're earning for that keeps falling. That means we have to sprint harder on production just to get a given outcome on income. And at the same time those increasingly poor commodity prices mean we simply won't build "the next mine" here in Australia – why boost production in a sector that is under a lot of pressure?

That divergence – in which this nation is experiencing solid-but-below-trend output growth at the same time as we rack up poor income growth – won't disappear any time soon.

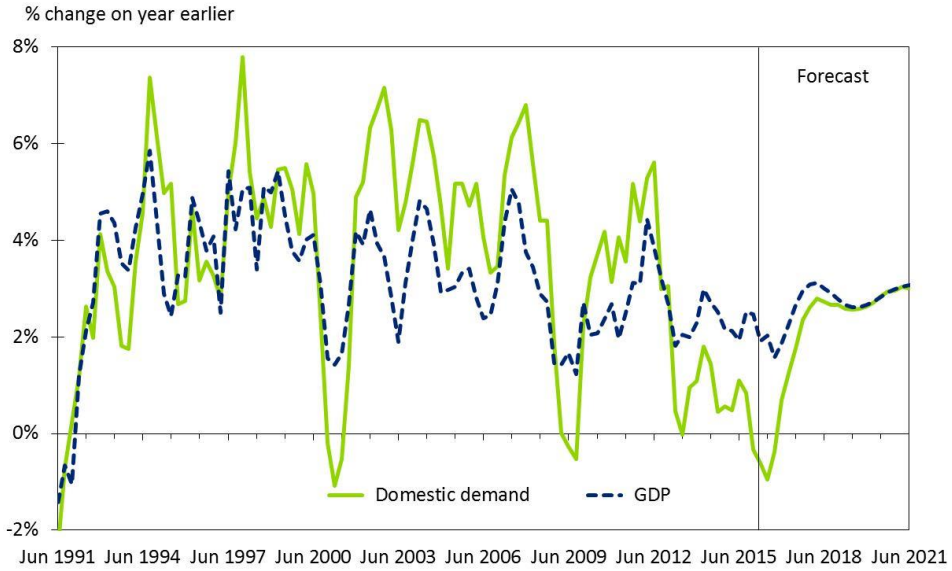
That is because:

- China continues to slow.
- Miners are still digging at the fastest rate that the globe has ever seen.
- And housing prices won't do as much heavy lifting from here on in.

That latter point is worth expanding. The tag team effort whereby the flagging strength of the resources boom was partly offset by lower interest rates boosting housing prices is starting to tire: housing prices have run well ahead of national income growth in Australia, and that suggests the boost to wealth that is keeping momentum in retail will be less of a force in the future than it has been in recent times.

All up, that says the weakness in domestic demand growth that has been evident for the better part of four years now won't be undergoing a recovery any time soon.

Chart 2.2: Domestic demand and GDP



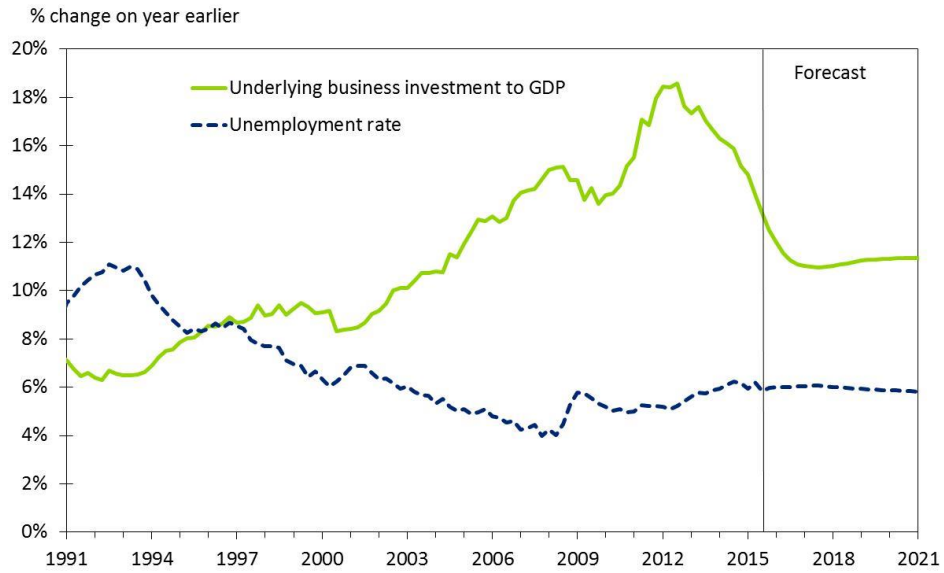
Source: ABS, Deloitte Access Economics' macroeconomic model

As Chart 2.2 shows, domestic demand growth weakened back in 2012, soon after commodity prices peaked. And as that chart also shows, Deloitte Access Economics doesn't see demand growth moving back close to overall output growth in the economy until 2018.

To be clear, it's an extended grind rather than a big problem. Australia has seen recessions in times past, and this isn't that. The unemployment rate is half what it can hit when recessions are at their height.

However, Australia has just had the biggest boom in its history. It is no surprise that boom is leaving behind it a pretty long rainshadow. Chart 2.3 shows that, since reaching its natural peak in 2012, business investment has been in decline as a share of the economy and rising mining exports have struggled to offset the large drop in commodity prices. This has dramatically reduced the expected return on investment following years of engineering construction, and has also affected the viability of future projects, accelerating Australia's 'construction cliff'.

Chart 2.3: Business investment/GDP and the unemployment rate



Source: ABS, Deloitte Access Economics' macroeconomic model

2.2 Victoria

Of all the State economies, Victoria is most exposed to movements in the exchange rate. The years immediately following the GFC, in which the $A traded higher than it had in over a decade, had undesirable effects on this State's economy.

But the $A is now well off its peaks, and the lower exchange rate is beginning to benefit Victoria's economy as businesses capitalise on increased currency competitiveness. This $A effect on the State economy is lagged, which suggests that the favourable exchange rate will benefit the State for another year or two yet. However, positive effects are already evident: the lower Australian dollar has already increased the numbers of foreign students and inbound tourists arriving in the State.

In addition, housing construction in Victoria continues to support State final demand, even as the other parts of the nation have been faltering. And the gains in retail turnover in Victoria have consistently outpaced Australia's turnover growth in the past two years.

Finally, business investment has also increased as a share of the State's economy. Victoria was not significantly dependent on the mining boom which is now acting as a drag on other State economies. In contrast, engineering construction in the State shows positive signs into the future, despite the finalisation of the $4.4 billion Kipper-Tuna-Turrum oilfield project, with two

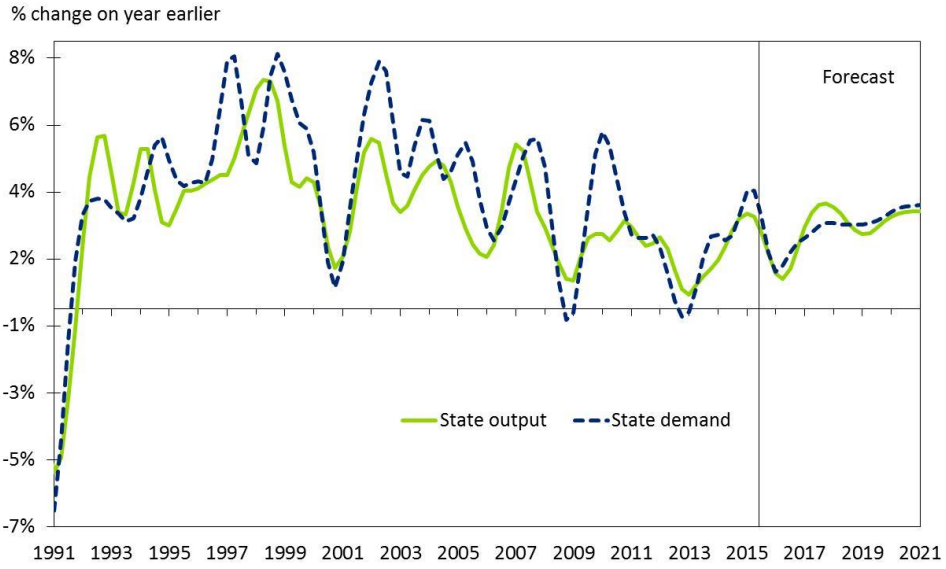
large projects announced; the $11 billion Melbourne Metro set to begin construction in 2018[1], and the $5.5 billion Western Distributor[2] to begin at the end of 2016 or early 2017.

The combination of these factors has given Victoria a new lease on life over the past two years: job growth has increased and unemployment decreased from rates well above the Australian average to being in line with it.
Victoria is leading the nation in population growth, with the latest data showing that growth in the State's population has been the strongest in the nation over the past year – a position that the State hasn't occupied for well over a century. Economic indicators within the State have been supported by strong population growth, in particular the rate of housing construction.

That isn't to say that there aren't some challenges ahead for Victoria. The closure of car manufacturing in the State is still to come and will weigh on its economy. There are also risks associated with the ongoing strength in housing construction, particularly for inner city apartments – where supply has increased substantially.

Then again, these are best seen as factors improving Victoria's position within Australia, rather than as powering Victorian growth more generally. Chart 2.4 shows that, after a recovery through 2015, Victoria's output and State demand is forecast to moderate through 2016 before returning to growth around 3% over the medium term.

Chart 2.4: Victoria output and demand



Source: ABS, Deloitte Access Economics' macroeconomic model

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

1 Melbourne Metro Rail, 2016, http://mmrailproject.vic.gov.au/about-the-project
2 Transurban, 2016, http://www.transurban.com/westerndistributor.htm

Table 2.1: Victoria output and demand forecasts

Financial year changes in Victoria key economic variables							
Annual % change (unless noted)	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Consumption							
Private sector	2.4	2.3	1.8	2.5	2.5	2.7	3.1
Public sector	1.0	0.0	1.3	3.4	3.3	3.2	3.0
Private sector investment							
Dwelling investment	6.1	9.9	0.3	-2.7	-6.2	-0.9	7.6
Non-residential building	13.8	8.1	-0.5	-2.9	0.4	1.4	1.0
Engineering construction	6.8	-2.9	-12.3	-6.5	-2.2	-0.8	-1.2
Machinery and equipment	1.4	-1.0	-11.9	6.0	8.9	4.8	4.2
IP and livestock	3.8	-6.6	-1.4	1.0	5.1	5.4	5.3
Public investment							
General Government	-2.4	-11.4	7.8	4.2	3.5	2.9	2.7
Public enterprises	-18.5	-1.6	-10.0	-3.6	-1.1	2.1	2.4
Real final demand	2.4	2.3	1.8	2.5	2.5	2.7	3.1
Private sector	3.2	3.3	1.9	2.3	2.4	2.6	3.1
Public sector	-0.7	-1.5	1.5	3.2	3.1	3.1	2.9
Gross State output	2.5	2.0	1.6	3.1	2.5	2.5	2.9
Employment	2.0	1.9	0.7	1.4	1.8	1.7	1.5
Unemployment rate (%)	6.3	6.1	6.2	6.2	6.1	6.0	5.9

Source: ABS, Deloitte Access Economics' macroeconomic model

2.3 South Australia

The economic landscape of the States is characterised by demand moving from Australia's north and west to the south and east as the resources boom unwinds.

That's because States such as Western Australia, Queensland and the Northern Territory are seeing mining and energy-related construction drop back, whereas low interest rates and exchange rates are aiding the more serviced-based economies of the south and east.

At least at face value, that's a combination of developments which should be good news for South Australia: an economy which looks rather more like that of Victoria than it does of Western Australia. That means South Australia didn't have a boom in mining projects, so it now can't have a matching drop off in that construction spend. And it also means that the decade in which the resources boom mostly meant higher exchange and interest rates was also a decade in which South Australia's industries were on the wrong side of those growth engines – in turn, meaning that South Australia should be a particular beneficiary of the lower currency and the low interest rates of the moment.

However, the earlier phase of $A strength is still taking its toll (for example, Holden will stop making cars in the State), while the flow of Defence-related manufacturing has eased off.

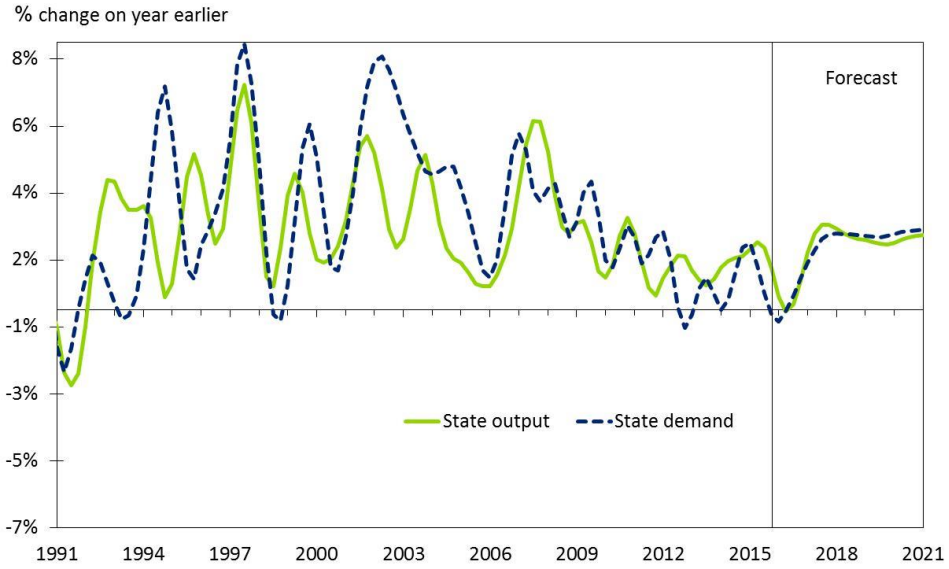
Housing finance and building approvals are providing support but they are not matching the gains seen nationally. South Australian housing prices are growing modestly compared to

growth nationally. Moreover, population growth is notably lower than the nation as a whole, is also holding back the State.

The fact that South Australian's industry composition is similar to Victoria is a key reason that the exchange rate should provide the support needed for growth going forward. However, as pointed to above, the difference between the Victoria and South Australia is the latter is not benefiting from robust population growth, and the State's population is ageing faster that of Victoria's.

On balance, and as Chart 2.5 shows, the State may see slow growth in the short term.

Chart 2.5: South Australia output and demand



Source: ABS, Deloitte Access Economics' macroeconomic model

Commodity prices are likely to make things difficult for South Australia. The $4.5 billion Central Eyre iron project and the $3.2 billion Arckaringa open cut coal mine are unlikely to be developed under the current climate of global oversupply in both commodities and low world prices. The planned expansion of Olympic Dam is shelved and exploration expenditure is unlikely to re-emerge under low world commodity prices.

Table 2.2 sets out Deloitte Access Economics' current forecasts for South Australia's economy.

Table 2.2: South Australia's output and demand forecasts

Financial year changes in South Australia key economic variables							
Annual % change (unless noted)	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Consumption							
Private sector	1.2	0.4	0.7	2.1	2.2	2.2	2.4
Public sector	0.8	0.5	-0.3	2.1	2.0	2.1	2.0
Private sector investment							
Dwelling investment	6.5	0.2	2.0	1.3	-3.0	0.5	8.6
Non-residential building	2.7	-1.5	-8.7	-3.5	0.3	1.2	0.4
Engineering construction	-3.7	1.9	-17.3	-4.7	-1.5	-0.4	-1.1
Machinery and equipment	6.3	-8.2	-9.6	8.9	10.9	5.5	4.3
IP and livestock	-3.5	-14.5	-2.6	0.5	5.9	6.1	5.4
Public investment							
General Government	-20.0	-11.0	0.2	0.8	1.8	1.7	1.7
Public enterprises	-22.0	-13.5	5.1	2.5	0.9	2.2	1.6
Real final demand	1.2	0.4	0.7	2.1	2.2	2.2	2.4
Private sector	2.6	0.9	0.9	2.2	2.3	2.3	2.5
Public sector	-3.1	-1.3	-0.1	1.9	2.0	2.1	1.9
Gross State output	1.6	1.5	0.7	2.5	2.2	2.0	2.2
Employment	0.7	0.6	0.6	1.1	1.0	0.7	0.8
Unemployment rate (%)	6.8	7.5	7.2	7.1	7.0	6.9	6.8

Source: ABS, Deloitte Access Economics' macroeconomic model

2.4 Northern Territory

In 2014-15, the Northern Territory recorded the highest economic growth in Australia's, growing by more than 10%. However, as the State's resources project construction declines, Deloitte Access Economics forecasts a correction in output gains followed by a recovery to growth through 2017-18.

The $37 billion construction phase of the INPEX Ichthys LNG plant was a major driver for the Territory's economy, representing more than one and a half times of Gross State Product (GSP). Construction on the project, since commencement in 2012, created demand for construction workers and supported other industries, such as retail and housing. In 2014-15 the construction sector accounted for more than 8 percentage points of growth, well above the contribution of construction to the State economies of Queensland and Western Australia during their respective mining construction boom periods.

However, the construction phase of the Ichthys LNG project is due for competition in the second half of 2017, revised from the original 2016 end date.

As construction growth drops, the outlook for the Northern Territory is for slower economic growth. The Northern Territory faces a large construction cliff and a tricky period of transition to new sources of growth. Other LNG projects for the Northern Territory have been proposed, including the Greater Sunrise Timor Sea project estimated to cost $13 billion and two others estimated at almost $3.5 billion combined.

However, the recent decline in global petroleum prices and gas prices may suggest that another large engineering construction project is unlikely to go ahead in the near term.

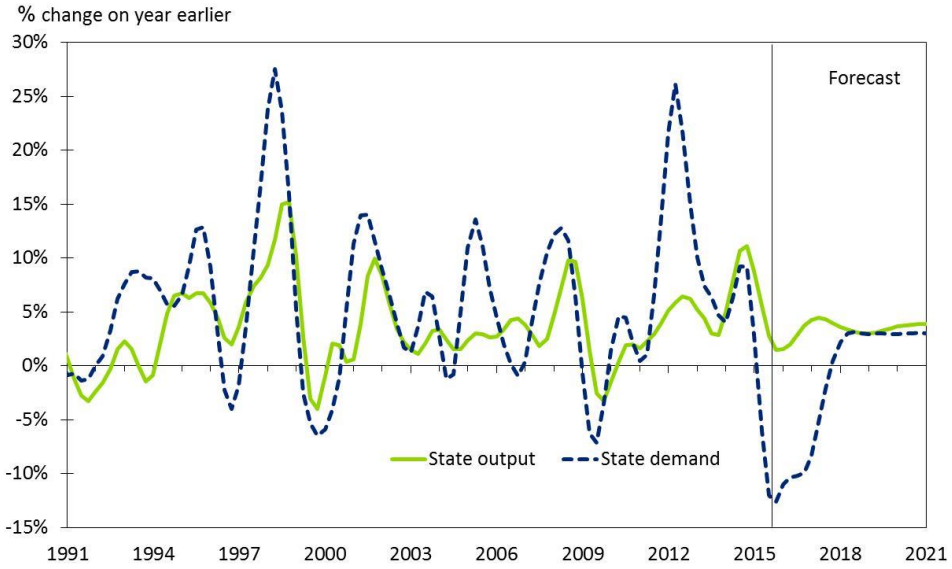
Population growth has fallen from a peak of 3.0% in early 2013 to levels close to neutral since 2014; the equal weakest in the nation (with Tasmania).

On the other hand, lower interest and exchange rates will benefit the Territory, decreasing costs and increasing competitiveness of trade-exposed industries. Growth in international tourists is anticipated to be more than double the national average for the year 2015-16. The Commonwealth Government's $5 billion Northern Australia Infrastructure Facility (NAIF) commitment over a five year period will commence in 2016-17. The NAIF will provide concessional loans to support and encourage business investment in Northern Australian economic infrastructure projects across the Northern Territory, Queensland, and Western Australia.

Over the outlook to 2020-21 the Territory's growth is forecast to recover amid rising LNG exports from Ichthys as it ramps up its operational phase and benefits from investment by the Federal Government's Infrastructure Facility flow through the Territory's economy.

Chart 2.6 shows that the Northern Territory's economic growth is forecast to decline through 2015-16 before recovering through 2017-18.

Chart 2.6: Northern Territory output and demand



Source: ABS, Deloitte Access Economics' macroeconomic model

Table 2.3 sets out Deloitte Access Economics' current forecasts for the Northern Territory economy.

Table 2.3: Northern Territory's output and demand forecasts

Financial year changes in Northern Territory key economic variables							
Annual % change (unless noted)	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Consumption							
Private sector	8.1	-11.6	-9.6	-1.1	3.0	3.0	3.0
Public sector	0.9	5.6	-0.2	2.4	2.7	2.7	2.6
Private sector investment							
Dwelling investment	-7.4	-5.3	-9.1	2.8	0.8	3.6	11.6
Non-residential building	20.2	-30.1	-43.4	-25.7	-1.4	0.0	-1.3
Engineering construction	21.9	-27.7	-47.4	-25.2	-3.5	-2.3	-3.8
Machinery and equipment	35.6	-25.0	-11.0	-2.3	10.5	0.7	3.8
IP and livestock	-8.8	-66.7	44.3	15.7	7.7	17.4	10.0
Public investment							
General Government	29.2	-17.2	1.6	1.8	2.6	2.7	2.8
Public enterprises	7.8	16.6	-30.5	-6.0	-2.2	1.9	2.6
Real final demand	8.1	-11.6	-9.6	-1.1	3.0	3.0	3.0
Private sector	9.2	-16.4	-13.2	-2.7	3.3	3.1	3.2
Public sector	5.1	2.1	-1.3	2.0	2.5	2.7	2.6
Gross State output	10.5	2.5	3.2	4.1	3.1	3.4	3.9
Employment	-0.4	1.4	1.3	1.7	1.9	1.8	2.0
Unemployment rate (%)	4.2	4.5	4.7	4.8	4.8	4.8	4.8

Source: ABS, Deloitte Access Economics' macroeconomic model

2.5 The Australian Capital Territory

The boom in commodity prices through to 2011 helped strengthen the Federal Budget and, in turn, benefited the Canberra economy.

However, with the Commonwealth Budget under pressure, the ACT economy is facing a less certain future.

In fact 2015 closed with a familiar feel to it: yet another Federal Budget update was announced replete with large revenue writedowns, but there was no associated attempt to reinvigorate a savings agenda.

That combination means that (1) the dangers remain, but also that (2) the ACT's economy continues to largely escape from the downsides of the Federal Budget bust now underway.

The ACT has a relatively high proportion of the national public sector workforce; approximately 9% compared with 6% of its total share of national employment, and this industry accounts for almost one third of the ACT's labour force. As such, the Territory's economy remains a "one company town" in many respects and, amid a continuing phase of further Federal Budget writedowns, it is facing greater uncertainty in the longer term outlook.

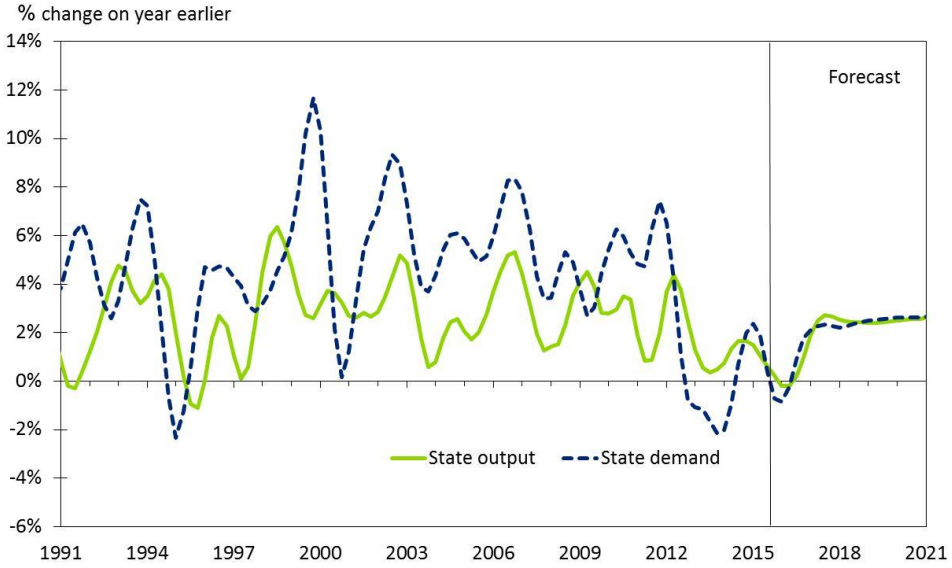
The December 2015 Mid-Year Economic and Financial Outlook (MYEFO) revised the forecast for the Federal Budget deficit upwards by $26 billion over the four years to 2018-19. Earlier

cutbacks to the public service (a total of 16,500 jobs lost by 2017) have already been implemented, meaning that recent growth stats have looked solid.

The latest Federal Budget indicates that Average Staffing Levels (ASL) in the Commonwealth public sector have fallen by more than 12,500 since 2012-13; over 18,000 less than their eight-year peak in 2011-12. This weighed on household incomes and as the biggest driver of consumer spending, significantly weakened retail trade growth in the ACT relative to the national average for most of the last two years.

The ACT's economy is anticipated to face modest growth in the short term, as seen in Chart 2.7 below.

Chart 2.7: ACT output and demand



Source: ABS, Deloitte Access Economics' macroeconomic model

Growth is anticipated to recover in the medium term. The Commonwealth Government lifted the hiring freeze on 1 July 2015. The latest data revealed that public sector vacancies are up 25% over the year, suggesting that the current recovery phase in job markets has a firm basis and that further job gains may be ahead.

Population growth has also increased, returning to around the national average from a low in late 2014, in large part because the net outflow of persons from Canberra appears to have slowed in the latest data.

In addition, lower petrol prices and lower interest rates are providing support to retailers, while low interest rates are providing support to the housing market in Canberra (as is the joint Federal and ACT Government initiative to buy and demolish houses affected by asbestos).

Lower interest rates have also seen some positives in ACT's non-residential construction sector. Engineering construction activity in the ACT is heavily dependent on road projects, with the $288 million Majura Parkway upgrade headlining the work underway. The pipeline of work is almost exclusively dependent on the $783 million light rail network which, despite considerable political debate, looks set to proceed in 2016.

Commercial construction activity in the ACT is being propped up by the $600 million research and business precinct between ANU and the city, with construction there set to continue right through to 2018. Encouragingly, three new projects have entered the pipeline. These are the $150 million refurbishment of the ACT Law Courts, the $130 million Tuggeranong Office Park project and a $55 million new Calvary Private Hospital.

Table 2.4 sets out Deloitte Access Economics' current forecasts for the ACT economy.

Table 2.4: Australian Capital Territory's output and demand forecasts

Financial year changes in Australian Capital Territory key economic variables							
Annual % change (unless noted)	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Consumption							
Private sector	1.5	-0.2	1.2	2.3	2.4	2.6	2.6
Public sector	0.3	0.3	0.2	2.6	2.6	2.6	2.5
Private sector investment							
Dwelling investment	-7.5	-4.4	30.1	3.5	-1.9	1.4	7.2
Non-residential building	-2.0	11.7	12.7	0.1	-0.3	1.6	1.0
Engineering construction	-30.9	-9.9	-7.3	-15.7	-11.3	-2.7	-2.8
Machinery and equipment	4.4	16.8	0.7	13.3	8.7	4.4	3.4
IP and livestock	4.4	0.4	1.6	4.8	5.5	3.8	4.1
Public investment							
General Government	16.2	-15.4	-7.8	-2.7	0.6	1.7	2.1
Public enterprises	-9.9	37.2	-3.1	-0.5	0.1	2.5	2.0
Real final demand	1.5	-0.2	1.2	2.3	2.4	2.6	2.6
Private sector	0.8	2.0	4.6	2.5	2.3	2.6	2.9
Public sector	1.9	-1.3	-0.6	2.2	2.4	2.6	2.5
Gross State output	1.4	0.5	0.7	2.6	2.4	2.5	2.6
Employment	-0.8	1.1	0.6	1.2	1.0	0.8	0.7
Unemployment rate (%)	4.6	5.1	5.2	5.2	5.2	5.1	5.2

Source: ABS, Deloitte Access Economics' macroeconomic model

2.6 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.

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.

Growth in the utilities sector has stabilised after a period of significant declines. Those declines, in turn, followed on from significant price hikes in the sector. Higher prices intensified pressure on electricity businesses throughout the supply chain. Consumers adopting more

energy efficient appliances and buildings, and closures among large industrial energy users decreased demand for electricity.

Yet, with utilities sector output growth reaching 1.6% in year to the September 2015 quarter, it is also clear that the worst has passed, and that a cyclical recovery has commenced:

- **Electricity prices have stabilised** with the introduction of flexible and market pricing arrangements, and reforms to regulatory frameworks.
- New record **housing construction** starts reached record highs over the year to 2015, growing at 17%, driven by lower interest rates and a boom in apartment construction. Those homes will be connected to utilities services, providing new demand for the full range of the utilities sector.
- The lower $A and lower fuel costs are easing some **competitive pressures on Australia's trade-exposed manufacturers**.

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

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

- A **new global agreement**, the *Paris Climate Accord*, reached at the Paris climate change conference in December 2015 will require **Australian industries to significantly reduce their emissions**. The Australian Government has set a 26% to 28% reduction below 2005 emissions by 2030, an increase from the 5% below 2000 levels by 2020. This may deepen structural growth obstacles for the sector as demand for energy shift away from coal and electricity towards new and alternative business models and technologies.
- The increased **competitiveness and availability of distributed generation** such as rooftop solar systems, battery storage and solar hot water are likely to remain a source of cuts to household electricity use over the medium term. The Australian Government remains committed to policies that foster innovation in energy generation and use.
- **Australia's manufacturing base remains under competitive pressure**, and continued weakness in manufacturing is likely to weigh on utilities demand in coming years.

Growth in alternative energy sources and game changing technologies (such as the more widespread use of batteries) raises some longer term risks around the health of 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 with associated battery usage, then that could lead to a sustained fall in demand for network electricity. In turn, that would mean that the fixed costs of the network were being spread over a smaller base of customers. As yet such developments are a risk rather than a base case, and they are not reflected in Deloitte Access Economics' forecasts. Equally, the potential longer term positives (such as the rise of electric cars) are also not incorporated into the forecasts.

