



# Forecast growth in labour costs: Queensland and South Australia

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Report by Access Economics Pty Limited for the  
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## Contents

Executive Summary .....	vi
1 Background .....	1
2 The Australian economic outlook .....	2
2.1 The changing macro backdrop to wage forecasts .....	4
2.2 The resultant summary view on wage growth .....	5
3 State economic outlooks .....	8
3.1 Queensland .....	8
3.2 South Australia .....	10
4 The utilities sector economic outlook.....	12
5 The competitor industry economic outlook .....	15
5.1 The mining industry .....	15
5.2 The construction industry .....	17
5.3 Administration services.....	20
6 The national wage outlook .....	22
6.1 The impact of rapid growth on specific sectors .....	22
6.2 The outlook for the CPI .....	35
6.3 The outlook for wage growth .....	37
7 General labour cost growth across States .....	42
7.2 Queensland .....	42
7.3 South Australia .....	43
8 The national outlook for wage growth in the utilities sector .....	45
8.1 Strength in relative wages in the utilities in recent years.....	45
8.2 Weakness in relative productivity in recent years.....	47
8.3 Business cycle developments in the sector and its competitors .....	49
8.4 Supply side factors .....	51
8.5 Comparison with results from enterprise bargaining agreements.....	54
9 The national outlook for wages in competitor industries .....	56
9.1 Mining .....	56
9.2 Construction.....	58
9.3 Administration services.....	61
9.4 Summary results .....	64
10 Utilities and competitor sector wage growth by State .....	65
10.1 National trends .....	65
10.2 Queensland .....	67
10.3 South Australia.....	75
11 Different measures of wage growth .....	84
11.1 The best measure: AWOTE or LPI? .....	86
11.2 The Access Economics view .....	86
11.3 Drawbacks to using the LPI measure .....	89

11.4 EBAs and contract rates .....	92
Appendix A: Some rules of thumb for wage forecasting .....	94
Appendix B: Regional wage variations in Australia .....	96
Appendix C: Macroeconomic and wage forecasting methodology .....	98
Appendix D: LPI sectoral history at the State level .....	108

## Charts

Chart i : Overall Labour Price Index forecasts .....	vii
Chart ii : Productivity growth .....	viii
Chart iii : Utilities Labour Price Index forecasts .....	ix
Chart iv : The utilities LPI relative to the national LPI .....	x
Chart v : Relative utilities sector LPI by State .....	xii
Chart vi : Standard deviation in quarterly wage growth, ten years to June 2010 .....	xiv
Chart vii : Growth in AWOTE and LPI, Australian utilities sector .....	xv
Chart 2.1 : Real (year-to) output growth in the Australian economy .....	2
Chart 2.2 : Real (year-to) output and domestic demand growth in the Australian economy .....	3
Chart 2.3 : Business investment and the unemployment rate .....	4
Chart 2.4 : Australia’s working age population growth .....	7
Chart 3.1 : Queensland output and demand .....	8
Chart 3.2 : Queensland output and population share .....	9
Chart 3.3 : South Australian output and demand .....	10
Chart 3.4 : South Australian output and population share .....	11
Chart 4.1 : Composition of output in the utilities sector .....	12
Chart 4.2 : Utilities output growth .....	13
Chart 5.1 : Mining output growth .....	15
Chart 5.2 : Construction as a share of non-farm employment .....	17
Chart 5.3 : Underlying non-dwelling construction investment .....	19
Chart 5.4 : Construction output growth .....	20
Chart 5.5 : Administration services output growth .....	21
Chart 6.1 : Construction as a share of Australia .....	24
Chart 6.2 : LPI in utilities, construction and mining relative to the national average .....	24
Chart 6.3 : Components of non-residential construction (share of national economy) .....	25
Chart 6.4 : Pipeline of construction work yet to be done .....	26
Chart 6.5 : LPI in Queensland and Western Australia relative to the national average .....	27

Chart 6.6 : Trends in mining LPI .....	28
Chart 6.7 : Utilities LPI relative to national LPI.....	29
Chart 6.8 : Utilities wages relative to national wages (AWOTE) .....	30
Chart 6.9 : The terms of trade – Federal Treasury projections .....	31
Chart 6.10 : Industrial commodity price index, real \$US terms .....	33
Chart 6.11 : Consensus forecasts of longer term changes in mineral prices .....	34
Chart 6.12 : CPI and domestic demand.....	36
Chart 6.13 : Wages and labour costs.....	37
Chart 6.14 : Wages and inflation.....	38
Chart 6.15 : Productivity growth.....	39
Chart 6.16 : Wages and household disposable income .....	39
Chart 6.17 : Real unit labour costs (Index: 2006-07 = 100).....	40
Chart 6.18 : LPI forecast growth.....	40
Chart 7.1 : Queensland general labour cost growth .....	43
Chart 7.2 : South Australia general labour cost growth.....	44
Chart 8.1 : Wage growth nationally and in the utilities .....	45
Chart 8.2 : Utilities LPI relative to national LPI.....	46
Chart 8.3 : Utilities productivity relative to national productivity .....	47
Chart 8.4 : Utilities output and employment as a share of national equivalents .....	48
Chart 8.5 : Trades vacancies.....	50
Chart 8.6 : Professionals and associate professionals vacancies in building and engineering ...	50
Chart 8.7 : Expected retirement rates by sector.....	52
Chart 8.8 : Measures of utilities sector wage growth .....	55
Chart 9.1 : Mining growth forecast .....	56
Chart 9.2 : Measures of mining sector wage growth.....	58
Chart 9.3 : Construction growth forecast.....	59
Chart 9.4 : Measures of construction sector wage growth.....	61
Chart 9.5 : Administration services LPI growth forecast .....	62
Chart 9.6 : Measures of administration services sector wage growth .....	63
Chart 10.1 : Utilities sector LPI forecasts by State .....	65
Chart 10.2 : Relative utilities forecast by State .....	66
Chart 10.3 : Queensland utilities LPI forecasts .....	68
Chart 10.4 : Queensland utilities forecast comparison.....	69
Chart 10.5 : Queensland mining LPI forecasts .....	70

Chart 10.6 : Queensland mining forecast comparison.....	71
Chart 10.7 : Queensland construction LPI forecasts .....	72
Chart 10.8 : Queensland construction forecast comparison .....	73
Chart 10.9 : Queensland administration services LPI forecasts .....	74
Chart 10.10 : Queensland administration services forecast comparison .....	75
Chart 10.11 : South Australian utilities LPI forecasts .....	77
Chart 10.12 : South Australian utilities forecast comparison .....	78
Chart 10.13 : South Australian mining LPI forecasts .....	79
Chart 10.14 : South Australian mining forecast comparison .....	79
Chart 10.15 : South Australian construction LPI forecasts.....	80
Chart 10.16 : South Australian construction forecast comparison .....	81
Chart 10.17 : South Australian administration services LPI forecasts .....	82
Chart 10.18 : South Australian administration services forecast comparison.....	83
Chart 11.1 : Standard deviation in quarterly wage growth, ten years to June 2010.....	87
Chart 11.2 : Growth in AWOTE and LPI, Australian utilities sector.....	88
Chart 11.3 : Yardstick assessment of different wage measures .....	91
Chart B.1 : Western Australian wages relative to national wages.....	97
Chart C.1 : Sample composition chart of sectoral wage drivers (national level) .....	104
Chart C.2 : Sample composition chart of sectoral wage drivers (State level).....	105
Chart C.3 : Growth in productivity – annual methodology vs economic cycle methodology...	106
Chart C.4 : Sample measure of forecast productivity effects .....	107

## Tables

Table i : State LPI forecasts .....	xi
Table ii : Summary results – key variables .....	xvii
Table iii : Summary results – economic variables .....	xvii
Table iv : Summary results – wages and prices.....	xvii
Table v : Summary results – National sectoral wages.....	xviii
Table vi : Summary results – State utilities sector .....	xviii
Table 5.1 : Engineering construction projects (level and change over last year) .....	18
Table 5.2 : Commercial construction projects (level and change over last year) .....	18
Table 6.1 : National wage forecasts .....	41
Table 7.1 : State LPI forecasts .....	42

Table 8.1 : Student participation rate by field of education (16 to 39 year olds).....	51
Table 8.2 : The age profile of selected occupations, 2006.....	53
Table 8.3 : Estimated annual attrition rates from selected occupations.....	54
Table 9.1 : National wage forecasts .....	64
Table 10.1 : Queensland wage forecasts .....	67
Table 10.2 : South Australian wage forecasts .....	76
Table 11.1 : National wage surveys.....	93
Table D.1 : Wage data series availability.....	108

## Executive Summary

### Key conclusions

Wages in the utilities sector have grown faster than the national average for wages over the past decade. That is not because productivity growth in the sector has been strong. In fact, the measured level of productivity fell in recent years. Rather, it is because a commodity boom, which first stirred back in 2003 and, with a brief interruption in 2008-09, is now back at record levels, has driven up the demand for workers in sectors such as mining and construction. As these sectors compete with the utilities sector for some types of skilled labour, that pressure from competitor sectors has been the key driver of relative wage gains in the utilities sector in Australia, including in both Queensland and South Australia.

The last year saw the outlook for those same sectors – mining and construction – firm further. Job growth has been very strong in Australia as a whole and in mining in particular, and job growth in the construction section is projected to see it move from accounting for one in eleven of today's Australian workforce to account for one in ten of all workers in coming years.

The key driver of this rapid employment growth and projections of continuing good gains has been the rapid bounce back in emerging economies such as China and India. Their good growth is underpinning the demand for industrial commodities such as coal and iron ore. That is not merely sending Australian export prices to record highs relative to the prices we pay for imports, it has also unleashed a new round of engineering construction projects which will drive up the demand for labour, with that increase concentrated in those sectors which compete with the utilities for some types of labour.

So the demand for workers has quickened pace, particularly in sectors which compete with the utilities for workers. However, at the same time as the outlook for the demand for labour has lifted, the outlook for the supply of labour has weakened. The skilled migration intake has been cut twice, there has been a tightening in the link between studying in Australia and obtaining permanent residency here being tightened, and the 2010 Federal election saw a shift away from 'Big Australia' towards 'Sustainable Australia'.

Other things equal, that combination of demand and supply developments in labour markets is translating into upward revisions to Access Economics' expectations of wage growth in the next two years, with those gains evident not just in mining and construction, but also evident in sectors who compete for some of the same workers, including the utilities sector itself.

On the other hand, although latest data show wage growth beginning to pick up pace and there is increasing anecdotal evidence of faster gains in wages now being won, the earlier fall-off in the pace of wage growth in Australia was considerable. Hence, although skill shortages are now expected to loom even larger, the difference in projections for wages in general and for those in the utilities sector and its competitors in particular, are not that marked.

Queensland and South Australia have special features which mean their reaction to national skill shortages may be more muted than otherwise:

- South Australia has great potential in resources, but for now its economy is exposed to more of the negatives of Australia's two speed economy than its positives, with challenges for the State's manufacturing sector particularly high. Accordingly, although

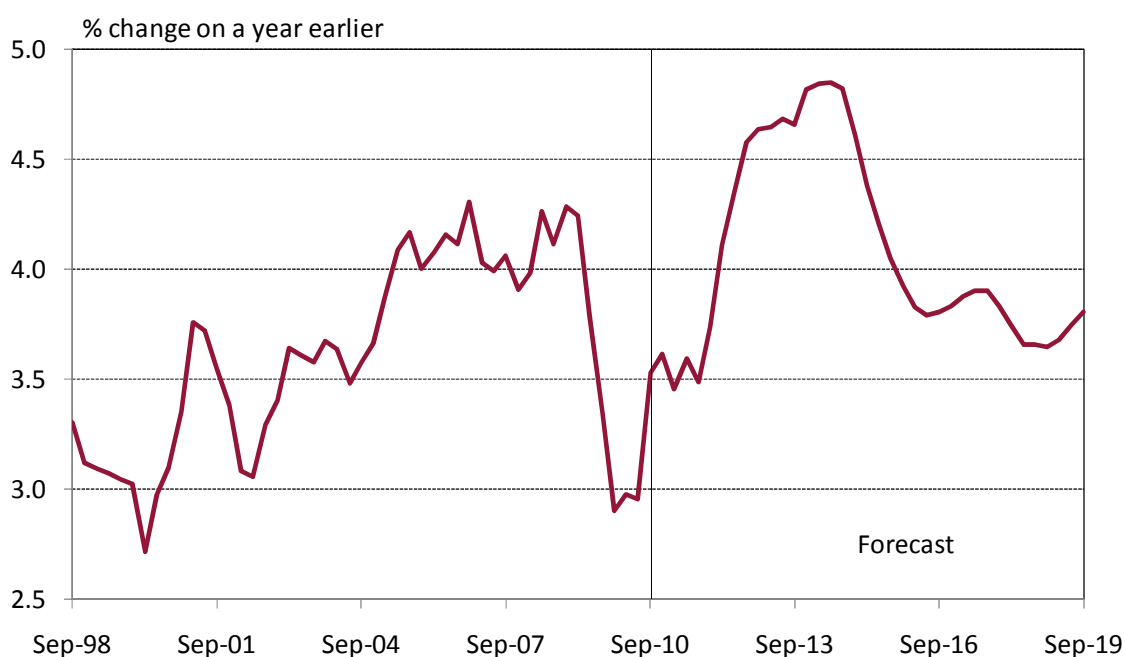
mining and construction are once again set to be major competitors for skilled workers, for many in South Australia that would mean leaving the State to go to WA, the Northern Territory or Queensland to cash in on those opportunities. As the associated 'costs of moving' are far more than just financial, the competitive impact on wages in the utilities sector in the State may be less than it would otherwise have been.

- In contrast, Queensland ranks only behind Western Australia as an epicentre of Australia's resources boom, with recent weeks seeing Federal approval for some large projects base in the State, and with Gladstone in particular set to become a very important resources hub. That said, Queensland suffered more than other States during the global financial crisis, in part as access to finance tightened more in that State than elsewhere. Housing construction (notably apartments) was a particular victim of that, so there is more spare capacity in some of the key skills in Queensland than might have been.

### National wage growth

After the long period of strong expansion in Australia's economy and a gradual acceleration in wage pressures, growth in underlying wage costs (shown in Chart i below) fell back rapidly as the global economy entered a period of uncertainty in late 2008.

**Chart i: Overall Labour Price Index forecasts**



Source: ABS, Access Economics' macroeconomic model

Yet wage growth in Australia has already begun to rebound. In particular, trends in both demand and supply factors in the labour market have changed markedly in the past year. The resilience of emerging economies in general (and those of China and India in particular) means that many of the same demand factors that drove the mining boom from 2006 to mid-2008 are re-emerging.



As Chart i shows, Access Economics sees national wage growth (as measured by the LPI) stabilising at around 3½% per year until the middle of 2011 before accelerating once more through 2012 and 2013.

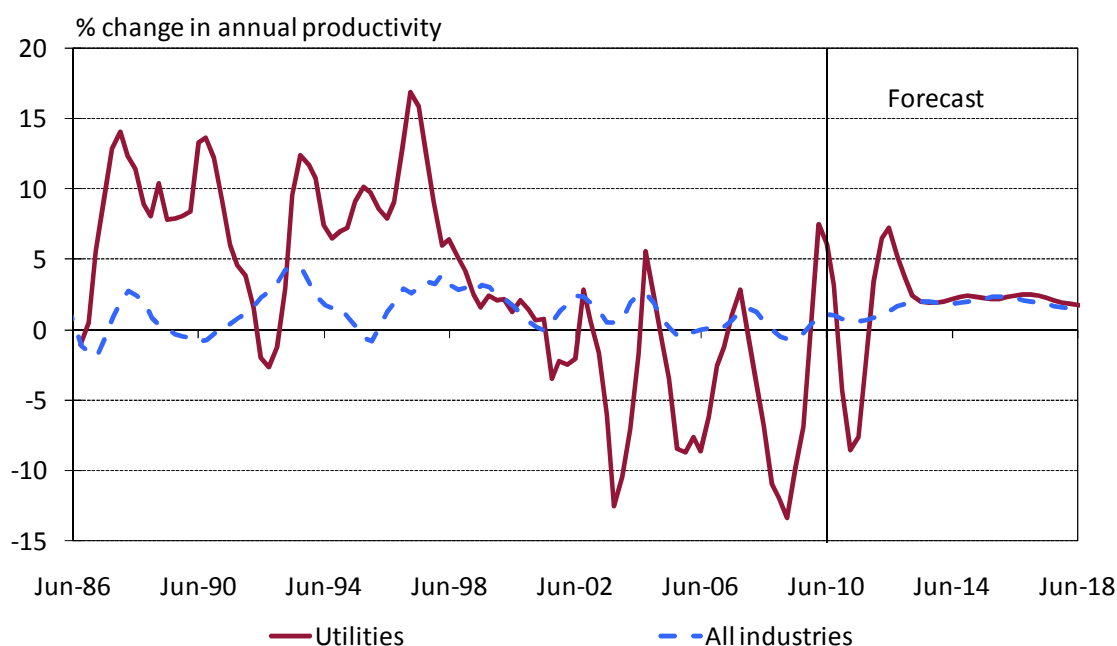
### Trends in national productivity

The February 2010 Federal Treasury *Intergenerational Report* update assumed a long term increase in labour productivity of 1.5% per year:

- This compares with growth in productivity seen in the Australian economy as a whole of 1.3% per year since 1986.
- The comparative figure for the utilities sector over this same period is 3.0% per year – though the latter benefited through to the late 1990s from major reforms associated with competition policy, and has been rather weaker thereafter.

As Chart ii shows, there have been significant differences in growth over time – utilities having seen far more volatility in productivity growth (the first half of the period shown had strong measured productivity growth, but productivity in the utilities weakened more recently). Note also that there are some technical issues involved in measuring labour productivity over an economic cycle. These are discussed in part in Appendix C; see Chart C.3.

**Chart ii: Productivity growth**



Source: ABS, Access Economics’ macroeconomic model

Access Economics’ assumption of productivity growth is stronger in the medium term than it has been in recent years, averaging close to 1.5% per year as boosts to efficiency from the strong levels of business investment begin to be seen across the economy.

As the above chart shows, the utilities sector is projected see a more volatile version of the national trend in the short term. In the longer term productivity growth should average a similar rate to the national, although it may be more volatile from year to year.

That improvement on the recent trend benefits from increased investment in the sector.

### Utilities wage growth

Overall employment growth was very strong across the last decade, but the industries that did best were different to those that excelled in earlier decades. During the years leading up to the ‘tech wreck’ of 2000, growth was strongest in white collar occupations. Indeed, up until that point Australia was somewhat sidelined globally as being reliant on ‘old economy’ industries like mining and agriculture.

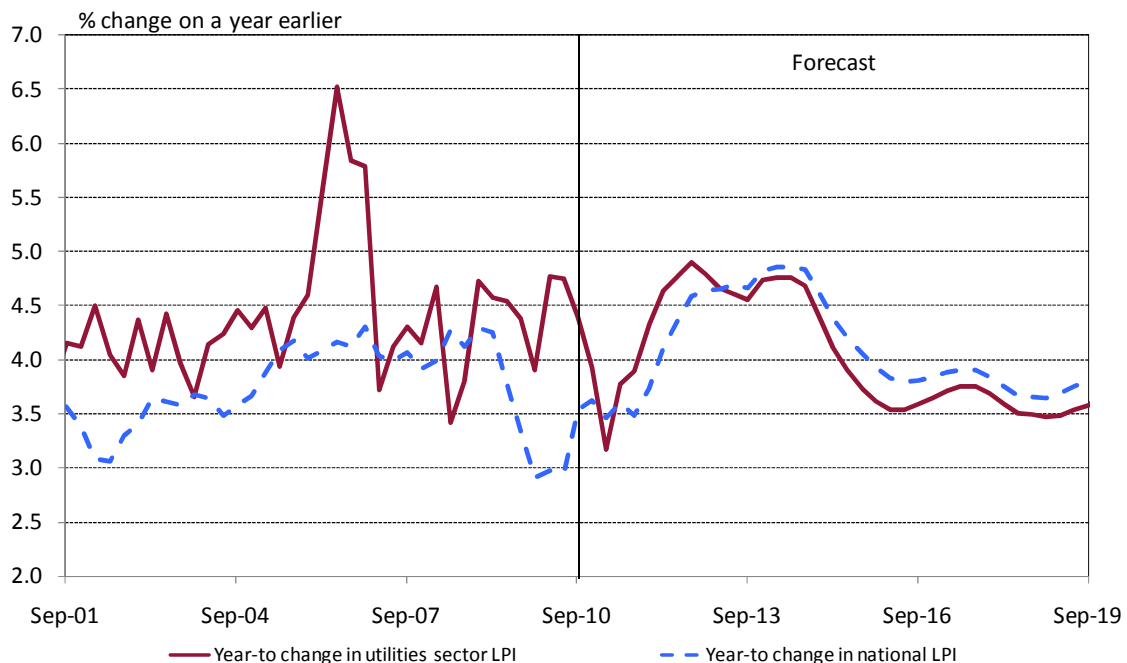
Yet the 2000s saw the return of blue collar employment. That led rapidly to shortfalls in available labour across a range of trades, and very sharp rises in labour ‘prices’ for those industries.

Wage growth was most notable in construction and mining, but soon spread to other sectors (such as utilities) that competed with those sectors for workers.

Similarly, wage growth was strongest in resource States such as Western Australia, Queensland and the Northern Territory.

As Chart iii shows, the decade saw LPI growth in the utilities sector exceed the national average by a large margin.

**Chart iii: Utilities Labour Price Index forecasts**



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

Access Economics is of the view that Australia is entering another phase of resource strength as commodity prices regain their pre-2008 highs and demand from China and India returns.

Chart iii shows LPI growth in the utilities and in Australia as a whole, while Chart iv below shows wages in the utilities relative to national wages.<sup>1</sup> The latter chart shows the strong relative gains in wages in the utilities sector over the decade to early 2006, with the relativity levelling off through 2007 and 2008 before jumping once again in the past year.

**Chart iv: The utilities LPI relative to the national LPI**



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

Chart iv shows that Access Economics projects wages in the utilities will rise further relative to national wages (which are themselves accelerating across this period).

That said, we don't expect the LPI in utilities to outpace the national average by as much in the next few years as it has in the past. In brief, the coming construction boom is again very big, and big booms in demand usually add to relative costs (as was seen in the last boom).

However, permanent shifts in price relativities are rare, because 'the supply side' adjusts – workers shift into those occupations where skill shortages are keenest (and wages are good), while producers here and around the world step up their production of the materials whose prices have risen because they are in short supply (and profits are good).

Moreover, the factor which underpinned both the last boom and the current one – very high prices for Australia's key exports such as coal and iron ore – are also unlikely to be permanent. There are reasons to believe that, even if China and India keep growing fast, the world's miners may dig faster still, bringing commodity prices down, and slowing the long running boom in key Australian sectors as a result. However, we don't expect that latter phase to be evident until 2013.

<sup>1</sup> Note this is an index – it does not mean wage levels are much the same in the utilities as the national average. As noted elsewhere, alternative measures of wage levels (such as average weekly ordinary time earnings, or AWOTE) show wages in the utilities sector around 15% higher than the national average.

## General labour cost growth at the State level

Relative movements at the industry level have been a key driver of relative movements at the State level. Growth in wages was solid across the country, but strength was particularly strong in the 'resource States' of Western Australia, Queensland and the Northern Territory.

**Table i: State LPI forecasts**

### Financial year changes in nominal State Labour Price Index forecasts

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Queensland	3.3	4.1	3.9	4.8	5.0	4.6	4.0	3.9	3.7	3.6
South Australia	2.8	3.6	3.8	4.4	4.6	4.4	3.9	3.8	3.8	3.7

### Financial year changes in real State Labour Price Index forecasts

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Queensland	0.6	0.8	0.8	1.7	2.3	2.0	1.2	1.1	1.2	1.2
South Australia	0.6	0.5	0.7	1.3	2.1	2.0	1.2	1.2	1.5	1.4

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

At the other end of the scale, States such as New South Wales and Victoria saw their wage growth lag behind the national average consistently, with both the compositional effects (relatively more workers in weaker growing industries such as manufacturing) and economic effects (with a slower rate of growth meaning that, for example, local mining wages grew less rapidly than those in Western Australia) contributing to the shortfall.

South Australia, however, found itself caught between these two tendencies. It was forced to compete with Western Australia for workers, pushing wage rates up, but also has a relatively large manufacturing sector, which lowered rates of wage growth in the State. As a result, South Australia's LPI broadly grew in line with the national rate across the decade, although it did see some relative growth increase as the mining boom gathered pace.

Some of those patterns at the State level then unwound following the economic downturn in 2008 – New South Wales in particular improving in relative terms as the construction and mining sectors slowed.

Access Economics expect that they will, however, reassert themselves as the second wave of the resource boom continues.

That is, relative to a national growth rate in wages which is itself accelerating over the next two years:

- Overall LPI growth in States such as Queensland may stay above the national average.
- Some other States, such as South Australia, Tasmania and the ACT – which have seen relatively strong wage growth across the last few years – may lag behind the rest of the nation. Those with relatively large manufacturing sectors may be most affected.
- New South Wales may move closely in line with the national trend as its economy begins to improve its relative performance.