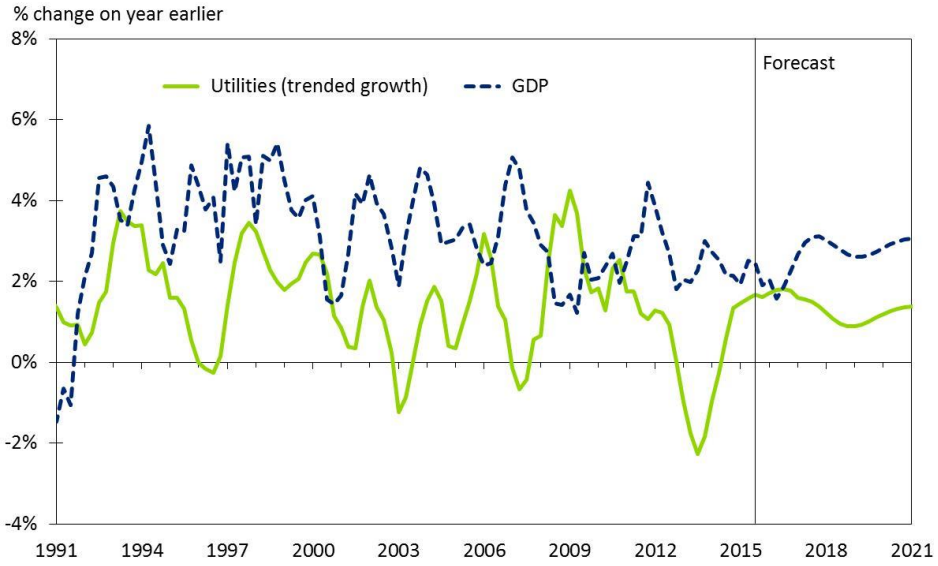
Besides, these are mostly question marks over the longer term and, overall, the utilities sector is forecast to continue to recover from its recent dip, aided by strong rates of housing construction, a growing population, greater stability in electricity prices, and reduced risks to domestic gas pricing. Further, the demand for gas remained strong over 2015, up 10% over the past year following cold winters in Victoria and Tasmania.

It is also worth noting that ongoing reforms driven by the Council of Australian Governments (COAG) are seeking to achieve greater efficiency in the transmission and distribution of electricity. These reforms to network pricing in particular are expected to benefit electricity consumers by slowing retail price growth into the future. Recent regulatory changes and current low interest rates are also expected to reduce network costs and retail prices.

Chart 2.8 shows the extended period of contraction that occurred in the utilities sector since around 2011, falling to a trough in late 2013 before recovering through 2015. In the short term, utilities output growth is forecast to grow at around current rates before moderating through 2017-18.

That means the utilities sector is projected to continue to shrink as a share of Australia's economy, reflecting the ongoing demand adjustments occurring in response to the enormous lift in the price of utilities services and continued weakness in manufacturing weakening electricity demand.

Chart 2.8: Utilities output and GDP



Source: ABS, Deloitte Access Economics' macroeconomic model

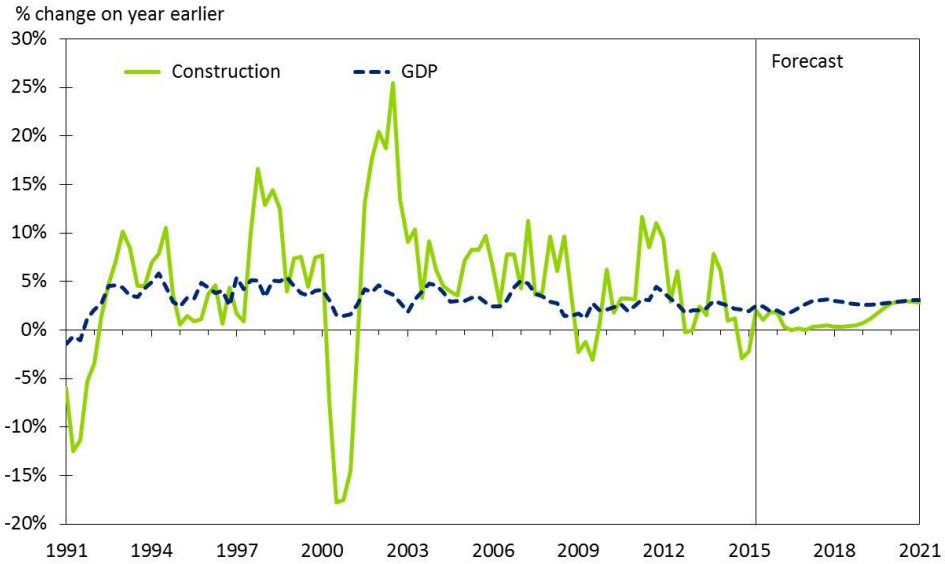
2.7 Construction

The fading of the resources boom continues to weigh on the construction industry, as the transitions from resource-related construction to other sectors is well underway, although strength in residential construction provides some relief.

Chart 2.9 below shows overall construction activity has shown a modest recovery in growth, following what was a sharp decline in the first half of 2015 as engineering work fell away.

Overall construction activity, supported by low interest rates and growth in residential construction, is expected to grow steadily in the short term, but to underperform growth in the wider Australian economy for much of the period through to 2020-21.

Chart 2.9: Construction output and GDP



Source: ABS, Deloitte Access Economics' macroeconomic model

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

Engineering construction activity was driven to a striking peak by the resources boom, while residential and commercial building activity is linked to movements in interest rates and population growth rates. A series of interest rate cuts by the Reserve Bank of Australia (RBA) recently have led to higher house prices, and an associated increase in building approvals and dwelling commencements.

The outlook for engineering construction activity will continue to fall sharply, as the resources boom unwinds, new global supply comes online and weakening global demand in resource markets decreases the profitability of new projects planned in future. With a large set of projects winding up over the next couple of years, including $105 billion worth of LNG projects expected to be completed by 2017. That points to the continued slowdown in the mining and manufacturing industries.

The sheer size of resources projects has meant that public engineering construction activity is unlikely to make up for the decline in the investment resources boom. That said, there are still some positives in the future outlook of public sector engineering investment with activity largely led by NSW-based projects; the WestConnex and NorthConnex projects valued at $11.5 billion and $2.9 billion respectively. Further, the Victorian Government announced the Melbourne Metro Rail Project, expected to begin in 2017 and cost approximately $11 billion.

Despite this, however, growth in total engineering construction is expected to continue to decline until at least 2017.

Table 2.5: Engineering construction projects (September 2015 level and annual change)

Sector	Definite	% change on Sep 2014	In planning	% change on Sep 2014	Total $m	% change on Sep 2014
Manufacturing	2,376	18%	17,323	-2%	19,699	0%
Transport	68,614	-21%	142,604	-18%	211,218	-19%
Communication	46,375	0%	300	0%	46,675	0%
Mining	216,300	-10%	178,469	-7%	394,769	-9%
Power & water	6,295	-56%	21,744	-12%	28,039	-28%
Rural and forestry	236	174%	820	0%	1,056	17%
Total ($m)	**340,196**	**-12.9%**	**361,260**	**-11.6%**	**701,456**	**-12.3%**

Source: Deloitte Access Economics' *Investment Monitor,* September 2015

Commercial construction, despite low interest rates, has also fallen slightly over the past year. Total projects (current and planned) fell 1.7%, as seen in Table 2.6. Despite the slight decline in total non-residential building in recent times, approvals data suggests that the future outlook may be somewhat more positive. In particular, the value of approvals has jumped in the entertainment and education sector, whereas retail and office building approvals have held relatively constant.

Table 2.6: Commercial construction (September 2015 level and annual change)

	Definite	% change on Sep 2014	In planning	% change on Sep 2014	Total $m	% change on Sep 2014
Trade	7,211	-14%	6,312	45%	13,523	6%
Business parks	2,942	-16%	1,610	-32%	4,552	-22%
Hotels and Resorts	3,647	53%	19,410	1%	23,057	7%
Offices	4,797	12%	5,216	-17%	10,013	-5%
Education	1,771	-33%	907	-4%	2,678	-25%
Health & community services	17,062	-16%	3,587	30%	20,649	-10%
Culture, recreation & other	9,278	13%	3,884	-19%	13,162	1%
Business services	698	0%	2,200	-3%	2,898	-2%
Government	1,753	62%	319	-47%	2,072	23%
Mixed use	17,175	2%	3,030	-1%	20,205	2%
Total in $m	**66,334**	**-2.6%**	**46,475**	**-0.4%**	**112,809**	**-1.7%**

Source: Deloitte Access Economics' Investment Monitor, September 2015

In contrast, the value of **residential building work** rose by 10.3%, the majority of this growth seen in apartment construction in Sydney and Melbourne. The Reserve Bank cut rates aggressively to record lows in an attempt to support growth in the non-mining sector. Low rates have benefited and will continue to benefit housing construction. Residential construction has also benefited from Australia's solid population growth. The elevated nature of building approvals indicates that the residential building cycle will remain robust well into 2018.

Despite the short term boost in residential construction, this is not anticipated to outweigh the fall in engineering and commercial construction projects as a result of a fading resources boom and lower business investment in resource-related projects.

Further, the effects of the lower $A are felt more slowly in business investment and are not anticipated to be felt in the shorter term. As such, total construction output growth is forecast – beyond the short term, where residential support is key, to be well below the national average across much of the period to 2020-21.

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 Territories, 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 real utilities sector WPI

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	1.1	0.8	-0.3	0.1	0.5	0.9	0.9
South Australia*	1.0	1.4	-0.3	0.2	0.7	1.0	1.0
Northern Territory*	1.8	3.4	0.8	0.6	0.3	0.7	0.8
Australian Capital Territory*	1.3	2.0	-0.7	-0.2	0.3	0.7	0.8
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	2.0	0.1	-0.2	0.5	0.9	1.1	1.1

* Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavaliable for the ABS

Yearly changes in State real productivity adjusted Wage Price Index

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	-0.2	0.6	-1.4	-1.1	0.0	0.1	-0.3
South Australia	0.1	-0.2	-0.8	-0.9	0.0	0.1	-0.2
Northern Territory	-9.3	1.0	-0.7	-1.3	-0.3	-0.6	-0.9
Australian Capital Territory	-1.1	1.3	-0.5	-0.6	-0.1	-0.2	-0.5
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	1.2	-0.3	-1.8	-0.5	0.5	-0.1	-0.2

Yearly changes in nominal utilities sector WPI

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	2.8	2.4	2.1	2.6	3.0	3.3	3.4
South Australia*	2.6	2.8	2.1	2.7	3.0	3.4	3.5
Northern Territory*	3.2	3.6	2.0	2.5	2.5	2.9	3.2
Australian Capital Territory*	2.4	3.1	1.7	2.4	2.7	3.1	3.3
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	3.3	2.0	2.3	3.0	3.3	3.5	3.6

* Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavaliable for the ABS

Yearly changes in real utilities sector WPI

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
National	1.1	0.8	-0.3	0.1	0.5	0.9	0.9
South Australia*	1.0	1.4	-0.3	0.2	0.7	1.0	1.0
Northern Territory*	1.8	3.4	0.8	0.6	0.3	0.7	0.8
Australian Capital Territory*	1.3	2.0	-0.7	-0.2	0.3	0.7	0.8
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Victoria	2.0	0.1	-0.2	0.5	0.9	1.1	1.1

* Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavaliable for the ABS

3.2 Australia

National wage growth remain at historically low level: running at the anaemic rate of just 2.3% over the past year (2.7% in the public sector over the past year, and 2.1% in the private sector). And there is little sign of any imminent lift. In fact even though inflation is low, real wages have been at a standstill since late 2013.

And that assessment doesn't allow for the changing composition of the workforce. A shift from mining and related construction jobs towards service sector employment is a shift from higher to lower paid work – meaning that measures such as Average Weekly Ordinary Time Earnings (AWOTE) have been heading backwards.

The weakness of wage gains at present is no surprise. It is:

- partly a response to their earlier strength during the resources boom (meaning that wage gains need to be lower now to help restore some competitiveness to Australian businesses on the world stage),
- partly a response to a phase of concerns amid workers that unemployment was a higher-than-usual risk, and
- partly because inflation itself is also weak.

Among industries, wage gains are travelling fastest in education (3.0%) and finance (2.7%), with weakness evident in professional services and admin services (both at 1.5%), and with the construction sector wages rising just 1.7% over the past year. But nor is this all one way traffic, with enterprise bargains holding up at faster rates of wage growth.

Even so, the current lack of momentum suggests that there's a reasonable chance that private sector wage growth will dip below 2% before it begins any recovery. Although there's not a perfect correlation, there is a clear relationship between the terms of trade and wage gains. When the world gives Australia a pay cut via lower iron ore and other commodity prices, most of that pain is felt in profits, but some shows up in wage growth too – or, rather, the lack of it.

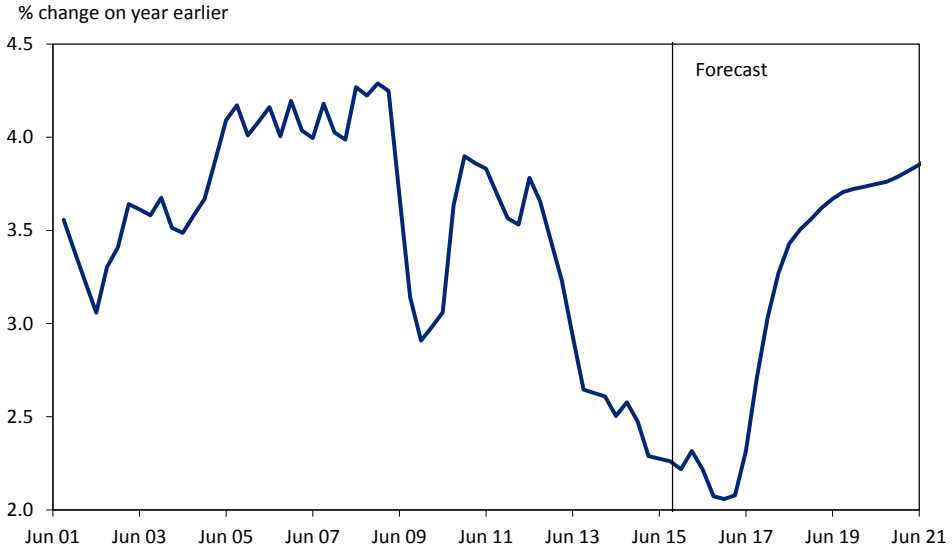
Given that commodity prices are still losing altitude, that says wage growth won't be recovering any time soon.

Yet as Deloitte Access Economics has been at pains to stress for some time, weak wage growth won't be a permanent feature of the landscape:

- Although businesses are keen to restore their cost competitiveness, that requires a one-off adjustment that is already underway (and is also very much aided by the moves in exchange and interest rates).
- And although commodity prices have further to fall, the pace of that fall has to ease at some stage.
- And although price inflation is quiet, that too isn't a permanent state of affairs.
- And although underemployment has workers willing to settle for less than they'd otherwise hang out for, unemployment may already have peaked, while retirement among baby boomers will see job vacancies having a natural uptrend as retirements multiply.

Accordingly, although the recovery in wage gains Deloitte Access Economics foresees is both modest and slow (we do not see wage gains passing 3% until somewhere between late 2017 and mid-2018), it will occur.

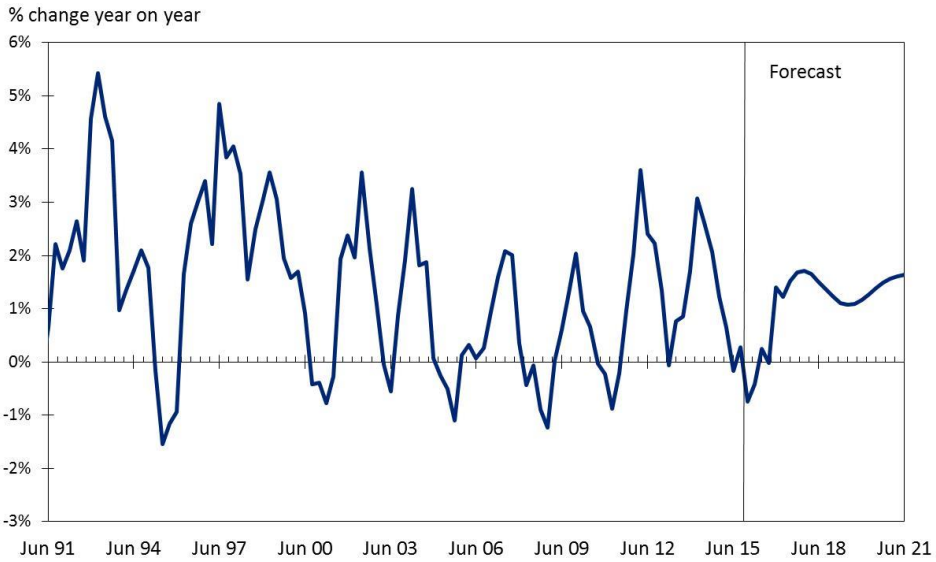
Chart 3.1: Overall Wage Price Index forecasts



Source: ABS, Deloitte Access Economics' macroeconomic model

Chart 3.2 shows that that labour productivity declined through 2014-15 as output slowed with the unwinding mining boom and hours worked remained strong.

Chart 3.2: Productivity growth



Source: ABS, Deloitte Access Economics' macroeconomic model

Deloitte Access Economics forecasts a recovery in labour productivity through 2016-17 (in part as a range of minerals and energy exports come onstream) and for productivity to grow at a solid rate through to 2020-21. 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.

Table 3.2: National wage forecasts

Financial year nominal Wage Price Index forecasts

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Wage price index	2.4	2.3	2.1	3.1	3.6	3.7	3.8
Average weekly earnings	1.3	2.1	2.2	3.1	3.6	3.7	3.8
Ordinary time earnings	2.6	0.7	2.5	3.6	4.1	4.2	4.3
Unit labour costs	-0.1	1.6	1.0	1.3	2.2	2.3	2.0

Financial year real wages forecasts

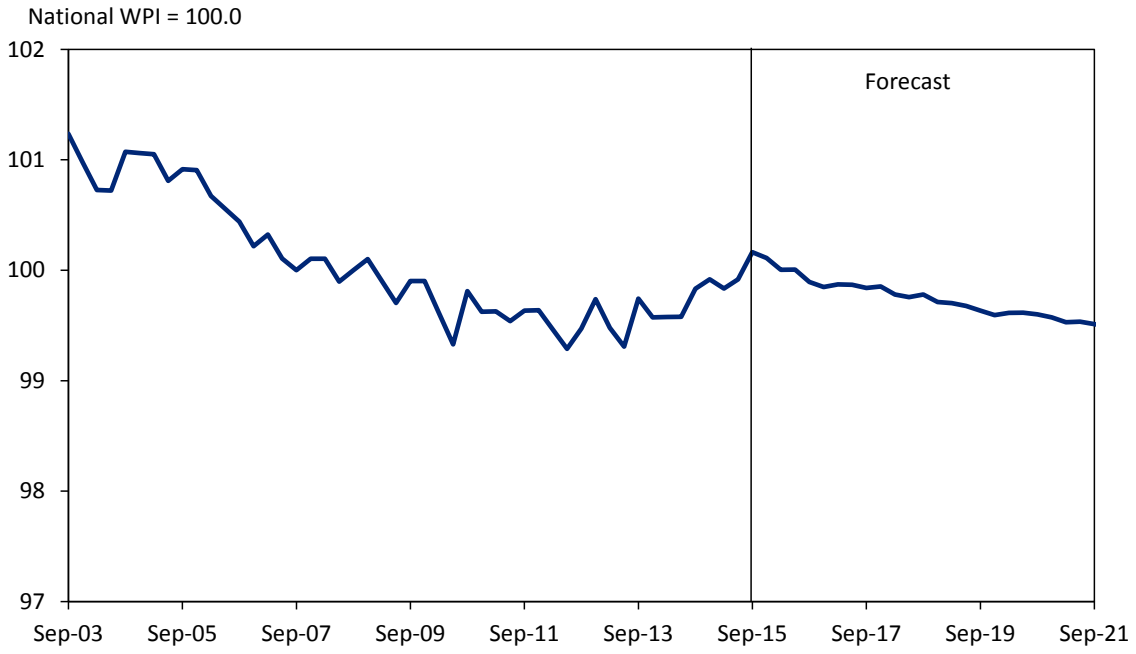
Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Wage price index	0.7	0.7	-0.2	0.6	1.2	1.3	1.3
Average weekly earnings	-0.4	0.5	-0.2	0.6	1.2	1.3	1.3
Ordinary time earnings	0.9	-0.9	0.1	1.1	1.7	1.9	1.8
Unit labour costs	-1.8	0.1	-1.3	-1.2	-0.2	0.0	-0.5

Source: ABS, Deloitte Access Economics' Labour Cost model

3.3 Victoria

Victorian wages have shown some signs of recovery relative to their national equivalent over recent years, reaching levels not seen since late 2007.

Chart 3.3: Victorian WPI relative to national WPI



Source: ABS, Deloitte Access Economics' macroeconomic model

The period of relative decline up until 2011 was partly a reflection of booming levels of economic activity in resource intensive States rather than relative weakness in the economic conditions in Victoria.

Similarly, the current relative recovery phase owes something to weakness in resource States rather than Victorian strength, though a changed industrial relations landscape may also have

provided relative impetus to Victorian wages (relative to those in other States), especially in sectors such as construction.

On the other hand, the previously strong $A had a bigger impact on jobs in Victoria than almost anywhere else in Australia (South Australia excluded), placing pressure on the international cost competitiveness in sectors such as manufacturing. Most significantly, the announcement of car manufacturing closures to come in 2016 and 2017 will weigh most heavily on Victoria, which accounts for more than half of the automotive and related industries labour force.

Recent falls in the $A have become a strength for the Victorian economy and, despite taking longer than falling interest rate to flow through the economy, the effects of the relatively recent falls (occurring since mid-2014) are beginning to unlock growth in the State's international education and tourism industries, and Victoria has overtaken Queensland as the second highest Australian State on visitor numbers.

Partly related to that, Victoria is now the nation's leader in population growth, a position that the State hasn't reached for well over a century. A range of economic indicators within the State have been supported by that strong population growth, including consistent growth in retail turnover above the national average for the past two years and strong growth in housing construction.

On the other hand, Victoria's manufacturing industry is still facing challenges. Closures in the car manufacturing and related industries expected throughout 2016 and 2017 will weigh heavy on the State's economy and workforce.

Looking ahead, three factors will keep wage growth at moderate rates in Victoria:

- First, growth is still modest, and many businesses continue to lack competitiveness. That will keep the pressure on employers to limit wage gains.
- Second, national wage growth rates remain at historical lows and inflationary expectations remain weak, placing downward pressure on the State's wage rates.
- Third, while the $A is now lower, it is still in contractionary territory. Pressure on the currency may ease over time, but for now the 'lower' $A has simply moved from being a negative for jobs and wages in this State to being more neutral.

Accordingly, and despite their recent relative recovery, Victorian wages relative to national equivalent are forecast to decline through to 2020-21 (see Chart 3.3). That said, at half a percentage point across the next six years, that decline is quite moderate.

That said, we stress that is a relative outcome. In absolute terms, and as Chart 3.4 shows, Victoria's wage growth is forecast to recover in the medium term through 2017-18.

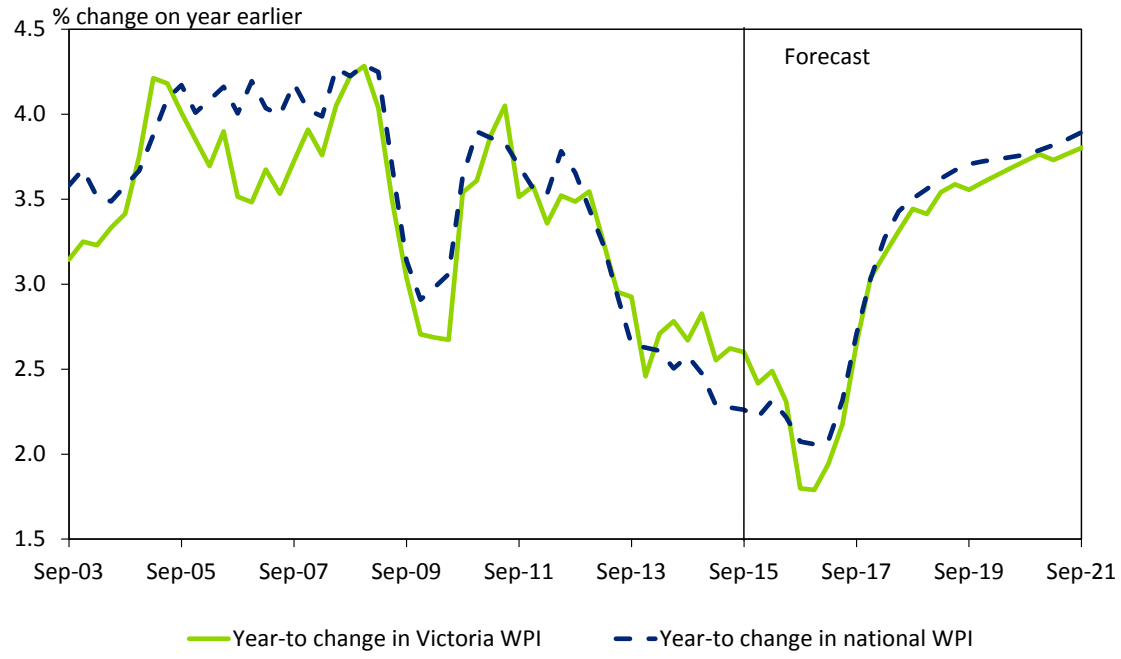
The pipeline for engineering construction is looking more positive in comparison to other States. There are two large projects set to start; the $11 billion Melbourne Metro in 2018 estimated by the Mark Stone (Chief Executive of the Victorian Employers' Chamber of Commerce and Industry) to generate 3,500 jobs for the sector , and the $5.5 billion Western Distributor to begin at the end of this year or early next year.

The outlook for Victoria's commercial construction sector is also relatively healthy compared with that in other States, particularly so for office and retail construction. There are currently

10 projects under construction with values in excess of $500 million, and seven of these will continue beyond 2016, including the $1.8 billion Collins Square project and the $1.2 billion Merrifield development.

Despite the positives, these factors will not be enough to improve wage growth in the immediate future; the Victorian wage growth is forecast to continue to fall through early 2017. In fact, the Victorian wage growth is expected to fall below the national average in the second half of 2016 and is not anticipated to reach levels above it in the medium term (see Chart 3.4).

Chart 3.4: Victoria general labour cost gowth



Source: ABS, Deloitte Access Economics' macroeconomic model

3.4 South Australia

South Australia's economy is benefiting from historical low interest rates and the lower $A. However, South Australia's economy still has to recover from the long-standing strength of the $A in the past, especially in the manufacturing sector.

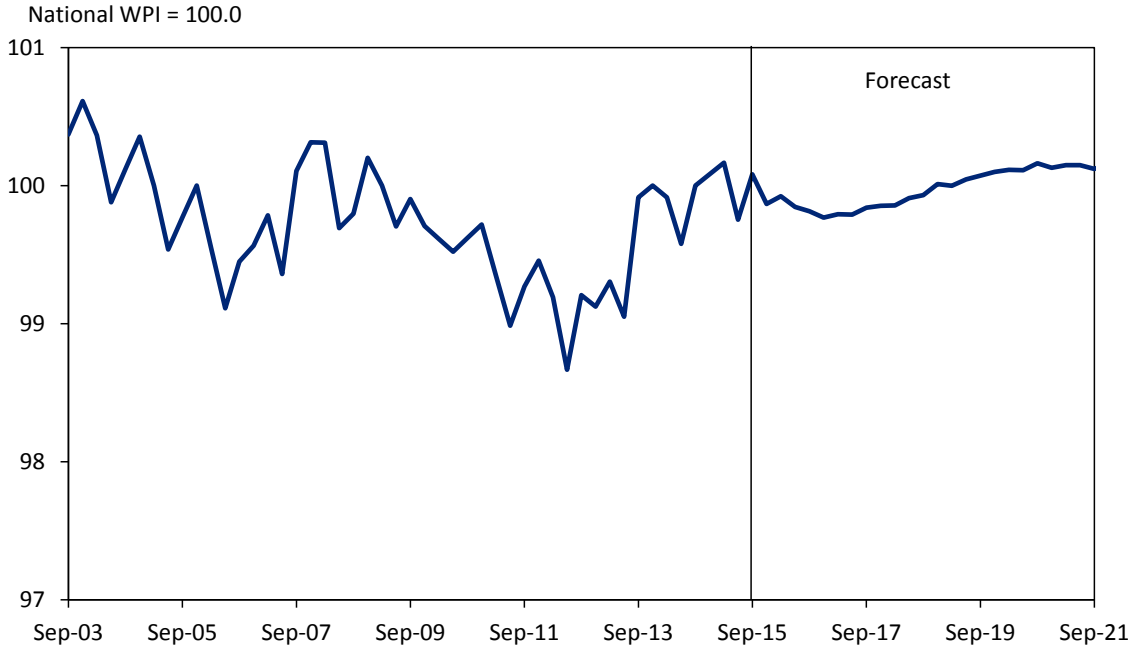
Some of the State's car and related industries (such as car parts) are set to close over 2016 and 2017, while the volume of Defence-related manufacturing has slackened as well. Old shipbuilding contracts have finished and new ones haven't started, leaving a narrower pipeline of defence manufacturing work in South Australia.

As such, South Australia's economic performance continues to fall short of Australia's as a whole. That said, the State has seen recent recovery in its labour force statistics; job growth is up 1.6% over the year and unemployment has fallen.

Despite this, unemployment in SA remains the highest in the nation, while population growth, which is notably lower than the nation as a whole, is also holding back the State.

As such, wage growth rates are anticipated to decline over the shorter term. Chart 3.5 shows South Australia's wage growth relative to the Australian average. The continuing slowdown in manufacturing places downward pressure on the South Australian wages through 2016-17, although – as the current phase of negatives passes (beyond the closures of car manufacturing (and related industries) and cutbacks in defence-related sectors) – State wages are anticipated to gradually rise back relative to the national trend by 2020-21.

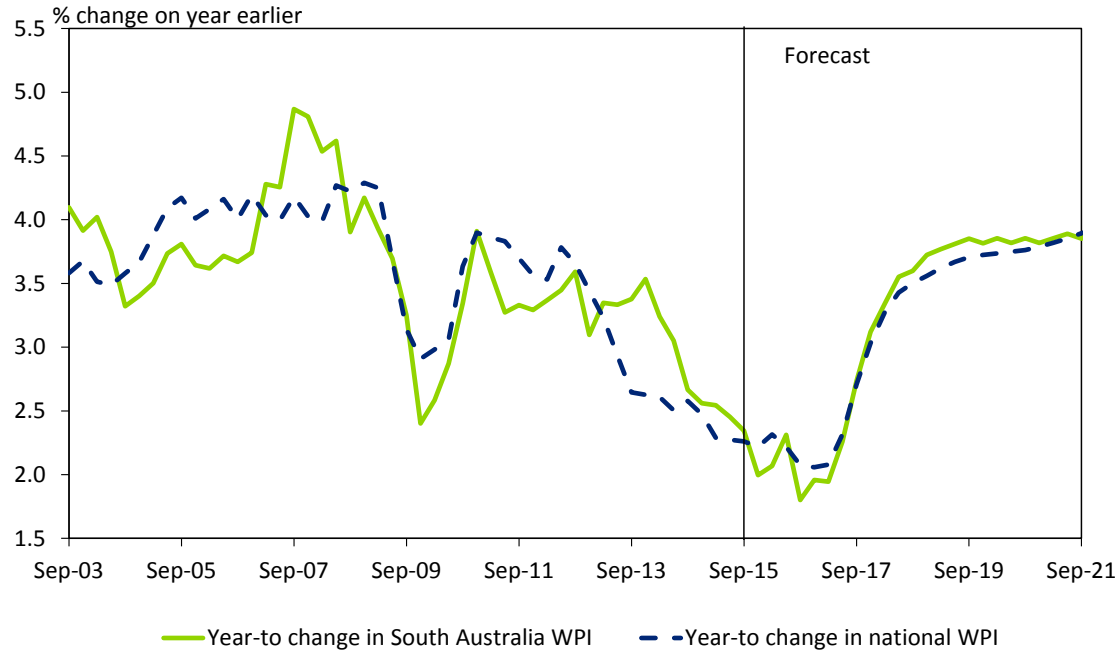
Chart 3.5: South Australia's WPI relative to national WPI



Source: ABS, Deloitte Access Economics' macroeconomic model

The impacts of a lower $A should gradually provide support to South Australia's trade-exposed sectors in the longer term, including tourism, international education, manufacturing and the premium food and beverage sector. These goods and services will be in increasing demand as China's boom matures, and as emerging south-east Asian countries see rising urbanisation and higher incomes. Lower interest rates will also provide support for South Australia's construction industry, and coupled with support for service-based industries, the State should see a rise in its relative wages.

Chart 3.6: South Australia's general labour cost growth



Source: ABS, Deloitte Access Economics' macroeconomic model

3.5 Northern Territory

The Northern Territory has benefited from strong resource construction and commodities boom in the past. The Ichthys LNG project, worth approximately $37 billion (which is over one-and-a-half times the size of the entire Territory's income in a single year) is coming close to completion (with a due date of late 2017).

That means a large construction cliff is approaching for the Territory.

Construction on the Ichthys project began in 2012, which in turn fuelled demand for construction workers and placed upward pressure on wages as other sectors, such as mining and manufacturing all competed for workers. Since then, the Territory's nominal wages have increased by an average rate of 2.8% per year across all industries, marginally above the national average.

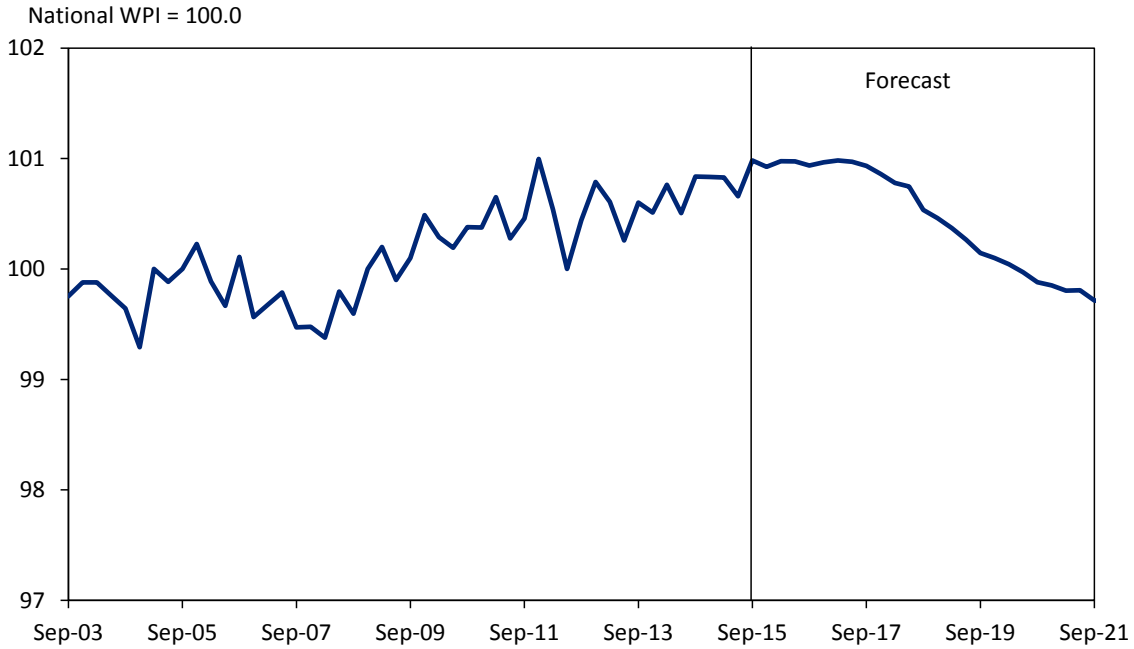
After the construction phase of Ichthys, the Territory faces a period of transition to new sources of growth. Other LNG projects for the Northern Territory have been proposed, including the Greater Sunrise Timor Sea project estimated to cost $13 billion, however recent global commodity price declines and slowing of demand in the sector have meant that another large engineering construction project is unlikely to go ahead in the near term.

Accordingly, the Northern Territory's economic growth is forecast to ease through 2016 before recovering through 2017 to 2018.

As Chart 3.7 shows, Ichthys and related strength in the NT economy is forecast to keep wage growth in the Territory at the national average over the next couple of years, until approximately 2019.

Thereafter, however, the Territory's wage growth is anticipated to decline relative to national average as construction comes to an end and the project moves into operational phase, something that has not happened since late 2008.

Chart 3.7: Northern Territory WPI relative to national WPI



Source: ABS, Deloitte Access Economics' macroeconomic model

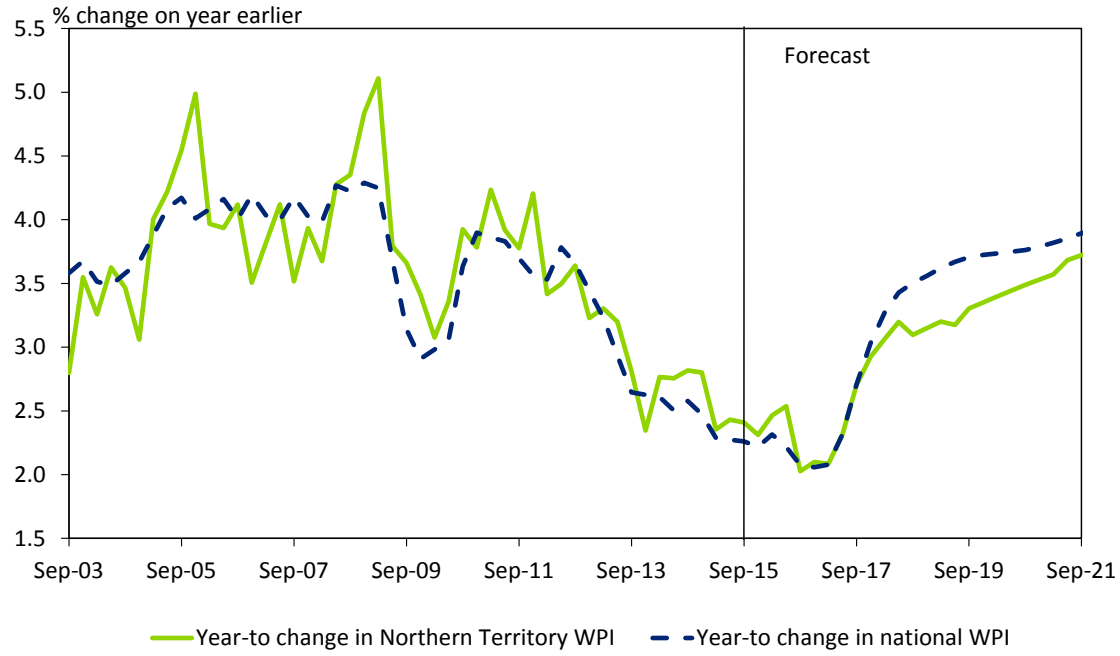
Wages are slower to react than prices, and weakness in pricing pressures shows up as an increase in real wage growth in the Territory this financial year. Across Australia as a whole, falling petrol prices have had a notable dampening effect on inflation. That has been particularly true of the Northern Territory, where continuing price falls are combining with the Territory's economic growth slowing to keep CPI growth slow. The overall increase in the Territory's 2015-16 CPI is projected to be just 0.2%.

Chart 3.8 shows that wage growth is forecast to remain above the national average over 2015-16 with support from the construction sector, a job market that has remained steady, the lowest unemployment rate in Australia, and the benefits of historically low interest rates and a weaker $A that have also been echoed nationally.

However, with falling population growth rates, ease in construction projects and the housing market showing signs of slowdown, and the pending construction cliff, wage growth is anticipated to fall below the national average through 2016-17.

Over the longer term, growth in the Territory is expected to recover with support from ongoing Ichthys LNG exports (once it reaches its operational phase) and as Northern Australia Infrastructure Facility (NAIF) funded investments flow through the economy. Further, a depreciation of the $A provides positive prospects for tourism in the Territory, with growth in international tourists anticipated to be more than double the national average for the year 2015-16.

Chart 3.8: Northern Territory's general labour cost growth



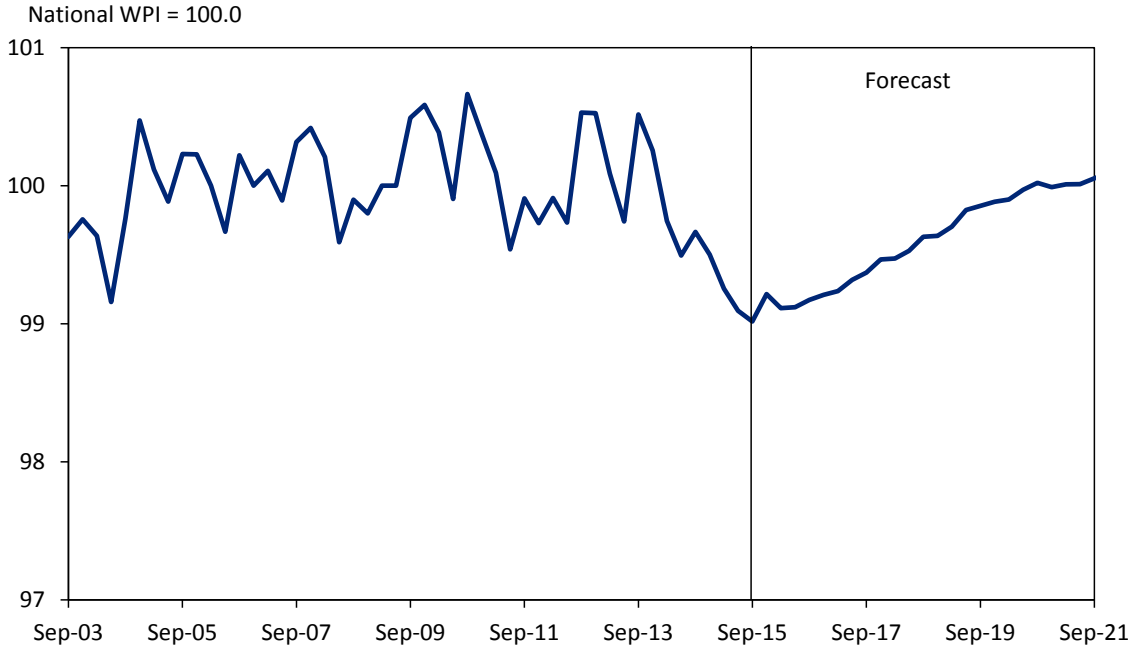
Source: ABS, Deloitte Access Economics' macroeconomic model

As such, improvements to the economy and job prospects for construction and service-related industries are likely to provide support to the Territory's wage growth, which is anticipated to improve and return to levels above 3% by 2018 – rates that were last seen in mid-2013.

3.6 Australian Capital Territory

ACT population growth rates have been significantly lower in recent times; the two year average to September 2015 (at 1.3%) was considerably lower than the decade average to September 2015 (at 1.7%). Coupled with the earlier phase of public sector job cuts and rising unemployment, wage rates in the ACT have been falling relative to the national equivalent.

Chart 3.9: ACT WPI relative to national WPI



Source: ABS, Deloitte Access Economics' macroeconomic model

Yet those relative falls may not continue – although the Federal Budget has continued to weaken, so substantive new savings have been announced since the 2014 Budget. In July 2015 the Commonwealth Government lifted its hiring freeze and the majority of public sector job reduction targets are complete.

Accordingly, Chart 3.9 shows the ACT's WPI is expected to recover steadily against the national average, while unemployment remains well below the national average and employment growth in the ACT has remained steady. Employment prospects look positive for the ACT, with a recent surge in public sector vacancies by 14.0% over the quarter and are up 25% over the year. Public sector employment accounts for about a third of the Territory's workforce and this suggests that the recovery has a firm basis and that further job gains may be ahead.

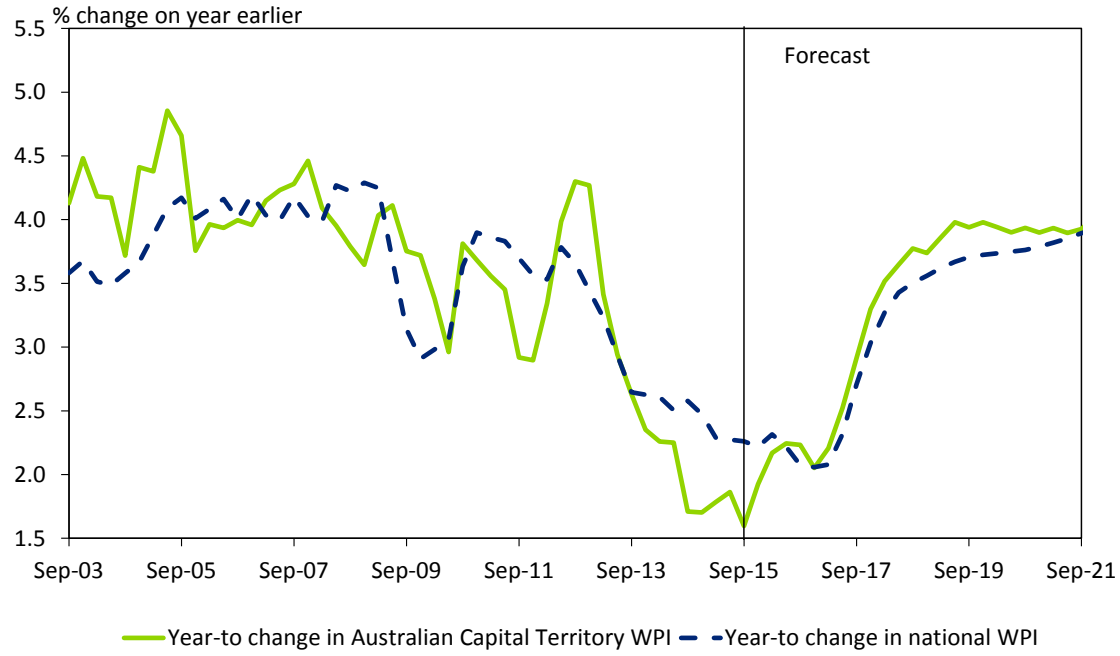
With the lifting of the public sector hiring freeze in July 2015 and growth in the economy expected to improve around mid-2017, WPI is anticipated to continue to improve in the future and match the national level by mid-2020, which hasn't occurred since 2013.

That said, the ACT's recovery in relative wages mapped out above remains highly dependent on future moves in Federal policy. Although the most recently announced cutbacks were modest, the Federal Budget remains in structural deficit and pressure remains on the Federal Government to keep spending on a tight leash.

Chart 3.10 shows that the ACT's wage growth is expected to remain well below the national average over the short term. Yet the long term outlook for wage growth in the ACT is more optimistic. Housing construction is expected to pick up once more in response to historically low interest rates and the joint Federal and ACT Government initiative to re-build approximately 1,000 homes affected by asbestos, increasing demand for construction workers in the Territory and driving up wages.

Small business confidence has also moved higher and is above the national average, while falling petrol prices and lower interest rates have supported retail sales growth and new car sales in recent months. This is anticipated to improve the longer term outlook for the Territory's economy and employment prospects, which will support wage rate growth into the future. In fact, by mid-2017 growth in ACT wages is forecast to outpace the national average into most of the foreseeable future.

Chart 3.10: ACT general labour cost growth



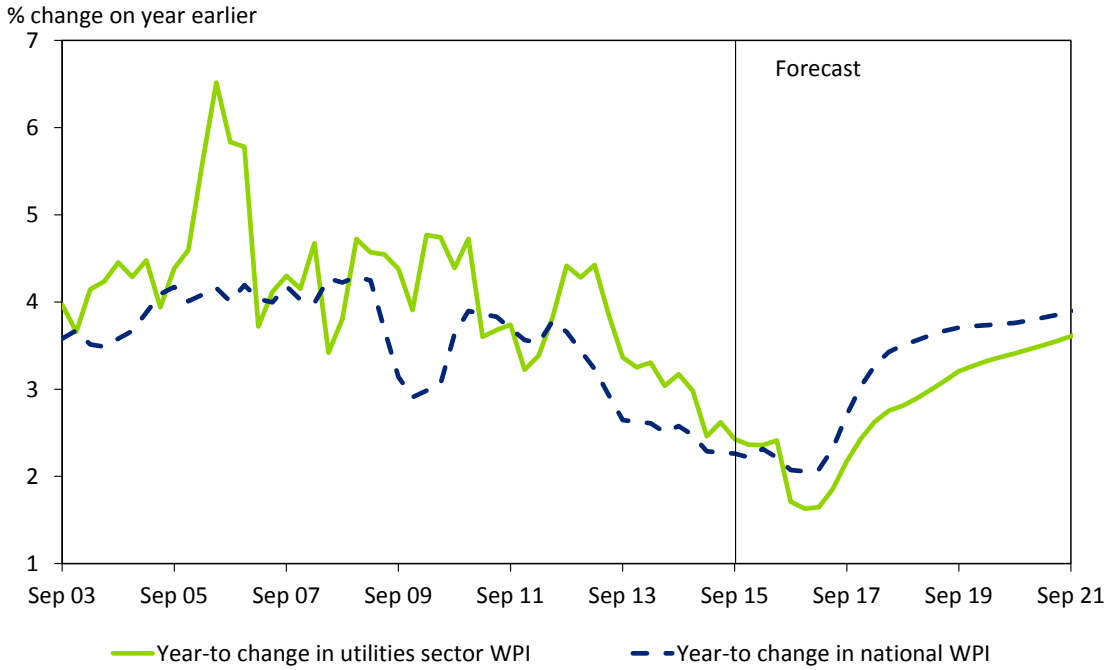
Source: ABS, Deloitte Access Economics' macroeconomic model

3.7 Utilities

Wage growth in the utilities sector will remain under pressure in the medium term. Unlike wage growth in Australia more generally, wage gains in the utilities were unaffected by the global financial crisis and largely remained above the national average for most of the period June 2007 to December 2014.

However, there has been a substantial slowdown since their most recent peak (at 4.4% two years ago), with wage growth over the past year – at 2.4% – being the slowest ever recorded rate.

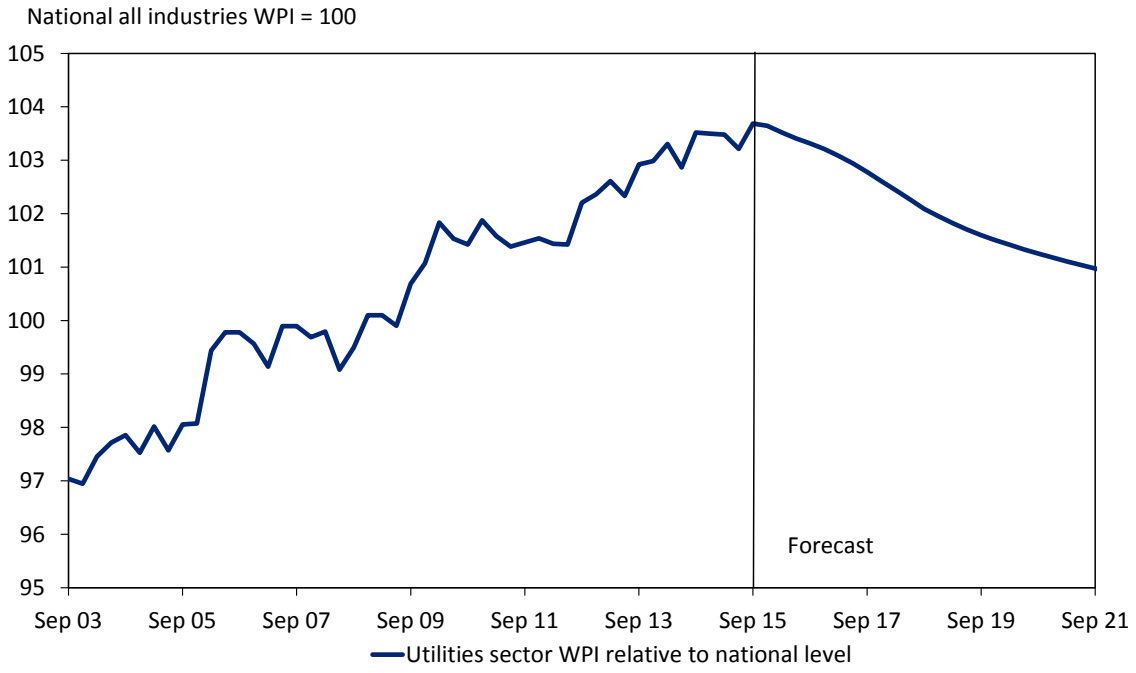
Chart 3.11: Utilities Wage Price Index forecasts



Source: ABS, Deloitte Access Economics' labour cost model

The gap between national WPI and utilities WPI has been closing, and recent data suggests the utilities WPI is beginning to respond to broader weakness in the sector and in the Australian economy. As Chart 3.11 shows, sticky wages and forward employment contracts should keep relative wage growth solid in the short term, however utilities WPI is projected to fall below national WPI in 2016-17 and continue below the national average into the longer term.

Chart 3.12: The utilities WPI relative to the national WPI



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

Chart 3.12 shows the relative strength of utilities wages, comparing the utilities WPI to the overall WPI.[3] Over the decade to September 2015, the utilities WPI grew by more than 6 percentage points faster than overall wages, with a consistent level of relative increase over much of that period.

Into the future, however, the growth rate of utilities WPI is anticipated to lag behind the national average; over the decade from September 2015, utilities WPI is forecast to grow by 3 percentage points slower than overall wages, despite remaining above par over the period.

There are a number of underpinnings to the slowdown in wage growth in the utilities sector over the past three years, as well as the relative slowdown forecast into the forecast period:

- **Weak wage growth is a reflection of slower growth,** as noted in section 2.6, the sector continues to decrease as a share of national output in response to a number of factors, occurring most sharply through the course of 2013. Slower sector demand has been largely a result of falling electricity demand, which is expected to remain under a degree of pressure in the short term. And although the sector has seen some recovery of late, it is still growing at slower rates than is the wider Australian economy. That is driven by:
    - **Lower industrial demand**, owing to the pending closure of the manufacturing industries in Victoria and South Australia, and the shutdown of aluminium smelters in Victoria and NSW.
    - A **new global agreement**, the *Paris Climate Accord*, reached at the Paris climate change conference in December 2015 will require **Australian industries to significantly reduce their emissions**. This may deepen structural growth obstacles for the sector as demand for energy shift away from coal and electricity towards new and alternative business models and technologies.
    - **Constrained residential demand** – as consumers become progressively more environmentally conscious and with increased electricity prices, households have greater incentives to be more efficient in their level of energy usage and increase their use of energy efficient devices. The Australian Energy Market Operator (AEMO) continues to forecast residential consumption to decrease over the short term.
- **Falling relative share of employment in the utilities sector**. Although the sector is showing signs of returned growth, it is anticipated to be modest and still lags in comparison to the national average growth rate. Related to that, employment in the sector has fallen for three consecutive years and, while expected to grow in the future, it is anticipated to be modest following the year 2016-17.
- **Competing labour force sectors are also showing signs of easing and uncertainty**. Manufacturing and mining both compete with the utilities sector for their workforce, and as these sectors have seen falling profitability, recent closures and shedding of their workers, reducing the pressure on wages previously felt during the resources boom. This is also true for the engineering construction sector, although an upturn in housing construction has maintained overall employment levels in that sector.
- **And it is in response to the drop in wage growth at the national level**. The slowdown is not confined to conditions in manufacturing, mining and engineering construction, with national wage growth continuing at historical low levels.

[3] Note this is a comparison of two indexes both set to equal 100 in 2008-09 – it does not mean wage levels are much the same in the utilities as the national average.

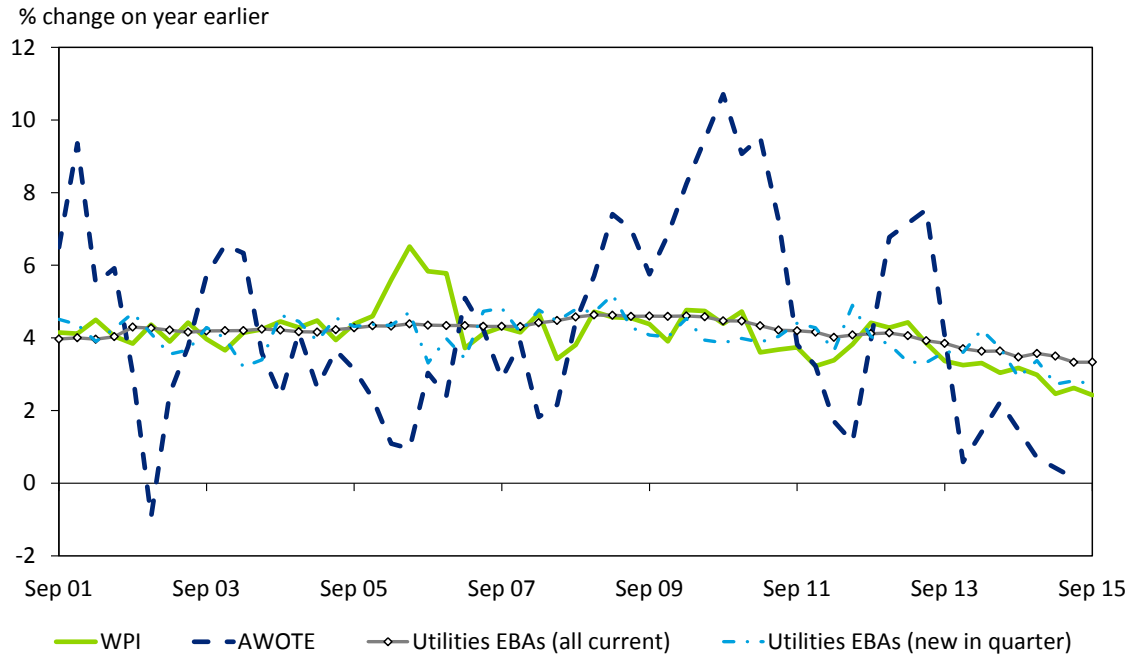
None of these factors will disappear fast, with the utilities sector still underperforming in comparison to the national economy, future demand in the sector uncertain, and competing sectors also showing signs of economic stress, plus a national slowdown in wage growth set to linger into 2017.

Specifically, the outlook for utilities sector wage growth is for a moderate decreases in the rate of growth throughout 2015-16, following a slight pickup in the last quarter of 2014-15. The average growth over the next decade is projected to track well below historical trends; an average of 3.1% through to September 2025 compared to an average of 4.1% over the last decade.

3.7.1 Comparison with results from enterprise bargaining agreements

In addition to the WPI, lower utilities wage growth has been signalled by other wage growth measures. Chart 3.13 shows the downward trend in utilities WPI is mirrored by several other wage growth measures that are produced on a regular basis. These include AWOTE and Enterprise Bargaining Agreements (which are sourced from the *Trends in Federal Enterprise Bargaining* publication produced by the Department of Employment).

Chart 3.13: Measures of utilities sector wage growth



Source: ABS, Department of Education, Employment and Workplace Relations

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 May 2015, the ABS indicated that the biannual survey was '*designed to provide estimates of the level of average earnings at a point in time and, 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 are useful for providing a level benchmark to compare a specific amount to an average level of earnings (for example, what an individual earns compared to the average)*'. It is therefore used the Deloitte Access Economics' wage price model as an indicator only.

The utilities EBA data provides a good partial indicator of the future trend growth in the utilities WPI measure.[4]

In the September quarter of 2015, wages in all current EBAs grew at 3.3% for the utilities sector, down from 3.6% at the end of the previous year. As mentioned, however, new EBAs provide a more accurate indicator of future wage trends. Wage growth in new utilities sector EBAs was 2.7% in the September quarter of 2015, down from 3.4% at the end of 2014, and rather lower than the average growth in the past five years (which was 3.7%).