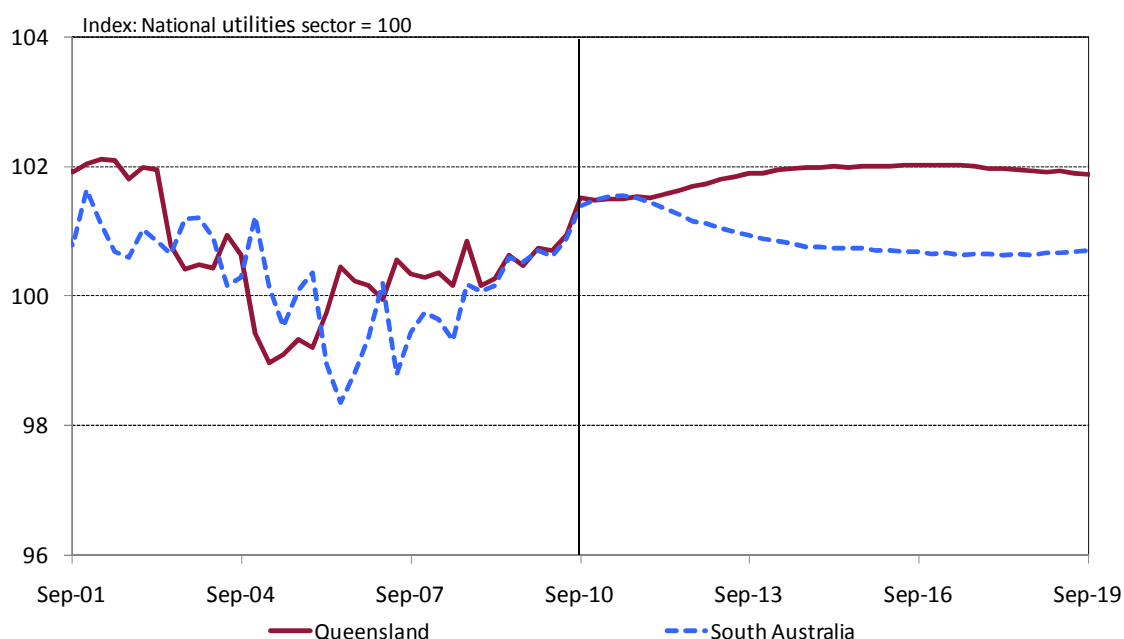
However, just as with the industry differentials, we expect those patterns to be less evident that they were across the last decade. Moreover, as the mining boom levels off from 2013, relative LPI growth rate may tend to equalise, or even unwind as the construction sector cools.

### Utilities wage growth at the State level

There have also been some notable divergences in State relativities in wages in the utilities sector in recent years. For example, and as Chart v shows, South Australian utilities sector wages outpaced the national average by around 2¼ percentage points across the past three years, with a similar outperformance seen in Queensland.

Utilities wage growth (measured by the LPI) has tended to outpace the national average consistently since the series began to be compiled in 1998. However, that growth has not been shared by all States equally, and States have seen different periods of strength in utilities wages.

**Chart v: Relative utilities sector LPI by State**



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

New South Wales was the main driver of relative growth until 2005, with that State's utilities wage growth having lagged the national average since. Increases began to gather pace in Queensland from 2004, with Western Australian and South Australian LPI measures accelerating from around 2006 to the present.

Chart v compares relative movements in State utilities sector LPIs for Queensland and South Australia. Western Australia's relative measure (not analysed in this report) is broadly the same as South Australia's across the historical period.

That chart also shows the projection that, after a short term period of relative stability in relativities, Queensland will build on its recent outperformance while South Australia will lose some ground. That timing and the associated relative movements are driven by the relative strength in the two State economies. After performing relatively poorly (by its strong standards) since 2008, Queensland should return to be a leading source of Australian growth. In contrast, South Australia (which performed relatively strongly across the past five years in particular) is projected to lag in terms of overall economic growth due to its larger manufacturing sector, and relatively slow demographic growth.

While those trends are projected to develop across the medium term, the longer term relativities are quite stable. That reflects the natural limits to the extent or period to which wages and prices can be notably higher or lower in one State or region versus another.

There are a number of reasons for this limit, for example:

- Workers can move between and within States.
- Workers can move to Australia from other nations.
- Permanent and temporary (visa 457) migration may be bureaucratically slow to move, but has the potential to ease a transition period.
- As do shifts by permanent residents (both exiting and returning).
- Shifts by New Zealanders (who face fewer restrictions on migration).
- Shifts in wages see people substitute into growing areas related to their existing skills.
- Shifts in relative wages can delay retirements or exits, and encourage new entrants.
- Shifts in the use of labour due to changes in relative costs (“We’ll use more enrolled nurses and less registered nurses as wages for RNs have risen relative to those for ENs”).

Many of these ‘equilibrating factors’ can be very slow to operate, meaning that divergences in prices and wages across States (and, for that matter, across sectors and occupations within a State) can persist for long periods, as they did during the last resource boom. However, they will tend to narrow over time as these supply and demand factors in labour markets gradually make their presence felt.

Accordingly, the fact that relative wages have diverged in recent years does not mean those moves are permanent. Short term wage growth in the sector at the State level is affected by growth in the sector and in the State, but there is also a longer term trend towards a narrowing of wage relativities.

### **The best measure of wage growth**

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.

The two main series referred to in this report are:

- the **labour price index** (or LPI) excluding bonuses, which is an index measure of the cost of a unit of labour; and
- **average weekly ordinary time earnings** (AWOTE), which is a dollar measure of the average weekly pay to a full-time adult worker for their standard hours of work.

When discussing wage measures, the ABS notes that:

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

*The WPI was first compiled for the September quarter 1997 and is the main ABS measure of changes in wages. The WPI measures quarterly changes over time in the cost to an employer of employing labour, and is unaffected by changes in the quality or quantity of work performed.”*

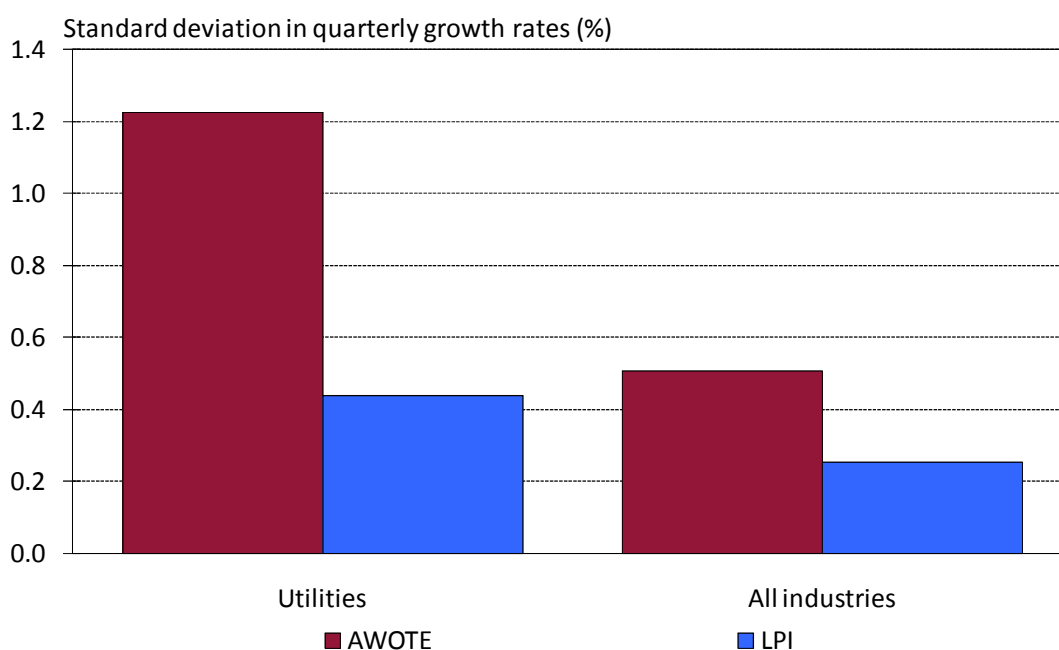
As the above discussion from the ABS suggests, they see the LPI as their preferred measure for “changes in the price of labour”.

That is the task at hand here, and hence the LPI (excluding bonuses) is Access Economics’ preferred measure for this type of analysis.

Indeed, the LPI was originally developed because of the shortcomings of existing wage measures for this type of analysis. For example, AWOTE is affected by shifts in the composition of employment. For example, if a sector employs relatively more high paid full time workers over time (as has happened, for example, in the manufacturing sector as low skilled jobs have been lost to competitors in developing Asia), then that will tend to raise measured AWOTE even if the wage levels for a given level of skill have not changed at all.

Those compositional effects tend to make AWOTE far more volatile than the LPI. Chart vi shows the standard deviation in quarterly growth for AWOTE and LPI in the utilities sector and across all industries over the past decade. The chart shows that AWOTE has been notably more volatile than the LPI over the last decade, and it shows that for a small sector (such as the utilities) the different in volatility is even greater.

**Chart vi: Standard deviation in quarterly wage growth, ten years to June 2010**



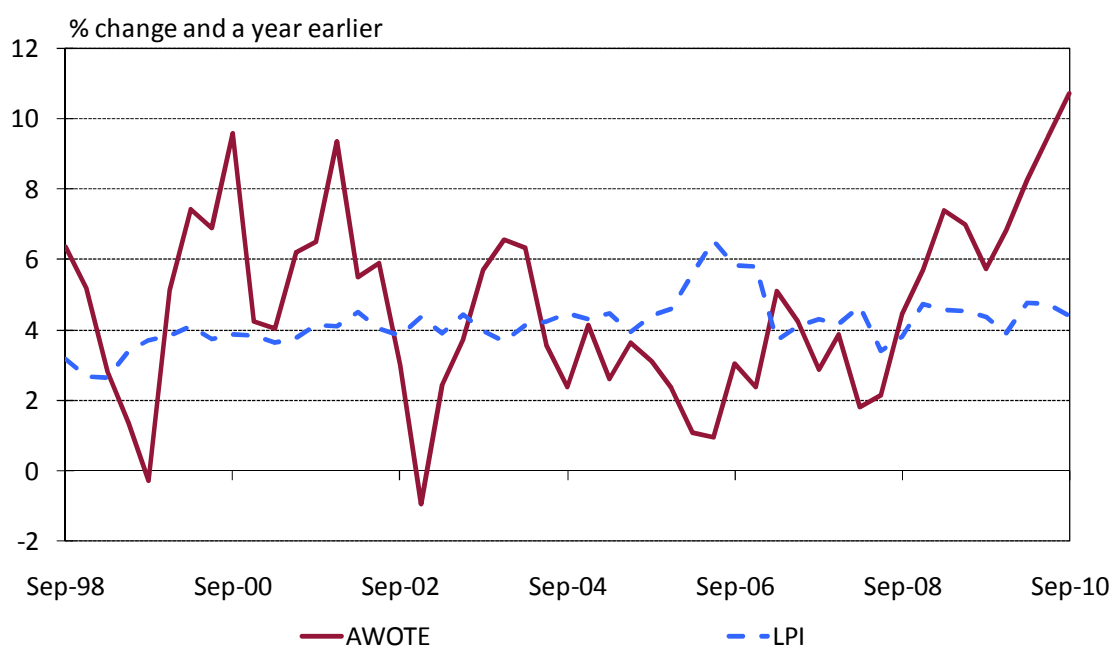
Source: ABS, Access Economics

As the analysis at issue here is not merely at the sectoral level, but at the sectoral by State level, these volatility problems rapidly compound.

These compositional effects and the resultant volatility make AWOTE a poor base for undertaking wage forecasts for the utilities sector. The volatility in the series does not accurately reflect wage outcomes for utilities employees, and can result in starting point (or “jumping off”) problems at the beginning of the forecast period.

The latter point is highlighted by Chart vii below. It shows year-to growth in AWOTE and LPI for the utilities sector.

**Chart vii: Growth in AWOTE and LPI, Australian utilities sector**



Source: ABS, Access Economics

While the greater volatility in the AWOTE series compared to the LPI series is clear, the chart also shows a recent surge in wage growth as measured by AWOTE. Utilities wages grew by 10.7% over the year to August 2010 according to the AWOTE measure – nearly two-and-a-half times the pace recorded by the LPI series.

Few observers are likely to claim that AWOTE is providing a more accurate indicator of recent developments in the cost of labour in the utilities sector.

More broadly, compositional changes arising from the business cycle, changed educational levels, the pace of recruitment and retirement, the degree of outsourcing, changed relativities in the employment of men and women and compositional changes arising from shifts in average hours worked can all distort AWOTE as a proxy for “changes in the price of labour”.

That said, ‘best measure’ is not the same as ‘perfect measure’, and there are also drawbacks to using the LPI:

- First, the LPI is published by State and by sector separately, but not by State and by sector. That is, the LPI for NSW is published, and the mining sector LPI is also published,



however the NSW mining sector LPI is not. The latter data are 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 LPI at the 'by State and by sector' level<sup>2</sup>. 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 LPI 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 LPI (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).

If these compositional effects are occurring, then they should also be having an impact on the productivity of the sector's workforce. That is, the higher skills should mean higher productivity – meaning that if the utilities are choosing to have a higher skilled workforce then, other things equal, that higher skilled workforce should be able to achieve the same output than would otherwise be achieved with fewer (less skilled) workers.

Or, in other words, cost impacts on utilities providers from this treatment of skills in the LPI measure are likely to be more apparent than real.

Moreover, it is worth stressing that this treatment in the LPI applies to skills – not to the much broader measure of 'productivity'. That is, for example, if someone goes on a course and that qualifies them for a pay increment, then the ABS tries to remove the latter from its LPI measure.

However, the ABS makes no matching adjustment for the impact on productivity of workers being able to work with better equipment and/or new technology, or for the impact of productivity from 'working smarter' (such as more efficient organisational arrangements, and entrepreneurial activities).

Hence any such bias is unlikely to be large, and must be balanced against the rather more significant types of problems with AWOTE measures discussed above (and highlighted even at the national level in Chart vi and Chart vii).

## Summary results

Summary tables of results follow.

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<sup>2</sup> See Appendix D.

**Table ii: Summary results – key variables**

<b>Financial year changes in key variables</b>										
<b>Annual % change</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
Output	2.3	3.7	3.6	3.3	2.9	3.0	3.3	3.3	2.9	2.9
Consumer price index	2.3	2.9	3.0	2.9	2.5	2.4	2.7	2.7	2.3	2.3
Labour Price index	3.0	3.6	3.9	4.6	4.8	4.5	3.9	3.9	3.8	3.7
Average weekly earnings	5.3	3.2	4.1	4.9	4.7	4.1	3.0	2.9	2.8	2.7

Source: ABS, Access Economics macroeconomic model

**Table iii: Summary results – economic variables**

<b>Financial year changes in key Economic variables</b>										
<b>Annual % change (unless noted)</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
Consumption										
Private sector	0.9	2.7	3.2	2.9	3.0	2.8	2.5	2.8	3.2	2.8
Public sector	2.8	4.6	2.8	2.3	3.0	2.6	2.6	2.2	2.0	1.8
Private sector investment										
Non-business housing	-1.9	1.7	9.4	12.1	3.1	-4.0	1.6	9.6	5.7	-4.9
Non-business real estate	-15.6	11.1	3.0	11.3	2.6	-3.5	1.7	9.0	5.7	-3.9
Non-residential building	0.4	-15.1	3.4	9.0	1.1	4.7	4.2	1.7	-0.3	-1.0
Engineering construction	17.7	1.9	16.3	20.1	6.5	5.5	1.4	-1.3	-3.3	-3.9
Machinery and equipment	0.3	-3.1	6.0	5.9	-4.4	-0.9	1.0	2.1	1.6	0.9
IP and livestock	7.0	6.8	14.5	10.8	0.2	2.5	2.0	1.0	-0.3	-0.9
Public investment										
General Government	4.0	34.6	11.7	-0.4	-5.1	-3.0	0.4	2.2	1.4	1.0
Public enterprises	24.5	10.8	21.7	7.9	-0.2	2.0	1.7	0.6	-1.3	-2.0
Domestic final demand	1.8	3.3	5.1	4.7	2.1	2.0	2.2	2.8	2.4	1.3
Private sector	1.1	1.6	4.9	5.4	2.4	2.1	2.3	3.0	2.6	1.3
Public sector	4.4	9.5	5.9	2.3	1.2	1.5	2.1	2.1	1.6	1.4
Gross national expenditure	0.9	3.9	6.5	3.6	1.9	1.9	2.2	2.8	2.4	1.2
International trade										
Exports	1.2	1.8	1.5	7.9	9.8	7.4	5.5	1.7	3.6	6.4
Imports	-2.9	5.4	19.0	9.1	3.3	2.5	2.0	-0.4	-0.5	-0.9
Net (% additon to growth)	3.2	-2.4	-3.9	-0.1	1.5	0.6	0.5	0.5	0.9	1.4
Total output (GDP)	1.2	2.3	3.7	3.6	3.3	2.9	3.0	3.3	3.3	2.9
Non farm output	0.9	2.4	3.7	3.7	3.3	2.9	3.0	3.4	3.4	2.9
Employment	1.7	1.2	3.1	2.2	1.3	1.0	0.7	1.1	1.5	1.4
Unemployment rate (%)	4.9	5.5	4.9	4.8	5.2	5.5	5.6	5.6	5.4	5.3

Source: ABS, Access Economics macroeconomic model

**Table iv: Summary results – wages and prices**

<b>Financial year changes in national wage and prices variables</b>										
<b>Annual % change</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
Consumer price index (CPI)	3.1	2.3	2.9	3.0	2.9	2.5	2.4	2.7	2.7	2.3
Labour price index (LPI)										
Nominal	4.1	3.0	3.6	3.9	4.6	4.8	4.5	3.9	3.9	3.8
Real	1.0	0.7	0.6	0.9	1.7	2.2	2.1	1.2	1.1	1.4
Average weekly earnings (AWE)										
Nominal	3.8	5.3	3.2	4.1	4.9	4.7	4.1	3.0	2.9	2.8
Real	0.7	2.9	0.3	1.1	2.0	2.1	1.7	0.3	0.2	0.4
Average weekly ordinary time earnings (AWOTE)										
Nominal	5.6	3.5	4.0	5.1	4.9	4.5	3.5	3.3	3.3	3.4
Real	2.4	1.1	1.1	2.1	1.9	1.9	1.1	0.7	0.6	1.1
Unit labour costs										
Nominal	-0.2	2.7	1.3	3.0	3.8	2.7	2.2	2.5	2.6	1.6
Real	-3.3	0.3	-1.6	0.0	0.9	0.2	-0.2	-0.2	-0.1	-0.7

Source: ABS, Access Economics macroeconomic model

**Table v: Summary results – National sectoral wages**

**Financial year changes in nominal national industry sector LPI**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	4.1	3.0	3.6	3.9	4.6	4.8	4.5	3.9	3.9	3.8
Utilities	4.4	4.5	3.8	4.4	4.7	4.7	4.3	3.6	3.7	3.6
Mining	5.7	3.6	3.7	4.5	4.8	5.2	5.0	4.1	3.9	4.1
Construction	4.6	3.2	4.2	4.7	5.0	4.8	4.6	3.8	3.3	3.4
Administration services	4.2	2.2	3.7	3.2	3.8	4.1	3.8	3.4	3.6	3.5

Source: ABS, Access Economics labour cost model

**Table vi: Summary results – State utilities sector**

**Financial year changes in nominal utilities sector LPI**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
National	4.4	4.5	3.8	4.4	4.7	4.7	4.3	3.6	3.7	3.6
Queensland	4.6	4.7	4.6	4.5	4.9	4.9	4.3	3.6	3.7	3.6
South Australia	5.2	4.9	4.6	4.3	4.4	4.5	4.1	3.6	3.6	3.6

Source: ABS, Access Economics labour cost model

**Access Economics**  
**13 December 2010**

## 1 Background

The Australian Energy Regulator (AER) commissioned Access Economics to provide forecasts for labour costs growth for the electricity, gas, water and waste services (utilities) industry to 2017-18 for Queensland and South Australia, as well as for Australia as a whole.

Specifically, AER requested:

- A comparative analysis of forecast labour costs for the utilities industry across States;
- A comparative analysis of forecast labour costs for the utilities industry with other industries that compete for utilities workers (mining, construction and administration services);
- A comparison of the forecasts of general labour cost growth across States; and
- How market conditions are expected to affect the labour forecasts.

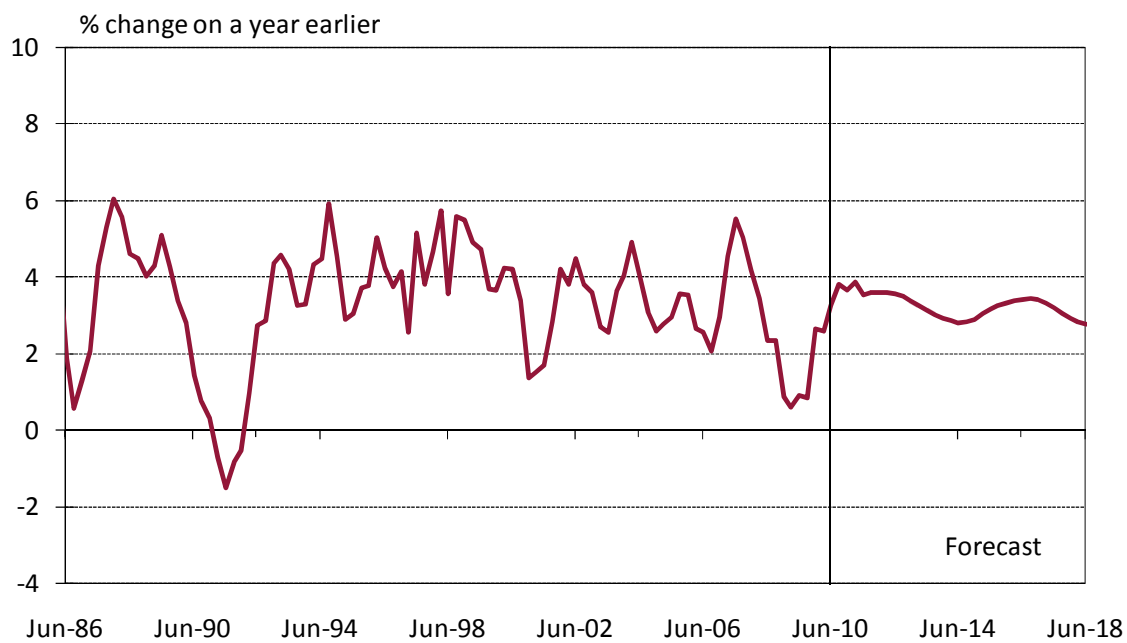
Access Economics' report:

- **Discusses the economic outlook**, starting with Australia as a whole (see Chapter 2), then looking at the States (see Chapter 3), and then at the utilities sector (see Chapter 4) as well as sectors which compete with the utilities sector for workers (mining, construction and administration services – see Chapter 5).
- **Discusses the outlook for wages**, starting with Australia as a whole (see Chapter 6, which also discusses the related outlook for prices), followed by **overall rates of LPI growth at the State level** (see Chapter 7), and then an examination of wage growth in Australia's utilities sector (see Chapter 8), as well as wage growth in those sectors which compete with the utilities sector for workers (mining, construction and administration services – see Chapter 9).
- The report then discusses **detailed forecasts at the State level of wage growth in the utilities and competitor industries** (see Chapter 10).
- Chapter 11 considers **the debate over 'the best' measure of labour costs**.
- **The Appendices** cover regional wage and price variations, as well as an outline of the methodology used in the Access Economics macro model and the Access Economics wage model, a discussion of different wage measures, and a discussion of data sources and derivation.

## 2 The Australian economic outlook

Although Australia's recovery from the recent slowdown is continuing and is expected to strengthen (see Chart 2.1), the challenges to our outlook continue to rise.

**Chart 2.1: Real (year-to) output growth in the Australian economy**



Source: ABS, Access Economics' macroeconomic model

The global question marks are best known, with the rich world still stuck in a sub-par recovery, and little short term improvement on the horizon.

Yet it is not the global challenges to Australia's recovery which currently loom largest. That is as China – with all its faults and risks – continues to grow rapidly, and hence continues to underpin magnificent industrial commodity prices. So, not only is the central view of Australia's future: "While China is fine, Australia is fine", but our view is that, for now at least, China remains fine.

That is not to say we don't see China-related risks.

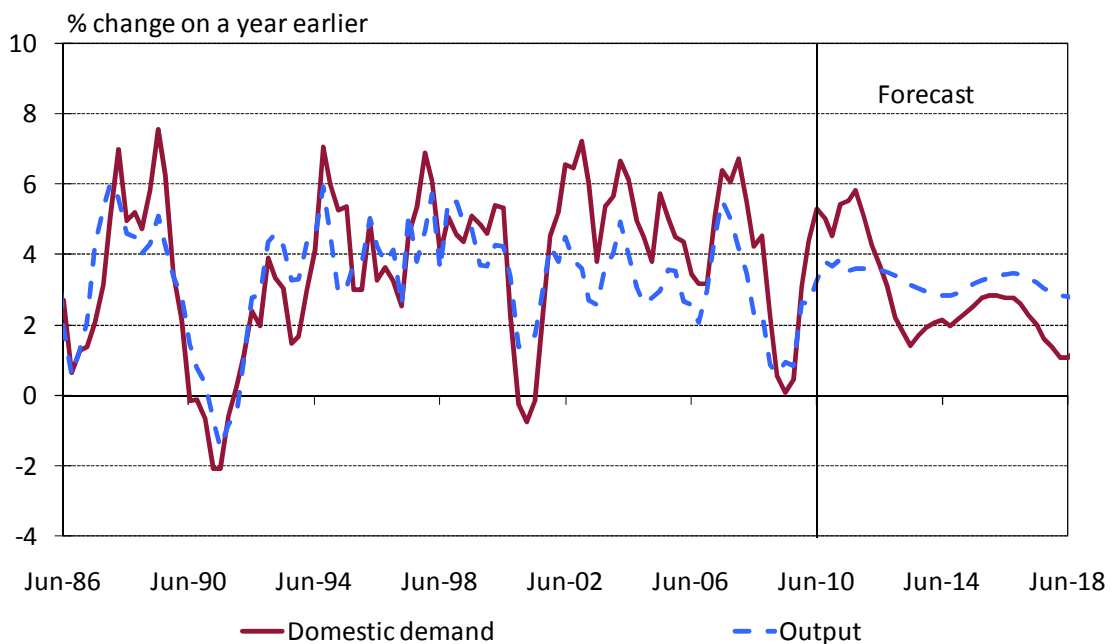
China's growth continues to slow, but so far to sustainable rates rather than to worrying lows as stimulus runs its course and the earlier surge of cheap money gets pegged back (especially credit flows to new apartment buildings). That said, developments in China continue to bear a close watch – although the slowdown to date is much needed, it has already spooked some of the authorities, with rumblings of the need to renew stimulus. Let's hope those calls get ignored, as this is still an economy showing notable signs of imbalances – even in a nation with superb underlying fundamentals, a big backlog of empty apartments and too-high housing prices are key concerns.