This trend is consistent with falling wage growth nationally, as well as increased pressure on regulated prices in the sector (which will be having a flow through impact on costs).

Looking forward, growth in utilities sector wages are expected to remain slow and not anticipated to reach levels above 3% until approximately early 2019; a rate which was last seen in December 2014. However, the year-to-change WPI growth rate in the utilities sector WPI is expected to outperform the national average until mid-2016. Thereafter, utilities sector wages are predicted to ease, and lag behind national WPI over the medium term.

3.7.2 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 covers 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 44,800 utilities employees were covered by an EBA in September 2015. The labour force data indicates that there are approximately 146,000 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 series. 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 EBA's 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 business 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.

4 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.

- **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 and related issues are covered in Appendix D.

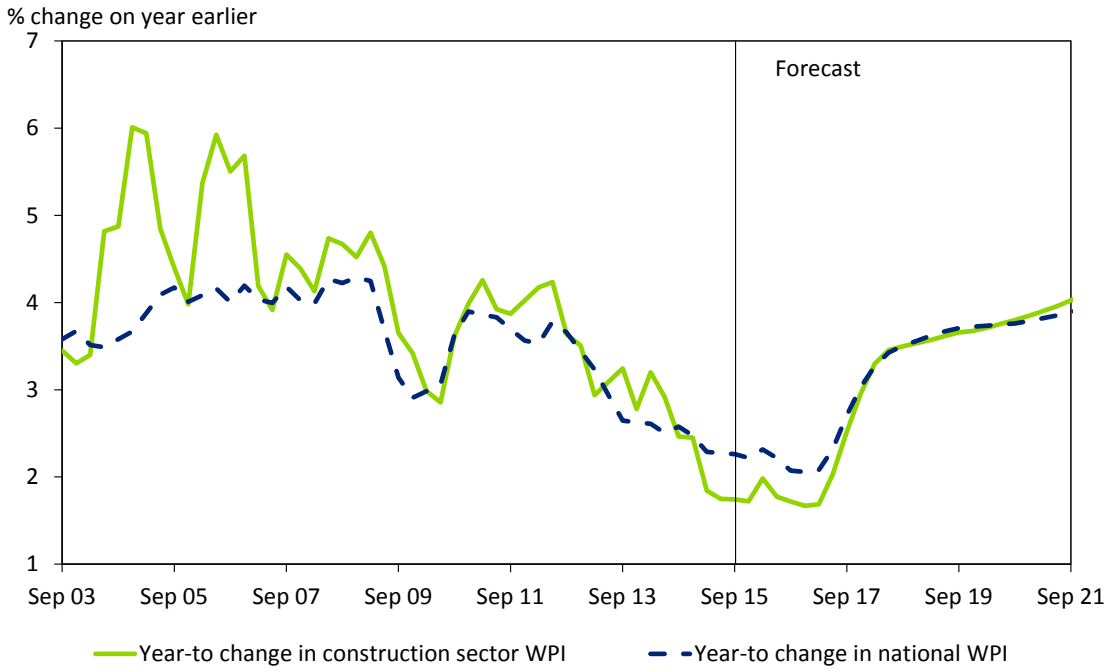
3.8 Construction

Historically strong sectoral demand, typically well above national average, has allowed the construction sector WPI to mostly grow faster than the national WPI since early 2004.

Construction sector employees account for just below 9% of the total Australian workforce in the September 2015 quarter, having risen by 6.2% in the past five years. Indeed, over the past decade, the construction sector has seen strong employment growth; over 20% growth and it is now the nation's third largest employing industry. In the ten years to September 2015, construction sector employment grew by an average rate of 2.3% per year, significantly higher than the growth rate across all industries (1.8% per year).

Yet engineering activity in Australia is in freefall, more than outweighing a pick-up in housing construction. And labour cost growth that runs ahead of productivity gains is an impediment to the cost competitiveness of industries. Chart 3.14 shows that construction wages are no exception, falling below the national average in the September 2014 quarter and continuing to fall into the September 2015.

Chart 3.14: Construction WPI growth forecast



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

Looking ahead, construction wage growth rates are expected to remain below the national average, before returning to remain in line with the national WPI growth rates for all sectors in the longer term, beginning around late 2017; at a growth rate of close to 3%.

The construction sector is comprised of engineering construction, residential building and non-residential building, and each component is driven by a varied set of economic conditions. Engineering construction activity, for example, has recently been determined chiefly by the resources boom, while building activity is linked to movements in interest rates and population growth rates. A series of interest rate cuts by the Reserve Bank of Australia (RBA) recently have led to higher house prices, and an associated increase in building approvals and dwelling commencements.

Over the year to the September 2015 quarter, total engineering construction work (current and planned) fell back by 12.3%, with a continued slowdown in the mining and manufacturing industries. Commercial construction, despite low interest rates, has also fallen slightly over the year to September 2015; total projects (current and planned) fell 1.7%. In contrast, the value of residential building work rose by 10.3%, the majority of this growth seen in apartment construction in Sydney and Melbourne.

Despite the short term boost in residential construction, this is not anticipated to outweigh the fall in engineering and commercial construction projects as a result of a fading resources boom and lower business investment in resource-related projects.

Employment in the construction sector is expected to continue to weaken as a share of national employment levels, and place downward pressure on wages over the shorter term. Construction wage growth will remain subdued due to decreasing sector output and less demand for labour in competing industries, such as mining and manufacturing. This is expected to improve over the medium term, as the construction cycle picks up once more and greater certainty over planned business and public sector investment projects, with construction WPI growth rate falling back in line with the national average around late 2017.

3.8.2 Comparison with EBA results

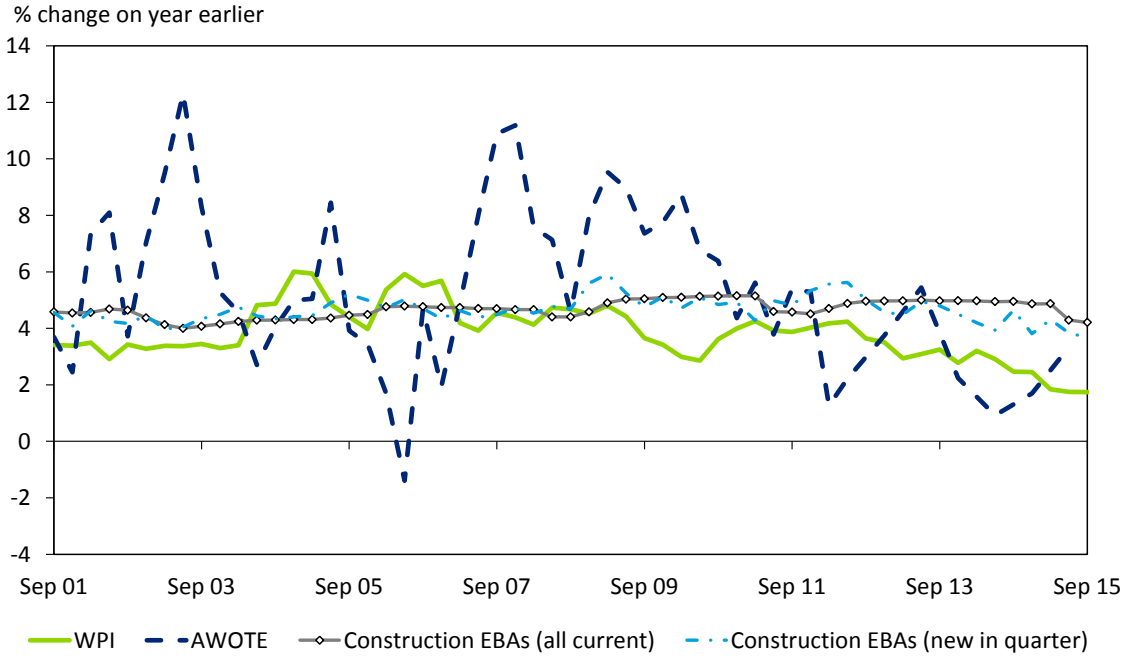
The recent slowdown in growth for the construction sector output and WPI have been mostly mirrored in other measures of wage growth. As seen in Chart 3.15, construction sector wages have significantly declined, using a measure of average weekly earnings (AWOTE), between the June 2013 to June 2014 period; a far more volatile wage measure than WPI. It has since shown slight recovery, reaching a growth rate of 3.3% in the June 2015 quarter, well below the previous 10 year average of 4.9%. Current EBA agreements continue to yield higher wage outcomes in the construction sector than indicated by either the WPI or AWOTE measure.

In the September quarter of 2015, wages in all current EBAs grew at 4.2% for the construction sector, down slightly from 5% in the previous September quarter, but still greater than growth seen in the utilities sector (3.3%). New EBAs, however, serve as a better indicator of future wage trends. Wage outcomes for new construction sector EBAs have fallen over the past few years, from 4.8% in September 2013, to 4.6% 12 months later, to 3.7% in the September quarter of 2015. This trend is consistent with national results and the utilities sector.

The gap between the WPI and EBA measures has widened considerably in the past three years (Chart 3.15), in part reflecting the strength of construction sector unions. As such, WPI may

have a closer resemblance to the trends in the wider construction industry, and in particular the recent weakness of the construction sector, thought EBA gains are also clearly moderating.

Chart 3.15: Measures of construction sector wage growth



Source: ABS, Department of Education, Employment and Workplace Relations

3.9 Summary results

The 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	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	2.4	2.3	2.1	3.1	3.6	3.7	3.8
Utilities	2.8	2.4	2.1	2.6	3.0	3.3	3.4
Construction	2.1	1.9	1.9	3.0	3.5	3.7	3.9

Financial year changes in real national industry sector Wage Prices

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	0.7	0.7	-0.2	0.6	1.2	1.3	1.3
Utilities	1.1	0.8	-0.3	0.1	0.5	0.9	0.9
Construction	0.5	0.3	-0.5	0.5	1.1	1.4	1.4

Financial year changes in nominal productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	1.5	2.2	0.9	1.4	2.4	2.4	2.1
Utilities	1.6	2.5	1.1	1.0	1.7	2.0	1.8
Construction	1.7	2.0	1.0	1.5	2.4	2.5	2.4

Financial year changes in real productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	-0.2	0.6	-1.4	-1.1	0.0	0.1	-0.3
Utilities	0.0	0.9	-1.2	-1.5	-0.7	-0.4	-0.7
Construction	0.1	0.4	-1.3	-1.0	0.0	0.2	-0.1

Source: ABS, Deloitte Access Economics Macroeconomic model, Deloitte Access Economics Labour Cost model

4 Victorian wage growth forecasts

This chapter sets out the projections for labour costs in the utilities and construction sectors in Victoria, and provide an analysis of wage movements compared to national trends.

Note that WPI data for the utilities sector is only available for some jurisdictions (though it is available for Victoria). Deloitte Access Economics uses estimates where it is not available from the ABS. Details are given in Appendix A.

Key factors to consider for the Victorian economic outlook include:

- The **Victorian economy is largely immune from the downturn in resource investment**. If anything, Victoria has benefited from the reduction in resource activity, as it has moved the Reserve Bank to cut interest rates which has substantial benefits for Victoria's export industries – though many mining companies are headquartered in Melbourne.
- **Continued falls in the $A will help Victoria** more than other States by benefiting its manufacturing and international education sectors.
- Victoria has the **fastest rate of forecast population growth in Australia**. This will add to demand for services from the construction sector.
- The **residential housing construction boom currently underway in the State will slow over 2016.** However, there is a large pipeline of major transport infrastructure projects in Victoria which will boost construction activity over the longer term.

4.1 State trends

Wage growth in the Victorian utilities sector has outperformed wage growth in broader Victorian economy since 2010.

Over the year, utilities sector WPI in Victoria grew by 3.7%. That is well above national growth in utilities wages of 2.4%. Chart 4.1 below shows, underlying trends in utilities wages at the national level tend to dominate the movements by State, with wage movements relatively consistent over the long run. That is unsurprising given that wages in the sector are regulated at the national level for most States. However, significant variance can be observed in smaller jurisdictions over short periods of time.

However, the forecast period is expected to see a reversal in this trend as wage growth in the utilities sector is pared back.

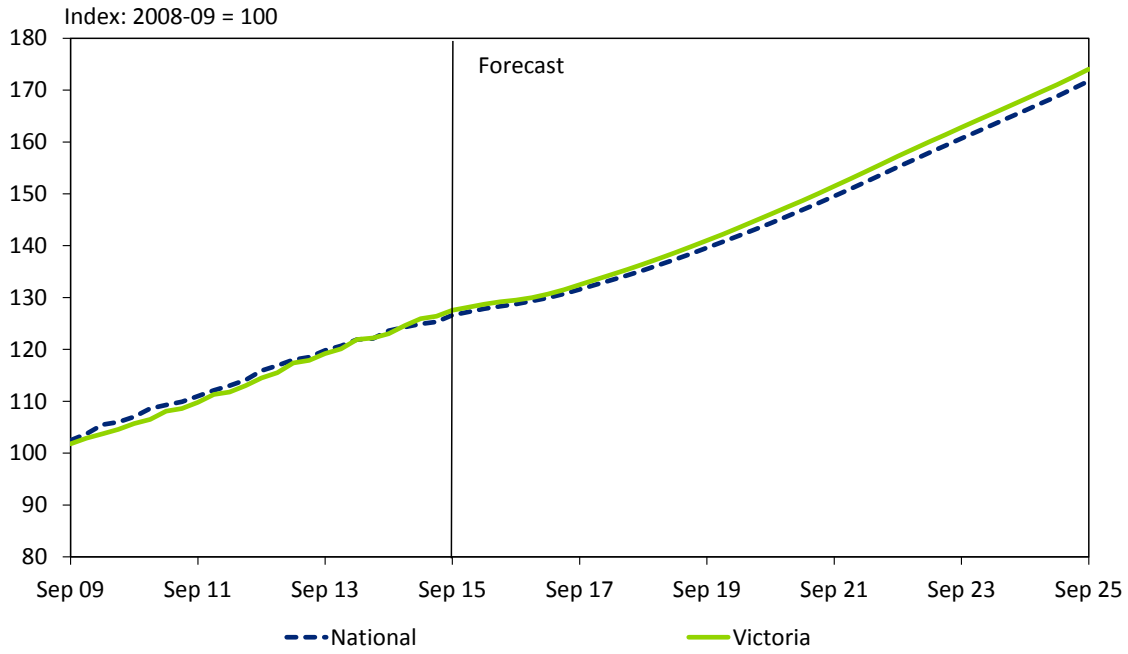
Partly that would simply be a catch up to wage trends in the economy more generally – the utilities sector is more sheltered from economic trends than are most sectors, but is far from immune: the impact of the slowdown in Australia's economy and the associated move to record low rates of wage grow will become increasingly evident in wage gains in the utilities in Victoria.

Indeed, in this State the impact on demand from the closure of key industrial users will be more significant than most. And that has an extra impact: the weakness of the manufacturing

sector affects not just demand for the output of the utilities sector, but also limits the demand for workers from a sector that competes with the utilities for their workforce.

In addition, Victoria's outperformance on housing construction and population growth is projected to drop back to the pack in the years ahead, and that will weigh directly on the utilities sector in this State.

Chart 4.1: Utilities sector WPI forecasts – national and Victoria

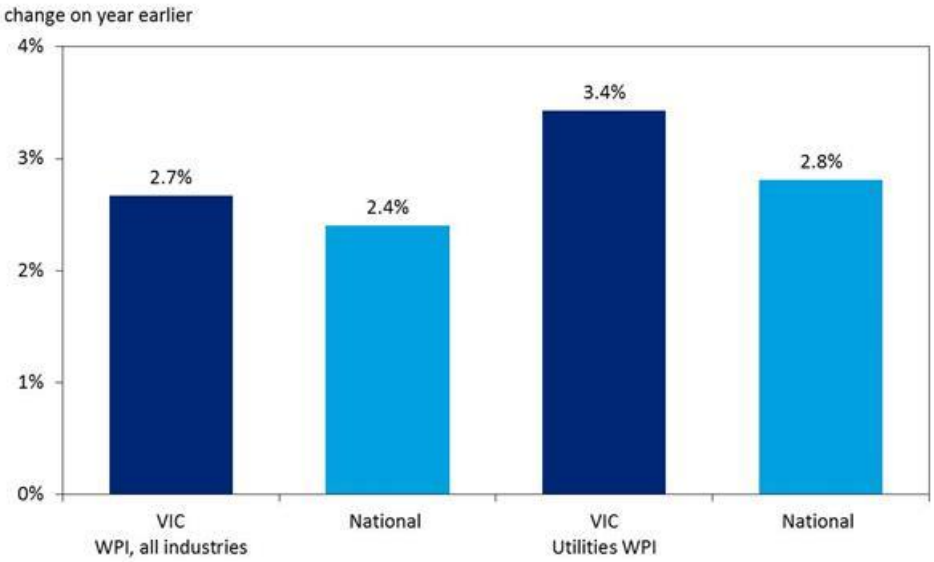


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

4.2 The utilities sector

Chart 4.2 shows recent wage growth in Victoria outpaced wage growth nationally in the utilities sector and overall. Over the year to September 2015 ABS data shows national wage growth was 2.3%, while in Victoria wage growth topped 2.6%. Meanwhile in the utilities, wage growth was 3.7% in Victoria versus 2.4% overall.

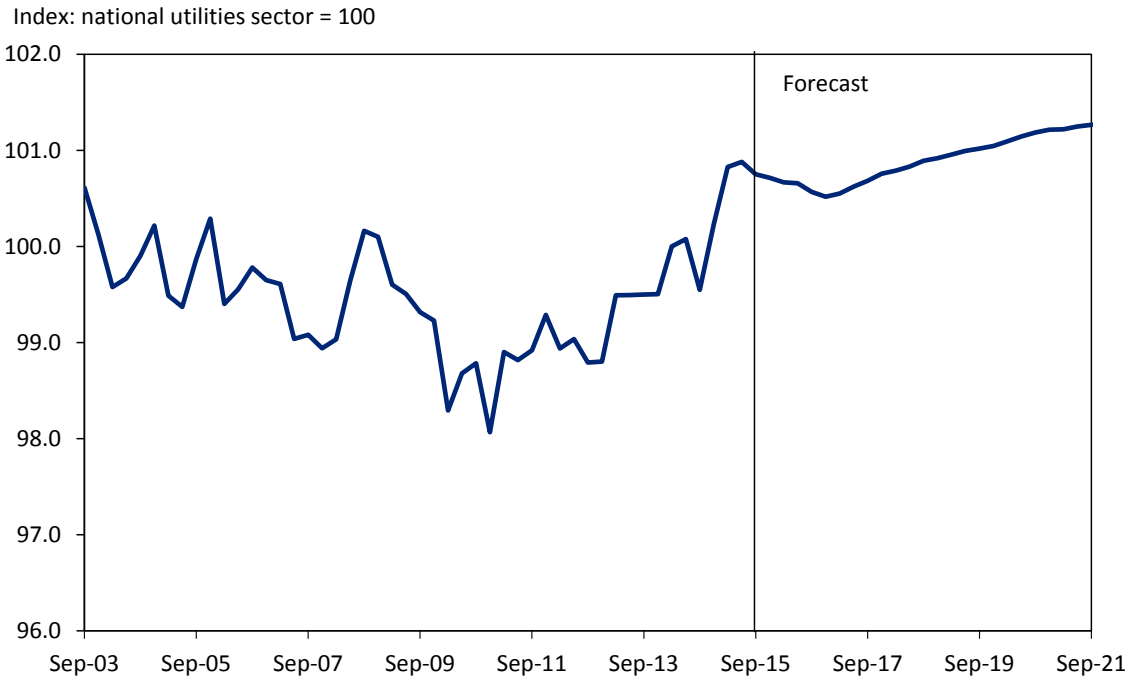
Chart 4.2: Comparative WPI growth rates in the 12 months to September 2015



Source: ABS, catalogue number 6345.0, special request and Deloitte Access Economics Wage Model

Chart 4.3 shows that Victorian utilities WPI growth lagged its national equivalent through to 2011, a trend which has subsequently reversed.

Chart 4.3: Relative utilities WPI forecast for Victoria



Source: ABS, Deloitte Access Economics' labour cost model

Looking ahead, Deloitte Access Economics projects Victorian utilities WPI growth will continue to outpace the national average, albeit at modestly higher rates.

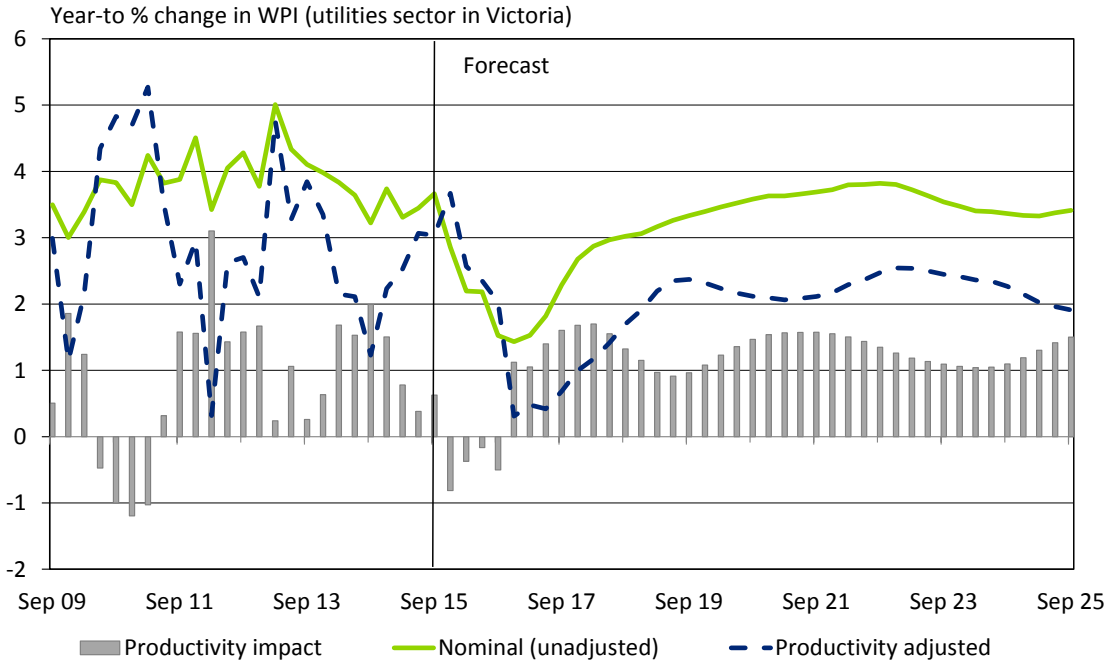
Victorian utilities WPI growth is expected to accelerate relative to the national utilities average from 2017 onwards (Chart 4.3). This reflects:

- Weaker wage pressure from the resource States due to the continued downturn in resource prices and investment; and
- A degree of relative improvement in the Victorian economy due to low interest rates and a lower $A.

The outlook for wage growth in the Victorian utilities sector is presented in Chart 4.4 below. The short run sees weak wage growth in the Victorian utilities sector in line with national income growth trends which are expected to last through 2017. Over the medium term, wage growth is forecast to recover from its immediate lows, returning to a long run growth rate of between 3-4%.

As always, it should also be noted that 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. Movements in recorded data may therefore move against what might be expected from the underlying economic drivers.

Chart 4.4: Victoria utilities WPI forecasts

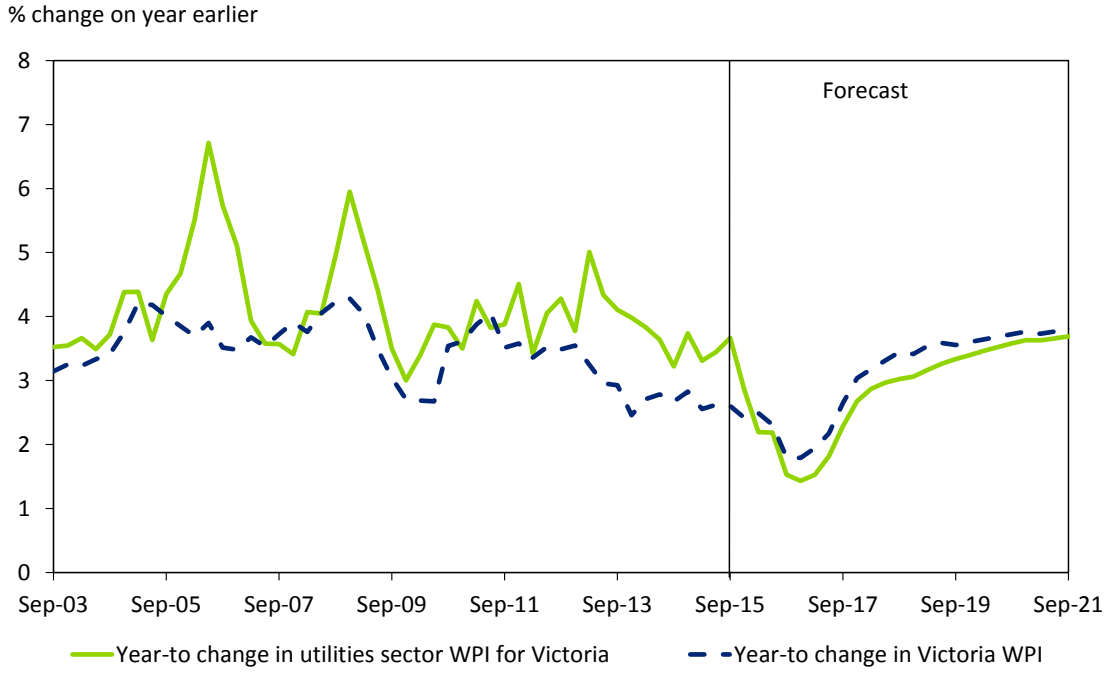


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

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 4.4.**

Chart 4.5 shows that for most of the decade to September 2015, growth in Victoria's utilities sector WPI was higher than growth in the WPI for all sectors for Victoria. Deloitte Access Economics expects this to reverse over the forecast period with growth in the Victorian utilities WPI below that of broader Victorian WPI.

Chart 4.5: Victoria utilities forecast comparison

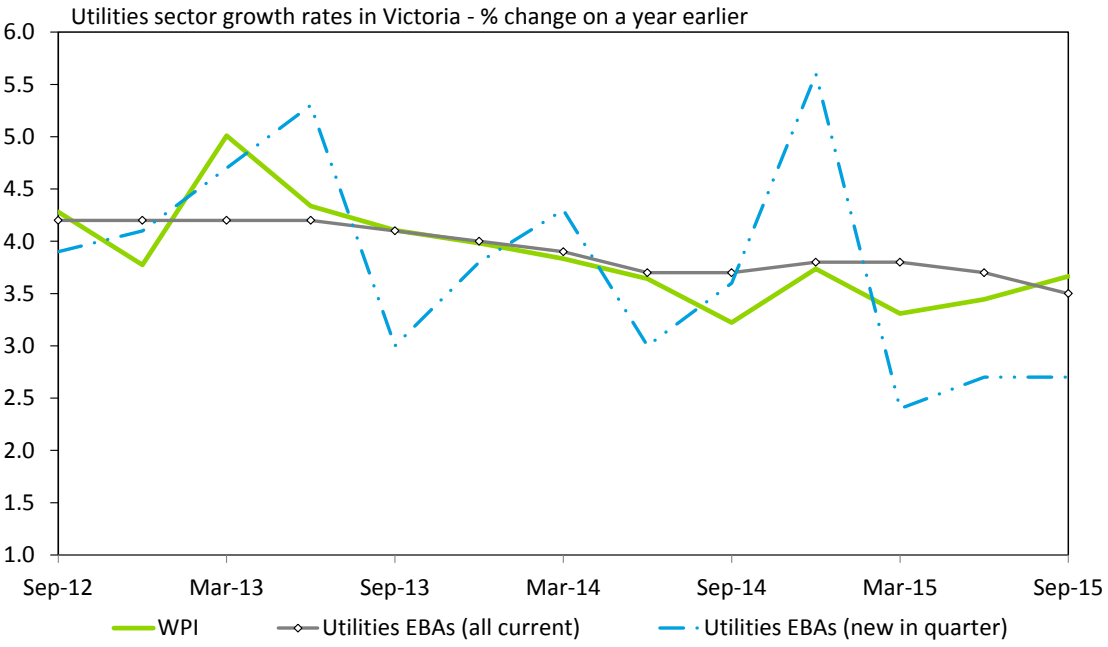


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

4.2.2 Comparison with EBA outcomes

The following section compares growth in Victoria's utilities sector WPI against outcomes in State Enterprise Bargaining Agreements. Chart 4.6 shows the moderate decline in EBA wage growth across all current Victorian utilities sector EBAs.

Chart 4.6: Comparative measures of wage growth in Victoria utilities



Source: ABS, Department of Employment

This easing trend reflects the signing of a considerable number of agreements over the first three quarters of 2015 with an average annual wage increase below 3.0%. This is lower than the levels of wage growth recorded as agreed to over the last few years. The number of utilities EBAs is also considerably lower than the spike in the December 2014 quarter.

4.3 The construction sector

With a residential construction boom underway in Melbourne and the continued decline in resource-related investment elsewhere in Australia, the **Victorian construction sector** is expected to reclaim some of its national importance.

The Victorian **residential construction** sector has experienced somewhat of a renaissance brought about by low interest rates, strong house price growth and robust population growth in the State.

The value of total residential construction work in Victoria grew by 18.9% over the year to September 2015. In addition, residential building approvals remained strong throughout 2015, which will add to the residential construction pipeline over 2016.

There are also relatively good prospects for Victoria's **engineering construction** sector as a result of its strong population growth going forward. Projects currently underway include the:

- $4.4 billion Kipper-Tuna-Turrum oil field;
- $1.6 billion Port of Melbourne redevelopment;
- $1.3 billion Transurban CityLink upgrade, and;
- $1.0 billion Longford gas conditioning plant.