China's pace of construction growth is dropping as a result, but that's a good thing for sustainability (and provides a dose of reality to industrial commodity markets into the bargain).

On balance, Access Economics thinks that China’s positives for Australia will continue to outweigh the negatives from the rest of the globe.

Rather, our short term concerns revolve around the domestic drivers of growth (and hence the strength of the recovery in domestic demand seen in Chart 2.2). In a nutshell, consumers remain cautious, the housing construction recovery continues to be delayed, and so too does the recovery in the pace of spending by businesses. At the same time government stimulus is already winding down, even if delays in delivery mean that Federal stimulus will keep lingering longer than originally planned.

**Chart 2.2: Real (year-to) output and domestic demand growth in the Australian economy**



Source: ABS, Access Economics’ macroeconomic model

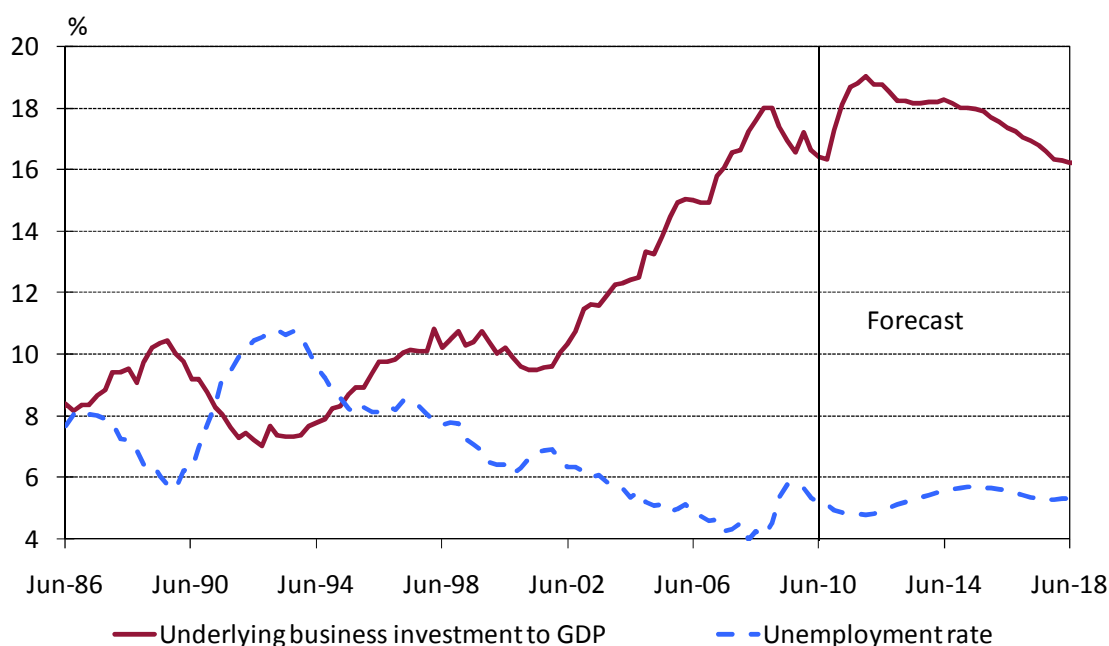
Those factors are worth teasing out to assess whether they will leave Australia’s recovery running on empty – a problem currently faced by many of our peers:

- **First**, consumer spending in Australia is limping into the recovery. Much of that weakness was expected given that the stimulus (rate cuts and the cash splash) were clearly of particular benefit to retail, meaning that 2010 was always going to suffer from stimulus withdrawal. However, survey evidence and retailer contacts suggest consumer caution reflects not merely stimulus withdrawal, but also a deliberate attempt by families to boost their saving rates – a trend also evident among other rich nations.
- **Second**, although Australia has too few homes for our population, the resultant boost to housing activity from demographic drivers has been undercut by a round of interest rate increases, by the withdrawal of top up government grants to first home owners, and by the chronic drag from inadequate land release and the level and structure of developer charges. That has left leading indicators looking worse rather than better, delaying and limiting what should have been a fillip to growth prospects from housing construction.
- **Third**, the news is good on the expected recovery in spending by businesses in Australia, with the latter expected to once again scale impressive highs over the next few years (a

picture seen in Chart 2.3). However, the coming recovery is lopsided (very dependent on a handful of mega-projects, raising the risk that delays in key projects could prove big enough to hurt Australia’s recovery). In addition, the uncertainty generated by minority government will also weigh on the recovery in business investment, so we have pushed back the expected timing of what will still be a very strong upswing.

- **Fourth**, school halls and public housing are being built slower than hoped – meaning stimulus spending is lingering for longer. Even so, stimulus effects have already peaked, and will start to be a drag on growth.

**Chart 2.3: Business investment and the unemployment rate**



Source: ABS, Access Economics’ macroeconomic model

Yet Access Economics still sees Australia’s economic recovery continuing to strengthen in the next year or so. Even allowing for all those negatives noted above, private demand is lifting, showing a willingness to take the baton of growth from public stimulus. That will keep Australia near the front of the pack among the rich nations. Globally, China remains the key for Australia’s outlook. Although Access Economics continues to see that as being good news for us in the short term, it needs to be stressed that Australia’s vulnerability to bad news out of China is already rather larger than our vulnerability to the United States ever was.

That means Australia’s continuing recovery is increasingly dependent on business spending. To the extent that developments turn out better or worse than the trajectory traced in Chart 2.3, the fortunes of the wider Australian economy will follow suit.

## 2.1 The changing macro backdrop to wage forecasts

The outlook for wage growth in Australia has been picking up pace amid developments through 2010 to date. This year has seen:

- Faster than expected job growth on the one hand (aided by the strength of industrial commodity prices which has underpinned a resurgence in mining and construction in Australia), and
- A winding back in the pace of working age population growth on the other hand (as changes to the link between studying in Australia and obtaining permanent residency here being tightened, and as the 2010 Federal election saw a shift away from 'Big Australia' towards 'Sustainable Australia').

So job demand has been stronger than expected (and is set to remain solid in the short term), while the availability of workers now looks like being weaker than expected.

Other things equal, that combination of demand and supply developments in labour markets is translating into upward revisions to Access Economics' expectations of wage growth in the next two years, with those gains evident not just in mining and construction, but also evident in sectors who compete for some of the same workers, including the utilities sector itself.

On the other hand, although latest data show wage growth beginning to pick up pace and there is increasing anecdotal evidence of faster gains in wages now being won, the earlier fall-off in the pace of wage growth in Australia was considerable. Hence, although skill shortages are now expected to loom even larger, the difference in projections for wages in general and for those in the utilities sector and its competitors in particular, are not that marked.

It is also worth noting that the two States of interest in this report – Queensland and South Australia – have special features which mean their reaction to national skill shortages may be more muted than otherwise:

- South Australia has great potential in resources, but for now its economy is exposed to more of the negatives of Australia's two speed economy than its positives, with challenges for the State's manufacturing sector particularly high. Accordingly, although mining and construction are once again set to be major competitors for skilled workers, for many in South Australia that would mean leaving the State to go to Western Australia, the Northern Territory or Queensland to cash in on those opportunities. As the associated 'costs of moving' are far more than just financial, the competitive impact on wages in the utilities sector in the State may be less than it would otherwise have been.
- In contrast, Queensland ranks only behind Western Australia as an epicentre of Australia's resources boom, with recent weeks seeing Federal approval for some large projects base in the State, and with Gladstone in particular set to become a very important resources hub. That said, Queensland suffered more than other States during the global financial crisis, in part as access to finance tightened more in that State than elsewhere. Housing construction (notably apartments) was a particular victim of that, so there is more spare capacity in some of the key skills in Queensland than might have otherwise been expected.

## 2.2 The resultant summary view on wage growth

It is important to note that Australia's problems are about to revolve around a lack of supply rather than a lack of demand. To quote Treasury Secretary Ken Henry, 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. 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."*

He said that back in 2007, at a time when Australia was struggling to rise to the challenge of the first phase of the resources boom. Income and employment were leaping, but so too were skill shortages, while wage and price inflation were on the rise.

The latter had to be doused by higher interest rates. Simply put, demand had risen too fast for supply to cope, and the boom was spilling over from growth-related positives into a bunch of price-related negatives.

Then the global financial crisis came along, and the resultant cut to demand meant skill shortages lessened, wage and price inflation fell, and interest rates tumbled.

However, now Australia is back amid what the Treasurer has dubbed 'Resources Boom Mark 2'. Incomes are leaping higher than they did in the two years to mid-2008, and job growth over the past year has been even faster than the surging gains recorded in the first phase of the boom.

Yet there will be one important difference in the second round of the boom. In the past three decades Australia's working age population – those aged 15 to 64, a handy proxy for those available to work – grew by an average of 180,000 people per year. However, there was a matching boom in migration during the first phase of the resource boom, and working age population growth kicked up, meaning Australia added almost 330,000 potential workers through 2008.

If we hadn't done so, then inflation and interest rates would have had to go even higher still. Yet even with that supply side surge, Australia was fast running out of workers. By early 2008 the unemployment rate was down to 4.0%, skill shortages were worsening fast, and the Reserve Bank was lifting interest rates so as to rein inflation back in.

This time around the dollars are even bigger and the job gains have been even larger, yet working age population is amid a sharp slowdown.

The demand for workers is rising rapidly, but the supply of them soon won't be.

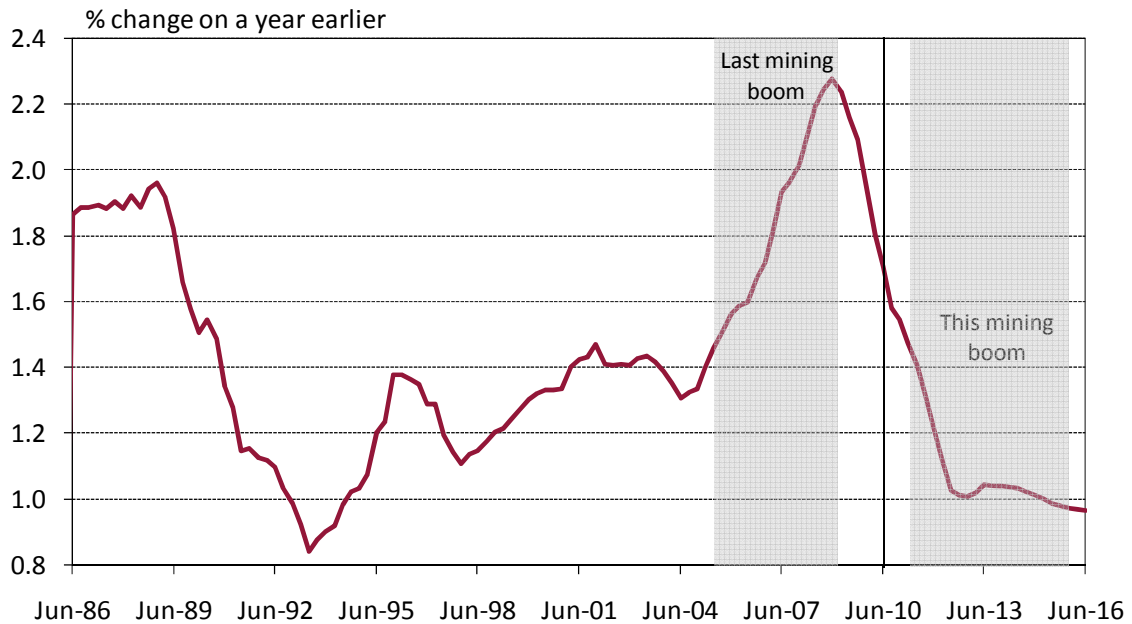
There are two key reasons – one due to policy, and one due to demographics:

- First, the Government cut the migrant intake through the crisis, following that up with changes that loosened the link between studying in Australia and getting permanent residency here.
- Second, many boomers put off retirement through the financial crisis as their superannuation nest eggs took a battering. However, those who delayed retirement are now about to go, and that will be doubling up with what would have already been a pick up in retirement by the boomers as more of them reach retirement age.

That means Australia faces Resources Boom Mark 2 (and its demand for workers) at the same time as worker supply will tighten. Working age population gains will slow from the peak of an

extra 300,000 potential workers in 2008 to projected gains of 230,000 in 2010, 190,000 in 2011 and just 160,000 in 2012 (see Chart 2.4).

**Chart 2.4: Australia's working age population growth**



Source: ABS, Access Economics' macroeconomic model

The pick up in wage gains now underway is occurring not merely due to lower unemployment and rapid employment gains, but also to pressures to 'catch up' to wage increases foregone in late 2008 and in 2009.

Access Economics expects wage growth in Australia to lift over the next couple of years, with labour demand solid (amid continuing recovery and good gains in profits) and its supply modest (due to rising retirements and falling migrant numbers), as well as with wage growth recently having been weaker than the fundamentals might otherwise have suggested.

That said, the recovery remains sufficiently patchy that overall wage growth is likely to return to the 4% range relatively slowly, reaching that threshold in early 2012 rather than before then.

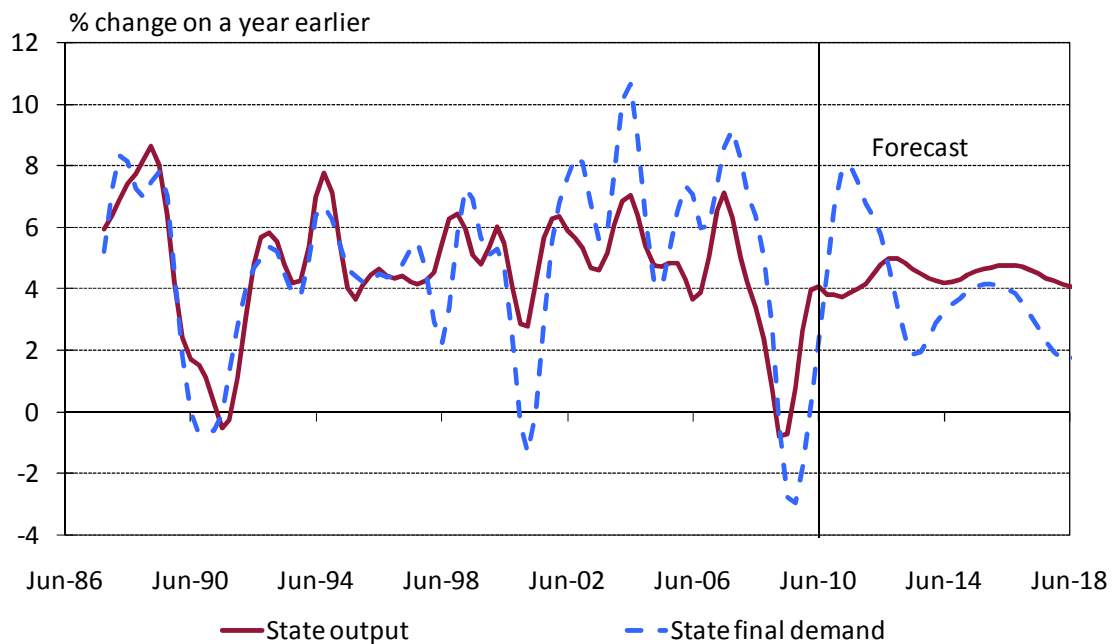
### 3 State economic outlooks

Current economic developments are different implications across different parts of Australia. Both Queensland and the Northern Territory may be slow off the mark in this cycle, but there is no mistaking the enormous momentum building up in the ‘sunbelt States’ (and already very evident in Western Australia) as the Resource Boom Mark II hits its straps. As usual, that comes with a strong \$A and rising interest rates, a backdrop which brings less joy to New South Wales, Victoria and South Australia.

#### 3.1 Queensland

The worst is over for Queensland. As Chart 3.1 shows, output growth is already in recovery mode. However, demand is still sluggish, and that’s not a surprise – this is a State whose slowdown was notable in a nation which otherwise avoided bigger problems through the global financial crisis, and a State whose recovery to date has been lethargic – or, at least, modest given Queensland’s longstanding reputation as a sprinter into any recovery phase.

**Chart 3.1: Queensland output and demand**



Source: ABS, Access Economics’ macroeconomic model

There’s no such rapid growth this time despite the excellent growth in emerging economies which, other things equal, should be wind beneath Queensland’s wings.

The reasons for these problems have been well canvassed. In brief, credit is more constrained in Queensland than in other States, a legacy from its history of relying less on the big four banks. That history came back to haunt the State (and especially its property developers) when the global crisis and the domestic policy reaction to it suddenly meant that the big four were the only game in town.

The end result is that the pace of housing construction in Queensland fell far and fast, as the State suddenly found itself in competition with NSW for the bottom rung of the State league ladder on measures of the health of housing construction.

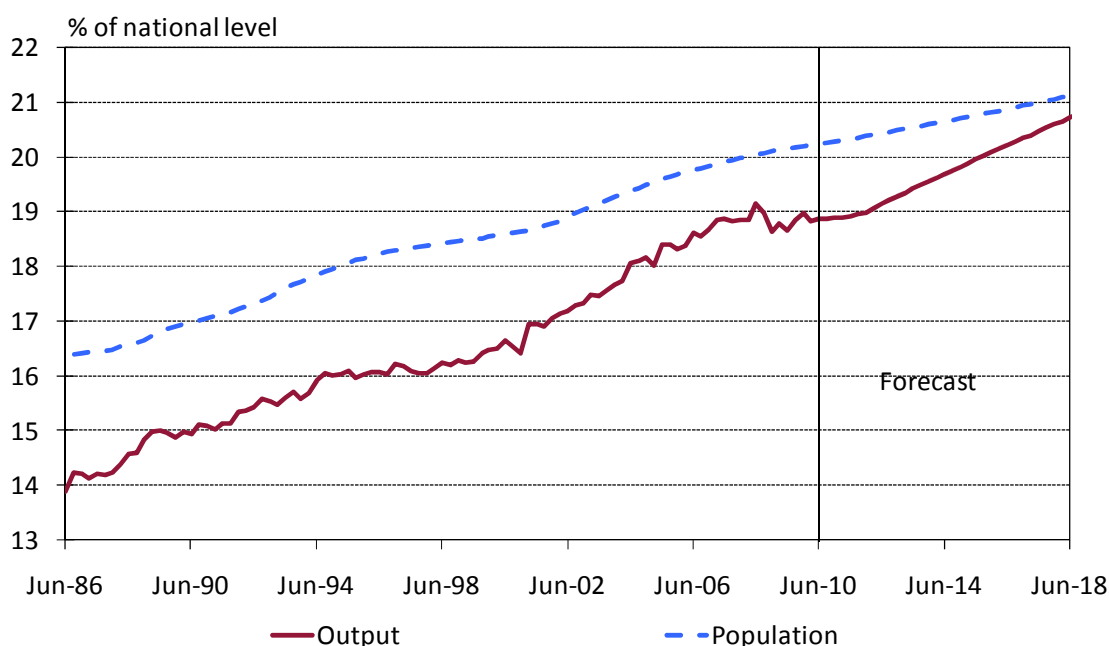
In turn, the poor pace of building new homes and renovating old ones did what it usually does – it had an echo in the tills of retailers. Queensland’s retail turnover growth went from outperforming the nation in 2008-09 to going nowhere at all in 2009-10, and falling notably short of national gains in the latter year in the process.

There were other problems too, as land release failed to keep pace with population growth and developer charges got jacked ever higher. That meant Queensland’s housing prices rose very fast, undercutting its affordability as a destination for those moving from other States and other nations. The upshot of that was not merely that population growth in Queensland has fallen away, but the gap above national rates is close to the worst in more than two decades.

Then there’s the \$A, which cut visitor numbers to Queensland in general, and to the Gold Coast, the Whitsundays and far north Queensland in particular. Not all the damage from that is yet fully evident, with room occupancy rates in Queensland – which were above national rates until the global crisis worsened in late 2008 – now well below national rates (and still falling, whereas national rates are rising).

And, with all those other negatives, the pace of spending by businesses also fell away. So the State’s recent weakness was no surprise, and elements of it will linger – including the short term impact of Federal stimulus withdrawal. Yet most of these problems are more likely to be temporary rather than permanent. It is true that some of them – such as the pace of land release and the level of developer charges – aren’t likely to disappear fast. However, chances are the pace of housing construction in the State will strengthen anyway, dragging retail along behind it, while chances are too that the continuing credit crunch will fade as a negative.

**Chart 3.2: Queensland output and population share**



Source: ABS, Access Economics’ macroeconomic model

That will leave behind one very large positive in particular. We don't think that commodity prices will stay this high forever. However, we do think they'll stay high a while longer at least, and that the global hunger for Queensland's resource riches (everything from today's coal to the State's considerable coal seam gas potential) will only strengthen over time.

Accordingly, Chart 3.2 shows good gains over time, starting in rising engineering and housing construction work, but continuing over time given that Queensland is on the right side of the global industrial revolution. Although it will take a year to reassert itself as a trend, Queensland is expected to once again carve out a growing share of Australia's economy and population over the longer term.

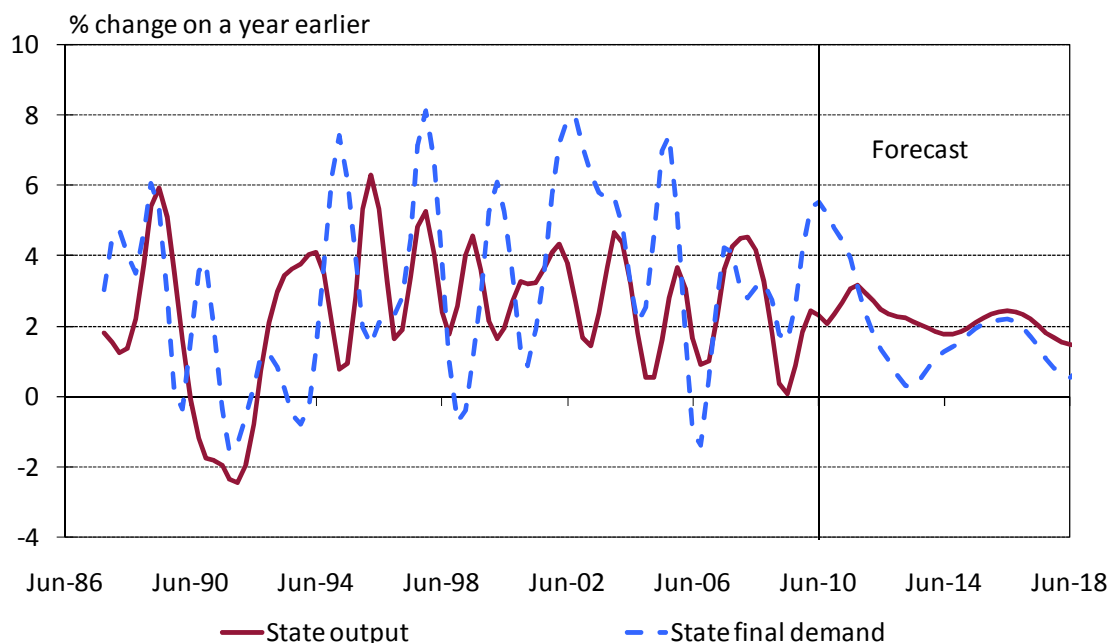
### 3.2 South Australia

South Australia has the potential to be a big player in global resource markets. The expansion at Olympic Dam – if it goes ahead – would turn it into the largest mine in the world, while the State also has a bunch of other potential projects.

However, 'potential' is the key word here. Despite the good news of manufacturers such as Holden and Futuris hiring rather than firing, South Australia's reliance on and vulnerability to manufacturing is evident today whereas its resource potential is not yet here.

Moreover, the short term threats to the State don't merely reside in its manufacturers being on the wrong side of interest and exchange rates that play to the strengths of importers rather than domestic producers. Yes, that is indeed an important risk to carmakers and wineries. But so too is a hung parliament to South Australia's large defence contracts. Federal Treasury made it clear in its incoming briefs to the new Federal Government that 'buying local' is an expensive solution to Australia's defence needs.

**Chart 3.3: South Australian output and demand**



Source: ABS, Access Economics' macroeconomic model

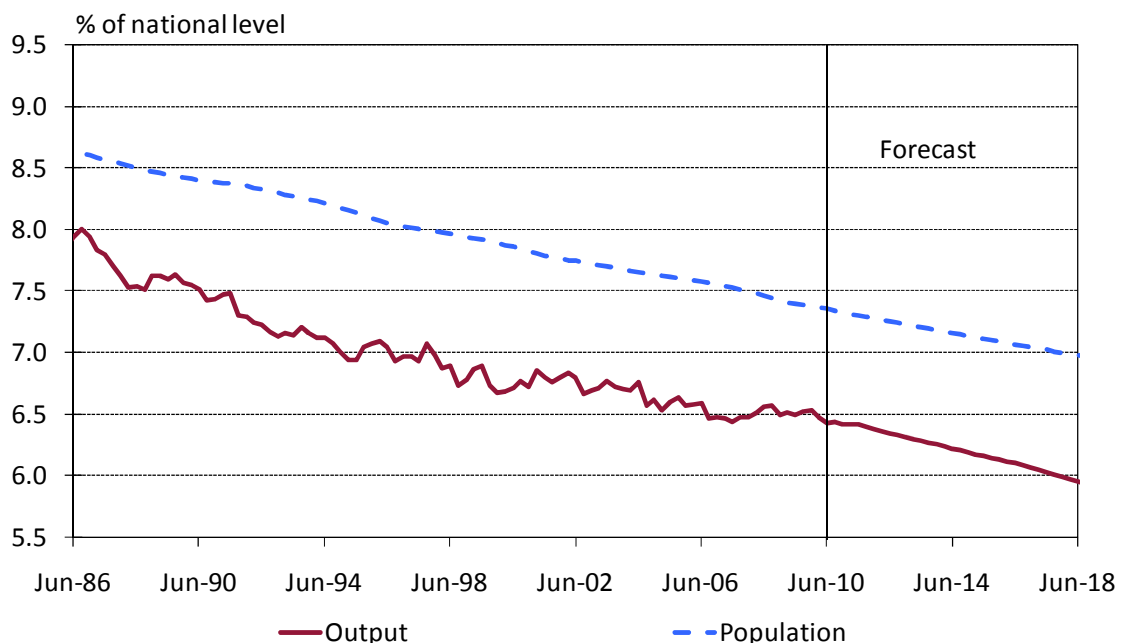
More broadly, South Australia was a particular beneficiary of Federal stimulus, picking up a solid share of both school building and public housing. That has helped underpin the State’s growth over the past year – but will also pose a risk to growth as that stimulus spending runs its course. In addition, the State Government’s response to the report of its Sustainable Budget Commission is also likely to generate restraint in public spending in coming years.