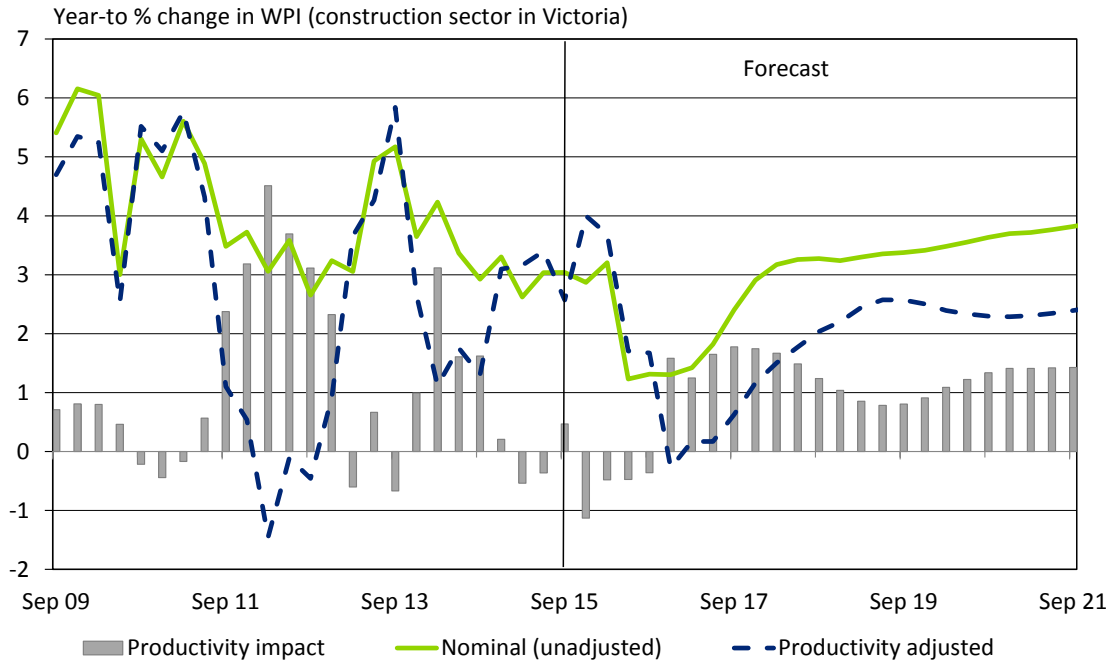
In addition to these projects currently underway, there are also a number of other large projects currently under consideration, including the:

- $11 billion Melbourne Metro rail project;
- $6 billion North East Link road project, and;
- $5.5 billion Western Distributor road project.

Increased activity in Victoria's construction sector over the next few years will draw in workers from other sectors, including the utilities sector. This will increase pressure on wage growth in the utilities sector as it has to compete more to maintain workers. However, some of this increased activity will be met by movement of workers from interstate – particularly the resource States – as resource investment continues to decline. And part would be drawn from sectors other than the utilities.

Chart 4.7 shows that over the short term nominal Victorian construction WPI growth is forecast to grow at a well below average rate of around 1.5%. Growth will then pick up from 2017 onwards, reflecting a rise in construction sector activity before settling between 3-4% from late 2017 through to 2020-21.

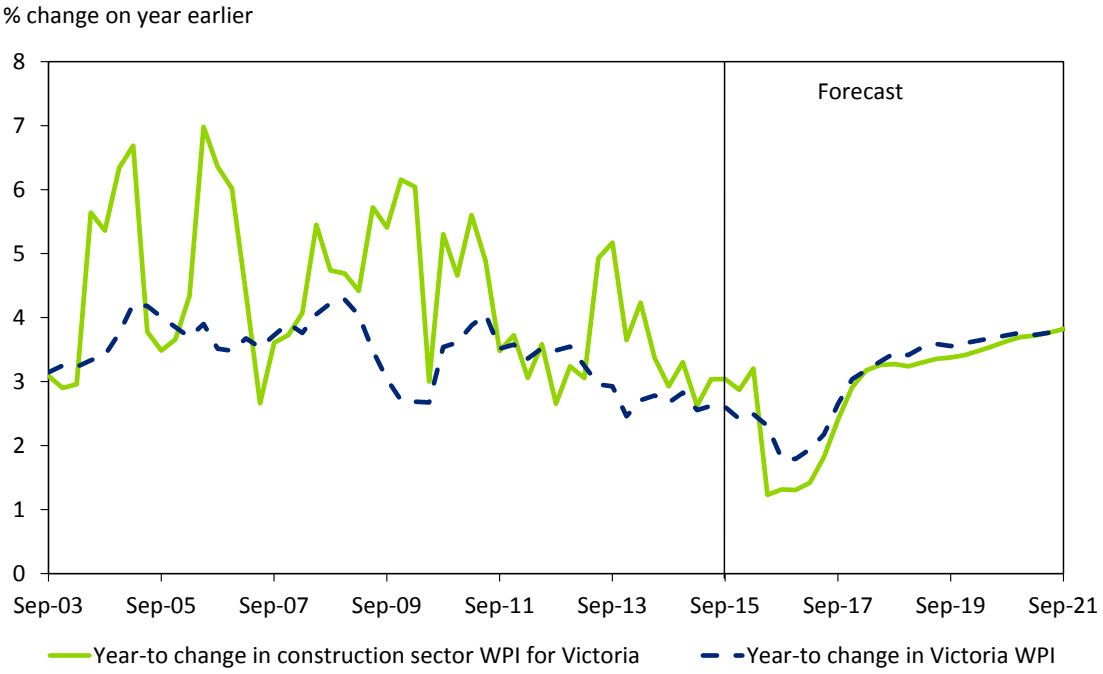
Chart 4.7: Victoria construction WPI forecasts



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

Over the outlook to 2020-21, growth in the nominal Victorian construction sector WPI is projected to remain below that of the WPI for the whole Victorian economy (Chart 4.8).

Chart 4.8: Victoria construction WPI forecast comparison

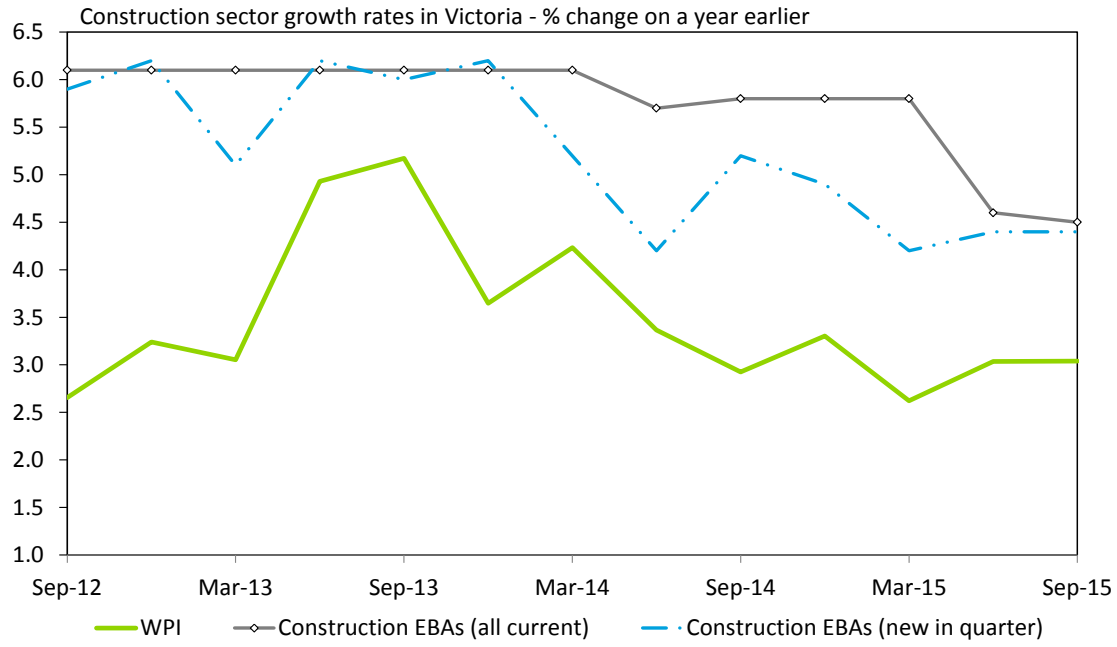


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

As Chart 4.9 shows, wage growth under new construction sector EBAs in Victoria was lower in 2014 and the first three quarters of 2015 than was true in previous years. This has resulted in

the overall rate of construction sector EBA wage growth falling through 2015. This will likely continue over the short term as EBAs which were previously negotiated during higher wage growth periods increasingly expire.

Chart 4.9: Comparative measures of wage growth in Victoria construction



Source: ABS, Department of Employment

Note that construction sector EBAs tend to be focused on a relatively small number of large projects, many of which are the subject of considerable industrial bargaining tension. This can lead to large fluctuations from quarter to quarter and it is beneficial to consider each measure in the context of the broader sectoral trends.

4.4 Summary results

Forecasts for sectoral wage growth in Victoria are shown in Table 4.1 below. The forecasts include real and nominal WPI, and real and nominal productivity adjusted WPI.

As requested, the data below – unlike for the other jurisdictions we examine in this report – has been presented in calendar year format.

Table 4.1: Victoria wage forecasts

Calendar year changes in Victoria nominal Wage Price aggregates

Annual % change	2015	2016	2017	2018	2019	2020	2021
All industries	2.5	2.1	2.5	3.3	3.6	3.7	3.8
Utilities	3.3	2.0	2.3	3.0	3.3	3.5	3.6
Construction	2.9	1.9	2.2	3.2	3.4	3.6	3.8

Calendar year changes in Victoria real Wage Price aggregates

Annual % change	2015	2016	2017	2018	2019	2020	2021
All industries	1.2	0.1	-0.1	0.8	1.2	1.3	1.2
Utilities	2.0	0.1	-0.2	0.5	0.9	1.1	1.1
Construction	1.6	-0.1	-0.4	0.7	1.0	1.2	1.3

Calendar year changes in Victoria nominal productivity adjusted Wage Price aggregates

Annual % change	2015	2016	2017	2018	2019	2020	2021
All industries	2.6	1.7	0.7	2.0	2.8	2.3	2.3
Utilities	3.1	2.0	0.9	1.6	2.3	2.1	2.1
Construction	3.3	1.8	0.8	1.9	2.5	2.3	2.4

Calendar year changes in Victoria real productivity adjusted Wage Price aggregates

Annual % change	2015	2016	2017	2018	2019	2020	2021
All industries	1.2	-0.3	-1.8	-0.5	0.5	-0.1	-0.2
Utilities	1.8	0.0	-1.6	-0.9	-0.1	-0.3	-0.4
Construction	2.0	-0.1	-1.7	-0.6	0.1	-0.1	-0.2

Source: ABS, Deloitte Access Economics' labour cost model

5 South Australian wage growth forecasts

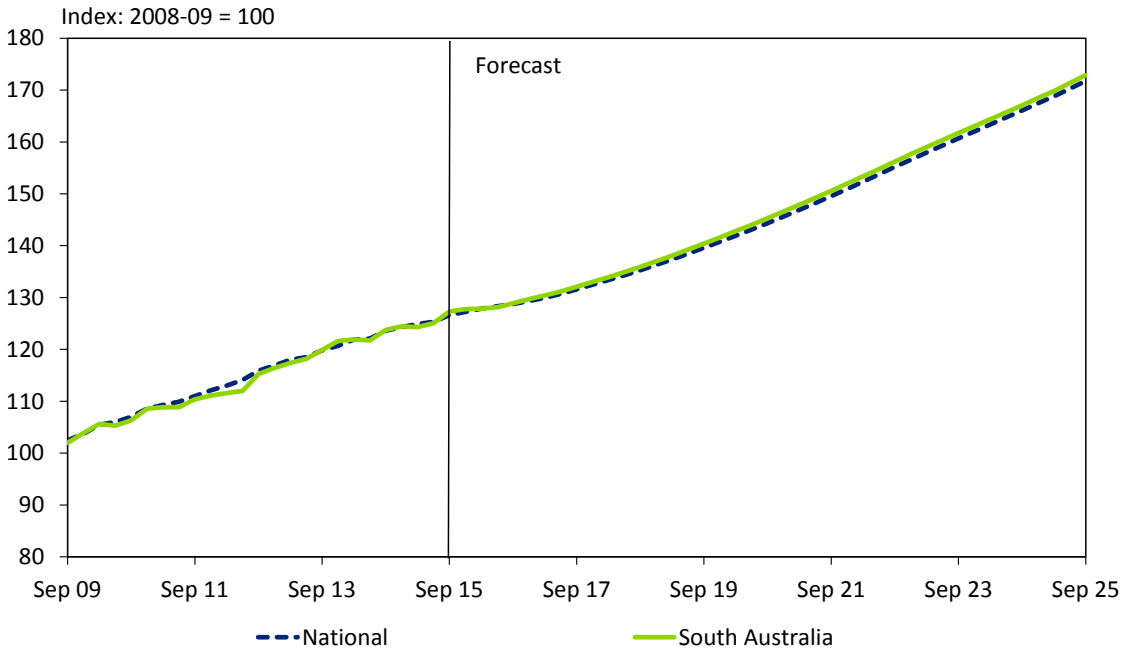
This chapter sets out the projections for labour costs in the utilities and construction sectors in South Australia. See Appendix A for further technical notes.

5.1 State trends

South Australia is no exception to the national trends which tend to dominate movements in wages by State, as Chart 5.1 shows. While South Australia has seen wages in the utilities sector rise and fall relative to their national counterparts over recent years, the broad trends remain very similar to those experienced in other States.

That pattern is expected to continue, with wage increases are expected to broadly match those seen at the national level.

Chart 5.1: Utilities sector WPI forecasts – national, South Australia



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

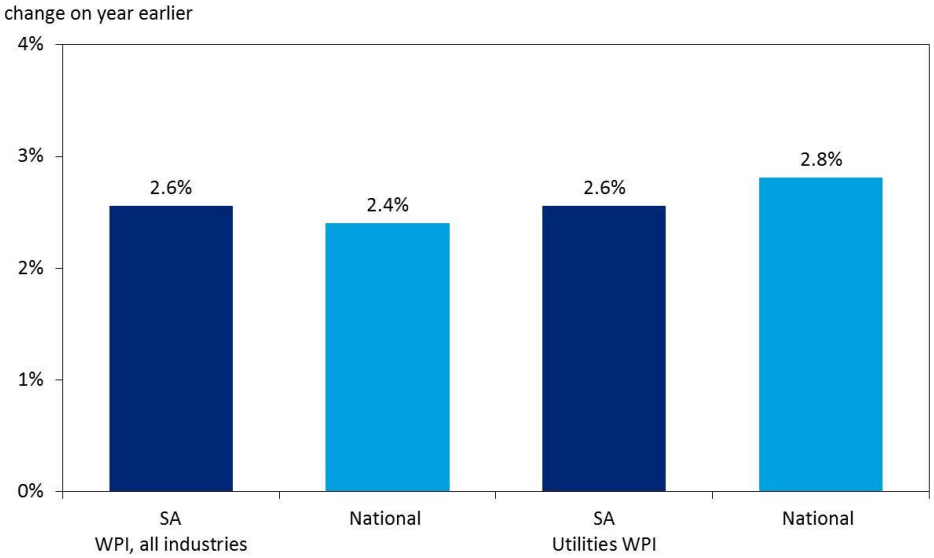
5.2 The utilities sector

As Chart 5.2 illustrates, overall wage gains in South Australia have been slightly more subdued than those for the nation as a whole over the past year.

Growth in the South Australian WPI has eased significantly since late 2013 when it was above the national average, and is now around 0.4 percentage points below the national figure over the past year. This broad trend towards weaker wage growth is largely in keeping with those in other States.

However, in the utilities sector, South Australia's estimated[5] 2.6% growth figure for the WPI in the utilities sector means the State is running slightly below national utilities wage trends.

Chart 5.2: Comparative WPI growth rates in 12 months to September 2015



Source: ABS, catalogue number 6345.0, special request and Deloitte Access Economics Wage Model

The latest figures estimated by Deloitte Access Economics show a rebound in utilities sector wage growth for South Australia, after a period of significant easing in utilities sector wage growth from mid-2013 to early 2015.

Utilities sector wage growth in South Australia remains below the national average, at around 2.6% over the past year it remains well below the 5% and above growth rates seen in South Australia's utilities sector in early 2013.

Relatively subdued utilities sector wage growth in South Australia is expected to persist for some time. That is a reflection of the strong utilities sector wage gains seen in South Australia in recent years, as well as the weakness expected in both the State's economy and in broader wage growth across all industries in the State.

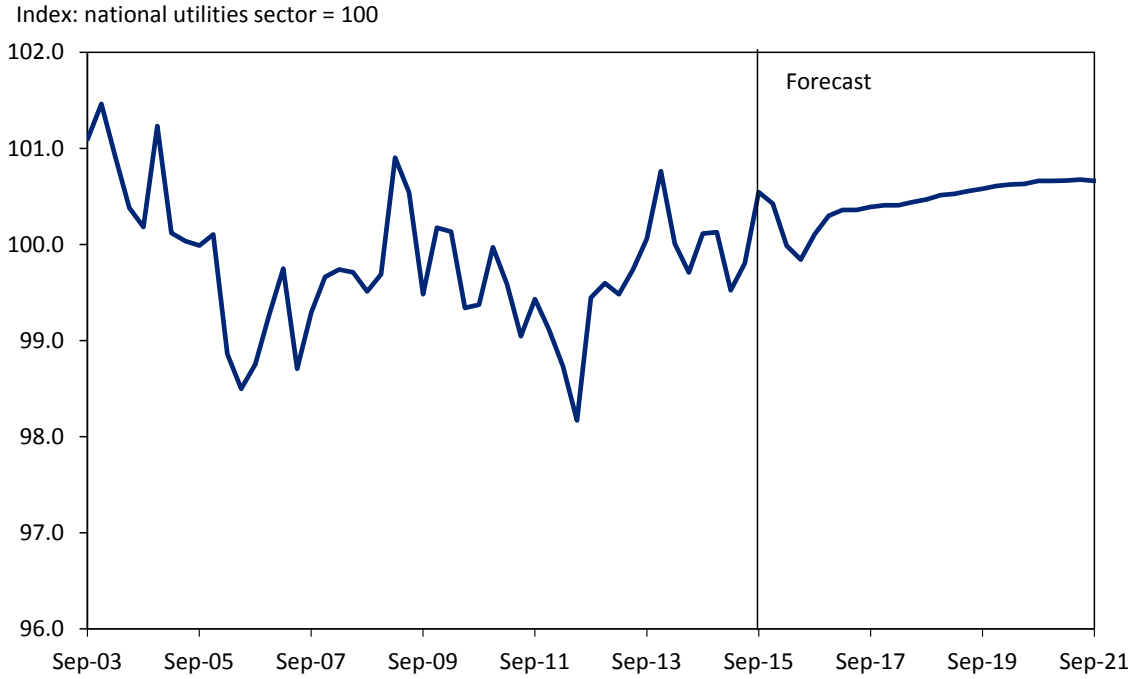
Recent developments continue to suggest weakness in the State's utilities sector. For example, the Leigh Creek coal mine in South Australia closed in late 2015, and Alinta has announced that two power stations at Port Augusta – the Northern Power Station and the Playford Power Station – which were fuelled with coal from the Leigh Creek coalfield will cease generating power by the end of March 2016.

[5] Remember, for the States and Territories covered in this report, the ABS only releases WPI estimates in the utilities and construction sectors for Victoria. We estimate the utilities and construction sector WPIs for South Australia, the Northern Territory and for the ACT.

Accordingly, Deloitte Access Economics sees relative utilities wages in South Australia continuing to remain subdued for some time, as seen in Chart 5.3. This trend is expected to improve from 2018 onwards, when:

- The impact of the abovementioned closures has already been felt, and South Australia's utilities sector wage growth is predicted to slightly outperform the national average.
- That timing is also consistent with an expected improvement in broader wage growth trends in South Australia.

Chart 5.3: Relative utilities WPI forecast for South Australia



Source: ABS, Deloitte Access Economics' labour cost model

As always, it should also be noted that 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. That is particularly true in the case of South Australia, which is not only a smaller State, but one for which much of the relevant data must be estimated, rather than measured directly.

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 5.5.

Those results suggest a period of relatively soft growth in wages for utilities workers in South Australia. That weakness comes amid an easing of competition for workers emerging from both the construction and mining sectors, which will help to reduce wage pressures in the utilities.

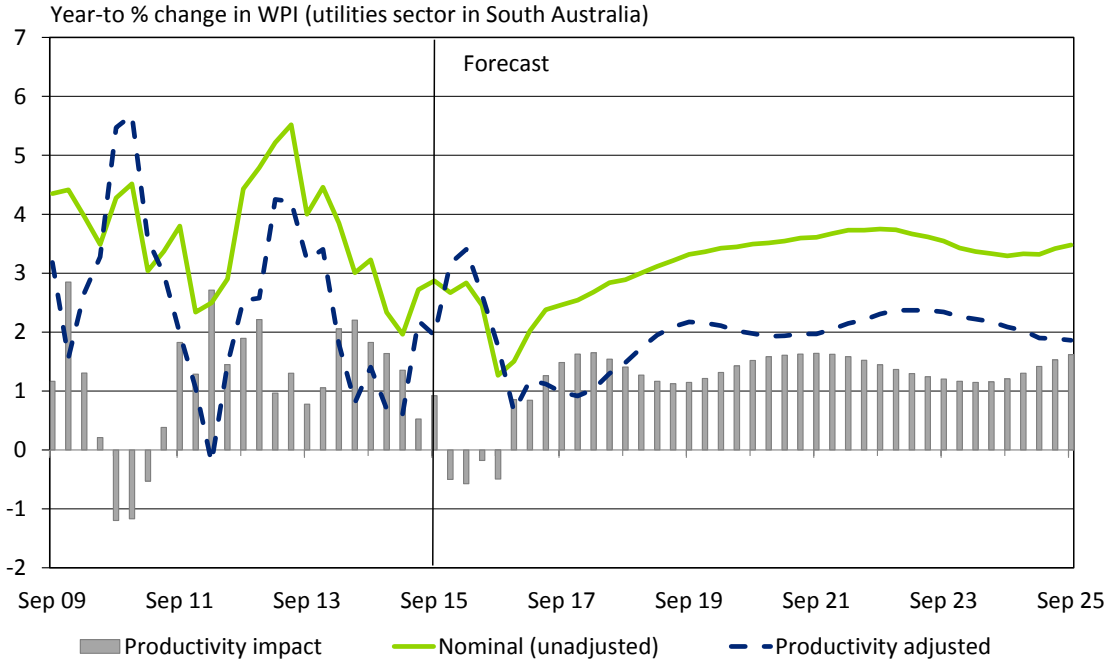
It is also a reflection of relatively weak industrial demand in the State, given the pressures on the State's manufacturing sector. This is particularly the case in automotive manufacturing which has already announced its closure, but it also reflected in an uncertain future for defence manufacturing in the State with the potential for more defence manufacturing to be

sent overseas. Although the lower Australian dollar will help the State's competitiveness, that picture suggests less demand for the electricity and gas needed to power growth in South Australia's industrial heartland. Indeed, Alinta Energy's announcement that it will close two power stations in the State was partly driven by weakness in demand from industrial customers.

On the other hand, much the same weakness is forecast at the national level – meaning that the above chart shows a flat-to-rising trend over time.

Chart 5.4 shows that the forecast easing in the near term represents a continuation of the trend that has already been seen in the latest data.

Chart 5.4: South Australia's utilities WPI forecasts

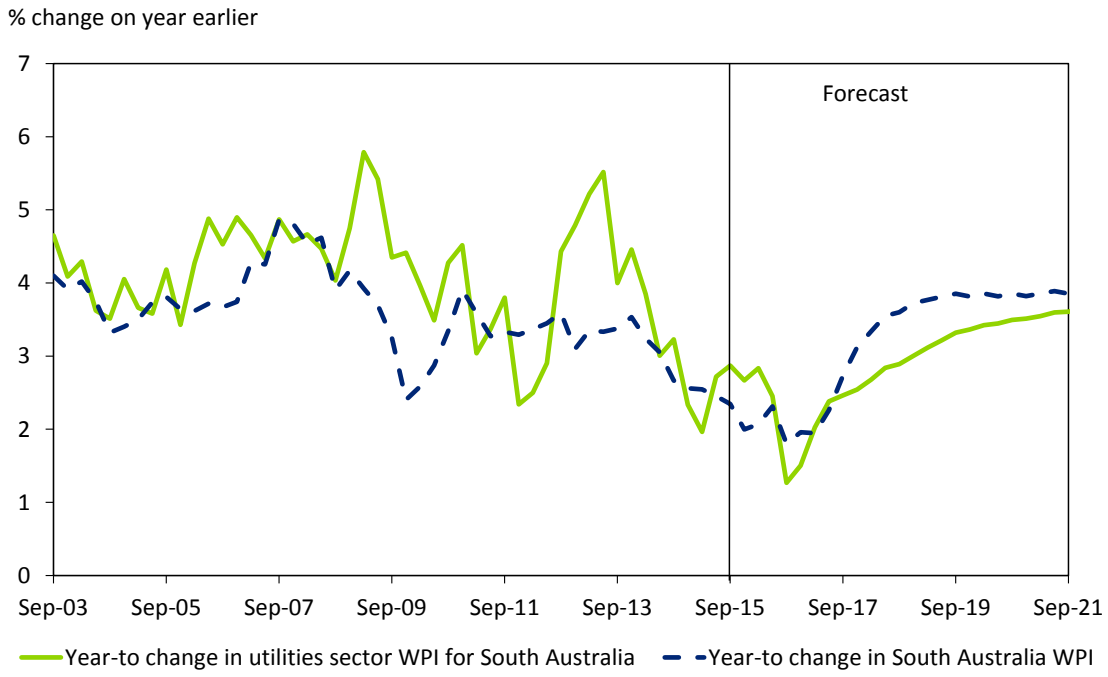


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

Utilities sector wages gains are currently slightly below the matching wage gains for the South Australian economy as a whole. They are expected to soon underperform the latter, as well as underperform later in the forecast period, following their relative over performance over recent years.

The underperformance later in the forecast period is consistent with a relative underperformance of national utilities wages over that period.

Chart 5.5: South Australia utilities forecast comparison

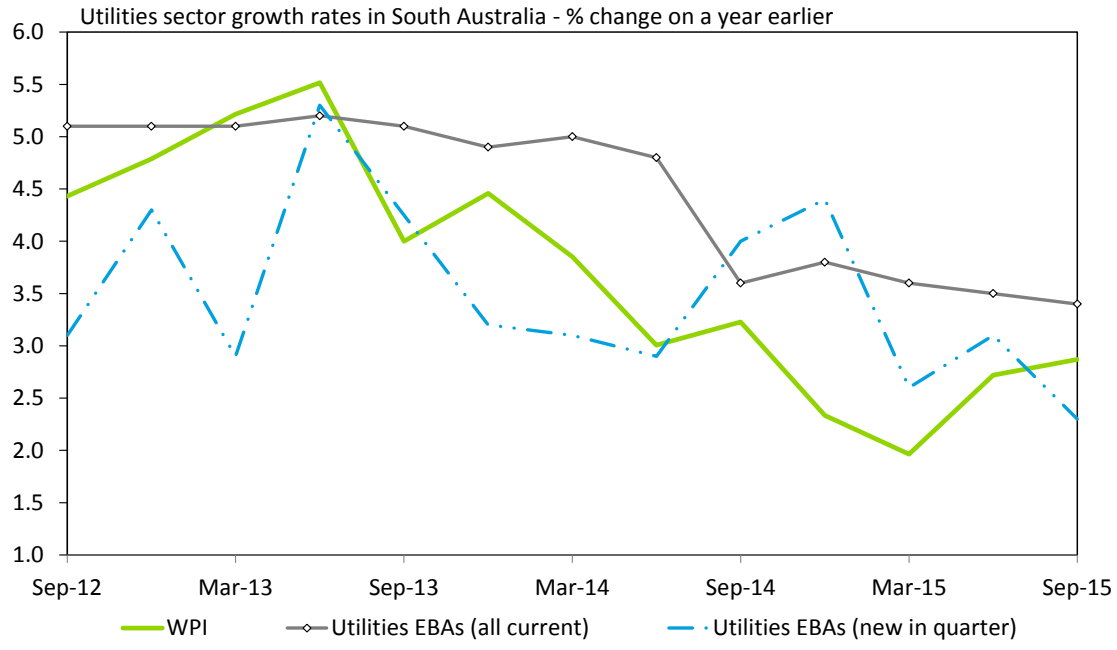


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

5.2.2 Comparison with EBA outcomes

Chart 5.7 compares the growth in the WPI for South Australia's utilities sector with partial results from South Australia's Enterprise Bargaining Agreements maintained by the Department of Employment.

Chart 5.6: Comparative measures of wage growth in South Australian utilities



Source: ABS, Department of Employment

Wage growth in new EBAs has returned to an easing trend in recent quarters. That follows a brief uptick in growth in late 2014 after a prolonged period of easing growth since mid-2013.

That appears to have continued to place some downward pressure on the growth across all in-force agreements in the latest data, which has also eased very slightly in recent quarters. Overall wage growth across all in-force EBAs remains lower than has been seen for a number of years.

5.3 The construction sector

Housing construction in South Australia has softened, and its growth pulse is now weaker than seen nationally. Latest data still shows a rise in the value of housing finance commitments over the past year, and only a modest rise in housing prices in Adelaide (compared to that in some other States). Meanwhile, the growth in housing rents in the State has eased markedly in the past few years.

On the other hand, and in an encouraging sign, the value of residential building approvals has been trending higher in recent months.

However, even so, weak population growth suggests a relatively subdued long term outlook for housing construction.