Add in the short term shock to foreign student numbers now starting to become apparent and a realisation that farmers on the east coast are having a better year than those in South Australia (in part farm output won’t lift much in 2010-11 as it made such impressive gains in 2009-10), and the State’s growth outlook seen in Chart 3.3 above is solid rather than sterling.

That is due to the gap between resource potential down the track versus the vulnerabilities that are already evident today. Moreover, and despite the fact that we do see South Australia carving out a greater share of Australia’s resource sector over time, we think that the local sector runs the risk of hitting its straps when industrial commodity prices have dropped off today’s highs. That means that, although resource development will be a long term positive for South Australia, it is not seen as likely to reverse or even substantially staunch the relative loss of market share in population and output that is tracked in Chart 3.4 below.

That said, recovery is already here, and it is set to continue. The State will get a short term boost to its output now that Olympic Dam has returned to full capacity and that both Prominent Hill and Cairn Hill are starting up. And population growth may be well below national rates, but South Australia is holding its own in terms of population gains at a time when they are already slowing across Australia as a whole. Although there are rising challenges to continuing solid population growth in the State, it is a case of ‘so far, so good’.

**Chart 3.4: South Australian output and population share**



Source: ABS, Access Economics’ macroeconomic model

## 4 The utilities sector economic outlook

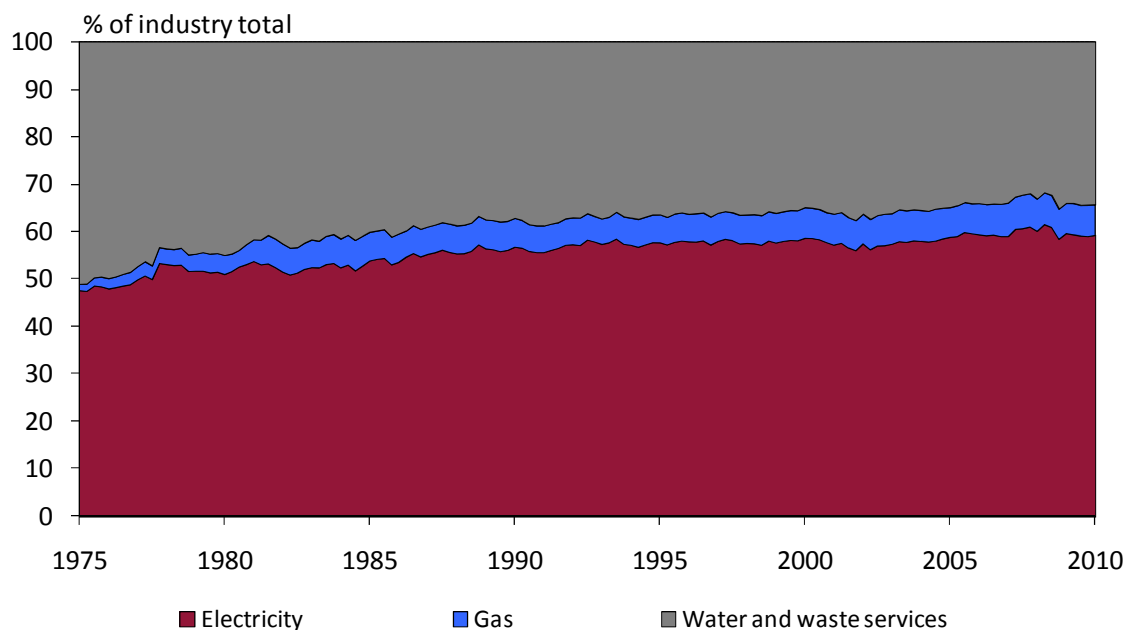
The utilities sector (technically the electricity, gas, water and waste services industry, which is division D of the Australian and New Zealand Standard Industrial Classification, Revision 1.0 of 2006) covers economic units engaged in the provision of:

- electricity;
- gas through mains systems;
- water;
- drainage; and
- sewage services.

This sector buys inputs from sectors such as mining, manufacturing and property and business services, and – reflecting the nature of its products – sells its output to a wide base of business sectors and to residential users.

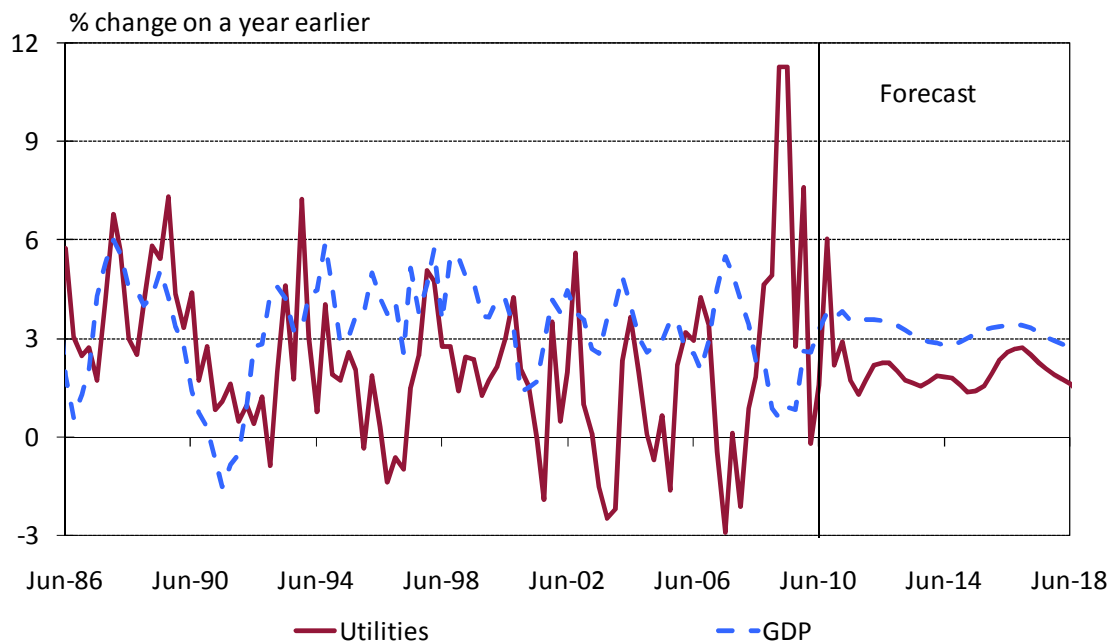
It saw a series of reforms starting in the mid-1980s and going through until more recently. Those reforms revolutionised and revitalised the sector, leading to a sharp gain in productivity (though, as discussed in Chapter 8 below, that was partly unwound again in recent years).

**Chart 4.1: Composition of output in the utilities sector**



Source: ABS

There has been a gradual compositional shift in the output of the sector, with a series of east coast droughts weighing on the relative size of the water sector, while industrial, technological and other developments have seen relative increases in the size of the electricity and gas components of this sector.

**Chart 4.2: Utilities output growth**

Source: ABS, Access Economics' macroeconomic model

As Chart 4.2 shows, the utilities sector recently saw faster output growth than it has managed in some years. There were a number of reasons for that period of faster growth (including rapid population growth), but perhaps the main one is that the public sector found itself on the wrong side of voter displeasure as a long period of under-investment in Australia's urban infrastructure led to increasing frustration with services.

Although the timing and the nature of the recent lift in output varied from State to State, there was a greater willingness to spend on desalination plants and dams in the water sector, and on generation and distribution capacity in the electricity sector.

However, the boost to the supply side capacity of the sector began when State Governments and their Federal funders had rather more money than they do today. Moreover, population growth is fading, while the pace of new housing construction starts, which had picked up earlier in 2010, is now dropping back once more.

That combination underpins the relatively modest outlook.

However, so too does the lack of a carbon pricing policy in Australia. Although the public sector saw its hand forced on spending up on new supply, the private sector is naturally rather more wary. The public sector is assisting indirectly by ratifying large price increases, but there is still no certainty for the policy regime which will apply to these expensive and long-lived assets. No wonder the private sector is being cautious.

Turning to the short term economic outlook, discussions over what policies are the best to pursue in the age of climate change continue. As is not unusual under minority governments, it is those outside of politics who are championing action. BHP's Marius Kloppers may have helped break the logjam on carbon pricing in Australia. Certainly a carbon tax, while theoretically less pure, has advantages. Not least of these is that businesses understand taxes better than they understand trading schemes.



The electricity sector (essentially its coal burning part) generates half of our greenhouse gas emissions. It can therefore expect to be affected by carbon policy at some stage. Not surprisingly therefore, it has been less than keen to invest in new capacity and more than keen to lift prices on the expectation that, sooner or later, capacity is going to have to play catch up. That means consumers are already having higher prices while businesses are still suffering under extreme uncertainty. That's why it's to be hoped that Australia settles some sort of carbon price soon – this is a sector in need of an investment framework.

## 5 The competitor industry economic outlook

Individual sectors can be expected to see their wage cycles differ from the average:

- Longer term wage outcomes by occupation and by sector reflect developments in labour productivity and inflation.
- Shorter term outcomes also reflect the pace of demand and the availability of supply among relevant types of skilled labour.

This chapter discusses the industries which compete most heavily for labour with the utilities sector – the mining and construction sectors – as well as the administration services sector.

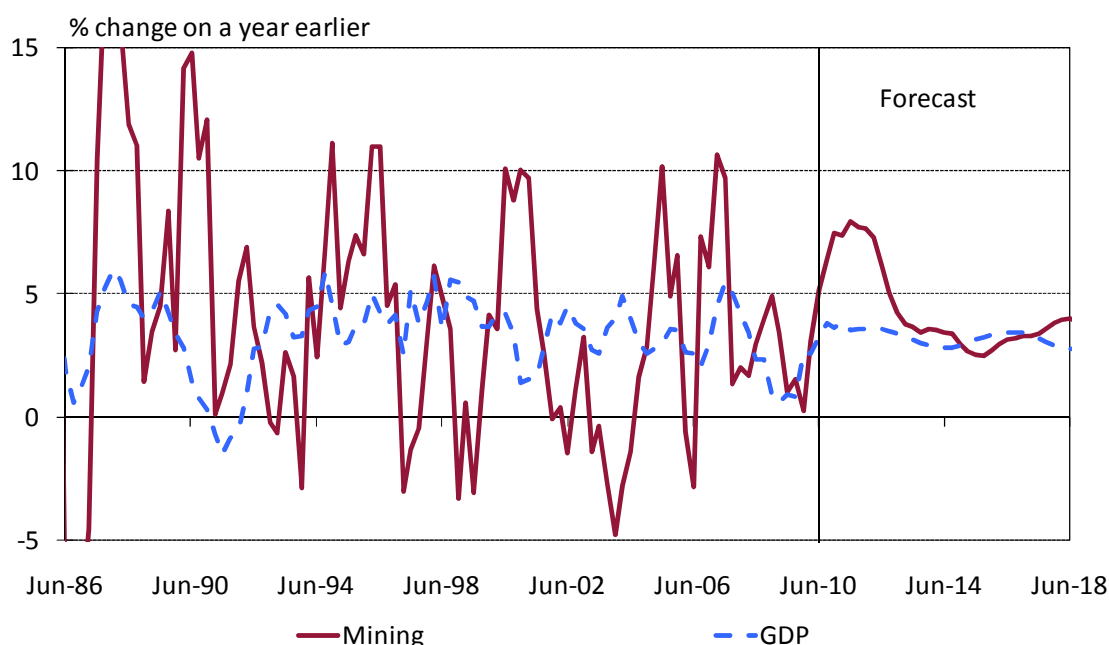
In brief, **all three have emerged from a period of weakness to return to strong growth.**

### 5.1 The mining industry

The outlook for mining is very good – as Chart 5.1 attests. Asia is very hungry for industrial commodities, and the supply side of the Australian mining sector is going great guns, with more and more projects either underway or edging ever closer to being underway, while some of the biggest ticket projects are just about to notably ramp up their spending.

The longer that surge in both demand and supply goes on, the more that a very big increase in Australian mining sector output looks likely to be in the bag. Indeed, the last two years have already seen a huge acceleration in investment in both minerals and energy, and it is clear that there's a lot more to come.

**Chart 5.1: Mining output growth**



Source: ABS, Access Economics' macroeconomic model

Access Economics therefore sees mining sector output climbing by more than 7% in both this financial year and next. ABARE is even more optimistic that this financial year will see a large

surge in output. They have the latter at a gain of 12% in 2010-11 (whereas Access Economics' forecast assumes that delays amid the rush to lift mining output may see some of those gains slip into next financial year).

The key to all this is, of course, continuing good news out of emerging economies. Moreover, even though rich nations are seeing recoveries falter as stimulus spending runs its course, that hasn't stopped increases in industrial commodity demand from some key nations, including Japan, Korea and Taiwan.

Even so, some of the production increases seen this year alone are pretty impressive. Among the energy commodities, ABARE sees output increase of 35% for uranium (admittedly a rebound from an earlier temporary shut-down at Olympic Dam), 15% for thermal coal, 12% for gas and 9% for coking coal. There are also some impressive gains among minerals, with 14% for copper and 11% for gold. ABARE sees a more modest gain of 4% for iron ore output in 2010-11 though that merely represents a downpayment on a continuing surge in the years thereafter. In terms of the detail:

- The biggest story of all lies in LNG, where output is being aided by the fifth train on the North West Shelf, which is now operating close to capacity. Moreover, output from Pluto is increasingly coming on line, and it too will have an impact on output in 2010-11. Gas output is lifting thanks to the Black Tip and Henry fields, aided by coal seam gas from Spring Gully field. The next boost to gas output will come from the Xena and Pluto fields.
- Australian crude oil production is also expected to lift a handy 15% this financial year, partly due to increased output out of the Pyrenees and Van Gogh fields, and partly because the flooding that affected output from the Cooper Basin had only a temporary impact.
- The big lift in uranium production this year is partly driven by a return to full capacity at Olympic Dam after earlier maintenance work, but more importantly because of output from Uranium One's Honeymoon mine – Australia's first new uranium mine in a decade.
- Australian thermal coal output is expected to lift by a healthy 14% in 2010-11. A surge of projects are now starting to produce extra output, including Moolarben and Cameby Downs, as well as Whitehaven's Narrabri Coal project.
- Coking coal output is expected to lift by 9% in 2010-11. Although a number of new and expanded projects help underpin that gain, at least part of it is simply because export capacity at Dalrymple Bay has lifted.
- Australian iron ore production is climbing thanks to Rio's Mesa A Project and BHP's Rapid Growth Project 4. That will soon be backed up by output from Citic Pacific's Sino Iron Project and expansion by Fortescue Metal at their Chichester Hub. Of course that's just a downpayment on the potential here, with further output gains to come.
- Australian gold production is increasingly responding to record prices offered in world markets. The Boddington Project is continuing to ramp up to full production, while each of Cadia Hill, Northparkes and Prominent Hill are lifting output as well.
- One of the few exceptions to the robust rude health otherwise evident across the minerals sector lies in aluminium, with both output and exports flat in 2010-11, and almost a third below their peaks of just four years ago.

That therefore points to a very bright short term future for Australia’s mining sector, making it an important short term competitor for some of the skilled labour pool from which the utilities sector also draws.

Indeed, mining employment grew by 31,600 people in the year to August 2010 in trend terms, a remarkable gain of 16.4% across that period.

## 5.2 The construction industry

The lift in the share of workers employed in construction has been remarkable. After traditionally contributing between 7-8% of non-farm employment (moving with the business cycle), from 2000 employment in construction took off sharply.

By 2008 almost 10% of Australian workers were employed in construction. That increase stalled as the construction sector entered a period of uncertainty with the global economic downturn.

**Chart 5.2: Construction as a share of non-farm employment**



Source: ABS, Access Economics’ macroeconomic model

But that leap in construction employment may resume. Business investment can be split into engineering and other non-housing construction (including commercial and industrial building) plus other investment. The engineering side includes heavy industry (mining and manufacturing), energy (power and gas), water storage and drainage, and transport (roads, rail, and ports). Table 5.1 is drawn from Arup and Access Economics’ *Investment Monitor*.

**Table 5.1: Engineering construction projects (level and change over last year)**

	Definite		In planning		Total	
	\$m	% change	\$m	% change	\$m	% change
Manufacturing	7,320	-3.8	32,099	-22.6	39,419	-19.7
Transport	74,748	-2.1	112,219	58.8	186,967	27.2
Communication	5,058	462.0	43,540	-3.4	48,598	5.7
Mining	91,744	61.6	194,125	-0.6	285,869	13.4
Power & water	23,186	-8.9	30,909	-28.2	54,095	-21.0
Rural and forestry	455	-11.5	450	-73.5	905	-59.1
Total in \$m	202,511	20.8	413,342	4.0	615,853	9.0

Source: Arup and Access Economics' Investment Monitor

It shows that the big spend is coming. The pipeline of construction work yet to be done is already leaping once more as engineering construction in particular jumps in response to big ticket projects that appear to be popping up all over the landscape. The evidence from Investment Monitor concurs with the view of both ABARE and those surveyed by the ABS that a big boom in capital expenditure is soon set to start.

That suggests that the boom is back – or soon will be. After rising a modest 2% in 2009-10, Access Economics sees engineering construction investment lifting by 16% in 2010-11 and a further 20% in 2011-12. Indeed, we don't see it peaking as a share of Australia's economy until late 2013 or early 2014, by which time it is projected to be some five times the share of the economy that it was during the 1990s.

That is, of course, remarkable. Moreover, although Access Economics does see engineering pegged back as a share of the economy thereafter (as the peak of the building work on gas-related megaprojects passes), we still project it to be four times its old share of the economy in a decade's time.

Yet while the boom is back for engineering, prospects for commercial construction are fading alongside school stimulus spending. This sector slowed notably through 2008-09 and has barely bounced since.

That is due mainly to a lack of interest, though tight credit conditions haven't helped. Table 5.2, also drawn from Arup and Access Economics' *Investment Monitor*, shows work in planning is down across all industries, suggesting that the sluggish investment performance is set to continue for a while further.

**Table 5.2: Commercial construction projects (level and change over last year)**

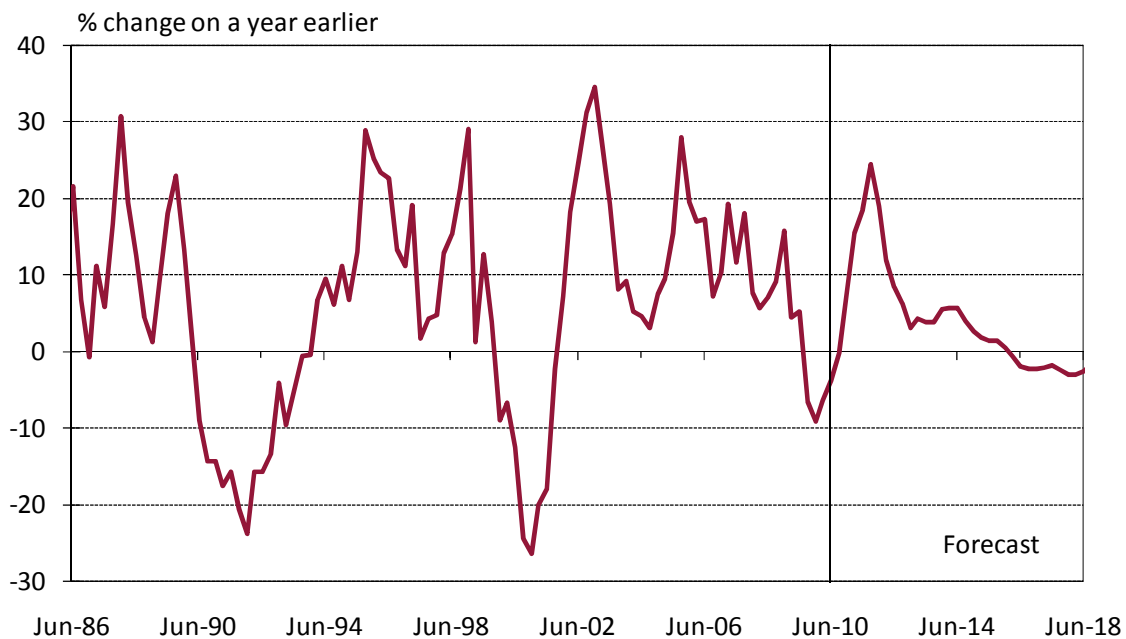
	Definite		In planning		Total	
	\$m	% change	\$m	% change	\$m	% change
Trade	3,333	-1.1	6,308	-26.0	9,641	-19.0
Business parks	1,803	-52.8	3,757	-42.3	5,560	-46.2
Hotels and resorts	401	-75.3	3,097	-64.5	3,498	-66.2
Offices	2,622	-36.5	7,291	-26.2	9,913	-29.3
Education	19,793	7.9	676	-62.8	20,469	1.5
Health and community services	14,104	10.1	7,418	-18.7	21,522	-1.9
Culture, recreation & other	3,318	-21.8	5,765	-14.1	9,083	-17.1
Business services	408	-15.0	3,895	-5.4	4,303	-6.4
Government	2,061	16.6	292	-32.4	2,353	7.0
Mixed use	6,888	-20.9	5,939	-40.4	12,827	-31.3
Total (\$m)	54,731	-7.7	44,438	-32.5	99,169	-20.7

Source: Arup and Access Economics' Investment Monitor

In total, private sector non-residential (commercial) construction – in real (inflation adjusted) terms – fell by 15.1% in 2009-10. Access Economics estimates that spending will lift modestly going forward, up by 3.4% in 2010-11 and by a further (and faster) 9.0% in 2011-12, though that still leaves it at about the same share of Australia’s economy as it averaged through the 1990s. Adding engineering and commercial construction together saw total non-dwelling construction fall by 6.5% in 2009-10.

Access Economics sees it rising by a healthy 10.5% in 2010-11 and by an even healthier 15.5% in 2011-12.

**Chart 5.3: Underlying non-dwelling construction investment**



Source: ABS, Access Economics’ macroeconomic model

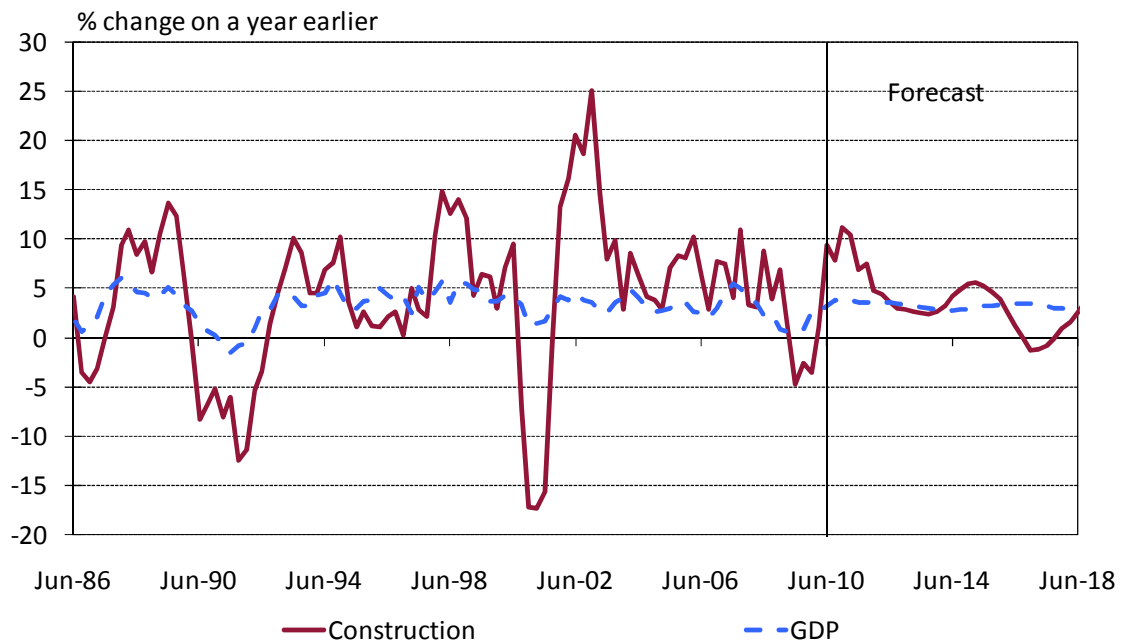
Housing construction has begun to lift, but that represents an early response to the period of lower interest rates rather than a fully fledged upswing. Forward indicators stumbled more recently – partly due to higher interest rates from the Reserve Bank, partly because developers of apartments are still struggling to get loans, and partly because the pace of land release from State and local governments is sick as a dog.

Yet the stuttering we expect to see in housing construction activity in the next six months or so does not mean there won’t eventually be substantive recovery – it merely means it is more delayed than we had originally allowed. Moreover, the coming upswing in housing construction – expected to peak in the middle of 2012 – should be pretty healthy, even if it doesn’t quite scale the heights seen in times past.

Further, housing construction is not the only driver of the expected upswing in the wider construction sector over the next couple of years portrayed in Chart 5.4 below. Even though spending on engineering work is already three and a half times the share of the economy that it averaged in the 1980s and 1990s, there are very substantial further increases in the offing. We mentioned some of those in discussing the mining sector earlier in this chapter, but the gains aren’t just in the likes of the Gorgon LNG expansion. Engineering construction is

expected to lift across the gamut of roads, rail, ports and the like as well. Indeed, increased levels of engineering work by itself may account for more than one-fifth of the growth in Australia’s economy in the next 18 months – a remarkable effort from a small sector.

**Chart 5.4: Construction output growth**



Source: ABS, Access Economics’ macroeconomic model

Not all the construction news is good. Commercial construction is the ugly sister of the sector, still suffering from constrained credit, and that will remain a dampener in the next little while. So too, will the fact that vacancies have lifted in both office and retail markets. That suggests that commercial construction has rather less upside in the short term than does either engineering or housing construction.

Indeed, although it is a much larger sector, the increase in construction employment over the past year (in trend terms) has been smaller than that in mining. The gain in construction was 28,700, an increase of 2.8%.

However, Access Economics expects that further gains lie ahead.

### 5.3 Administration services

Administration services sector can be broken into two broad areas:

- Administrative services, of which the largest component is employment services (including employment and recruitment services and labour supply services); and
- Building and pest control services.

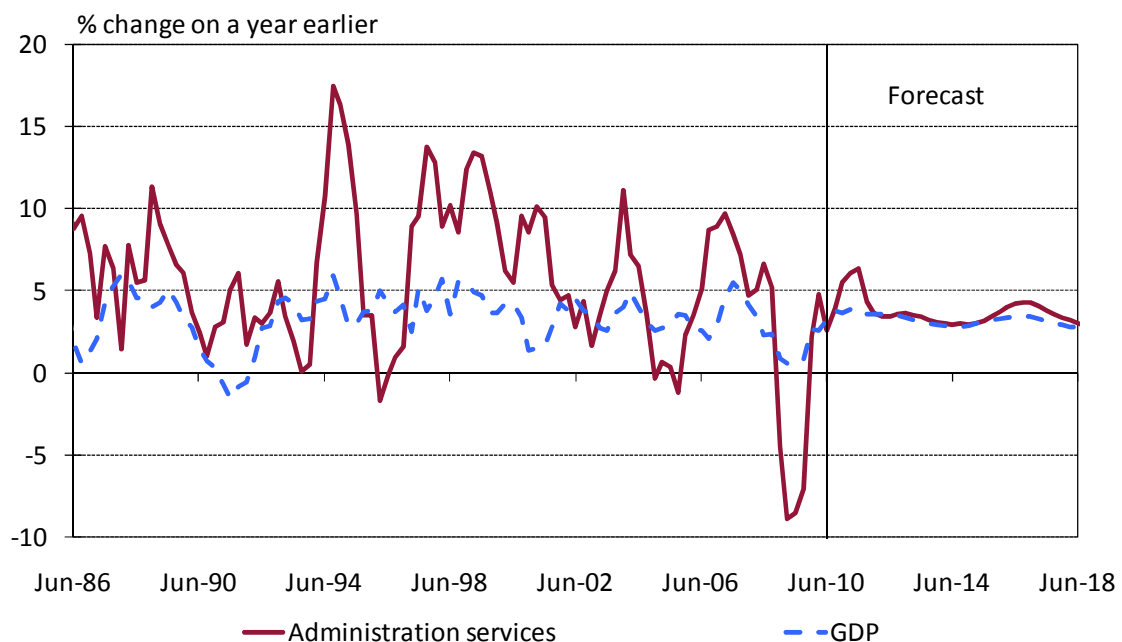
Overall demand for the sector slumped sharply during the recent downturn (see Chart 5.5) – in fact during the worst of the downturn only the manufacturing sector saw larger decreases in output (the latter’s peak year-to decline was 11.1%, compared with 8.9% in administration services, with the next weakest being the dip in construction of 4.7%).

Within the sector however, it was the administrative services side of the sector that was more significantly hit. This is not surprising as the slump in the economy generally saw the demand for new employees evaporate, rendering recruitment services less necessary. Labour supply services also saw sharp declines in demand.

There was solid growth in building and pest control services employment from early in 2009, although the overall sector did decline as a share of total employment overall, falling slightly faster on average than overall employment.

More recently the admin services sector has rebounded in terms of output – moving back in line with overall economic growth, and the short term projection is for this sector’s output growth to exceed the national average in 2010-11. That said, admin services has traditionally seen solid productivity growth, which means the implications for employment may be less positive.

**Chart 5.5: Administration services output growth**



Source: ABS, Access Economics’ macroeconomic model

A large part of that group seems set for a period of outperformance – as is its ‘cousin’ sector of professional, scientific and technical services. With the surge in Australian corporate profits and cash flow and the desire of businesses to rapidly expand their capacity there should be far more demand in recruitment and employment services.

The recovery in merger and acquisition activity in Australia has begun, and it has a fair way further to run. Thanks to the cheap cost of government debt, corporate debt yields are also relatively low compared with history. As corporate debt becomes easier to get, both these sectors should start to hit their straps. Moreover, the strengthening Australian economy will boost demand for run of the mill employment and building management services.



## 6 The national wage outlook

Trends in both demand and supply factors in the labour market have changed markedly in the past year. The resilience of emerging economies in general (and those of China and India in particular) means that many of the same demand factors that drove the mining boom from 2006 to mid-2008 are re-emerging.

The key indicator here is the terms of trade, which is bettering its 2008 peaks, and looks set to only decline modestly in the medium term.

The resultant boost to profits has underpinned a lift in employment over the year to October 2010 of 350,000 people, or 3.1%.

However, at the same time as the demand for workers is lifting, the pace of growth in the potential supply of them is starting to fade, with net migration levels declining sharply from 2008 peaks. While part of that might have been expected given the earlier global downturn, much of the fall has been driven by a political decision to slow the flow of population to Australia.

### 6.1 The impact of rapid growth on specific sectors

There is a good yardstick for assessing the impact of the coming boom on costs in Australia – what happened last time around. By comparing the size of the last boom and what we expect in the medium to long term this time around we can get a better indication of what we can expect.

In brief:

- The coming construction boom is again very big, and big booms in demand usually add to relative costs.
- However, permanent shifts in price relativities are rare, because ‘the supply side’ adjusts – on the wages side more workers shift into those occupations where skill shortages are keenest, while (on the price side) factories here and around the world step up their production of the materials whose prices have risen because they are in short supply.
- Moreover, the factor which underpinned both the last boom and the current one – very high prices for Australia’s key exports such as coal and iron ore – are also unlikely to be permanent. There are reasons to believe that, even if China and India keep growing fast, there are also reasons to believe that the world’s miners may dig faster still, bringing commodity prices down, and slowing the long running boom in key Australian sectors as a result.

#### 6.1.1 The first resource boom

Half the world is undergoing an industrial revolution. That sharply lifted global growth across the last decade, and sustained it during the global financial crisis. However, the growth that has resulted has been particularly ‘commodity intensive’, as demand for industrial commodities grows fastest in the income range of \$US 3,000-15,000 per head.

The rapid evolution from farm- to factory-based economies generated the most sustained burst of global growth since the 1950s, with China and India leading the charge. Despite the rest of the world's woes and the setbacks of the GFC, those economies are still growing solidly.

By the time that process is complete the boom will have completely transformed the global demand for industrial commodities.

In the process, the emerging economies are becoming integral contributors and drivers of the global growth cycle. Importantly, the sustained and significant growth of emerging nations has thus far offset the impact of the recent slowdown in the developed world.

Global fortunes used to be determined in the rich world – and especially by the business cycle of the United States. That is no longer true. A baton change has already occurred. China is already the key global growth engine, and India is set to displace the US from second place in the next handful of years.

That is not to say the US or the rest of the rich world are no longer important. They still account for the dominant share of income in the global economy – it is currently just growth components that have swung against them.

Construction demand surged in Australia across the last decade. In the main it did so because the acceleration in the growth of China and other emerging economies across that period transformed global demand for industrial commodities such as the coal, iron ore, and other minerals Australia produces, as well as our rich reserves of gas. As the price the world was willing to pay for those commodities went up, it rapidly became apparent that Australia had to build not merely many more mines, but much additional infrastructure to get the output of those mines to market.

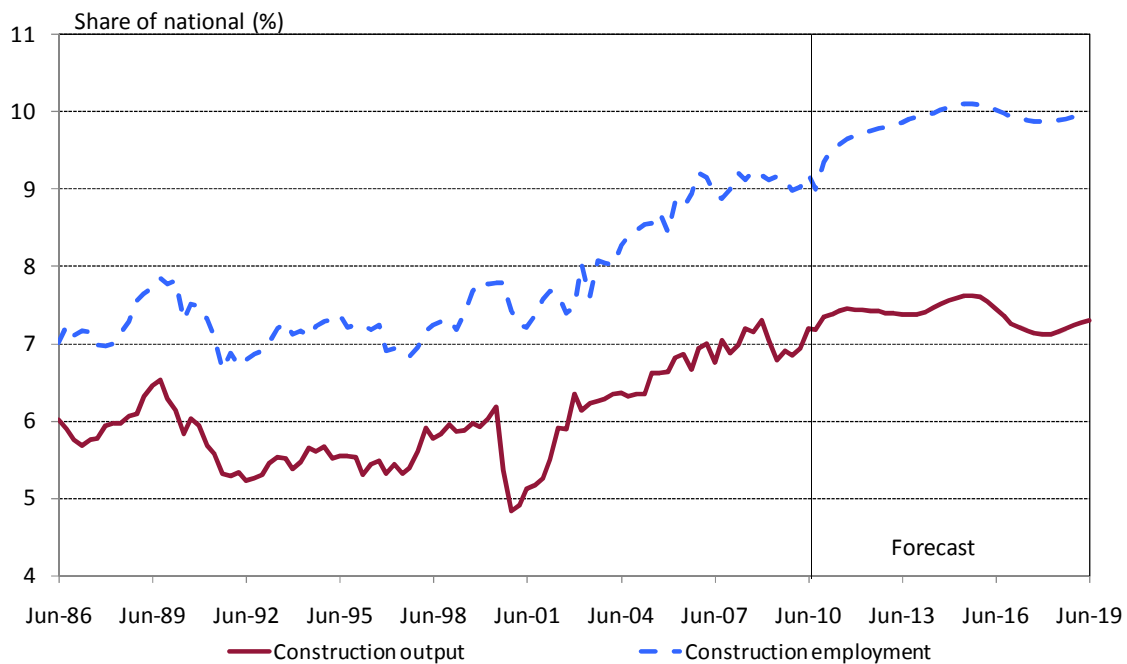
In addition, the surge in Australian national income which accompanied rising commodity prices boosted demand for a range of other activities. Employment surged, so the need for office space did the same. Retail spending jumped, so the demand for shopfronts and shop fitouts followed suit.

Further, at the same time as mineral demand boosted the need for mining and export infrastructure, and mineral income boosted the need for a range of commercial construction, it became apparent that Australia's urban infrastructure had suffered from decades of underinvestment. Spurred in part by the increasingly urgent need to invest in new urban infrastructure, and in part by the improved revenues flowing to governments in Australia, spending on urban infrastructure jumped as well.

The net impact of these trends can be seen in Chart 6.1 below, which shows the construction sector as a share of Australia's economy. It also shows construction employment as a share of all jobs.

Although the global financial crisis did have an impact here in Australia – approvals of commercial construction for private work almost halved from peak to trough – construction merely slowed rather than showing the sharper cyclical contractions evident in the slowdowns of times past.

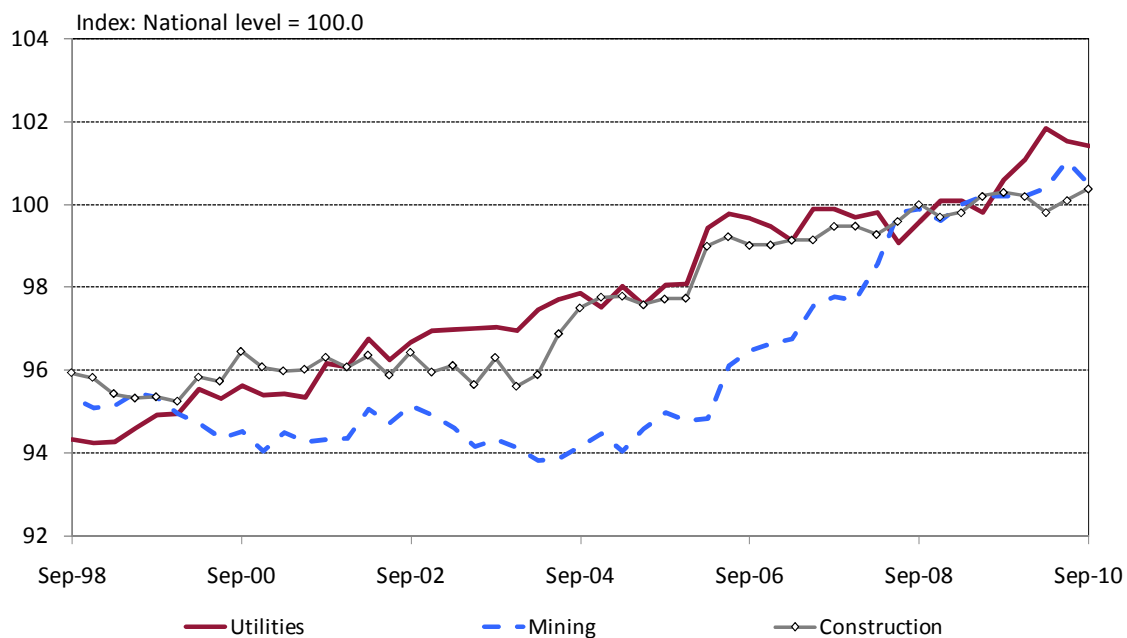
**Chart 6.1: Construction as a share of Australia**



Source: ABS, Access Economics' macroeconomic model

The key impact of the boom is evident in Chart 6.2. From around 2004 wages in the construction sector began to lift relative to the national index.

**Chart 6.2: LPI in utilities, construction and mining relative to the national average**



Source: ABS

- Mining wages took a while longer to gather pace, but across the three years to mid-2008 the sector saw its LPI rise by 5 percentage points more than the national average.

- The utilities sector has moved closely in line with the construction sector across this period, consistently growing more rapidly than the average rate of growth.

Mining wages are significantly higher than the average in dollar terms (measured, by AWE) – even at the start of the wage acceleration, AWE in the mining sector was 90% more than the national average (about \$750 a week extra), but they have since lifted to more than double the national average at present (\$1,025 a week more).

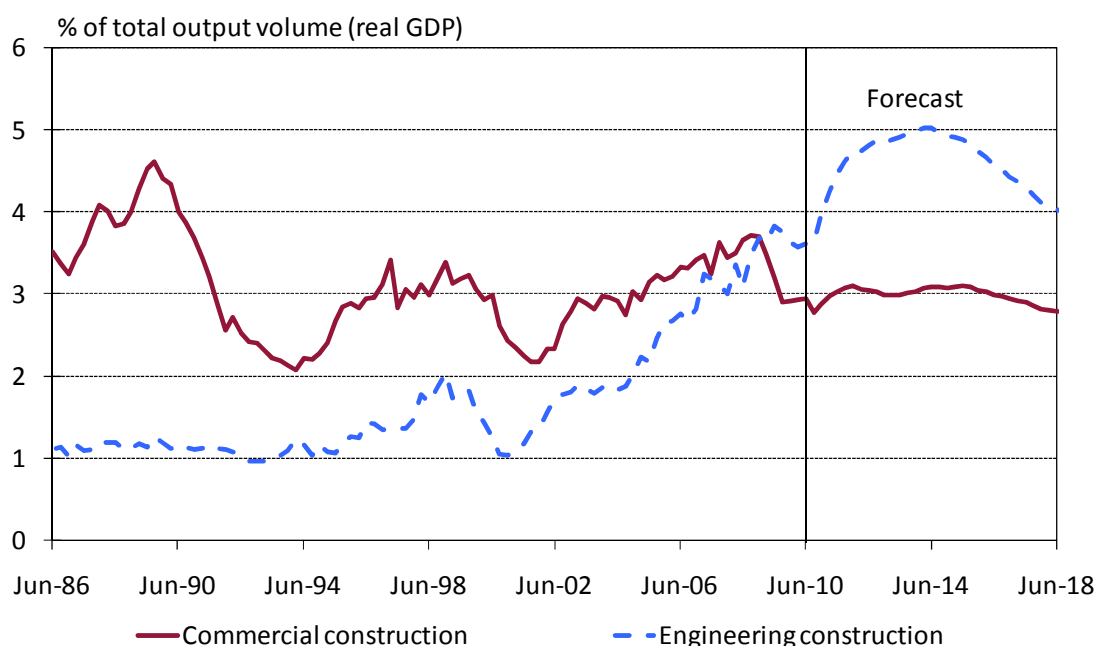
### 6.1.2 The coming resource boom

That means Australia’s construction sector enters the current business cycle at close to the strongest levels of activity and employment shares seen in some decades.

Importantly, there is substantially more in the construction pipeline in the next few years. In early 2010 the Reserve Bank of Australia began to note that if all the mooted LNG developments went ahead, they would by themselves add 2½% to national output.

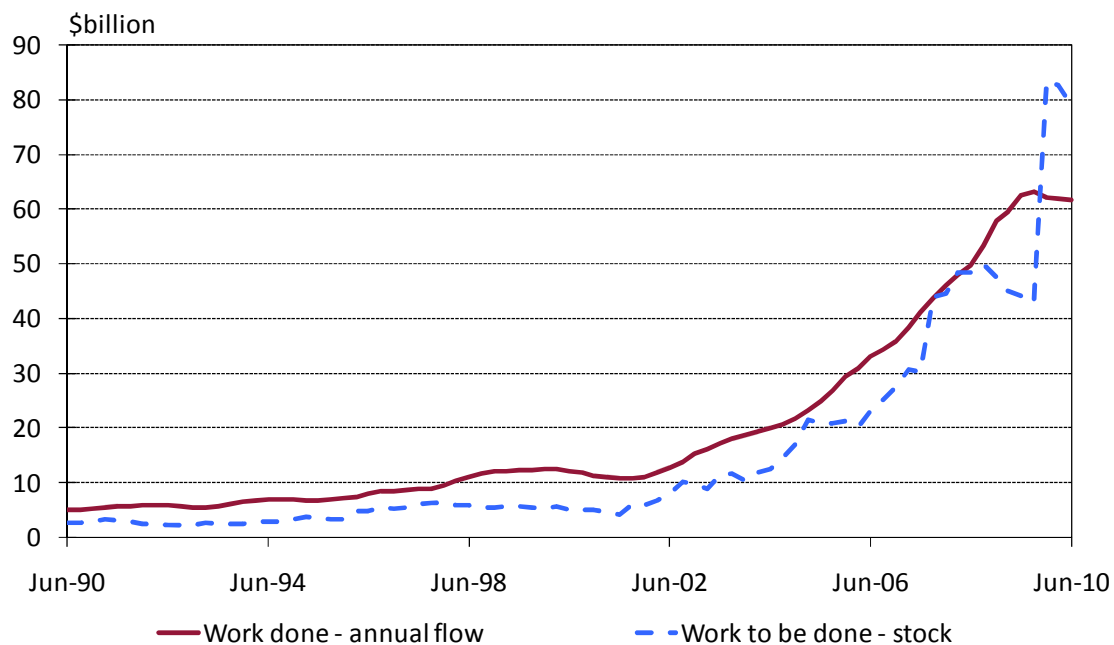
What the Reserve Bank failed to note (but Chart 6.3 helps to put in context) was that engineering construction averaged only a little more than 1% of Australian output in the two decades to 2005, and that the addition of 2½% of GDP from LNG projects alone pointed to a massive spike in activity.

**Chart 6.3: Components of non-residential construction (share of national economy)**



Source: ABS, Access Economics’ macroeconomic model

As 2010 has progressed, the size of the coming peak in construction activity has firmed up. The known pipeline of construction work (seen in Chart 6.4) contains some enormous projects. For example, the \$43 billion NBN project is not the single largest development currently underway in Australia, with the \$43 billion Gorgon LNG project also under construction off Western Australia. Moreover, the Gorgon project is scheduled to come online in just half the time it will take to complete the NBN.

**Chart 6.4: Pipeline of construction work yet to be done**

Source: ABS

The Australian Bureau of Statistics (ABS) conducts quarterly surveys of businesses asking how much they expect to spend on construction and other investments. Taken at face value, the latest such survey indicates that Australian businesses want to spend an additional 24% in 2010-11 alone.

### 6.1.3 The impact of booming demand on wages and prices

The level of activity is determined not merely by the demand for construction, but also for the available supply of it – as well as the price at which those workers and materials are available.

When demand (spending) runs ahead of supply (output), two things happen – prices lift, and supply starts to respond. For example, at the height of the last boom, Western Australia (as a region) and both construction and mining (as sectors) saw sharp skill shortages (in 2007-08 three out of every four WA businesses described labour as ‘scarce’), rising costs, and worsening delays in sourcing both men and materials.

The State suffered those shortages (and the consequent spillover into higher costs and prices) because the long distance discouraged workers from other parts of the country to move to WA. That meant WA had to get seven out of every eight extra workers from the rest of the world, rather than from the rest of Australia.

The current Resource Boom Mark II will be an even bigger boom for Western Australia – the leap in the pipeline of work to be done that occurs at the of 2009 in Chart 6.4 of \$40 billion is entirely caused by the Gorgon LNG project, with the NBN project not currently included as ‘work to be done’.

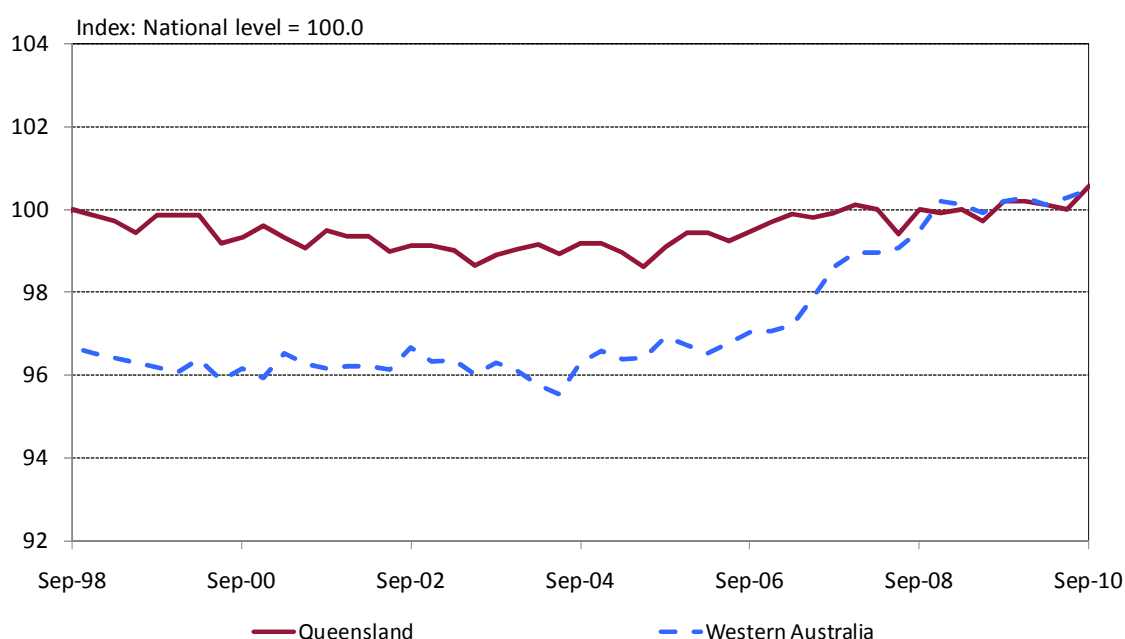
However, this time around Western Australia is likely to see lower levels of international migration (labour supply) to help it meet the projected lift in labour demand.

### 6.1.4 Impacts of the last boom on costs and wages

What can that mean in practice? What happened in Western Australia in recent years is a good example of the effects of a boom on materials costs and on wages.

Chart 6.5 shows the relative movements in the LPI in Queensland and Western Australia in recent years. The impact of mining wages was felt in both jurisdictions, but was far more significant in the West. This was not only because the mining sector is a larger component of the economy in WA, but also because the effects of skill shortages were far more pronounced than they were in Queensland.

**Chart 6.5: LPI in Queensland and Western Australia relative to the national average**



Source: ABS

The impacts of the mining boom on prices extended well beyond the wages paid to workers. The costs of construction also increased significantly – ending a long period where the price of a ‘unit of construction’ actually fell relative to broader price measures.

### 6.1.5 How long can these effects persist?

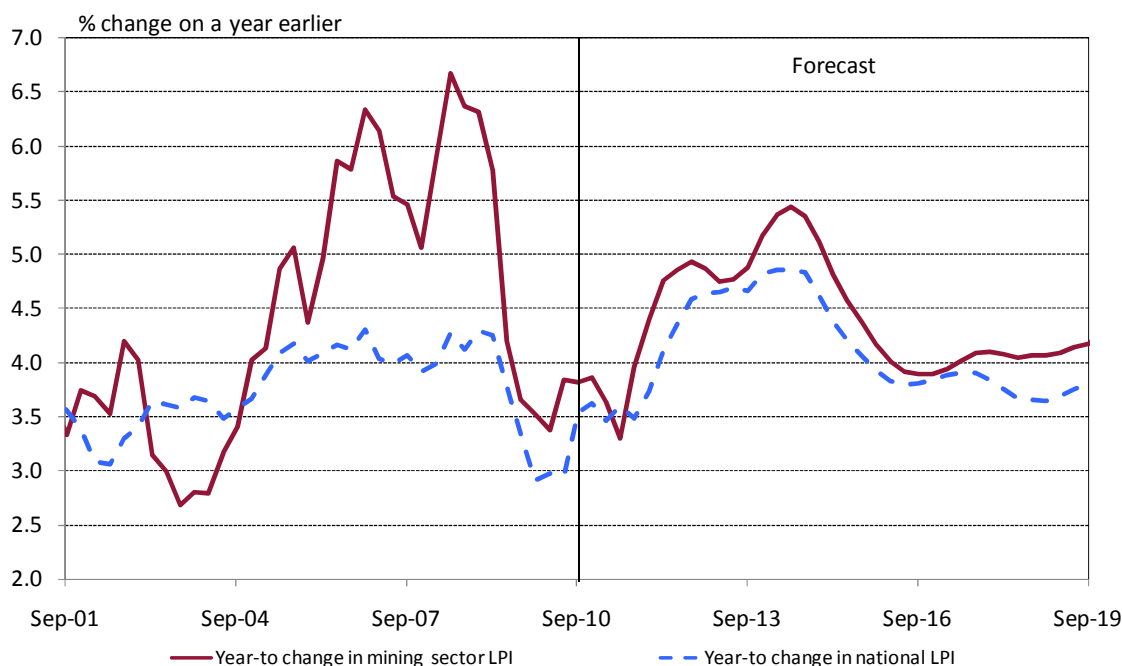
As Chart 6.5 above also shows, the global financial crisis which brought an end to the first resource boom also saw relatively rapid wage growth end in key sectors and States. Much the same is true of the shift in relative materials costs.