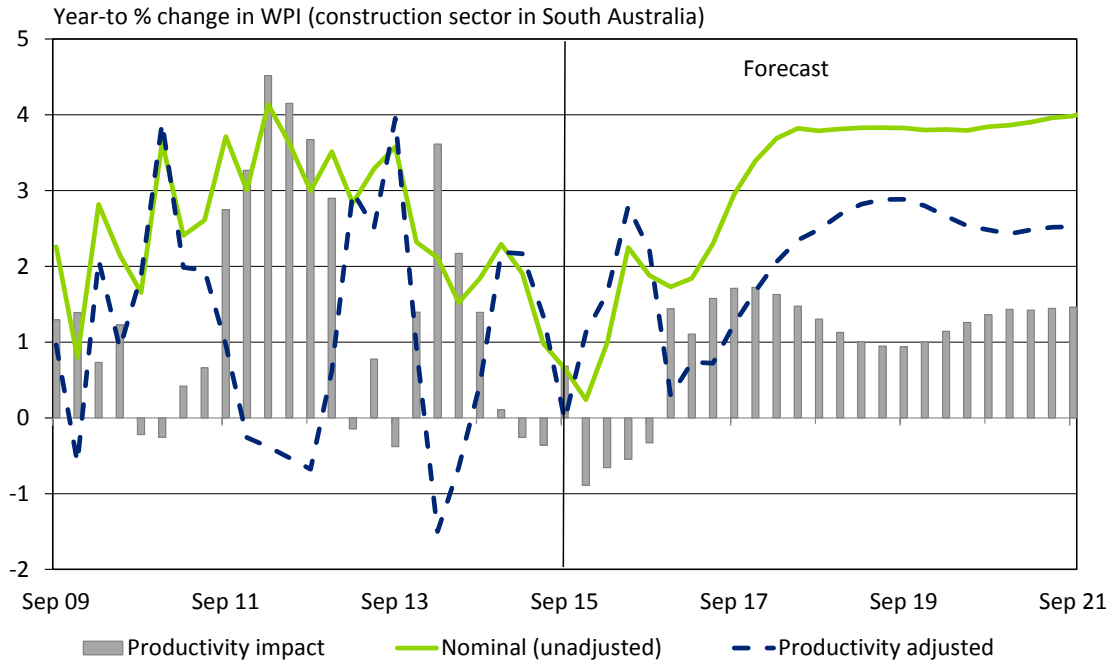
Non-residential construction activity in South Australia is set to struggle as the headline act in the State – the new $1.8 billion Royal Adelaide hospital – is completed in the very near future. The modesty of the State's non-residential construction pipeline reflects South Australia's challenges of the moment. The outlook for South Australian engineering construction is also relatively muted.

South Australia never had the same ramp up in mining investment as was seen in the north and west of the country, so there is not a mining investment cliff from which to fall. However, low commodity prices could still do some damage to South Australia's relatively small mining sector. The $4.5 billion Central Eyre iron ore project is unlikely to go ahead under current iron ore prices. Similarly, the feasibility of the Arckaringa project – a $3.2 billion open cut coal mine, coal-to-liquids power plant and associated infrastructure in the northern part of the State – is currently being tested.

There are four other 'possible' projects that also remain in the pipeline but are unlikely under low world commodity prices – the $3 billion Carrapatena copper mine, the $2 billion Braemar bulk export iron ore project, the $1.7 billion Tumby Bay Fusion iron ore project and the $1.6 billion Giffen well iron ore project. Exploration investment is also under pressure and planned expansions of existing operations are unlikely as firms seek improvements in efficiency to remain competitive.

The overall engineering outlook is not solely dependent on mining projects. With construction on the $896 million South Road upgrade project underway and ten new road projects from this year's State Budget (combined value of $6.3 billion) also in the pipeline, there will be some support for South Australia's prospects for engineering construction going forward.

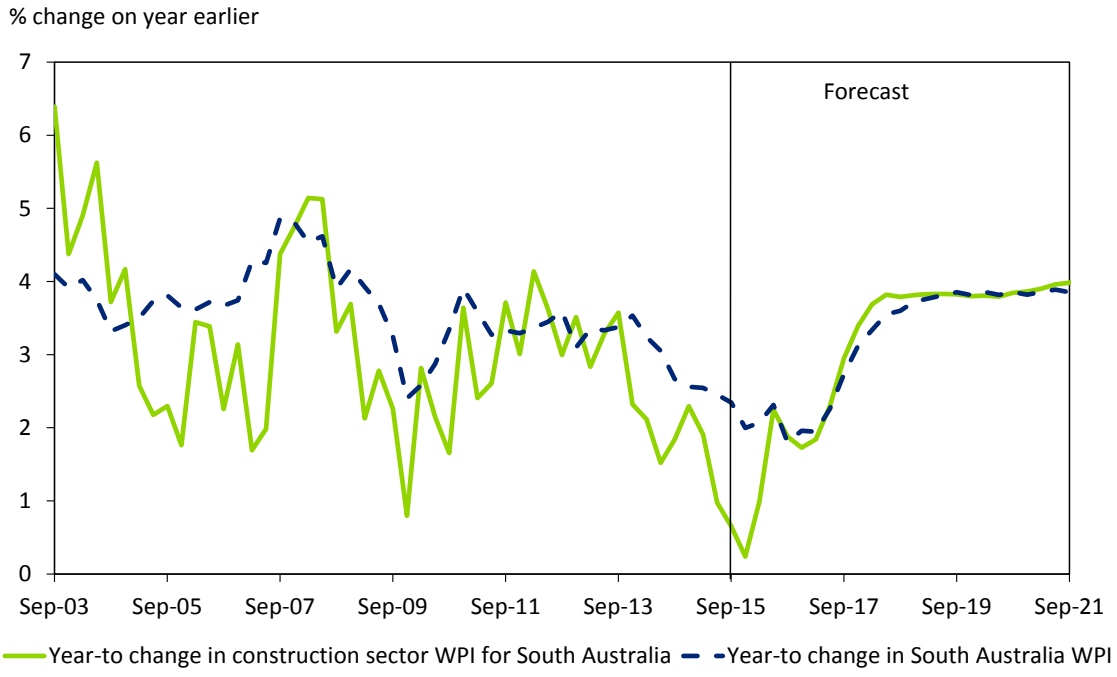
Chart 5.7: South Australia's construction WPI forecasts



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

Given the relatively moderate conditions in South Australia's construction sector and broader economy, along with the broader easing in wage growth, there has been a significant easing in construction sector wage growth in South Australia over the past two years (see Chart 5.9). Construction wage growth is expected to recover to more average growth rates of around 3% over time.

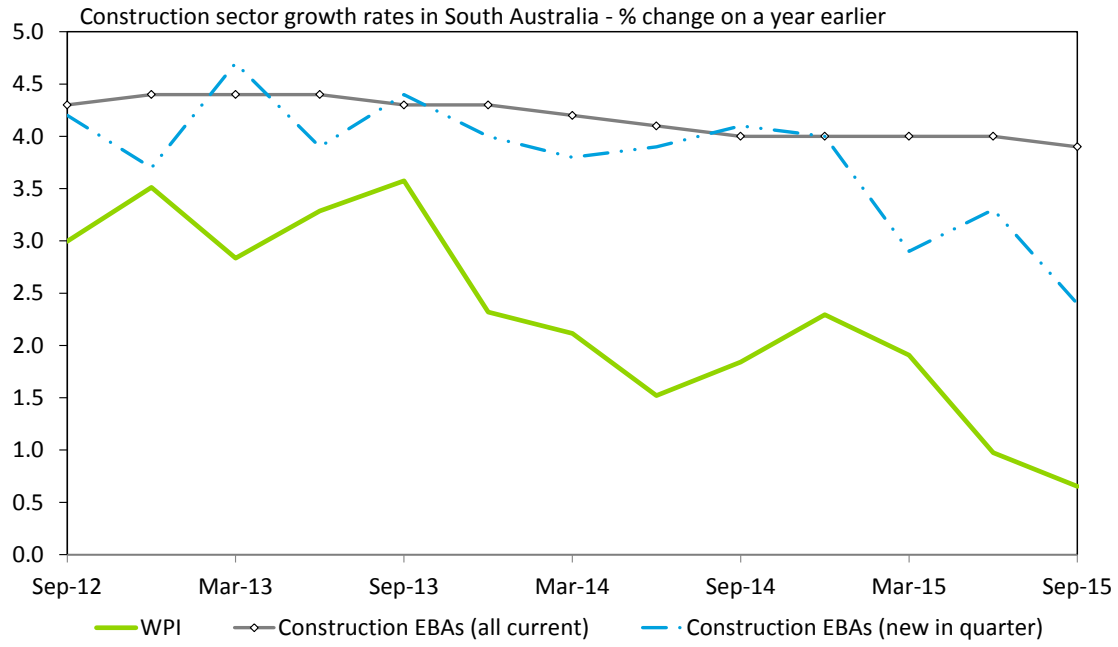
Chart 5.8: South Australia construction forecast comparison



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

Wage growth under EBAs in South Australia's construction sector has generally tracked well above broader industry wage trends. There has also been some evidence of easing in wage growth under EBAs in recent quarters, with wage growth in new agreements now down notably from the higher rates recorded in 2012. Wage growth under all agreements has also eased very slightly over the same period, but it remains higher than indicated by the WPI.

Chart 5.9: Comparative measures of wage growth in South Australia construction



Source: ABS, Department of Employment

While different degrees of bargaining power among employees will doubtless have played a factor in that gap, it may also suggest that there remains at least some pressure on broader construction wage growth to pick up.

While Deloitte Access Economics expects weakness in the near term for construction wages, we do expect some bounce back in construction sector wage growth over the next three years.

5.4 Summary results

Forecasts for sectoral wage growth in South Australia are shown in Table 5.1. Forecasts include real and nominal WPI, and real and nominal productivity adjusted WPI.

Table 5.1: South Australia's wage forecasts

Financial year changes in South Australia nominal Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	2.6	2.2	2.0	3.2	3.7	3.8	3.9
Utilities	2.6	2.8	2.1	2.7	3.0	3.4	3.5
Construction	1.8	1.1	2.0	3.4	3.8	3.8	4.0

Financial year changes in South Australia real Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	1.0	0.8	-0.4	0.7	1.3	1.5	1.4
Utilities	1.0	1.4	-0.3	0.2	0.7	1.0	1.0
Construction	0.2	-0.3	-0.4	0.9	1.4	1.5	1.5

Financial year changes in South Australia nominal productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	1.7	1.2	1.6	1.6	2.3	2.4	2.2
Utilities	1.2	2.8	1.5	1.2	1.8	2.1	1.9
Construction	1.7	1.3	1.4	1.9	2.7	2.7	2.5

Financial year changes in South Australia real productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	0.1	-0.2	-0.8	-0.9	0.0	0.1	-0.2
Utilities	-0.3	1.5	-0.9	-1.3	-0.5	-0.2	-0.5
Construction	0.1	-0.1	-1.0	-0.6	0.3	0.4	0.1

Source: ABS, Deloitte Access Economics' labour cost model

6 Northern Territory wage growth forecasts

This chapter sets out the projections for labour costs in the utilities sector in the Northern Territory, and provides additional Territory level projections for the utilities and construction sectors in the Northern Territory. See Appendix A for further technical notes.

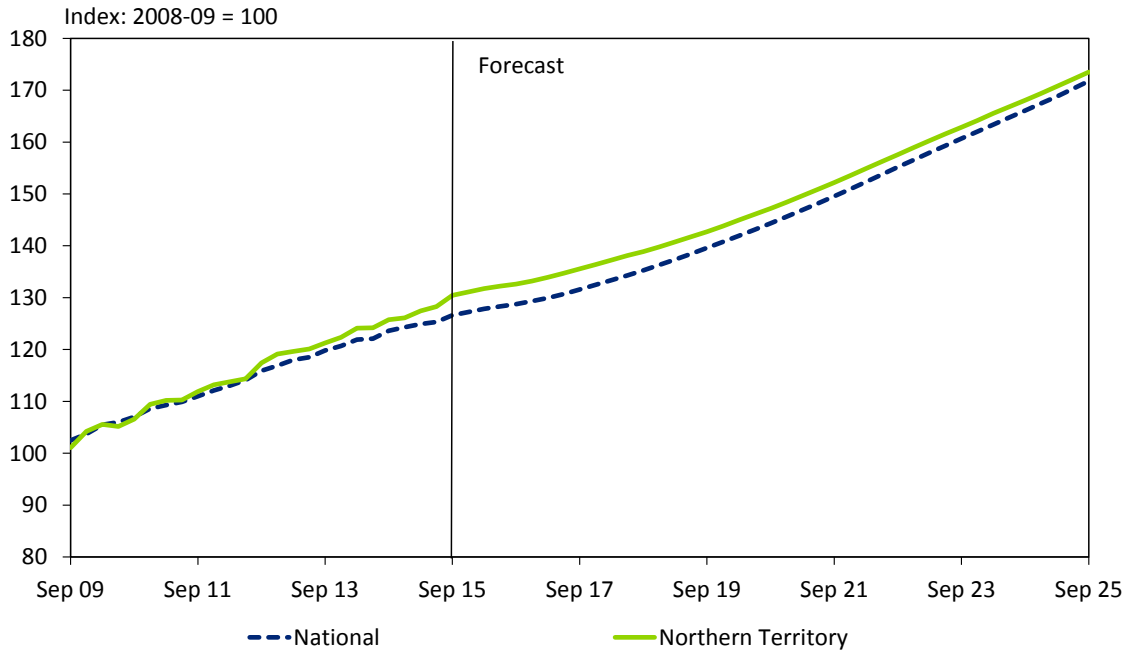
6.1 Northern Territory trends

Growth in the Northern Territory economy has been supported to a significant extent by construction work on the massive $37 billion Ichthys LNG project, which first got underway in 2012. That resulted in output growth in the Northern Territory of 10.5% in 2014-15, the strongest growth of all jurisdictions in that financial year.

The project also supported demand for labour in the construction sector and in the rest of the Northern Territory's economy, placing upward pressure on labour costs.

However, construction work on the Ichthys LNG project is drawing to a close. While previously expected to reach completion in 2016, delays have meant that the project is now expected to begin operations in 2017. Even so, it is clear that construction work on the project will be winding down in the not too distant future.

Chart 6.1: Utilities sector WPI forecasts – national and Northern Territory



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

As Chart 6.1 above shows, wages in the utilities sector have been growing faster than the national average since late 2010, with a more considerable gap opening up in 2012 as the Ichthys LNG project drew in more workers. And as that chart also shows, the gap between Territory and National utility sector wages is expected to narrow over time. This is a reflection of the expected easing in labour demand as construction work on the Ichthys project winds up, and the strong utilities sector wage gains already seen.

6.2 The utilities sector

Chart 6.2 below compares wage growth in the Northern Territory utilities sector (as estimated by Deloitte Access Economics) against wage growth across the Northern Territory economy, the Australian utilities sector, and the broader Australian economy.

Wage growth in the Territory's utilities sector is estimated[6] at 3.2% over the year to September 2015. This was well above the average wage growth across the Australian utilities sector over the same period (2.4%), as well as wage growth across all industries in the Territory (2.6%) and Australian (2.3%) economies over that same period.

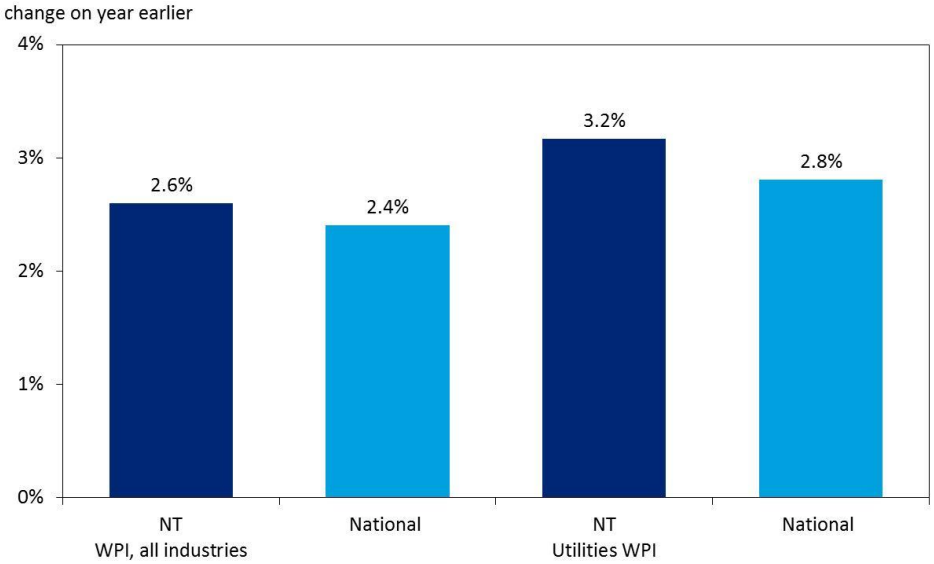
Across Australia as a whole, falling petrol prices have had a notable dampening effect on inflation. That has been particularly true of the Northern Territory, where continuing price falls at the pump are combining with the impact on inflationary pressures of the Territory's slowing domestic economy to keep CPI gains on a relatively tight leash. The overall increase in the Territory's 2015-16 CPI is projected to be a bare 0.2%.

With wages – as usual – being slower to react than prices, that weakness in pricing pressures shows up as an upward blip in real wage growth in the Territory this financial year.

The wage growth differential between the Northern Territory and Australia is likely to compress over time as the resource construction boom which has been placing a premium on labour in the Territory phases out.

[6] Remember, for the States and Territories covered in this report, the ABS only releases WPI estimates in the utilities and construction sectors for Victoria. We estimate the utilities and construction sector WPIs for South Australia, the Northern Territory and for the ACT.

Chart 6.2: Comparative WPI growth rates in 12 months to September 2015

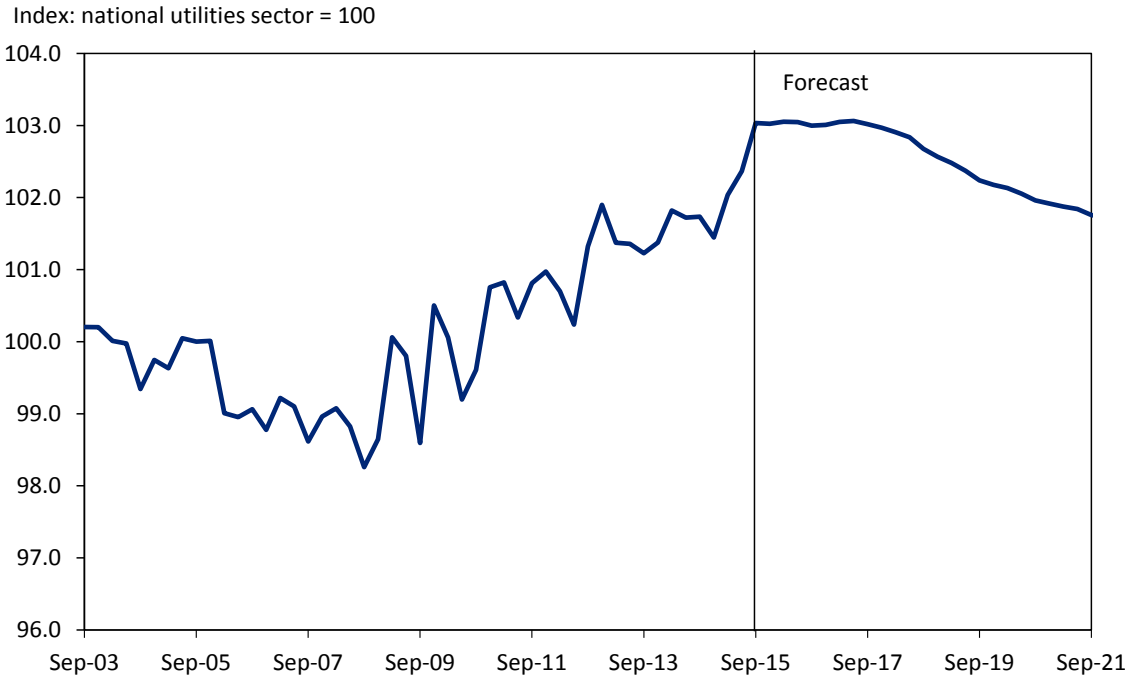


Source: ABS, catalogue number 6345.0, special request and Deloitte Access Economics Wage Model

Wages in the Northern Territory utilities sector have increased over the last five years relative to the national utilities sector (as seen in the chart below). Those relative gains are forecast to level out in the next few years and to then ease over the medium term as the construction boom of recent years in the Top End runs its course.

As always, it should also be noted that 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. That is particularly true in the case of the Northern Territory, which is not only a much smaller jurisdiction, but one for which much of the relevant data must be estimated, rather than measured directly.

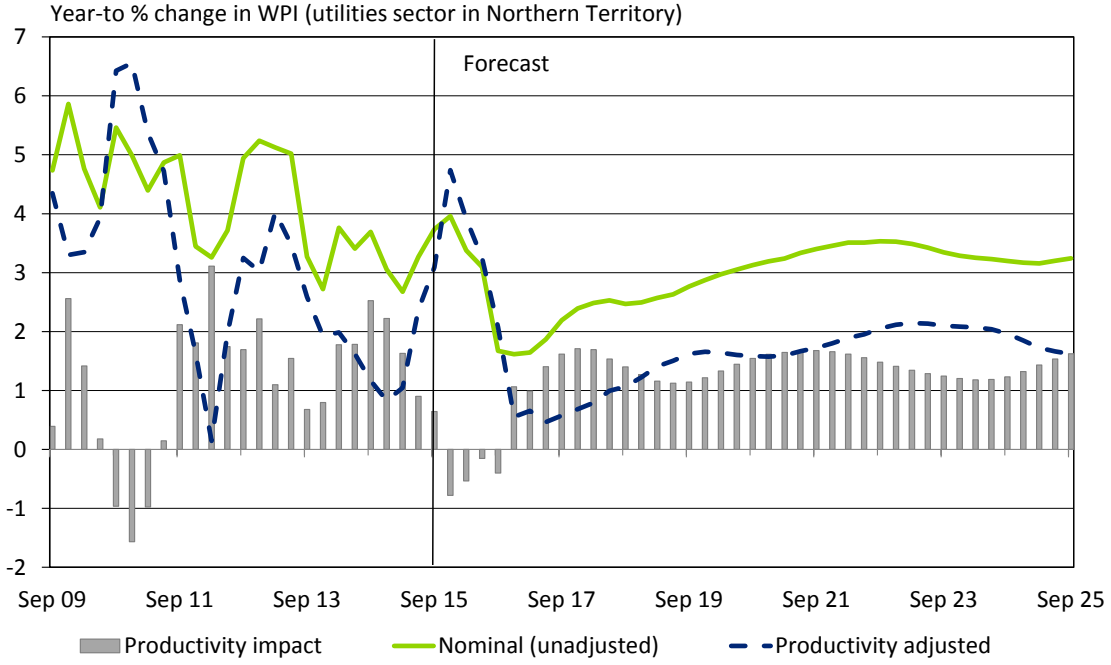
Chart 6.3: Relative utilities WPI forecast for Northern Territory



Source: ABS, Deloitte Access Economics' labour cost model

Forecasting growth rates based on a point-to-point comparison of results can amplify that volatility. **Deloitte Access Economics recommends that it is better to concentrate on the long run underlying trends indicated in Chart 6.4.**

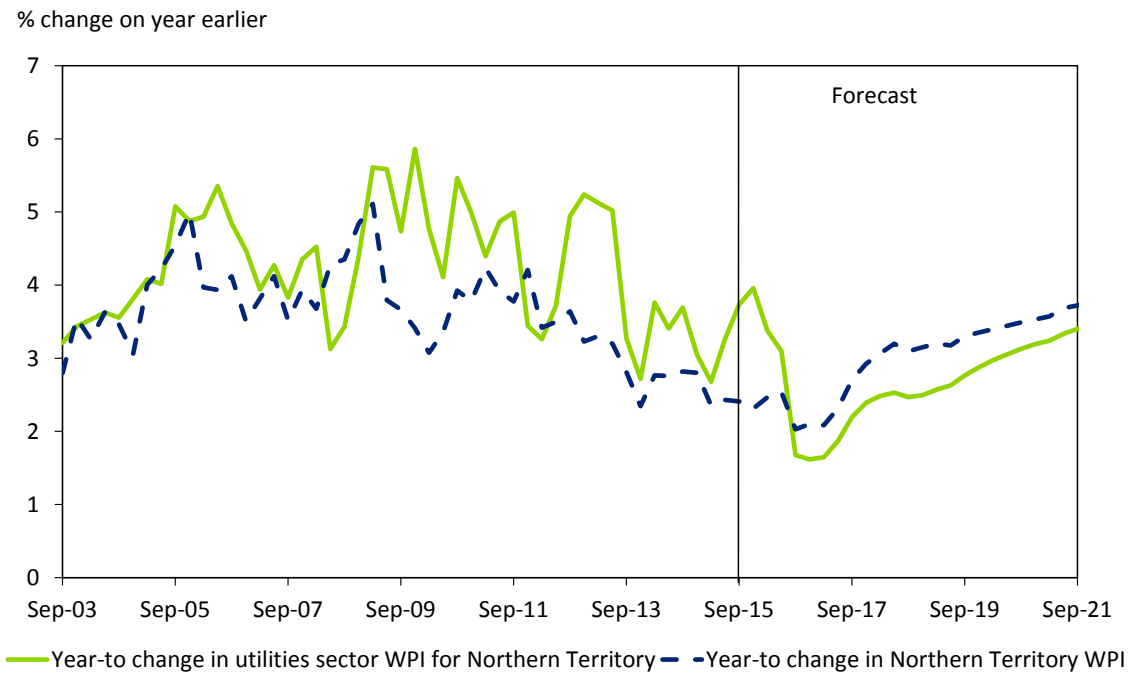
Chart 6.4: Northern Territory utilities WPI forecasts



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

Chart 6.5 above shows that nominal wage growth in the Northern Territory utilities sector has remained relatively elevated. As the Ichthys LNG project comes to an end and, with limited other investment likely due to lower global commodity prices, there will be a reduction in the demand for labour. This will act to keep downwards pressure on wage growth across the Territory, including in the utilities sector.

Chart 6.5: Northern Territory utilities forecast comparison



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

The positive long term outlook for the Northern Territory utilities sector should see increased demand for labour in the sector – leading to an increase in wage growth over the long term. However, as the chart above shows, wage growth in the utilities sector is likely to run at a lower rate than for the Northern Territory economy as a whole in2016-17.

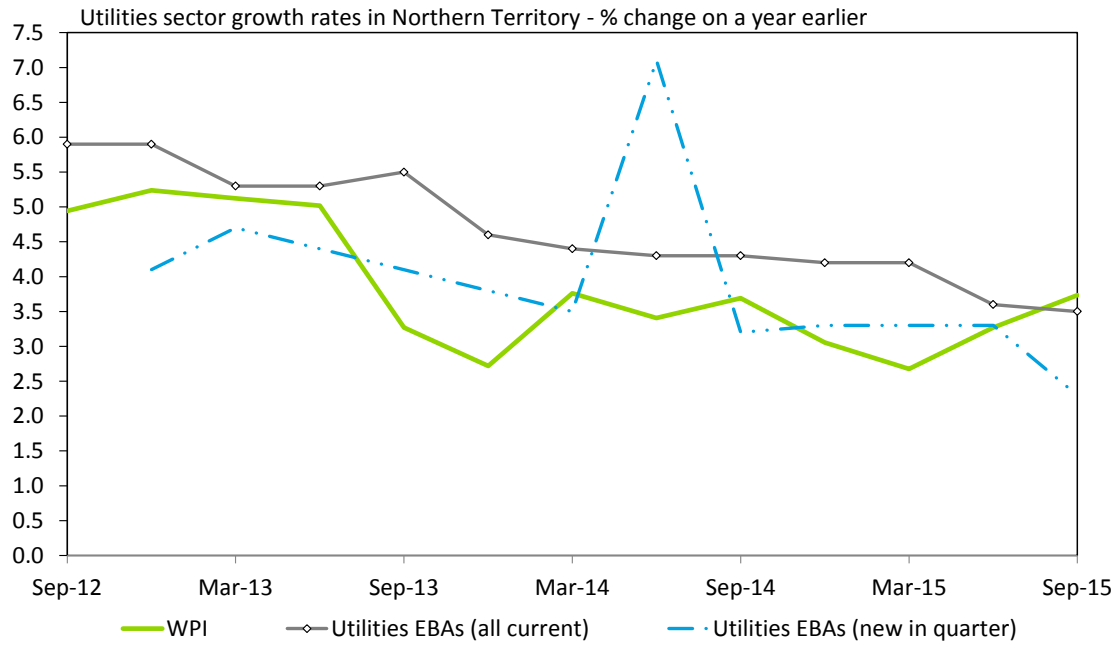
Utilities sector WPI growth is then forecast to reach a low in late 2016, before rising to 3.0% to 3.5% growth from 2020 to the end of the forecast period.

6.2.2 Comparison with EBA outcomes

Chart 6.6 compares the growth in the Northern Territory's utilities sector WPI with partial results from Enterprise Bargaining Agreements.

Except for a large spike in mid-2014, new EBA wage growth outcomes in the utilities sector in the Territory have been broadly in a downward trend since early 2013. This has seen the overall level of wage growth in the utilities sector EBAs easing to around 2.3% in December 2015. New EBA wage growth outcomes in the utilities sector are currently less than that for all in-force agreements, as well as for the broader utilities sector.

Chart 6.6: Comparative measures of wage growth in Northern Territory utilities



Source: ABS, Department of Employment

That appears to have placed some downward pressure on the growth across all in-force agreements, which has also been easing slightly since early 2013.

6.3 The construction sector

Most indicators of housing construction in the Northern Territory are now looking rather weaker than they were when the Ichthys construction phase was at its height. Housing finance commitments have fallen over the past year, while Darwin's house prices have softened and the value of residential building approvals is down slightly over the past year.

In the rental market, vacancy rates have continued to climb steadily and are now over 7% – which makes them among the highest in the nation – while the rents charged to tenants have recorded are now falling. With signs of an oversupplied market and population growth also weak, the housing construction outlook in the Territory is therefore subdued.