The most recent data suggests mining pressures are beginning to lift wages once again, and Access Economics’ short term projections foresee further relative gains in that sector, though these do not persist in the longer run (see Chart 6.6).

There is always a risk of building in a ‘future wage growth will be faster-than-average in a given sector because it always has been’ effect into forecasts. In effect this would assume not only that skill shortages will rapidly re-emerge (which does appear likely), but that they will also persist indefinitely.

In contrast, Access Economics attributes the relative out-performance of wages in the mining and construction sectors through the last decade to the length, strength and composition of the long expansion in the Australian economy through to late 2008. Moreover, we see a further burst of similar demand side factors in the short term.

**Chart 6.6: Trends in mining LPI**



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

These different viewpoints are important. The longer term trends that arise can be seen in the movements of wages in the utilities sector in recent years. Similar to what the construction sector may witness in coming years, the strength (and the rise in specific sector wages) of mining and construction also began pressuring wage gains in other sectors (such as utilities) as industries were forced to react to higher mining wages to keep workers in their jobs.

The Labour Price Index (LPI) doesn't go back far enough in time to see if history can shed light on this debate, but the Average Weekly Ordinary Time Earnings (AWOTE) series does. The key difference is that the AWOTE relativities tell a very different story in the pre-1998 period than it does in more recent years – see Chart 6.7 and Chart 6.8 below.

Chart 6.8 in particular shows that, despite the rapid productivity gains recorded from 1985 to 1994, it was not until after the Australian economy had embarked on its long expansion that relative wages in the utilities began their climb.

Or, in other words, history – other things equal – that tends to support the 'business cycle' view of wage relativities in the utilities sector rather than the 'permanently increasing' view.

**Chart 6.7: Utilities LPI relative to national LPI**



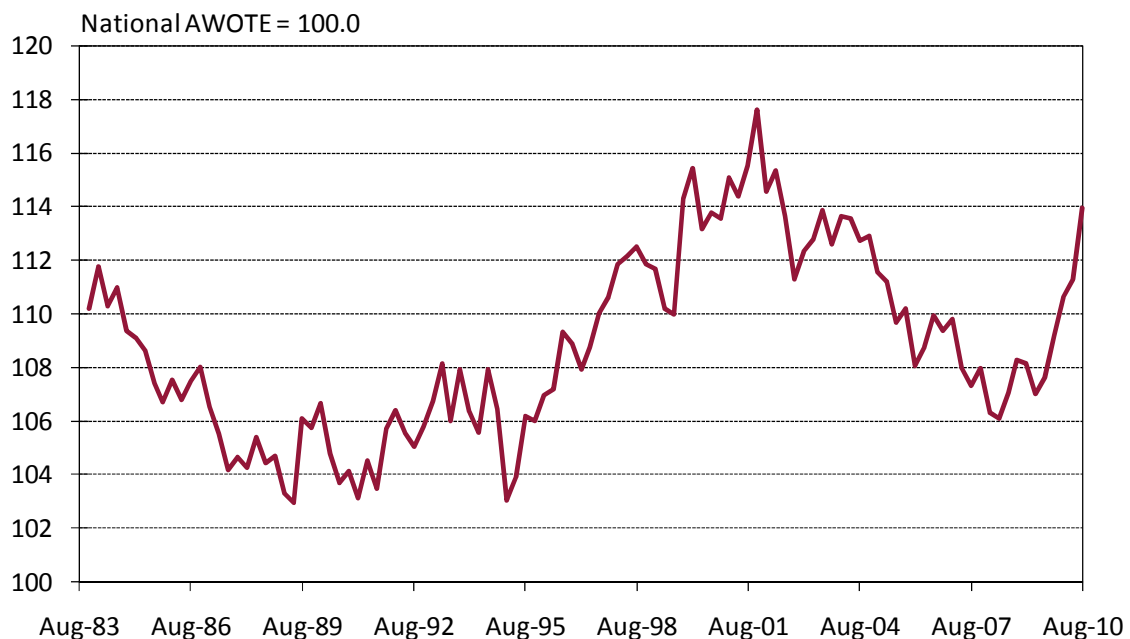
Source: ABS, Access Economics estimates, Access Economics labour cost model

That is not to say that this index must always return to previous values. It is possible that some sort structural change in the sector (such as the replacement of lower-paid workers with machinery) could have a permanent level change effect on the results – though in theory at least the calculation of more detailed components of the LPI is meant to be cognisant of such structural shifts.

However, even such structural developments will not drive a continuous divergence in growth rates.

That is because **skill shortages are temporary – they don't drive permanent wedges in wage relativities**. The higher wages on offer as a result of skill shortages lead, over time, to reactions on both the demand and supply side of labour markets to whittle those shortages away. To fail to forecast an eventual end to skill shortages – and to use them to justify further widening in wage relativities – sits strangely as a view on the longer term outcomes from labour markets.



**Chart 6.8: Utilities wages relative to national wages (AWOTE)<sup>3</sup>**

Source: ABS, Access Economics

### 6.1.6 Shifts in wage and cost relativities are rarely permanent

Over a long enough time growth rates in the costs of materials and labour across different regions should not differ too much at all.

That is because, if prices or wages became too different over time, then there would be money to be made in shipping products or people moving home so as to limit those divergences once more.

Similarly, there are some natural limits to the extent or period to which wages and prices can be notably higher or lower in one State or region versus another. For example:

- Workers can move between and within States (“we’ll leave Adelaide and try our luck in Perth”).
- Workers can move to Australia from other nations.
- Permanent and temporary (visa 457) migration may be bureaucratically slow to move, but has the potential to ease a transition period.
- As do shifts by permanent residents (Australians who decide to go to London next year rather than this, or to come back from working in Canada because prospects are now better here).
- Shifts by New Zealanders (who face less restrictions on migration than do those from other nations).
- Shifts in wages can and will see people substitute into growing areas related to their existing skills (“I’ll leave construction and try my luck in mining”).

<sup>3</sup> Data before August 1994 has been spliced using the previous definition of the utilities sector.

- Ditto shifts in relative wages can delay retirements or exits (“We’ll have baby next year”), as well as encourage new entrants (“I’m going to study electrical engineering, because wages in that occupation are good”).
- Shifts in the use of labour due to changes in relative costs (“We’ll use more Enrolled Nurses and less Registered Nurses because wages for Registered Nurses have risen relative to those for Enrolled Nurses”).

Many of these ‘equilibrating factors’ can be very slow to operate, meaning that divergences in wages across States (and, for that matter, across sectors and occupations within a State) can persist for long periods.

### 6.1.7 The longer term outlook for commodity prices

While Access Economics’ forecasts don’t foresee continuous long term increases in relative prices in the construction, mining and related sectors, there is a case for some maintenance of recent changes to these relativities – at least over the medium term.

This is not a certainty however, so the competing outlooks are compared below.

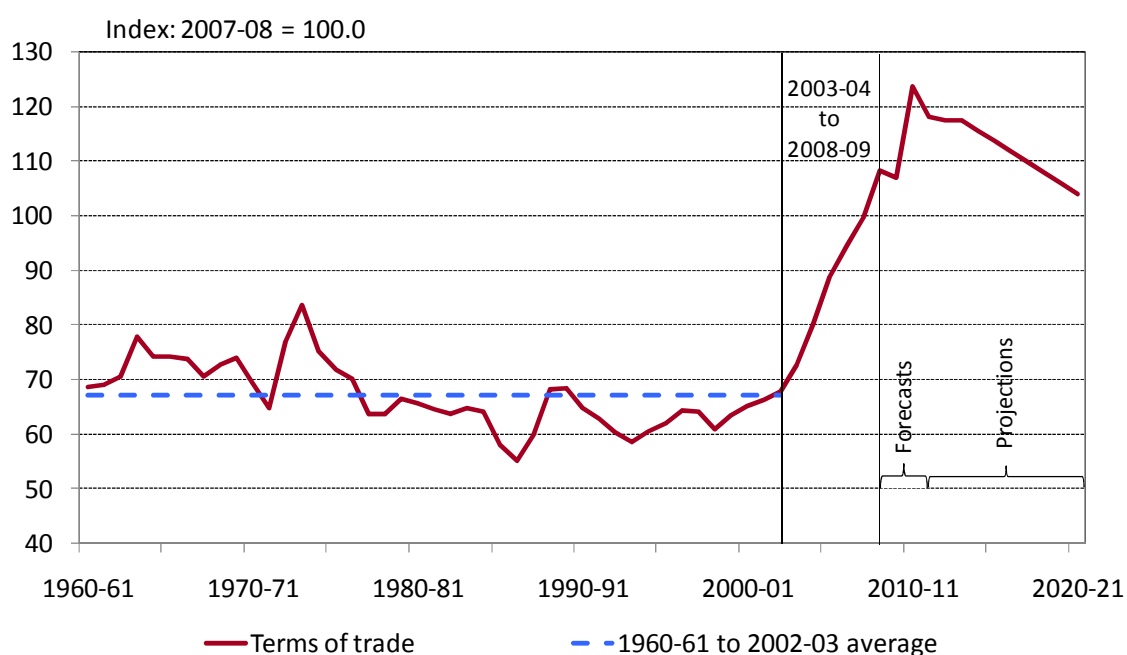
#### The case for a permanently higher terms of trade

Are Australia’s terms of trade now permanently higher?

There are certainly good reasons to hold that view.

Chart 6.9 is drawn from the 2010-11 Commonwealth Budget and shows Federal Treasury’s projections for the terms of trade to 2020-21. The projections show the terms of trade staying above the elevated 2008-09 levels for the next decade due to strong commodity demand in China and India.

**Chart 6.9: The terms of trade – Federal Treasury projections**



Source: Federal Treasury, Budget Paper No 1, 2010-11, page 4-5.

As noted by Treasury in the 2010-11 Budget (Budget Paper No. 1, page 4-5):

*“The process of economic convergence of China and India with more developed countries, and the prospect that their relatively strong economic growth and consequent demand for resources could well continue into the coming decades, means it is reasonable to expect that there will be a relatively slow unwinding of historically high non-rural commodity prices.”*

Federal Treasury also states in the 2010-11 Budget (Budget Paper No. 1, page 4-10):

*“There are reasonable grounds — in particular, an expectation that global demand will continue to grow strongly for an extended period — to believe that the terms of trade and mineral resource prices will be sustained at high levels for some time”*

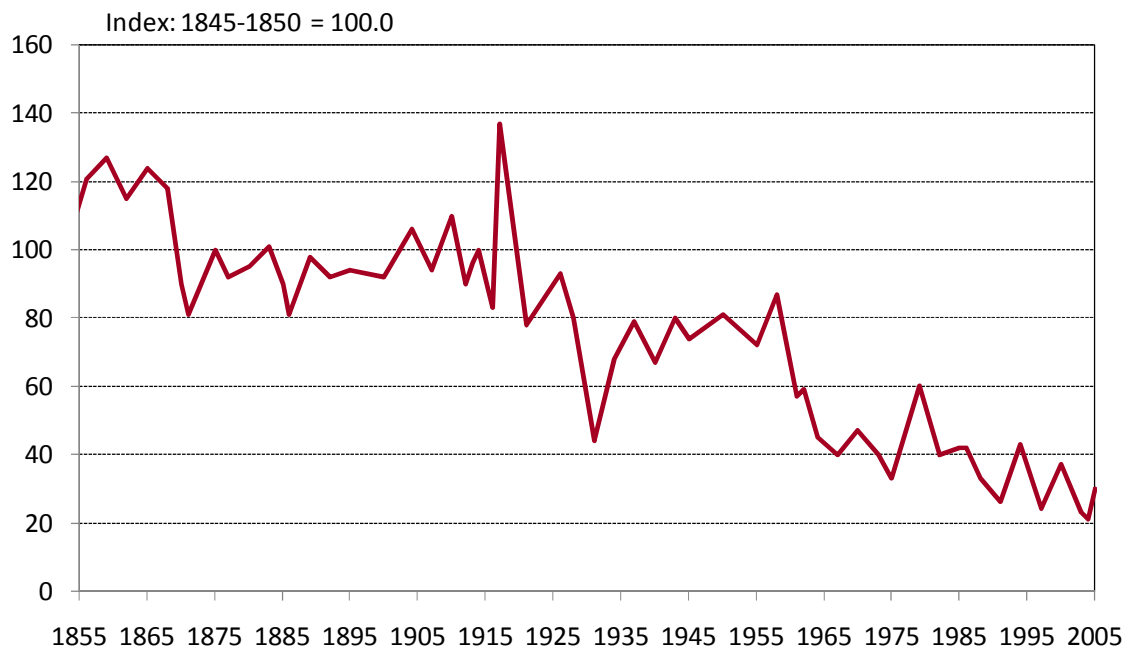
Other things equal, Treasury’s expectation of a level shift in Australia’s terms of trade also implies a level shift in the value of the \$A.

### **The case against a permanently higher terms of trade**

Yet amid all the enthusiasm of recent years for commodities, it is worth noting that non-fuel commodity prices fell by an average 1.6% a year (relative to consumer prices) in the 50 years to 2000.

This long term downward trend is consistent with the Prebisch-Singer hypothesis – that, over time, the terms of trade of primary commodity exporters falls relative to exporters of manufacturing products.

The Singer-Prebisch thesis argues that the price of primary products (such as minerals) will tend to fall relative to the price of manufactured goods over time.

**Chart 6.10: Industrial commodity price index, real \$US terms**

Source: The Economist print issue, October 2005

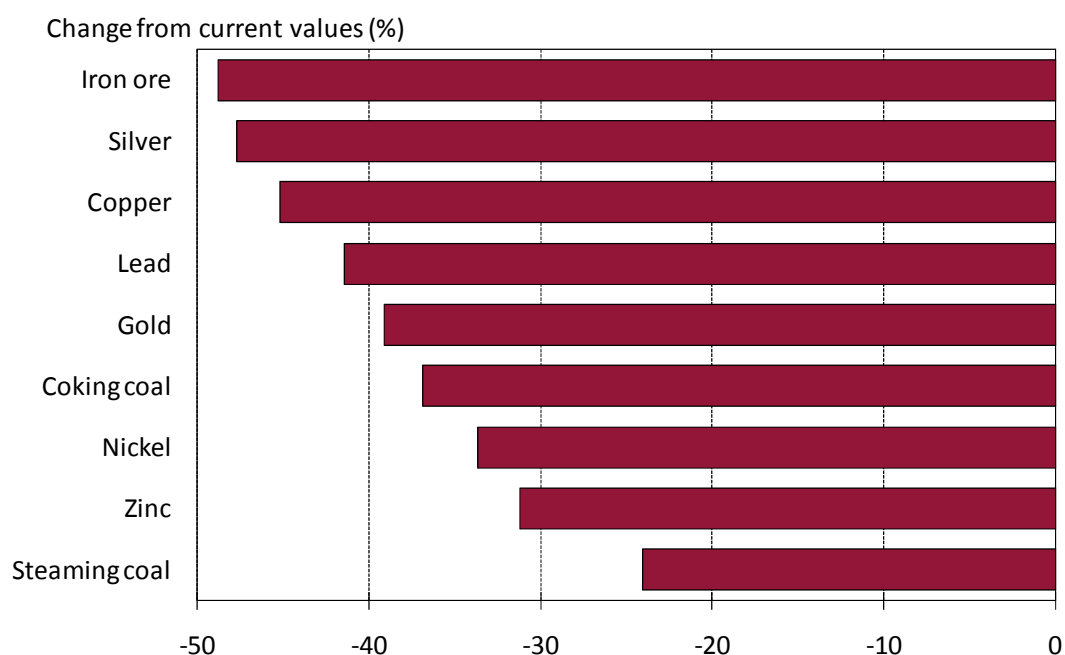
Chart 6.10 shows the index which has been compiled by *The Economist* magazine since 1845. It shows the clear downward trend in relative minerals prices over time. Relative prices are ultimately a function of relative productivity. If the pace of improvement in mining productivity has been faster than the pace of improvement in productivity in other sectors, than the straightforward conclusion is that relative mineral prices will fall.

While the surge in commodity prices over the last decade is impressive, it does not change the underlying picture of the longer term downtrend in relative minerals prices. Commodity prices are set by both supply and demand, and an increase in supply over coming years may see prices fall back in line with the historic trend.

This, it should be noted, is a widely held view. A survey undertaken by *Consensus Economics* asks respondents' views on where real commodity prices will move in the long term relative to current spot prices. As Chart 6.11 shows, our two key exports – iron ore and coking coal – are not expected to enjoy today's high prices forever.

Indeed, the consensus view among mineral price forecasters is for substantial falls across a number of base metals, including an almost halving in iron ore prices, and a near 40% fall for coking coal prices.

**Chart 6.11: Consensus forecasts of longer term changes in mineral prices**



Source: Consensus Economics October 2010 survey

### The competing views

There are therefore two schools of thought regarding the future course of commodity prices:

- Federal Treasury and others see a long-running economic boom in China and the developing world more generally which will fuel commodity demand and hence commodity prices.
- However, others argue long term prices are set by both supply and demand, and that a long-running boom in China and the developing world will boost demand and supply, but not prices.

If the former view holds true, then the demands on mining and construction will stay stronger for longer than these forecasts allow, with spillover impacts to the demand for skilled workers that – other things equal – it would take longer for the supply side of job markets to meet.

Advocates of a commodity price supercycle argue that, in times past, the emergence of new industrial giants has kept commodity prices high for extended periods of time. They point to the emergence of the United States as an industrial superpower in the nineteenth century, and the rise of Japan during the 1960s. In turn, they now see China playing much the same role.

However, few advocates of the supercycle school argue that this is a permanent shift in pricing. Rather, they see it as a period in which the pace of demand growth will be so strong that supply will struggle to catch up through the next two decades as China and then India and others industrialise.

The Australian Bureau of Agriculture and Resource Economics, the Federal Government’s official commodity price forecaster, was downbeat on commodity prices in 2006, noting that:

*“Some market commentators have suggested that commodity prices are in a ‘supercycle’. [But] for minerals and energy prices to reverse their long term downward trend and increase in real terms over a prolonged period, real costs of production would have to rise and the relative costs of substitutes would also have to rise. Neither of these conditions is expected to be met”.*<sup>4</sup>

That cautious view is a sensible one, and it has important implications for the Budget. If commodity prices, and therefore the terms of trade, do not remain at elevated levels over the long term, revenues could also be expected to retreat over time.

Hence Access Economics maintains our medium and longer term view that commodity price surges tend to be temporary rather than permanent. It won't happen tomorrow. But as and when that eventually happens, the news will be just as bad for the Budget as today's news is good.

### **The implications**

The outcome of this debate is critical as the assumed price of commodities in the future will affect the demands on mining and construction, and hence the impact that those sectors have on the utilities sector.

Access Economics' view – one we see as consistent with both economic theory and with history – is that there won't be a permanent boom in industrial commodity prices, because the world's miners will dig deeper.

As that supply side response occurs, commodity prices will drop from their current highs, and today's rush in mining and construction will ease back.

That said, even if we are wrong – even if commodity prices stay as high as today or rise even higher, that still doesn't imply that wages in the utilities sector will keep rising forever relative to other wages in the economy in response to the competitive pressures from the mining and construction sectors.

Rather, it simply means that the supply side of labour markets will take longer to catch up, and that the latter downward impact on relative wages in the utilities sector will take longer to become evident.

## **6.2 The outlook for the CPI**

Underlying inflation is moderating, dropping to 2½% over the past year. But will moderation last? After all, inflation rises when demand grows faster than supply within an economy. And it is that scenario which is worrying the Reserve Bank: *“Over the period ahead, strong growth in resource exports and a gradual pick-up in business investment is expected to offset the scaling back in public demand as stimulus-related projects are completed. In this central scenario, the economy is likely to be pushing up against supply-side constraints over time”.*

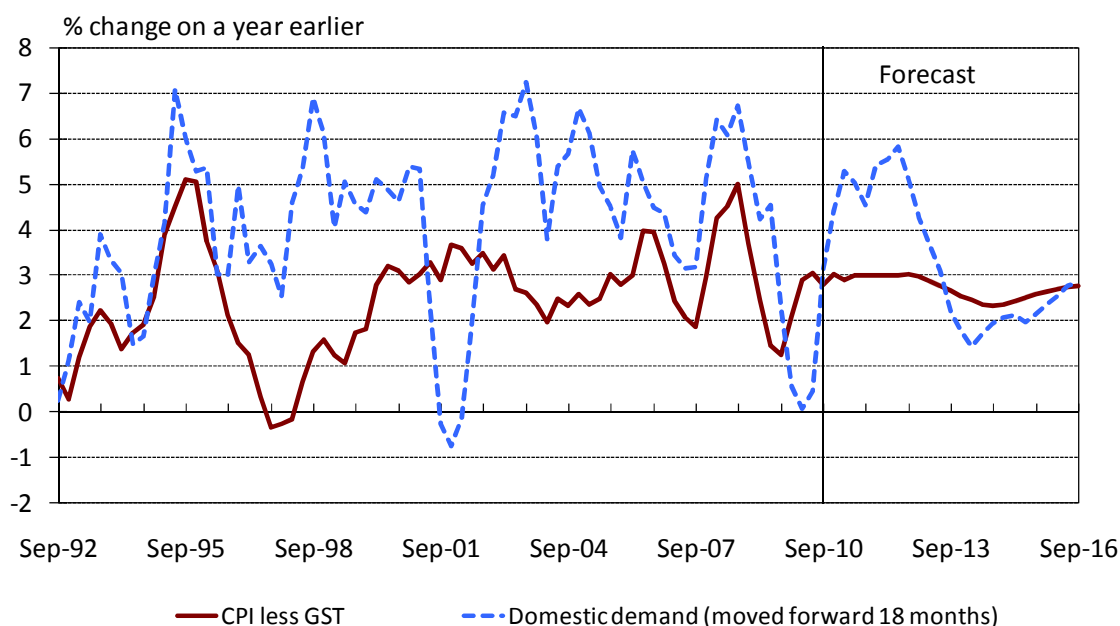
Is the RBA too worried by demand pressures? After all, consumers are still cautious, the timing of recovery in housing activity keeps getting pushed back, much the same is true of the coming surge in business spending, and what happens in exports matters little for Australia's CPI. The

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<sup>4</sup> ABARE (2005).

latter list of factors combined with renewed global fears of weaker growth to keep the Reserve sidelined for a while. Yet our view remains that demand pressures will pose a growing risk to the inflation outlook. Moreover, although exports aren't a particular problem for prices, many products are protected from global competition, and their prices are rising fast – as is true, for example, for electricity, gas and water, as well as in insurance, education and health. Taxes and charges – such as those on cigarettes – are also up. Add in the fact that domestic demand is lifting, and the recent reprieve on pricing pressures offered by the downturn is already passing. However, the impact of demand on price pressures is lagged, and the lingering weakness in retail demand suggests the upswing in domestic demand now underway – seen in Chart 6.12 – will take time to rev inflation pressures back up once more.

**Chart 6.12: CPI and domestic demand**

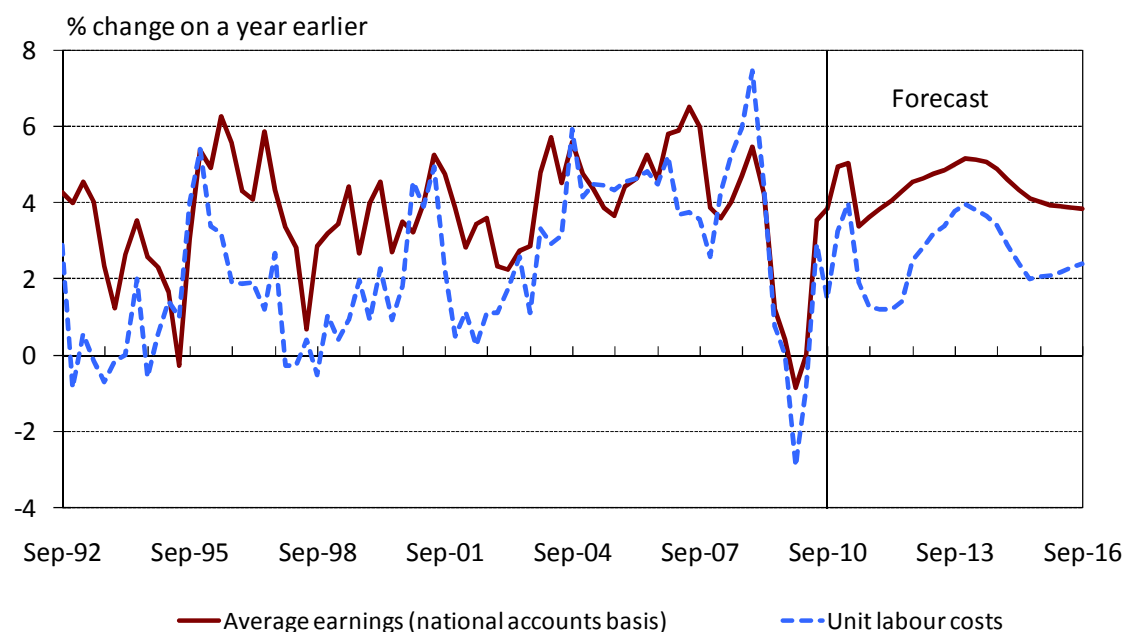


Source: ABS, Access Economics' macroeconomic model

Wage-related price pressures are also still being affected by downturn-driven developments. Wage growth fell fast as businesses and employees batted down for a deep downturn that never arrived. That cut unit labour cost growth sharply, ensuring labour costs are not a driver of current inflation pressures.

Yet wage growth won't stay so somnolent. It is expected to lift from its current lows, returning to more usual levels in 2011 and 2012. Again, however, it will take time for these pressures to build. Chart 6.13 shows a steady turnaround from the recent falls back to more normal labour cost gains (both with and without productivity).

Chart 6.13: Wages and labour costs



Source: ABS, Access Economics' macroeconomic model

### 6.3 The outlook for wage growth

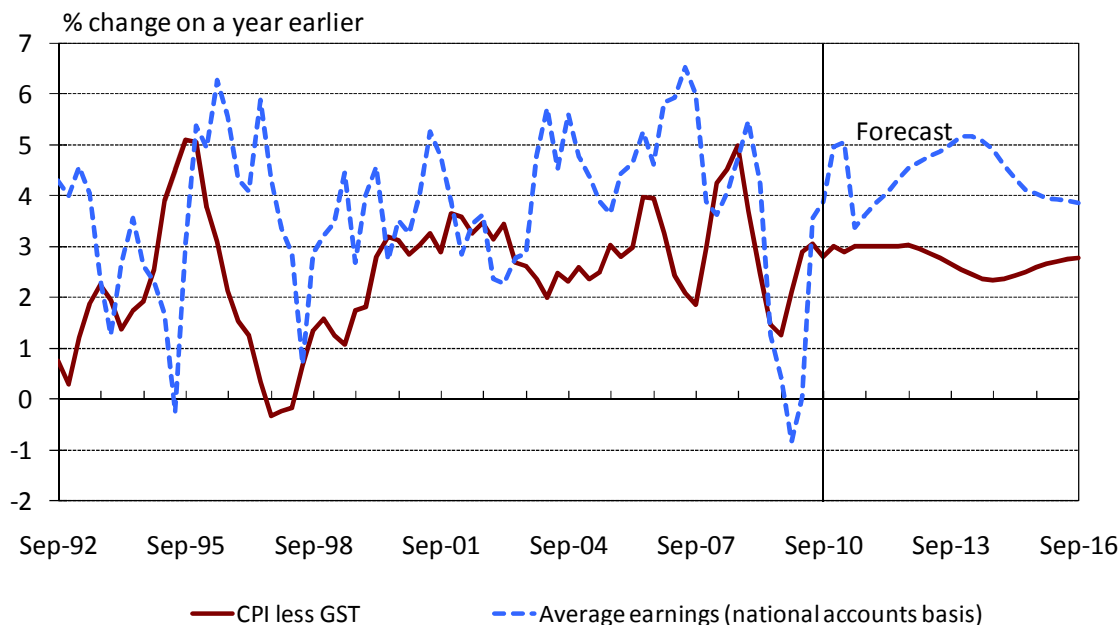
The private sector trimmed its sails as employers, employees and unions responded to deteriorating global conditions. In the event, wages reacted to fear of a bigger downturn than actually occurred in Australia, though that wage moderation itself was a notable contributor to saving jobs through the crisis. (So was the willingness of employees to accept fewer hours of work for a time so as to help maintain their jobs through the period seen as most at risk.)

Private sector wage growth dropped down to around 2½% during 2009 as a result – a rapid fall by past standards and considerably below the longer term trend of 3¼%. Private sector wage gains have picked up some pace through 2010 to date, having risen to 3.5% over the year to the September quarter 2010.

Yet in contrast to the rapid response of private wages to concerns about a potential recession in Australia, public sector wages remain around 4% – a rate they continued to register in the latest ABS and enterprise bargaining data. Adding those private and public outcomes, overall wage growth in the past year was 3.5%.



**Chart 6.14: Wages and inflation**



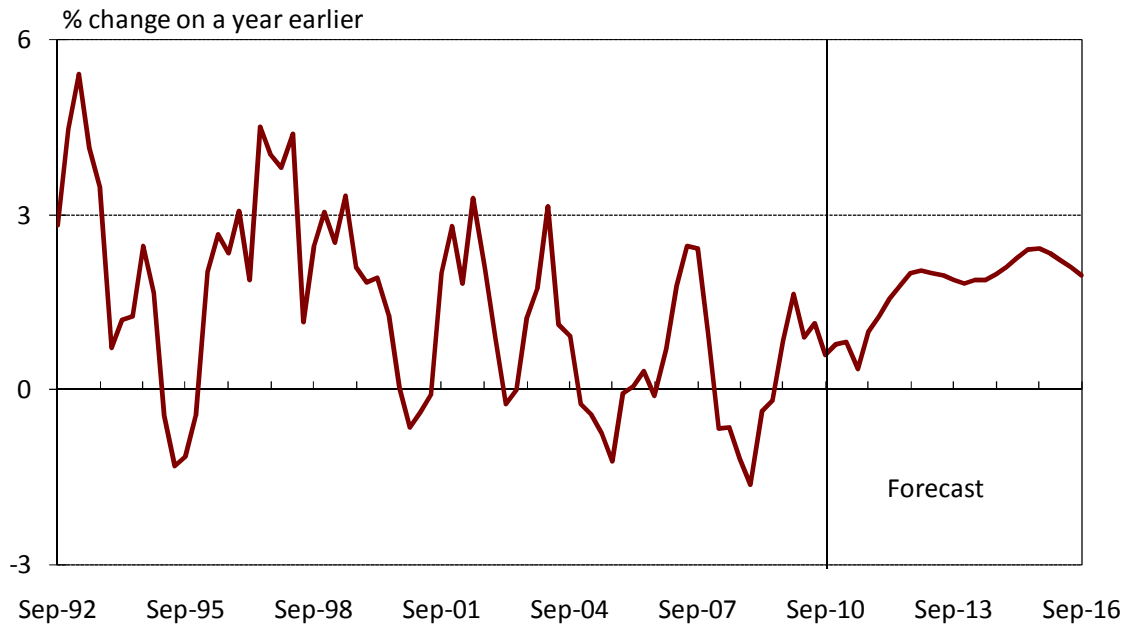
Source: ABS, Access Economics' macroeconomic model

State wage growth is in a relatively tight band, from 3.2% in the past year in Tasmania to 3.9% in Queensland, but sectors are seeing greater variability. The fastest gains are in the utilities, with public utilities achieving 4.9% wage growth in the past year (private sector utilities saw growth at a more modest 3.8%.)

Gains in health are at 3.8%, those in education are 4.4% and public administration and safety is at 3.9%. This trio have hefty public sector content, leaving them more removed from the pressures placed on the private sector by the downturn (and the fear that the downturn would be worse than it was).

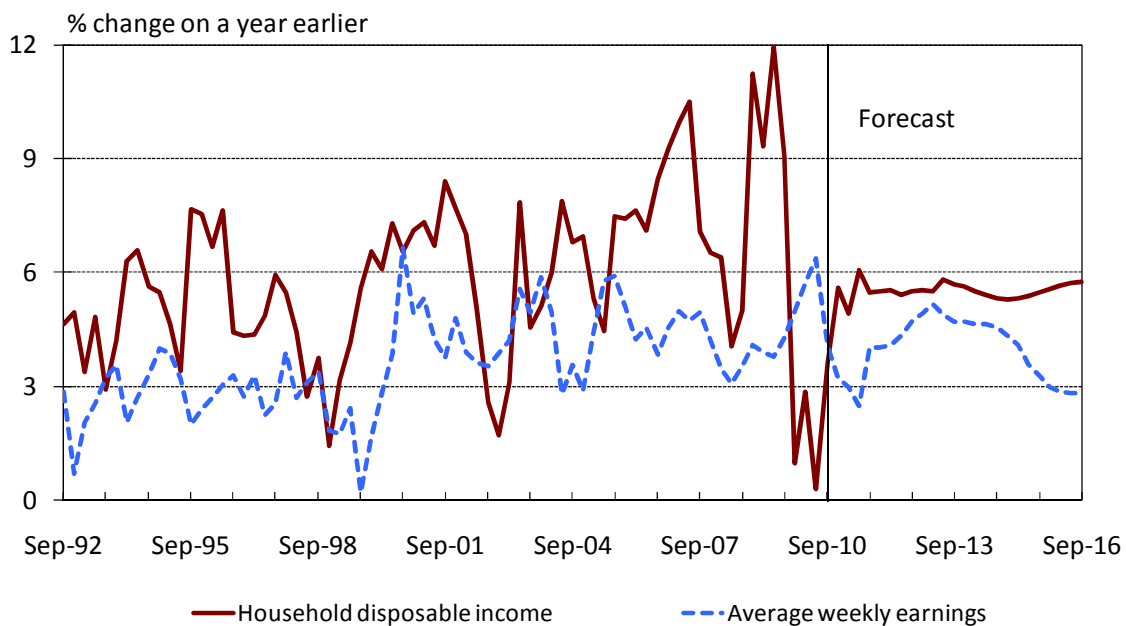
Outside of those public sector driven gains, mining wage growth stands out as stronger, at 3.8% in the past year. At the other end of the scale there has been very little wage growth in wholesaling, at just 2.5%, with information media and telecommunications registering a marginal gain of just 2.3%.

**Chart 6.15: Productivity growth**



Source: ABS, Access Economics' macroeconomic model

**Chart 6.16: Wages and household disposable income**

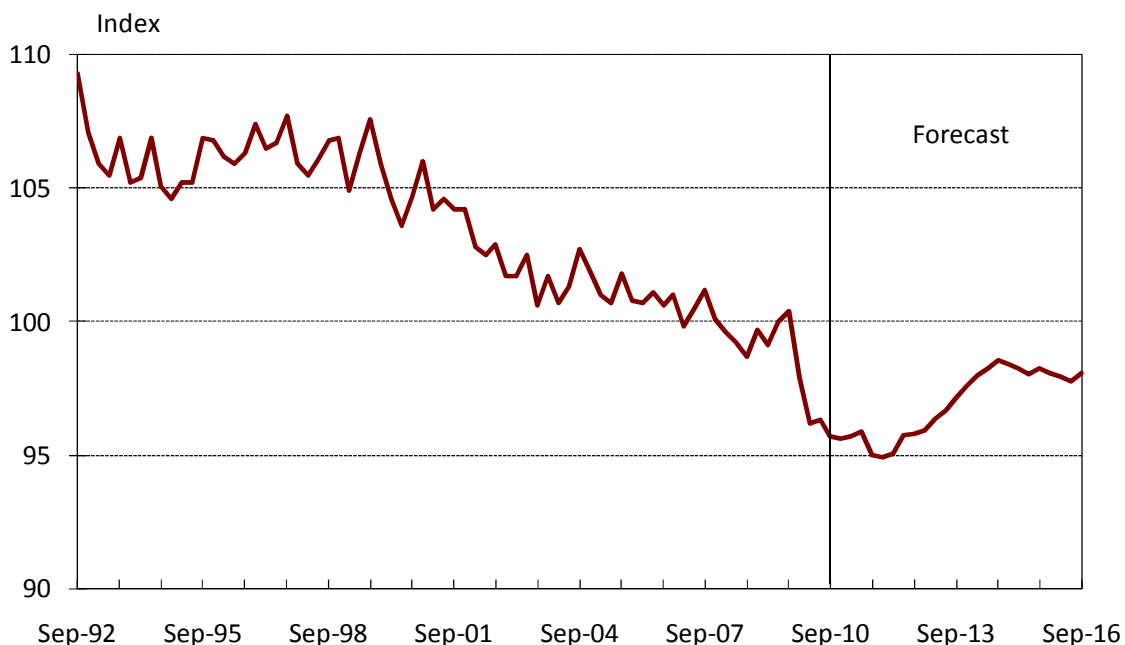


Source: ABS, Access Economics' macroeconomic model

The current pick up in pace in wage pressures may be in its infancy, but it is no surprise. It has now been apparent for some time that Australia 'dodged the bullet' of a deeper downturn. Unemployment peaked at less than 6% rather than the 8½% forecast by Treasury in the May 2009 Federal Budget. Moreover, job growth in the past year has been rapid, with some 375,000 jobs gained. At 3.4%, that is not only comfortably above the decade long average of 2.2%, but that growth in jobs has also been associated with a recovery in average hours.

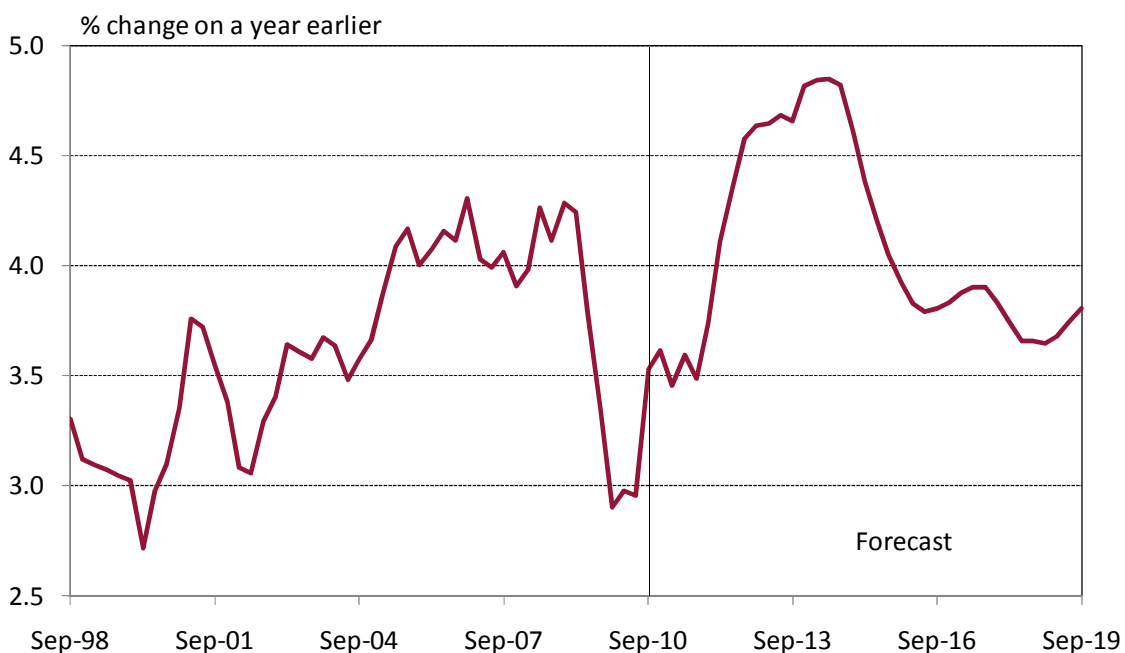
The latter have now clawed back about half their crisis losses, and there is more to come. Surveys show that, although most firms still have little difficulty in finding labour, the spare capacity in job markets is already being cut back, especially in mining and industries who sell to mining or whose workers can readily switch to being employed in the mining sector.

**Chart 6.17: Real unit labour costs (Index: 2006-07 = 100)**



Source: ABS, Access Economics' macroeconomic model

**Chart 6.18: LPI forecast growth**



Source: ABS, Access Economics' macroeconomic model

**Table 6.1: National wage forecasts**

**Financial year nominal wages forecasts**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Labour price index	4.1	3.0	3.6	3.9	4.6	4.8	4.5	3.9	3.9	3.8
Average weekly earnings	5.3	3.2	4.1	4.9	4.7	4.1	3.0	2.9	2.8	2.7
Ordinary time earnings	5.6	3.5	4.0	5.1	4.9	4.5	3.5	3.3	3.3	3.4
Unit labour costs	-0.2	2.7	1.3	3.0	3.8	2.7	2.2	2.5	2.6	1.6

**Financial year real wages forecasts**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Labour price index	1.7	0.1	0.5	1.0	2.1	2.3	1.8	1.2	1.5	1.5
Average weekly earnings	2.9	0.3	1.1	2.0	2.1	1.7	0.3	0.2	0.4	0.4
Ordinary time earnings	3.2	0.6	1.0	2.2	2.3	2.0	0.8	0.6	0.9	1.1
Unit labour costs	-2.5	-0.3	-1.7	0.1	1.3	0.3	-0.5	-0.2	0.3	-0.7

Source: ABS, Access Economics' Labour Cost model

## 7 General labour cost growth across States

This chapter provides labour cost forecasts by State as well as a discussion surrounding labour costs in each State. Table 7.1 provides a summary of State LPI forecasts to 2017-18 in real and nominal terms. In addition, additional measures showing growth less the impacts of productivity growth are also given.

**Table 7.1: State LPI forecasts**

### Financial year changes in nominal State Labour Price Index forecasts

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Queensland	3.3	4.1	3.9	4.8	5.0	4.6	4.0	3.9	3.7	3.6
South Australia	2.8	3.6	3.8	4.4	4.6	4.4	3.9	3.8	3.8	3.7

### Financial year changes in real State Labour Price Index forecasts

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Queensland	0.6	0.8	0.8	1.7	2.3	2.0	1.2	1.1	1.2	1.2
South Australia	0.6	0.5	0.7	1.3	2.1	2.0	1.2	1.2	1.5	1.4

### Financial year changes in State nominal productivity adjusted Labour Price Index

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Queensland	6.5	0.9	2.8	2.3	2.0	2.2	2.0	1.2	1.6	1.8
South Australia	5.0	2.3	3.3	3.2	2.6	2.9	2.2	1.8	2.3	2.7

### Financial year changes in State real productivity adjusted Labour Price Index

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Queensland	3.7	-2.3	-0.2	-0.7	-0.6	-0.3	-0.7	-1.6	-0.8	-0.5
South Australia	2.7	-0.7	0.2	0.2	0.2	0.6	-0.4	-0.9	0.0	0.4

Source: ABS, Access Economics' macroeconomic model

## 7.2 Queensland

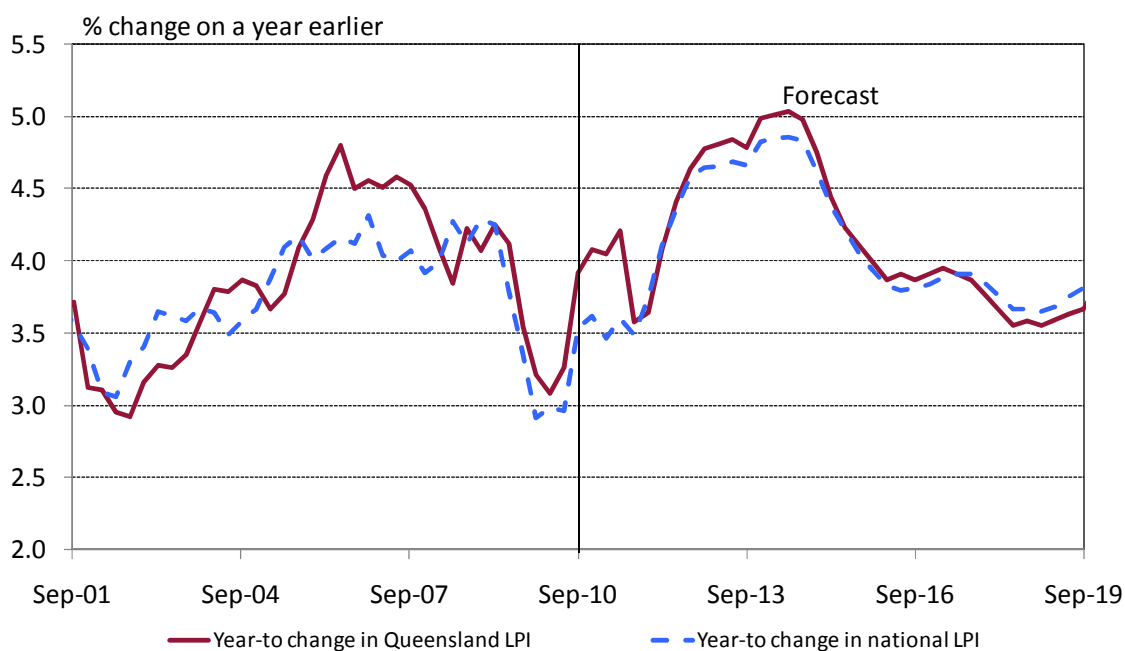
Queensland's economy has generally grown faster than the national average across the past two decades, boosted by generally strong population growth – particularly in the south-east of the State – and strong growth in tourism and retail.

Thanks to that faster-than-average demand growth, labour cost growth in the State has also been ahead of the national average.

Queensland's exposure to the global commodity boom has accelerated these trends. Since 1999-00 Queensland and Western Australia have seen the fastest increases in most wage measures, largely at the expense of New South Wales and Victoria.

That said, the general Queensland economy was hit particularly hard by the global economic downturn. Initially mining and tourism were hit hard, but a shortfall in commercial financing has had a lingering impact on the State's important construction sector, while the surging \$A has hurt the agricultural sector and intensified the problems for the tourism industry.

Those developments temporarily pulled the State's rate of LPI growth – which was notably ahead of the national average from 2004 to 2007 – back into line with that average (as seen in Chart 7.1).

**Chart 7.1: Queensland general labour cost growth**

Source: ABS, Access Economics' macroeconomic model

That said, the return to strength in the State's mining sector meant the relative slowdown was short-lived.

A combination of a recovery in economic growth in the State, the likelihood of strong domestic demand growth in the next twelve months and the necessity to keep pace with mining sector wage growth in Western Australia has seen the State's LPI growth jump in recent months.

Growth Queensland's LPI in the year to September 2010 was 0.5 percentage points above the national average, a gap that is expected to be maintained in coming months.

However, as Chart 7.1 shows, the growth in Queensland LPI is expected to trend upwards in line with the national average through 2012 and 2013. Wages will tend to rise marginally faster than the rest of Australia on average, at least until the economy moves beyond the strong period of mining and construction growth expected in the next five years.

### 7.3 South Australia

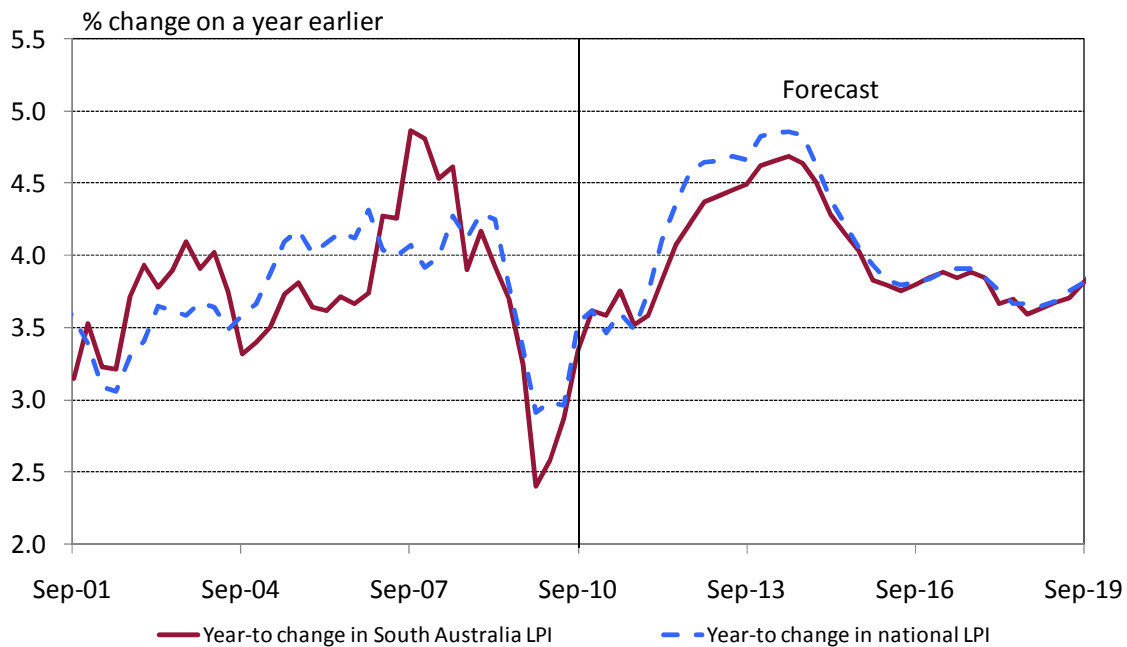
South Australia's relatively slow population growth and its even slower growing manufacturing sector have seen the State lag behind the national average for economic growth.

Since the mid-1980s the State has seen its contribution to overall national economic growth decline from around 8% to just 6.5%.

That said, more recently the performance of the State's economy has been solid, and South Australia was not as badly affected by the slowdown as other States. With its relatively small mining and financial sectors, the State had less to lose due from the negative performance of these sectors.

The exception was the State’s manufacturing sector, which suffered due to weak domestic demand, a combination of weak global economic conditions and the surging \$A and the loss of some key exports in the automotive sector.

**Chart 7.2: South Australia general labour cost growth**



Source: ABS, Access Economics’ macroeconomic model

The impact of manufacturing shows up in Chart 7.2 with the relatively sharp deceleration in LPI growth for South Australia as a whole. However, Access Economics projects that South Australia’s relative economic strength (measured relative to its general performance rather than in absolute terms) may see general labour cost growth in South Australia move with national average through to the second half of 2012, before the national average lifts further in response to strengthening LPI growth in the likes of Queensland and Western Australia.

As with the national trend, LPI growth is expected to peak in 2014 before easing with the economic cycle.

Yet while South Australia’s general rate of wage growth may lag the national average over much of the early period, this may not be true in individual industries, particularly the utilities and mining sector which will be competing with fast growing competitors in Queensland and Western Australia.