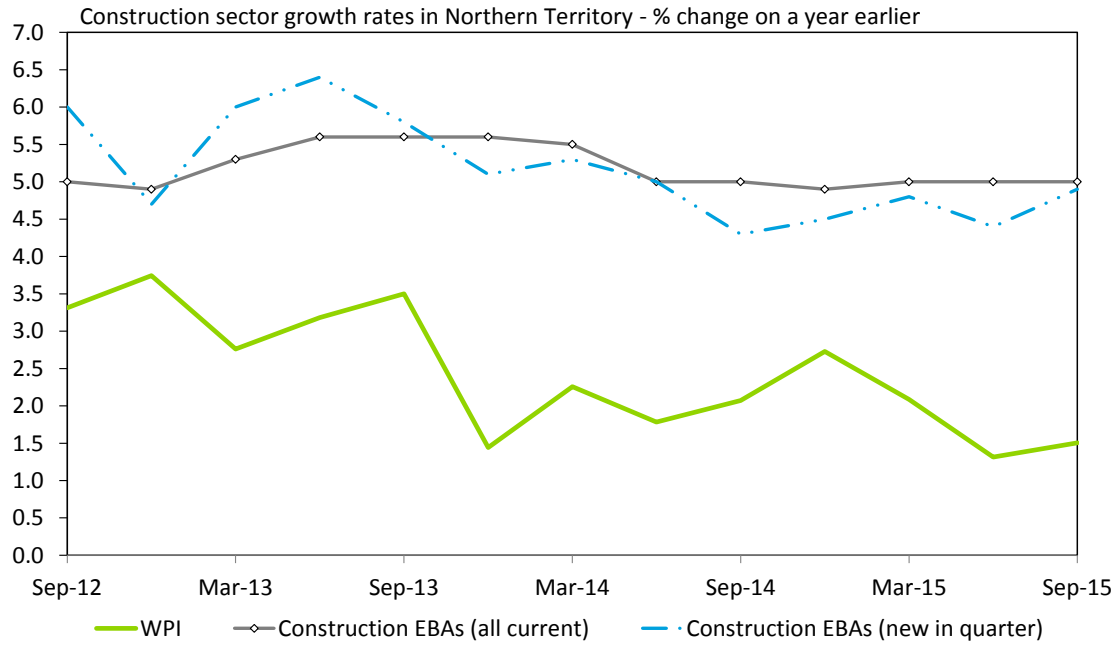
Non-residential construction projects under construction in the Territory total over $1.8 billion, with virtually all of it due to wrap up by 2016. After that the pipeline looks really thin, so the NT economy looks set to face an investment bust without a surge of new projects – and we don't see any such surge as being on the cards.

Engineering work has been overwhelmingly dominated by a single LNG project. The Ichthys project is the second largest in the country, and the end date for its construction has been pushed out until the second half of 2017. The good news is that there's another $13 billion project possible – the Greater Sunrise Timor Sea project – along with another two gas projects worth almost $3.5 billion sitting in the pipeline. But given the slide in global gas pricing, it remains to be seen whether these projects come to fruition. Compared to the overall NT

economy, the contribution of LNG projects is staggering. But with that comes with a sting in the tail, including the mounting prospects of an investment crunch when these projects end.

There are twelve new engineering projects that have entered Deloitte Access Economics' *Investment Monitor* database recently. Three quarters of them are mining-related, with iron ore and precious/base metals projects featuring prominently, a development which is a little surprising given recent commodity price movements. It will bear watching to see whether these projects make it to the construction phase.

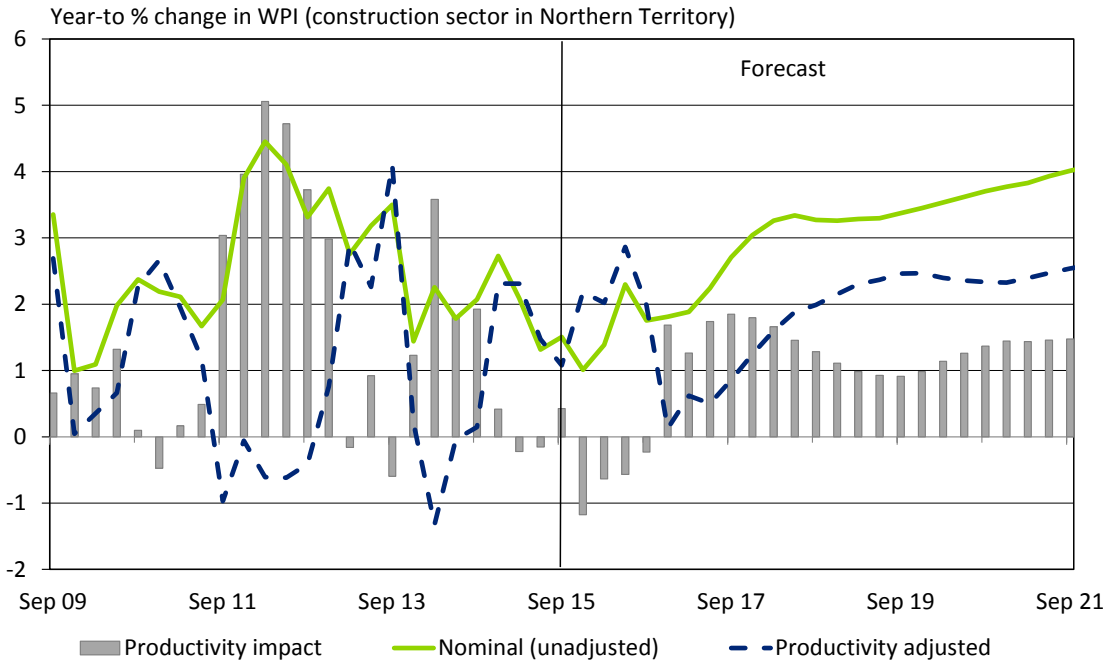
Chart 6.7: Comparative measures of wage growth in Northern Territory construction



Source: ABS, Department of Employment

Wage growth under new and current construction sector EBAs has been consistently higher than the (estimated) growth in the Wage Price Index for the construction sector as a whole (see Chart 6.7 above). This reflects the strength of the union movement in the Northern Territory construction sector. Wage growth from new EBAs has come down a little since mid-2013, but remains quite high (at close to 5% in September 2015), which is also broadly true of wage growth under all current construction EBAs.

Chart 6.8: Northern Territory construction WPI forecasts

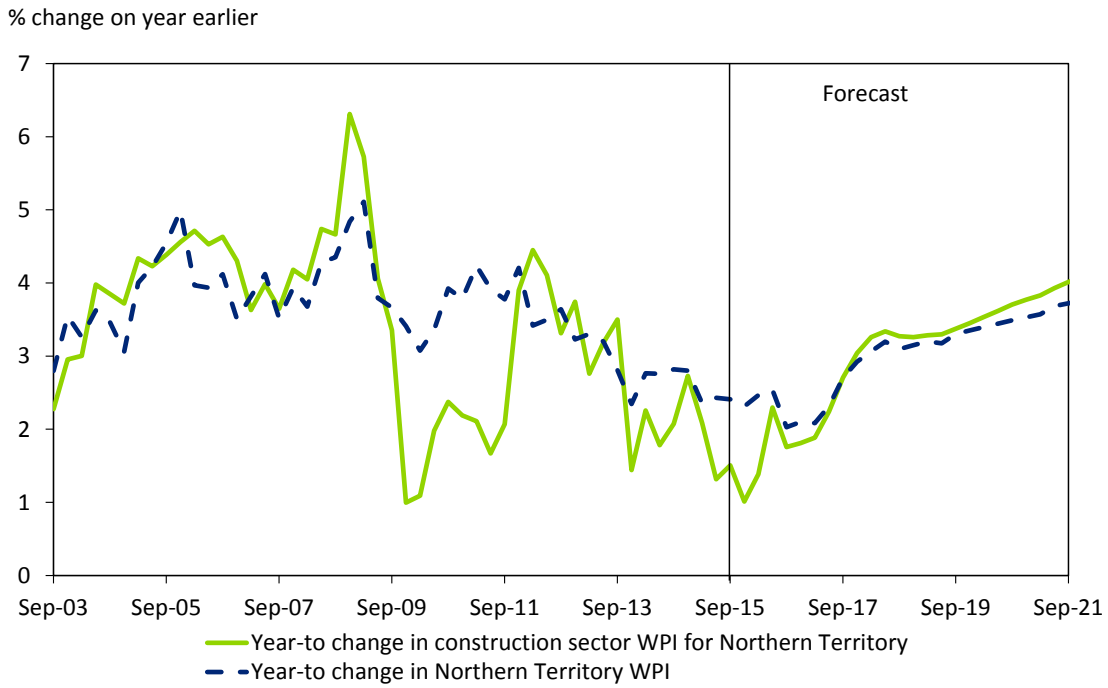


Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

Construction sector wage growth has eased significantly in the Northern Territory over the last three years. The current rate of wage growth is particularly low at around 2.0% over the past year, and a recovery in wage growth is expected over the medium term.

Chart 6.9 shows the forecast for construction wages in the Northern Territory are for continuing short term weakness, followed by a gradual recovery over the medium term. In 2017 construction wage growth is forecast to return back to the level of wage growth projected for the Territory overall.

Chart 6.9: Northern Territory construction forecast comparison



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

To the degree that skills are transferrable from the construction sector to utilities, the relatively weak wage pressure currently being seen in construction takes pressure off wage developments in the Northern Territory's utilities sector in the near term.

6.4 Summary results

Forecasts for sectoral wage growth in the Northern Territory are shown in Table 6.1. Forecasts include real and nominal WPI, and real and nominal productivity adjusted WPI.

Table 6.1: Northern Territory wage forecasts

Financial year changes in Northern Territory nominal Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	2.6	2.4	2.1	3.0	3.2	3.4	3.6
Utilities	3.2	3.6	2.0	2.5	2.5	2.9	3.2
Construction	2.0	1.6	2.0	3.0	3.3	3.6	3.9

Financial year changes in Northern Territory real Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	1.2	2.2	1.0	1.0	0.9	1.1	1.2
Utilities	1.8	3.4	0.8	0.6	0.3	0.7	0.8
Construction	0.7	1.4	0.8	1.1	1.0	1.3	1.5

Financial year changes in Northern Territory nominal productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	-8.0	1.3	0.5	0.6	1.9	1.6	1.5
Utilities	1.4	3.8	1.2	0.9	1.3	1.6	1.6
Construction	1.7	1.9	1.3	1.5	2.2	2.4	2.4

Financial year changes in Northern Territory real productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	-9.3	1.0	-0.7	-1.3	-0.3	-0.6	-0.9
Utilities	0.0	3.6	0.1	-1.0	-0.9	-0.6	-0.8
Construction	0.3	1.7	0.1	-0.4	-0.1	0.2	0.0

Source: ABS, Deloitte Access Economics' labour cost model

7 Australian Capital Territory wage growth forecasts

This chapter sets out the projections for labour costs in the utilities sector in the Australian Capital Territory (ACT), and provides additional State level projections for the construction industry in the ACT. See Appendix A for further technical notes.

7.1 Territory trends

Due to its government and public service employment base, the ACT economy often moves against national economic cycles. Unlike other services-based economies on the east coast, the ACT enjoyed many of the benefits of the mining and resources boom, with limited exposure to the downsides. The strong budgetary position created during this period saw an increasing propensity for the Commonwealth Government to spend, and with it, an expansion in the Federal public sector.

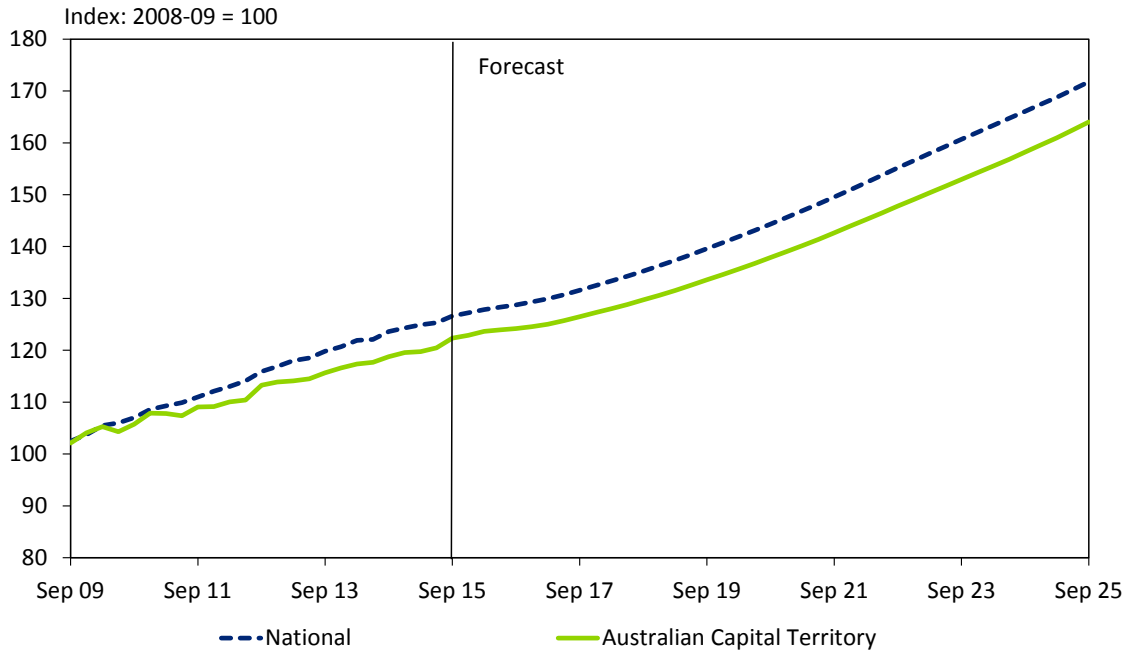
Yet the cycle has turned, and the present day Federal Budget is a stark contrast to the late 2000s. While hiring restrictions eased in mid-2015, the focus is still firmly on austerity measures and public sector efficiency.

Figures from the ABS show that the 7,200 Federal job losses combined with the 300 Territory Government job losses in 2013-14, which resulted in the steepest employment downturn in the ACT since 1996, although job levels are now showing signs of stabilisation. Latest data showed a further 1,700 public sector job losses occurred in 2014-15 (1,300 Federal job losses and 400 Territory Government job losses), which is down significantly on the employment falls recorded in 2013-14.

Broader labour market indicators such as the number of job advertisements are also beginning to show some positive signs, with the Department of Employment's Internet Vacancy Index for the ACT recording a significant rise over the year to November 2015. Unemployment in the ACT currently sits at 4.7%, a little above the sub-4% rates historically seen in the ACT.

The outlook for wage growth in the **utilities sector** in the ACT is subdued. As Chart 7.1 shows, the gap between national wages in the utilities sector and the ACT experienced in recent years is projected to persist into the long term. Going forward, the difference between ACT and national utilities WPI growth is driven by the relative weakness in the Territory's economic outlook.

Chart 7.1: Utilities sector WPI forecasts – national and ACT



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

While national wages in the sector are regulated, significant variance can be observed in smaller jurisdictions such as the ACT over short periods of time. Short term deviations at a State and Territory level can occur when driven by a combination of:

- **General trends in State wage growth.** Slower growing jurisdictions are likely to see slower WPI growth; and
- **One-off factors that affect a particular industry** – such as movements in a specific award level or a single EBA, or a sharp swing in demand or supply for workers in that sector and in that State.

There are limits to how far wage rates can diverge between sectors or geographical areas, when moving from the short term to the longer term. Large and lingering relative swings between State and Territory wages tend to be inhibited by competition between jurisdictions and industries and by the ability of workers to act and take-up better paying jobs elsewhere.

7.2 The utilities sector

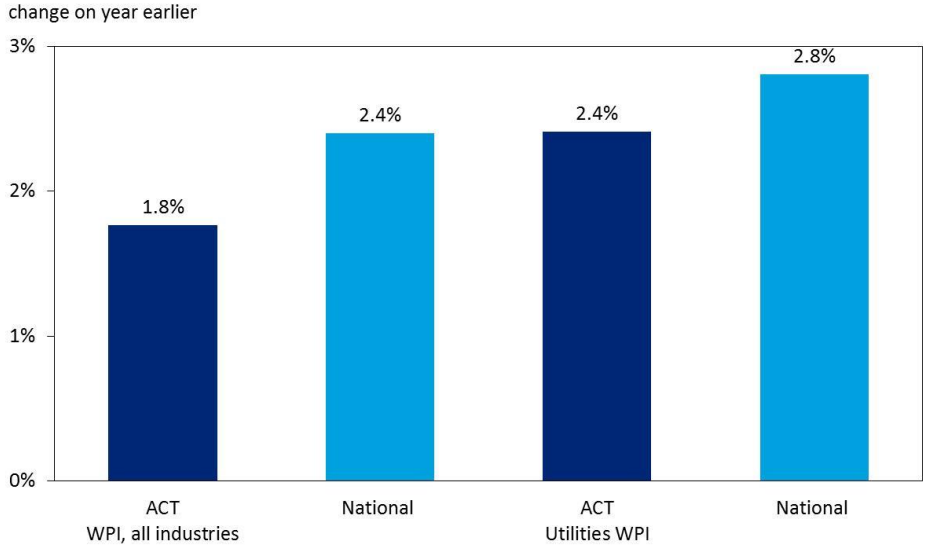
Chart 7.2 shows that in the year to September 2015, wage growth in the ACT has lagged behind national wage growth, largely due to a correction from previous periods where wage growth in the public sector were not matched by productivity improvements.

The ACT's WPI growth over the past year was 1.8%, whereas the national WPI grew at 2.4% in the same period. However, the ACT utilities sector WPI – estimated by Deloitte Access Economics[7] – showed strong growth. The most recent estimate indicates that ACT's utilities

[7] Remember, for the States and Territories covered in this report, the ABS only releases WPI estimates in the utilities and construction sectors for Victoria. We estimate the utilities and construction sector WPIs for South Australia, the Northern Territory and for the ACT.

WPI grew at 2.4% in the 12 months to September 2015, still below national utilities WPI growth of 2.8%.

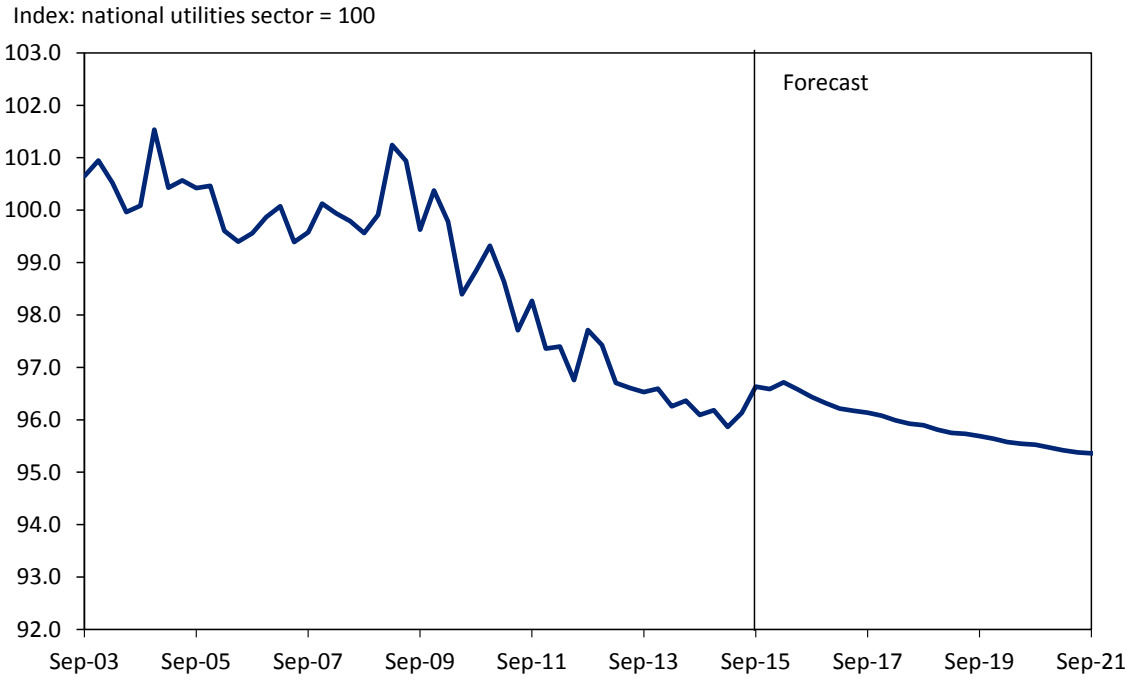
Chart 7.2: Comparative WPI growth rates in 12 months to September 2015



Source: ABS, catalogue number 6345.0, special request and Deloitte Access Economics Wage Model

As Chart 7.3 shows, the ACT is estimated to have seen wages in the utilities drop sharply relative to other States during the GFC. The utilities WPI in the ACT is estimated to have progressively declined against other jurisdictions between 2012 and 2015.

Chart 7.3: Relative utilities WPI forecast for ACT



Source: ABS, Deloitte Access Economics' labour cost model

While there has been a recent uptick in utilities sector wage growth in the ACT, the outlook for the ACT is for decline relative to national growth as the government employment remains under pressure and slows wage growth in the ACT economy.

In the short term, the impact of public sector cutbacks continues to have an influence on the ACT's outlook. While the medium to longer term is expected to see housing construction, government and commercial activity picking up once more in the ACT, wage growth in the ACT utilities sector is likely to stabilise at a lower rate than the national average.

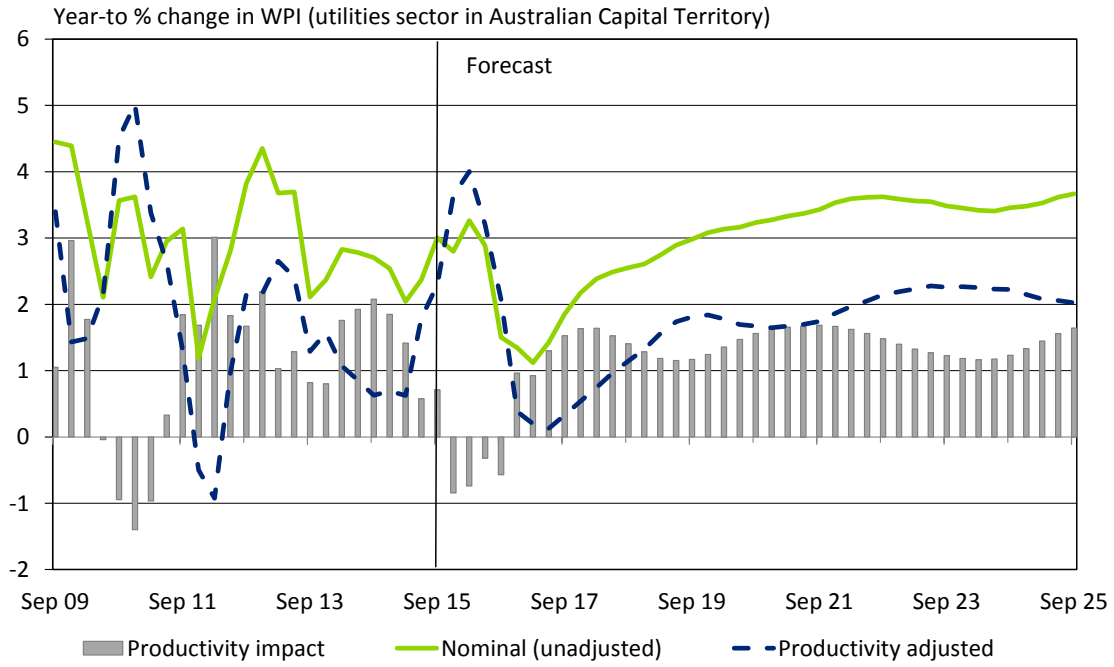
The volatility in State and Territory indices implies that actual movements in State-by-industry WPI in the future are likely to be far less smooth than shown in the charts presented in this report. That is particularly true in the case of the ACT, which is not only a smaller jurisdiction, but one for which much of the relevant data must be estimated, rather than measured directly.

Forecasting growth rates based on a point-to-point comparison of results can amplify that volatility. **Deloitte Access Economics recommends that it is better to concentrate on the long run, underlying trends indicated in Chart 7.4.**

Canberra has experienced high price rises over the last decade and consumers have responded by curtailing their energy consumption. As expected, the introduction of rule changes by the AEMC and implemented by the AER have resulted in slower price growth.

Chart 7.5 illustrates that the ACT's utilities WPI growth remains at around 3% over the past year according to the latest estimates, but is expected to ease further in the next two years. Despite the need to replace 1,000 homes affected by asbestos, lower levels of residential construction are projected to depress employment and wages in the utilities sector.

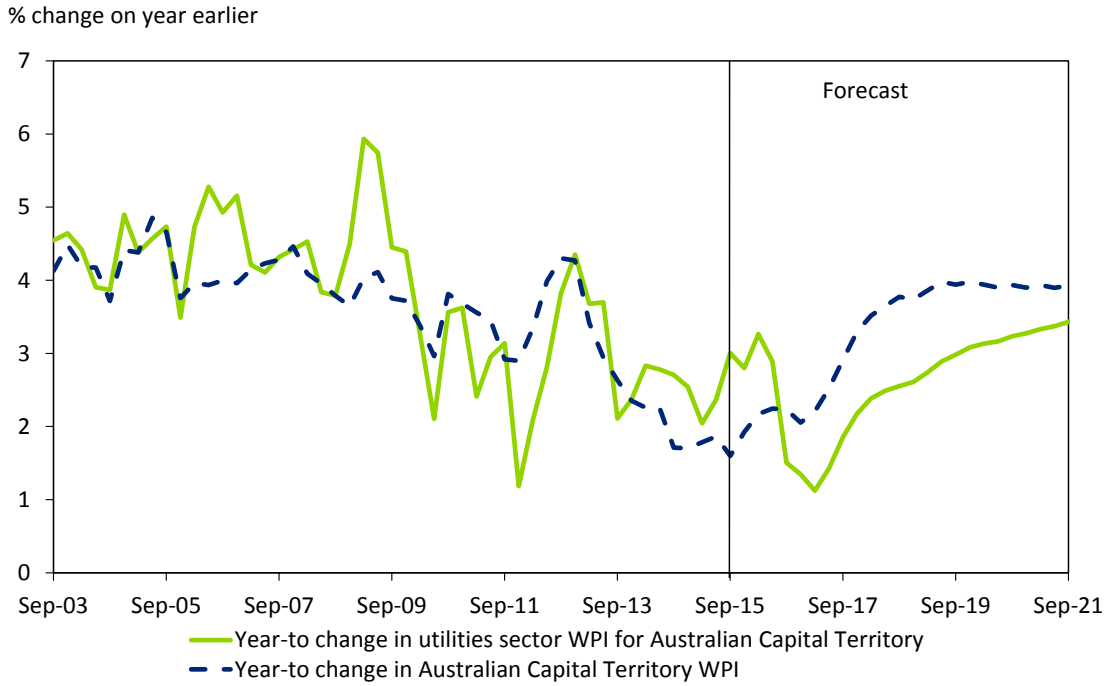
Chart 7.4: ACT utilities WPI forecasts



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

Chart 7.5 shows that, while growth in the utilities sector WPI currently remains above economy-wide wage rates, it is expected to soon fall below the latter. Growth in the ACT's utilities sector WPI is projected to fall to around 2% in late 2016 and early 2017, before wage growth in the sector starts to rebound in line with economy-wide wage rates.

Chart 7.5: ACT utilities WPI forecast comparison



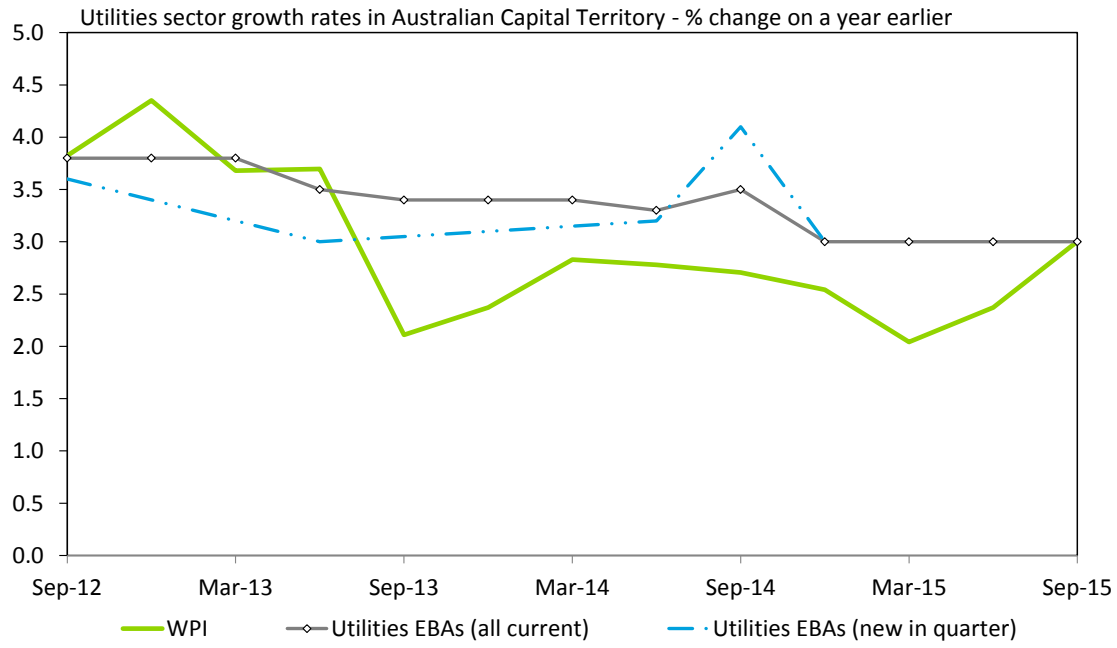
Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics' labour cost model

7.2.2 Comparison with EBA outcomes

Chart 7.7 compares the estimated growth in the ACT's utilities sector WPI with partial results from Enterprise Bargaining Agreements. The latest data shows that wage growth for all current utilities sector EBAs was steady at around 3% in late 2015.

The latest estimates for the ACT utilities sector WPI suggest growth has edged higher in recent quarters, and is moving towards the growth estimated for the utilities sector EBA measures.

Chart 7.6: Comparative measures of wage growth in ACT utilities



Source: ABS, Department of Employment

7.3 The construction sector

There are some mixed signs for the ACT's **housing** market. Housing finance commitments have risen over the past year, while Canberra house prices have also recorded an increase. However, after a burst earlier in the year, the value of residential building approvals has trended down again in recent months, while residential accommodation vacancy rates have edged a little lower from recent peaks, though they remain significantly higher than their lows of a few years ago. As a result, the rents charged to tenants continue to show a fall over the past year. That said, the initiative to demolish some older asbestos-affected homes provides notable support for the construction outlook, as does population growth – which remains close to the national average.

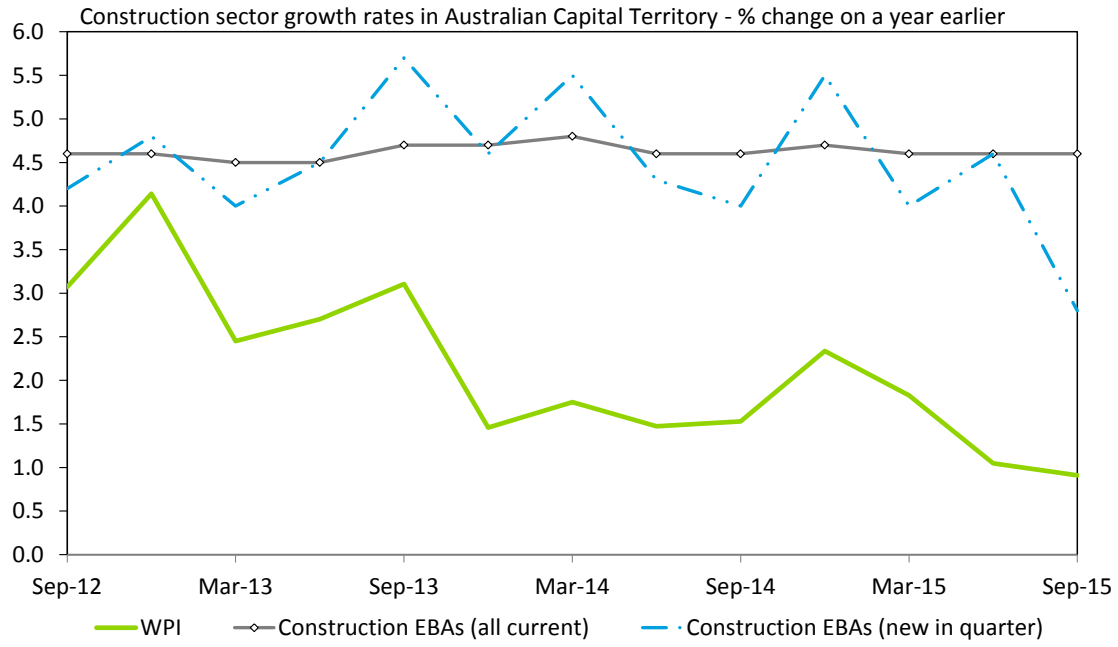
Non-residential construction activity in the ACT is being propped up by the $600 million research and business precinct between ANU and the city, with construction there set to continue right through to 2018. Encouragingly, three new projects have entered the pipeline. These are the $150 million refurbishment of the ACT Law Courts, the $130 million Tuggeranong Office Park project and a $55 million new Calvary Private Hospital.

Engineering construction activity in the ACT is heavily dependent on road projects, with the $288 million Majura Parkway upgrade headlining the work under construction. The pipeline of work is almost exclusively dependent on the $783 million light rail network which, despite considerable political debate, looks set to proceed in 2016.

Wage growth for all current construction EBAs has remained at around the 4.5% mark observed for the past three years (see Chart 7.7). Wage growth for new EBAs, which are a barometer for future wage growth, has eased for the ACT, particularly in the latest data for the September quarter of 2015.

The gap in growth between the current construction sector WPI compared to new construction EBAs is reflective of the lagged bargaining that occurs under EBAs and strength of unions in the ACT construction sector. In comparison, the industry-wide WPI for the ACT economy was estimated to be only 0.9% in September 2015, continuing to ease further in recent months.

Chart 7.7: Comparative measures of wage growth in ACT construction

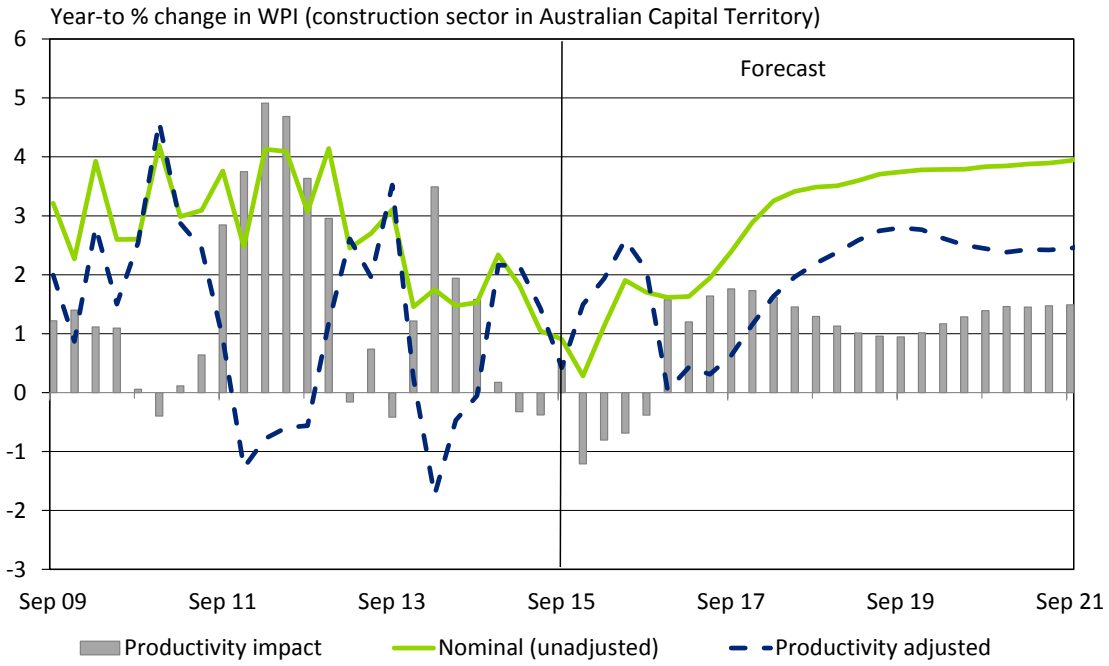


Source: ABS, Department of Employment

Chart 7.7 highlights that the very weak construction sector wage growth currently being seen in the ACT is expected to recover over the next three years.

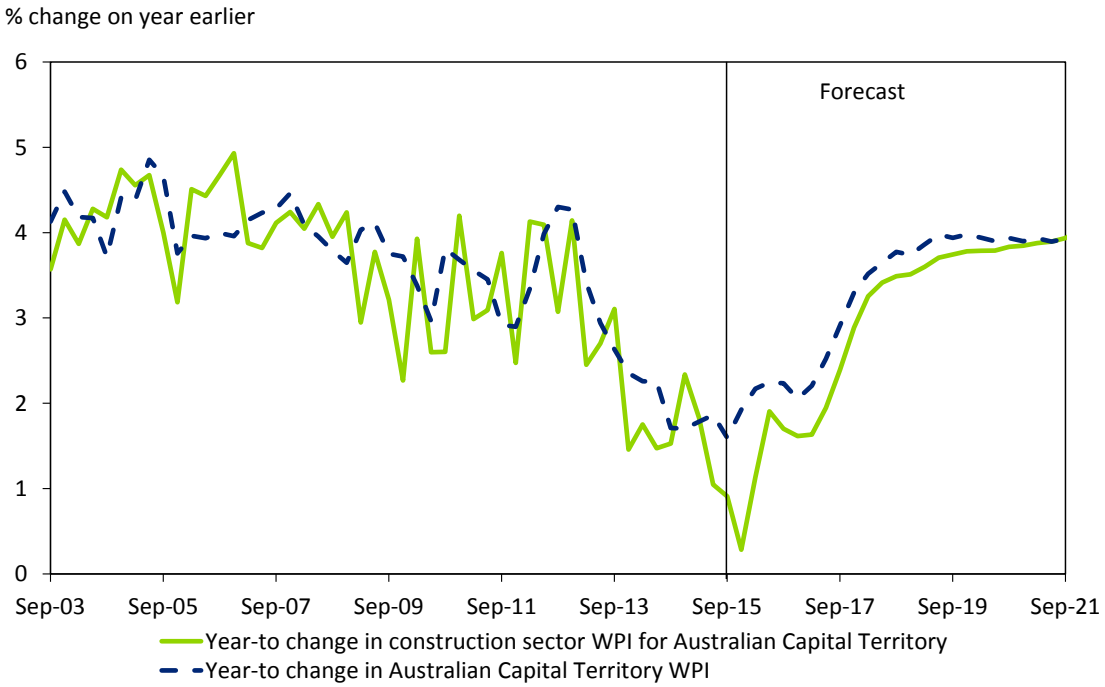
Chart 7.9 compares economy-wide wage growth for the ACT to the construction sector. Wage growth for the construction sector is projected to underperform wage growth across the rest of the economy for most of the projection period. Construction sector wage growth is not expected to return to economy-wide rates of wage growth in the ACT until around 2021. The overall projected wage growth in ACT WPI and construction WPI are broadly similar – weakness in the near term followed by recovery to 2020-21.

Chart 7.8: ACT construction WPI forecasts



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

Chart 7.9: ACT construction WPI forecast comparison



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

To the degree that skills are transferrable from the construction sector to the utilities, the relatively weak wage pressure currently being seen in construction takes some pressure off wage growth in the ACT's utilities sector.

Due to the relatively small pool of non-professional workers in the ACT labour force, the likelihood of wage and labour supply interactions between these two sectors are greater than in other sectors. In the near term, the low growth forecast in construction sector wages is likely to decrease growth pressures in utilities sector wage growth.

7.4 Summary results

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

Table 7.1: ACT wage forecasts

Financial year changes in Australian Capital Territory nominal Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	1.8	2.0	2.3	3.3	3.8	3.9	3.9
Utilities	2.4	3.1	1.7	2.4	2.7	3.1	3.3
Construction	1.7	1.1	1.9	2.9	3.6	3.8	3.9

Financial year changes in Australian Capital Territory real Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	0.6	0.9	-0.2	0.8	1.4	1.6	1.4
Utilities	1.3	2.0	-0.7	-0.2	0.3	0.7	0.8
Construction	0.5	0.0	-0.6	0.4	1.1	1.4	1.4

Financial year changes in Australian Capital Territory nominal productivity adjusted Wage Price aggrega

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	0.1	2.4	1.9	1.9	2.3	2.2	1.9
Utilities	0.9	3.4	1.1	0.8	1.4	1.8	1.6
Construction	1.6	1.5	1.2	1.5	2.5	2.7	2.4

Financial year changes in Australian Capital Territory real productivity adjusted Wage Price aggregates

Annual % change	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All industries	-1.1	1.3	-0.5	-0.6	-0.1	-0.2	-0.5
Utilities	-0.2	2.3	-1.4	-1.7	-0.9	-0.6	-0.8
Construction	0.4	0.4	-1.2	-1.0	0.1	0.3	0.0

Source: ABS, Deloitte Access Economics' labour cost model

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Appendix A: Technical notes on WPI data and forecasts

The 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 average weekly ordinary time earnings (AWOTE) can be obtained.

Table A.1 shows which data is available in time series for the WPI and (for those where WPI is not available) AWOTE. These are data series provided on the new ANZSIC06 basis. In the case of WPI data this has been provided across the period from September quarter 2008 to March quarter 2015.

Where AWOTE data is shown as being available, only estimates from May 2009 to November 2011[8] have been calculated by the ABS. Beyond this point data is imputed.

Table A.1: Data availability by sector

State	Utilities	Construction
New South Wales	WPI	WPI
Victoria	WPI	WPI
Queensland	AWOTE	WPI
South Australia	AWOTE	AWOTE
Western Australia	AWOTE	WPI
Tasmania	Imputed only	AWOTE
Northern Territory	Imputed only	AWOTE
Australian Capital Territory	Imputed only	AWOTE

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.[9]
- 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.

[8] 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.

[9] ACT sectoral WPI indices are currently published only for the public administration sector.

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 and ACT 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 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.[10]

As the table shows, the ABS produces all the required WPI data for NSW, but not the other States discussed in this report. AWOTE data for the missing construction sectors was available until the end of 2011, but has 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 Tasmanian construction sector AWOTE measure rose faster than the overall State AWOTE measure, then we allow the Tasmanian construction sector WPI measure to rise faster than Tasmania's overall WPI. Because the AWOTE data was far more volatile than WPI in later years, we limit the deviations that this might imply.[11]

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.

[10] 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.

[11] We do that by comparing the variations in published AWOTE and WPI measures within each State and adjust the unknown deviations accordingly.

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 tries to keep consumer price inflation (CPI) to 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.
- Many people in the corporate world find that strange at first blush. After all, they see their own wages and those of people around them growing at faster rates.
- 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 (AEM) 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 are **excerpts** from the full model documentation that cover the creation of the key driver of the detailed wage model. Full documentation for this component of the model has been provided separately to the AER.

Macroeconomic forecasting

AEM is a macroeconometric 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 foreigners. The formulation of these behavioural equations is based on mainstream theory. The resultant 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).

The structure of AEM has evolved over time in response to various forecasting and policy simulation challenges. Significant changes to current and future Australian population characteristics have led to a number of changes in the structure of the AEM over the previous version (version 5).

In brief, the model now has a better spelled out supply side, with an endogenous role for capital deepening and an exogenous role for total factor productivity growth, which along with a more detailed treatment of population dynamics acts as a long term anchor for output.

As the then Treasury Secretary Ken Henry noted in 2007, Australia cannot:

> *"… generate higher national income without first expanding the nation's supply capacity: one of the 3Ps — population, participation or productivity. Now you might be thinking that that's all pretty obvious. It is, after all, a tautology. But one of my messages to you today is that if you understand what I have just been talking about, then you are a member of a rather small minority group."*

The redesigned model adds to the sectoral structure of the previous version, which included a business sector, a housing services sector and government sector, by netting out farm output from the business sector. Given the variable nature of farm output, this change allows us to account for volatile changes that could not be captured when farm output was combined with non-farm output.

In the new 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.

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.

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.

Imports are effectively intermediate goods in the latest version of the AEM 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. In contrast to the previous version of the model, 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.

The demand for capital and labour in the new model has been reworked so that the short and long run paths of capital and labour are consistent with the forecast potential output path.

One of the new features of the model is the introduction of an equation forecasting the price of business sector investment. This change was necessary because the previous model assumption that the pricing of consumption and investment goods are similar no longer fits with the data. This change should yield more accurate forecasts of investment and the returns to investment.

Changes to the household sector in the model were minor. The most significant change involved the introduction of equations for the price of consumption and housing investment.

With the exception of some minor changes caused by the introduction of distinct prices for consumption and investment, the balance of the model remains unchanged.

Finally, model parameters are estimated using quarterly data extending from September 1974 to the most recent quarter for which data are available. Quarterly data are used as annual data is too aggregated to allow analysis of turning points and interest rate movements. 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. Another advantage of quarterly data over annual data is that both calendar and financial year totals can be calculated.

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.

The current version of the model nets out **farm sector** production from total production. Given the variable nature of farm output, this change allows us to account for volatile changes in farm output that could not be captured when farm output was combined with non-farm output. Farm output is an exogenous input to the model.

In keeping with the previous version of 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.

To capture the impact of cyclical fluctuations on the economy business sector output is divided into potential output and an output gap. **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 population characteristics which influence labour force participation, the growth rate of residual total factor productivity and the expected rate of capital deepening.

The **business sector 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. 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. Output gaps play an important role in determining the level of price and wage inflation.

AEM 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.

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.

There are three types of workers in the economy, civilian non-government (business sector workers), civilian general government and defence employees. Demand for business sector workers is endogenous, while the demand for the other two types is exogenous.

Business sector employment is driven by a standard labour demand function that relies on labour productivity, real wages and business sector output growth. Since labour force participation is tied down by exogenous assumptions, the actual unemployment rate for the economy is the residual after subtracting employment (for all three types of workers) from the labour force.

Other measures of employment, such as **wage and salary earners** are assumed to grow at the same rate as total employment.

Prices and wages

In addition to national account price deflators, the model also includes the underlying and headline measures of the **consumer price index (CPI)**, and prices for **new cars, house building materials, material used in manufacturing, and preliminary stage domestic and imported commodities**.

The model also includes a number of measures of wages. The central measure is **average quarterly earnings** estimated from the national accounts. Other measures include **average weekly ordinary time earnings, average weekly earnings** and the **labour price index**.

Price and wage inflation in AEM are governed by the behavioural equations of the:

- business sector output gap;
- real exchange rate;
- import prices (including oil prices);
- monetary policy reaction function;
- average quarterly wages; and
- underlying consumer price index.

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.

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 AEM 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 Deloitte Access Economics Macroeconomic model. 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 that has been seen in recent years, this is view as an out-performance by the

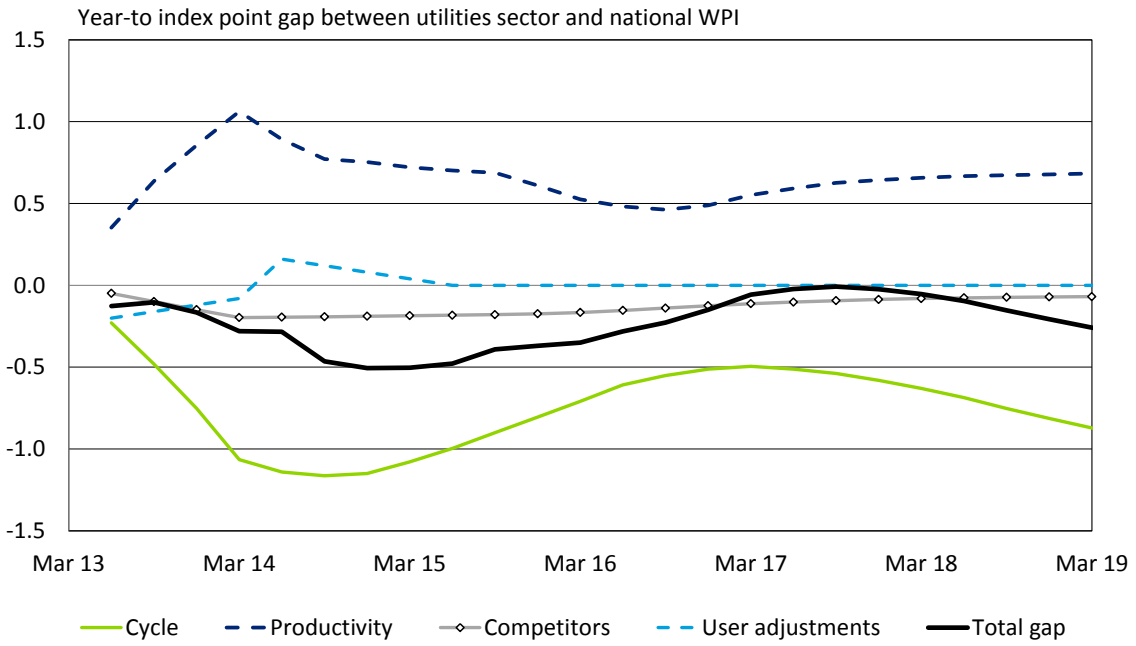
sector and would see some upward pressure on wages. In this model the methodology is forward-looking, with forecast growth across the next six months (as well as the past twelve) used to determine the current performance of an industry.

- **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 factor 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.

Chart C.1: Sample composition chart of sectoral wage drivers (national level)



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

The user-defined adjustments that are required have been explicitly shown in the charts that decompose the movements in industry WPI. The chart above (analysing the national construction sector) compares movements to the national WPI – above the line means growth in the index of more than would be expected if it rose in line with the national WPI and below the line implies growth in the index less than that implied by the national WPI.

In the case of the utilities sector chart above, this indicates the following:

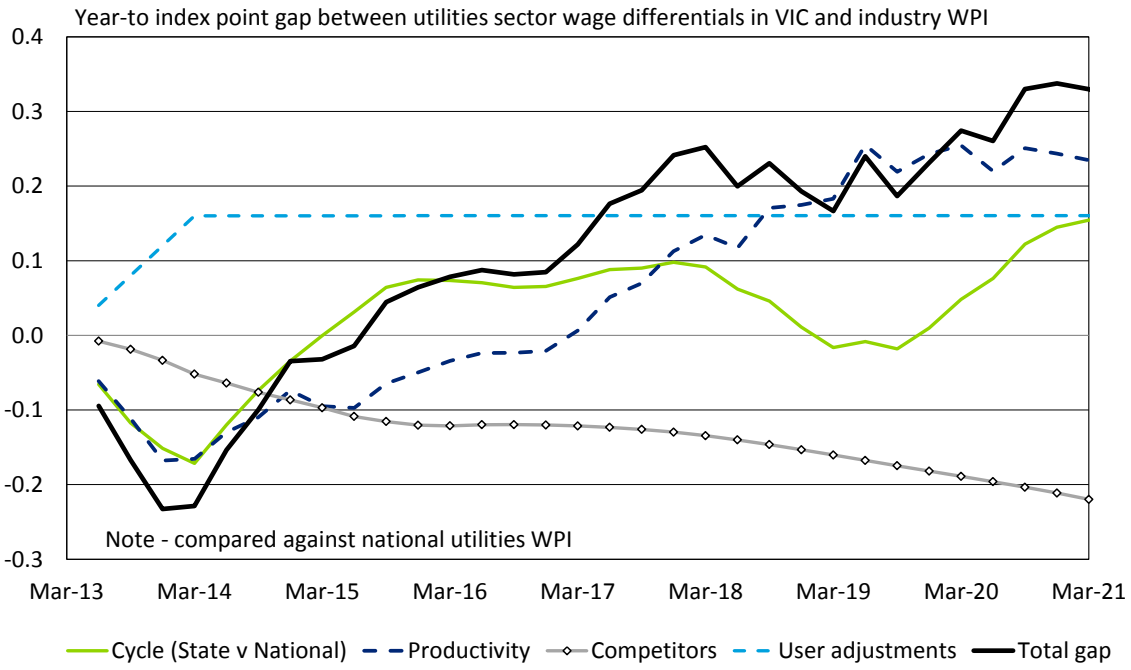
- The recent strength in the construction sector will keep upward pressure on the wages in the sector (represented here by the **Cycle** line). By the end of 2012 growth rates will begin to move in line with the overall economy and the cyclical pressure will diminish (and reverse further out); but
- The higher rate of productivity growth in the utilities sector will put upward pressure on the WPI for construction across the forecast period (the **Productivity** line). This effect will largely dissipate further out; but
- The relatively strong growth in construction sector wages implied by these first two trends (and the recent strength in the WPI) means the sector will face minor downward wage pressure from other sectors. Weakness in the manufacturing sector in particular will limit the impact from competitor industry wages (the **Competitors** line). In the longer term the otherwise stronger wage growth in the sector will not see a need for wages to rise to maintain pace with growth in competitor sectors (mining, construction and manufacturing) to prevent workers being tempted to move.

The final result of all of these effects is construction sector WPI growth well ahead of the national average early on, but lagging in later years.

In the case of State-level indices, our point of departure is the national industry WPI. So the chart below implies that the State's construction sector WPI will:

- Grow relative fast as the State's growth will be well ahead of national averages through the forecast period;
- See a strong offset due to relatively weaker productivity growth, particularly in the latest years; and
- Will initially be boosted as the State's WPI is currently low by historical standards, but will be constrained in the longer run as the WPI soon grows ahead of the national rate.

Chart C.2: Sample composition chart of sectoral wage drivers (State level)



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

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.

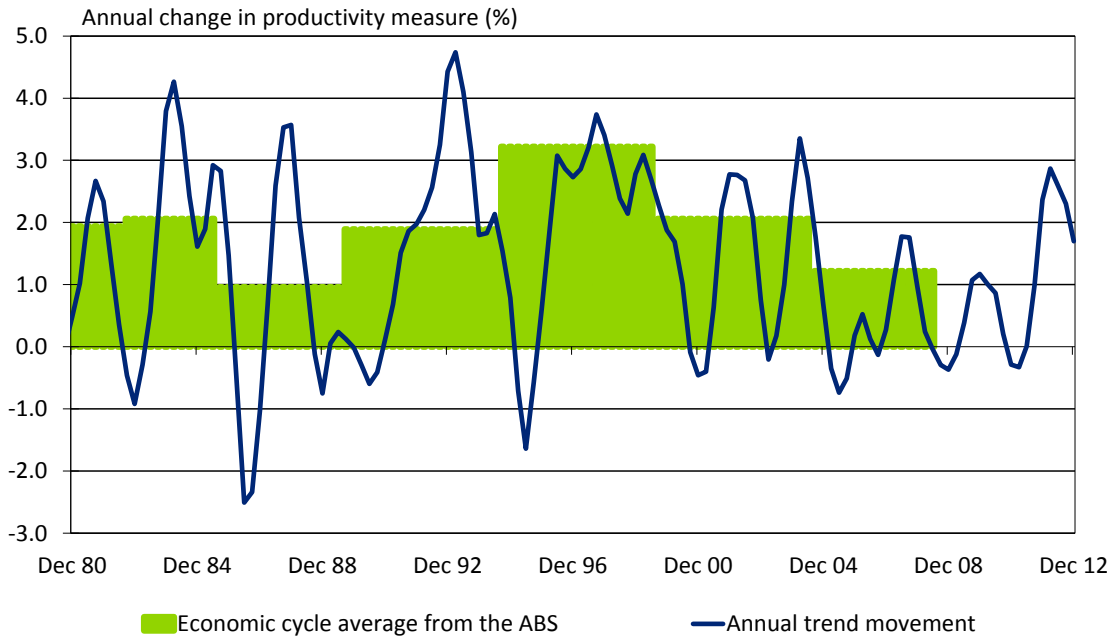
However, labour costs will rise at a different rate due to the effects of labour productivity growth. Effectively, labour productivity measure the number of units of output an individual employee can produce in a given time period. The more units of output each worker can produce, the fewer workers are 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 that 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 has 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.

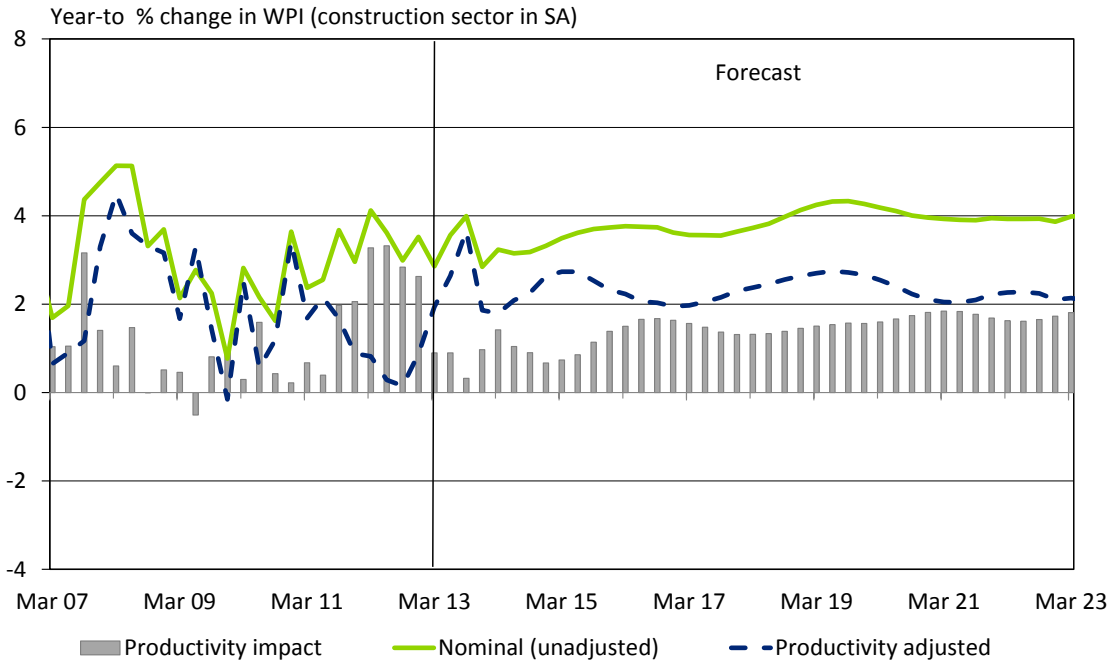
Chart C.3: Growth in productivity – annual methodology vs economic cycle methodology



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.4: Sample measure of forecast productivity effects



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 latter part of the forecast (from 2012 to 2018), the nominal (or unadjusted) WPI rises by 4.0% per year, while the rate of increase adjusted for productivity improvements is just 2.0% per year – the gap implying productivity improvements of 2.0% per year.

Appendix D: Different measures of wage growth

The Australian Bureau of Statistics 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.[12] 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, policy makers, 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; changes in the price of labour; 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

[12] See http://www.abs.gov.au/AUSSTATS/abs@.nsf/90a12181d877a6a6ca2568b5007b861c/9b6a7239b96304ddca2570930000e4bf!OpenDocument

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 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.

Changes in the price of labour

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 wage growth. 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 ABS publishes four wage price indexes 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.

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. Compensation of employees 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 compensation of employees 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.

Wage Price Index

The Wage Price Index (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.

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.

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.

Drawbacks to using the WPI measure

While Deloitte Access Economics would view 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:

- First, the WPI is published by State and by sector separately, but not by State and by sector. That is, the WPI for NSW is published, and the mining sector WPI is also published, however the NSW 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. In contrast, more series at the 'by State and by sector' are available for AWOTE from the ABS 6302.0 release. However, 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. (Note that, not surprisingly, the ABS is reducing over time the range of sectoral level AWE data

which it is willing to release. This phase will eliminate one of the remaining arguments in favour of using AWOTE or AWE over the WPI measures.)

- Second, 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 most 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 reports[13], and takes account of these in its short term forecasting if they appear likely to have a material impact.

Further issues

The ABS has reviewed its production of AWE and AWOTE measures at the industry by State level (e.g. the AWOTE for the utilities sector in Victoria). This information will now no longer be produced.

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.

[13] See employment.gov.au/trends-federal-enterprise-bargaining

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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