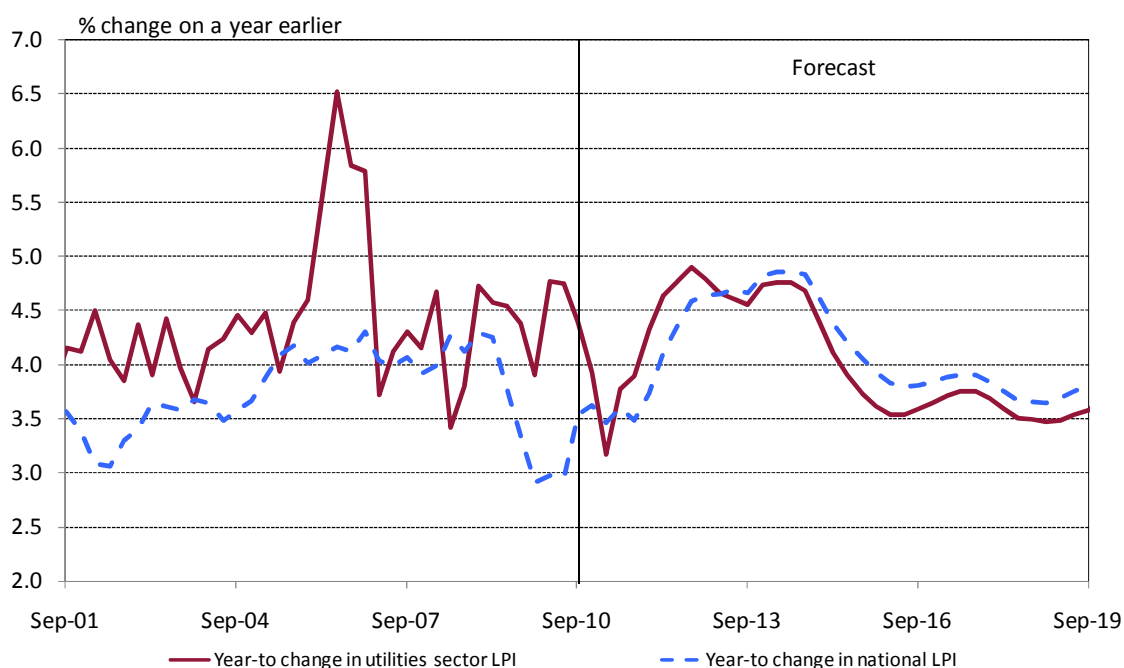
## 8 The national outlook for wage growth in the utilities sector

### 8.1 Strength in relative wages in the utilities in recent years

As Chart 8.1 shows:

- Growth in the utilities LPI has run consistently ahead of the national average across the period that LPI data has been published (though, as the later discussion notes, that was not true in earlier periods).
- The rate of increase has only fallen below the national average for short periods (and hence perhaps as a result of volatility – because the utilities sector covers only 1.3% of the non-farm workforce, there are occasional short-term swings in growth rates).
- As the chart also shows, this relative strength in wage gains in the utilities occurred across a period where Australia’s rate of wage increase itself accelerated.

**Chart 8.1: Wage growth nationally and in the utilities**



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

There are a number of reasons for the steady uptrend in national wage growth in this decade to date, but most revolve around a strong economy and the resultant pressure on the labour force:

- Job growth in the 2000s averaged 2.3% a year, almost double the 1.2% a year evident in the 1990s.
- That stronger economy pressured a range of prices, including the price of labour, with rising inflation also leading to rising wage growth.

However, for the utilities sector the composition of the job boom was particularly significant. Blue collar occupations did rather better in the past decade than they had over the previous



generation. As a result, a number of trades saw shortfalls in available labour, driving labour 'prices' higher. Wage growth was most notable in mining and in sectors where miners were key alternative employers (such as construction and the utilities) or where mining strength induced strength in that sector itself (with construction again a good example). Similarly, wage growth was strongest in resource States such as Western Australia, Queensland and the Northern Territory.

There was a considerable easing in wage growth through 2009 as businesses and employees battened down for a deep downturn that never really arrived. That phase of restraint cut into LPI growth sharply. However, in some sectors those negative views turned around particularly quickly. As the fears of the downturn spreading to China and India dispelled, demand returned for workers in mining and hence in construction, with flow on effects to the utilities, pushing the labour market back towards where it had been in 2006 and 2007.

Overall wage growth won't stay somnolent. Nationally, wage gains are expected to lift from their current lows, returning to more usual levels in 2011 and 2012.

Given the continued strength in demand across the coming few years in competitor sectors such as mining and construction, there is an expectation that utilities sector wages will continue to outpace the average, just as they did across the past decade.

The combination of relatively fast growth in sectoral output, plus the necessity to compete for qualified workers who may move to the mining or construction sectors, has sustained the relatively rapid pace of utilities wage growth in recent years.

Chart 8.1 above showed LPI growth in the utilities and in Australia as a whole, though the volatility in the results can hide (to an extent) the underlying trends in the data.

**Chart 8.2: Utilities LPI relative to national LPI**



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

Chart 8.2 gives a better indication of the relative strength of utilities wages, as it shows wages in the utilities relative to national wages.<sup>5</sup> The latter chart shows the strong relative gains in wages in the utilities sector over the decade to early 2006, followed by a period of levelling off through to 2008, and then renewed growth (that is, faster growth in utilities wages than the overall pace of growth) across 2009.

Results in the last two quarters have seen the ratio decline slightly, though the uptrend of the past decade remains intact.

## 8.2 Weakness in relative productivity in recent years

These wage moves are in contrast to productivity developments in the utilities sector. That is, wages are not rising because workers are becoming more productive – they are rising because competitor sectors have put pressure on wages for similar occupations in the utilities.

Nationally, productivity growth levelled off in recent years, meaning that wage growth was translating at a faster-than-usual pace into increased labour costs.

**Chart 8.3: Utilities productivity relative to national productivity**



Source: ABS, Access Economics' macroeconomic model

And some sectors – notably mining, but also the utilities – saw their productivity levels fall, boosting labour cost growth as opposed to wage growth) even further.<sup>6</sup>

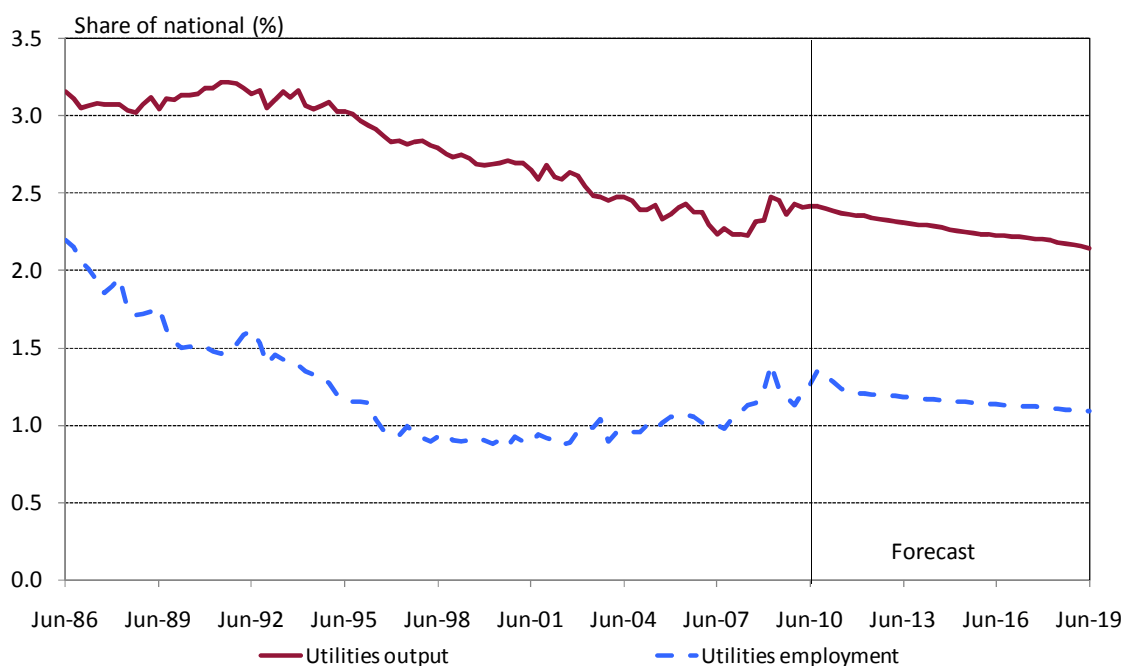
<sup>5</sup> Note this is a comparison of two indexes both set to equal 100 in 2008-09 – it does not mean wage levels are much the same in the utilities as the national average.

<sup>6</sup> Labour costs to businesses are essentially driven by changes in wages plus changes in the efficiency of work (productivity). For the typical sector, wage growth averages around 4% a year, and productivity growth is 1½%, meaning that growth in unit labour costs is 2½%. In turn, the latter lies in the middle of the Reserve Bank's target range for inflation.

Chart 8.3 above shows the productivity of the average worker in the utilities sector relative to the productivity of the averaged Australian worker.

Australian governments embarked on reform of the utilities sector in the mid-1980s. That process saw relatively fewer workers achieve the same output, driving the productivity of the average worker in the utilities from about 1.5 times the Australian average in the mid-1980s to 3.5 times the Australian average from 1997 to 2002.

**Chart 8.4: Utilities output and employment as a share of national equivalents**



Source: ABS, Access Economics' macroeconomic model

Since 2002, however, the poor productivity performance of the wider Australian economy was worse still in the utilities sector. There are a number of reasons, including that:

- The downswing in employment in the sector had arguably gone too far, requiring a degree of catch up (meaning that, in effect, relative productivity in the period 1997 to 2002 may have been unsustainably high). Spending on maintenance has lifted, and so too has spending on some new infrastructure (albeit with the latter still falling short of future requirements). That increased spending has added to employment without add to output, hence weighing on measured productivity.
- A compositional switch in the sector away from water to electricity and gas has also worked to lower measured average productivity in the sector.
- Within the water sector, a series of droughts in a number of States also ate into measured productivity levels.
- Industry sources suggest that a reduction in outsourcing in recent years may also have raised employment without raising output.
- The reform momentum of earlier years faltered.

Accordingly, as noted above, the pick-up in relative wages in the utilities sector in recent years was not because employees were becoming more productive, it was because they were becoming more sought after in other key sectors.

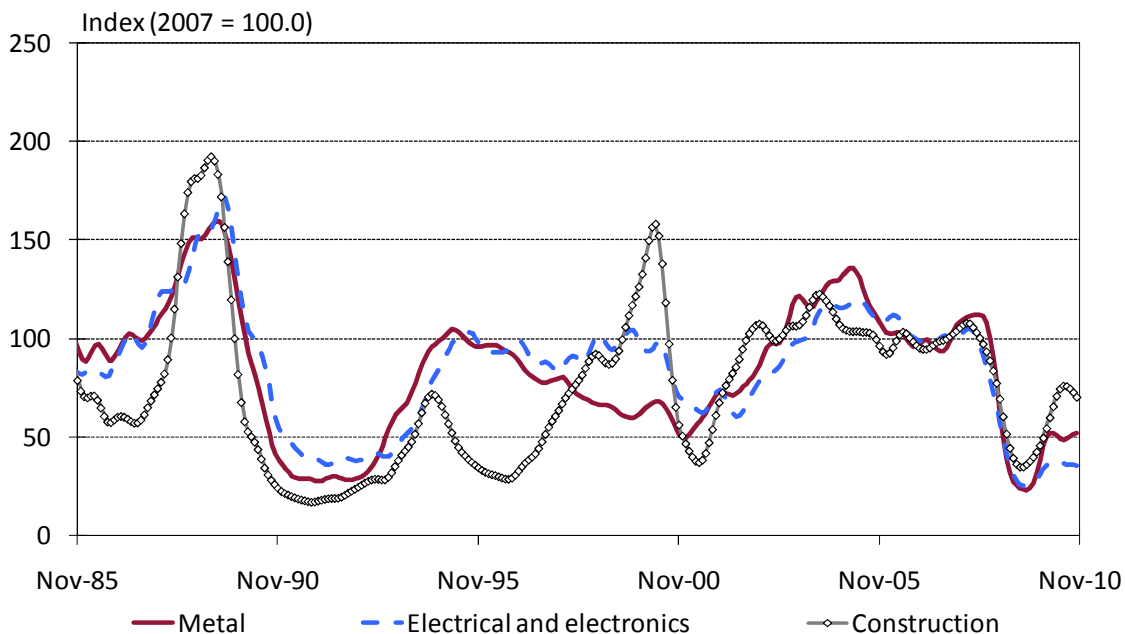
The effects of competition from mining and construction are expected to continue to be felt for a few more years, though the impact of that on labour cost growth in the utilities may be muted due to a partial unwinding of some of the negative productivity factors noted above (with an easing of drought conditions on the east coast one factor that may boost productivity in the short term).

### 8.3 Business cycle developments in the sector and its competitors

The rebound in the economy has largely been centred on the sectors covered in this report:

- In terms of output, the **utilities** sector did not see a downturn in 2009 (in fact growth hit a high during this period). That was due to sharp rises in electricity (up 10.5% in the year to June 2009) and water and waste services (which leapt by 20% at the start of 2009). As noted earlier, there were a number of reasons for that period of faster growth (including rapid population growth), but perhaps the main one is that the public sector found itself on the wrong side of voter displeasure as a long period of under-investment in Australia's urban infrastructure led to increasing frustration with services. Although the timing and the nature of the recent lift in output varied from State to State, there was a greater willingness to spend on desalination plants and dams in the water sector, and on generation and distribution capacity in the electricity sector. However, the boost to the supply side capacity of the sector began when State Governments and their Federal funders had rather more money than they do today. Moreover, population growth is fading, while the pace of new housing construction starts, which had picked up earlier in 2010, is now dropping back once more. That combination underpins the relatively modest outlook, as does the lack of a carbon pricing policy in Australia
- Employment in **mining** rose from 81,000 people in late 2003 to 182,000 in late 2008 – a gain of 125% across a period when the sector's output rose by only 21%. However, the sector reversed just as sharply and shed 30,000 in the following six months. The fall was short lived. The latest sectoral employment data (for August 2010) shows mining sector employment has rapidly returned to back above the earlier peak, and that it maintains considerable momentum – meaning the previous impacts from labour shortages are likely to reappear.
- The lift in the share of Australian workers employed in **construction** from the late 1990s was astonishing. By 2008 almost one in every ten Australian workers was employed in construction and, unlike mining, the construction sector's downturn was relatively mild, aided by the focus of Government stimulus on the sector. While that stimulus is now being withdrawn, demand is returning. Not all sectors of the industry are strong however, as key parts have been starved of finance, and the combination of falling profits and falling capacity utilisation has eaten into demand for housing construction regardless of the availability of a supply of finance. Yet the strength in engineering construction prospects is striking.
- **Administration services** were savaged by the downturn, particularly employment and recruitment services, but both have returned to health and should continue to do well as long as rising profits makes taking on employees a smart move for employers (thereby boosting demand in the labour recruitment and associated parts of this sector).

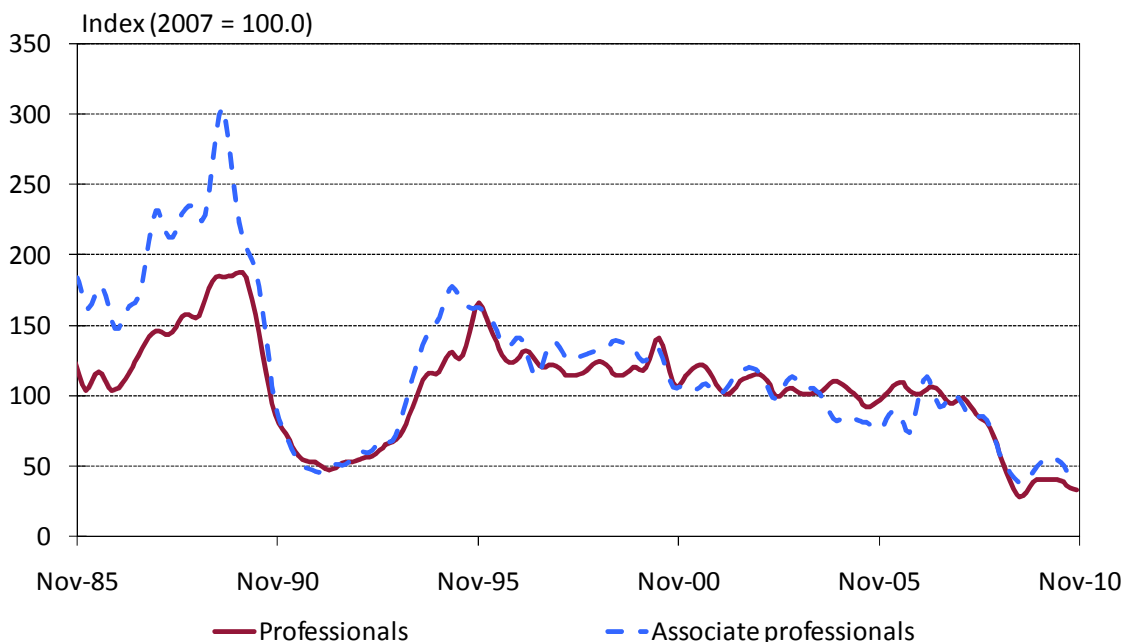
**Chart 8.5: Trades vacancies**



Source: DEEWR Vacancy Report

Those cyclical effects were readily evident in the vacancies data compiled by the Federal Department of Education, Employment and Workplace Relations (DEEWR) – both in terms of the sharp decline in demand for construction and related workers, but also in the subsequent rebound.

**Chart 8.6: Professionals and associate professionals vacancies in building and engineering**



Source: DEEWR Vacancy Report

Chart 8.5 focuses on vacancies in the trades. Several relevant trades are noted – construction, electrical and electronics, and the metal trades.

For both the latter two, the decline in 2009 drove vacancies to their lowest level since 1983, while construction vacancies fell to their lowest since 1996. All have since rebounded, although that is most obvious in the construction sector where vacancies are now at near longer term averages (though they are still below the strength in the last upswing). The electronics and metal trades are still weak by general historical standards.

There has been no improvement in vacancies for professionals and associate professionals – as seen in Chart 8.6. Demand for both these categories of labour remain at record lows and have not increased significantly in recent months.

Overall the data for vacancies suggests some returning strength in the construction sector, modest recovery in mining and utilities (which may presage further expansion in later years), but limited scope for growth in the administration services sector.

## 8.4 Supply side factors

That said, it is not just the demand side which is affecting this equation. The supply side is important too. The good news is that more people are studying in the fields which feed into employment in the utilities.

For example, the share of the Australian population aged 16 to 39 studying engineering lifted sharply in 2006, and stayed at that higher level in 2007.

That share is currently 11% above its 2004 low.

**Table 8.1: Student participation rate by field of education (16 to 39 year olds)**

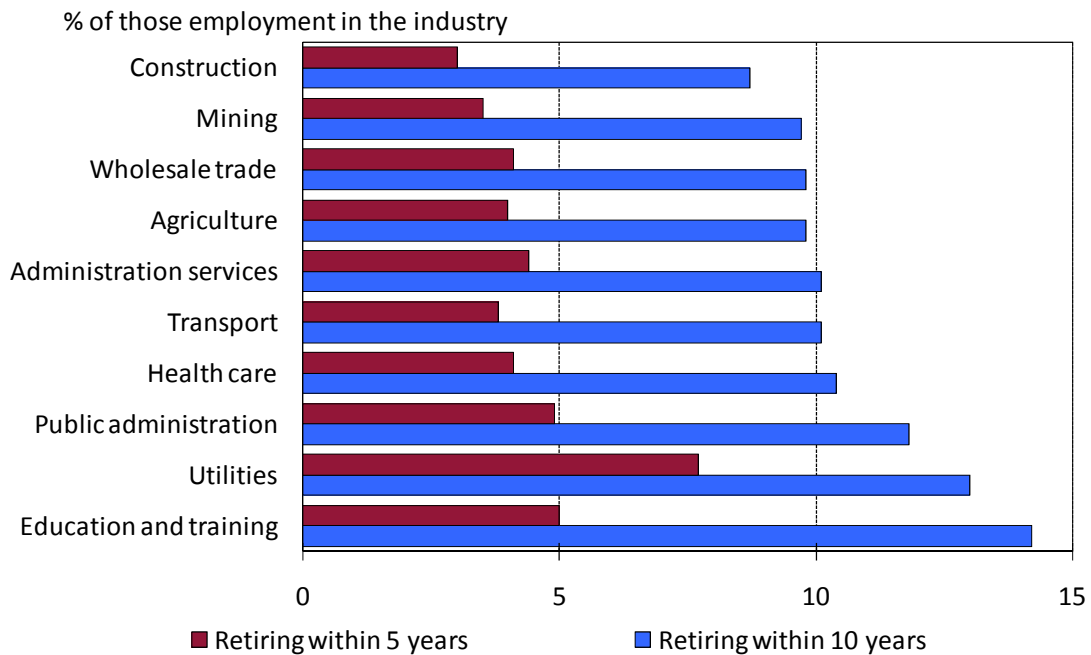
	2003	2004	2005	2006	2007
Natural and physical sciences	0.82	0.83	0.83	0.80	0.80
Information technology	1.22	1.05	0.90	0.86	0.66
Engineering and related technologies	3.12	3.04	3.15	3.39	3.38
Architecture and building	1.03	1.11	1.16	1.28	1.34
Agriculture, environmental and related studies	0.91	0.87	0.83	0.82	0.76
Health	1.36	1.39	1.47	1.58	1.71
Education	1.19	1.18	1.21	1.21	1.26
Management and commerce	5.12	5.02	4.97	5.04	5.15
Society and culture	3.53	3.40	3.42	3.54	3.43
Creative arts	1.09	1.06	1.06	1.09	1.10
Food, hospitality and personal services	1.29	1.29	1.34	1.62	1.63
Mixed field programmes	0.84	0.88	0.90	0.82	0.96

Source: DEEWR Higher Education Statistics, NCVER student enrolments, ABS 3101.0

On the other side of the ledger, the ABS Survey of Employment Arrangements, Retirement and Superannuation (SEARS) ranks the utilities sector as one which can expect a relatively faster rate of retirement over the next five and ten years.

Those industries which face a surge of retirements include education (where 14% of workers intend to retire by 2017), the utilities (13%), and public service employees (12%). At least 40% of employees in these three industries are aged 45 or over and around 15% of employees are 55 or over.

**Chart 8.7: Expected retirement rates by sector**



Source: ABS Survey of Employment Arrangements, Retirement and Superannuation

Table 8.2 below focuses on occupations rather than sectors:

- It indicates that, apart from 'Computing professionals', the other occupations listed here have a significant proportion (greater than 10%) of workers 55 or over (the early stages of retirement).
- The professional and associate-professional engineer occupations may be of concern as they have over 16% of workers over 55.
- These may also be of higher concern as they are higher skilled occupations, where workers may be difficult to replace.

The age profile of the trade occupations indicates there is little problem associated with retirement. This is because workers tend to leave these occupations prior to retirement (perhaps to seek employment within the company at a less physically demanding job).

**Table 8.2: The age profile of selected occupations, 2006**

Occupation	15-24	25-34	35-44	45-54	55-64	65+	Total	% 55+
Miscellaneous generalist managers	4,947	16,086	26,850	27,665	18,011	3,918	97,477	22.5
Engineering, distribution and process managers	2,585	22,735	38,069	31,288	13,271	1,361	109,309	13.4
Miscellaneous specialist managers	4,063	19,562	29,106	36,415	16,364	1,409	106,919	16.6
Building and engineering professionals	10,043	33,413	28,231	24,734	15,124	3,311	114,856	16.1
Computing professionals	11,072	46,411	39,582	23,020	6,830	510	127,425	5.8
Miscellaneous professionals	3,325	10,120	11,250	10,174	5,873	871	41,613	16.2
Building and engineering associate professionals	8,497	19,495	23,108	21,687	12,196	1,740	86,723	16.1
Electrical and electronics tradespersons	34,036	37,952	39,414	33,519	15,373	1,933	162,227	10.7
Miscellaneous tradespersons and related workers	13,302	19,253	19,383	15,272	6,761	990	74,961	10.3
Miscellaneous intermediate clerical workers	24,288	38,734	34,405	32,315	15,549	1,749	147,040	11.8

Source: ABS Survey of Employment Arrangements, Retirement and Superannuation

More generally, attrition includes workers leaving employment for the following reasons:

- Retirement from the workforce altogether;
- Moving to employment in another occupation;
- Becoming unemployed, and continuing to seek work in the same or a different occupation; and
- Exiting the labour force with the intention to return to the same occupation after a period of time, a component that is more prevalent in occupations with a female dominated workforce.

The ABS Labour Force Mobility survey shows that the higher the level of skill (or the more qualified one has to be to undertake the occupation), the lower the rate of occupational turnover.

Table 8.3 below shows that attrition rates are highest among the trades and lowest either where skills are more specific (such as computing professionals) or where wages are high (generalist managers).



**Table 8.3: Estimated annual attrition rates from selected occupations<sup>7</sup>**

Occupation	% changing occupation	% becoming unemployed	% leaving labour force	Total attrition rate
Miscellaneous tradespersons and related workers	8.3	2.2	4.0	14.5
Miscellaneous intermediate clerical workers	4.9	2.8	3.8	11.5
Miscellaneous professionals	3.1	2.8	4.1	10.1
Miscellaneous specialist managers	5.3	1.3	3.0	9.7
Building and engineering associate professionals	3.1	1.7	3.1	7.9
Electrical and electronics tradespersons	3.1	2.0	2.5	7.6
Engineering, distribution and process managers	4.0	1.7	1.5	7.2
Building and engineering professionals	2.2	1.1	2.8	6.1
Computing professionals	2.3	1.7	1.9	5.9
Miscellaneous generalist managers	2.3	0.6	2.9	5.7

Source: ABS Labour Force mobility survey

Note that people who had changed employers over the course of the year (including from the public to the private sector or vice versa) but had the same occupation are not included within this definition of turnover – they are still part of the labour force at the start and end of the year, with the same occupation.

That said, recent developments in superannuation mean that a number of older Australians are staying in the workforce for longer.

On balance, therefore, Access Economics sees supply side developments also favouring weaker wage gains over the next year and a half – relatively few retirements, but more students with relevant qualifications becoming available.

## 8.5 Comparison with results from enterprise bargaining agreements

Chart 8.8 compares growth in the utilities sector LPI with a number of other wage growth measurements that are produced on a regular basis.

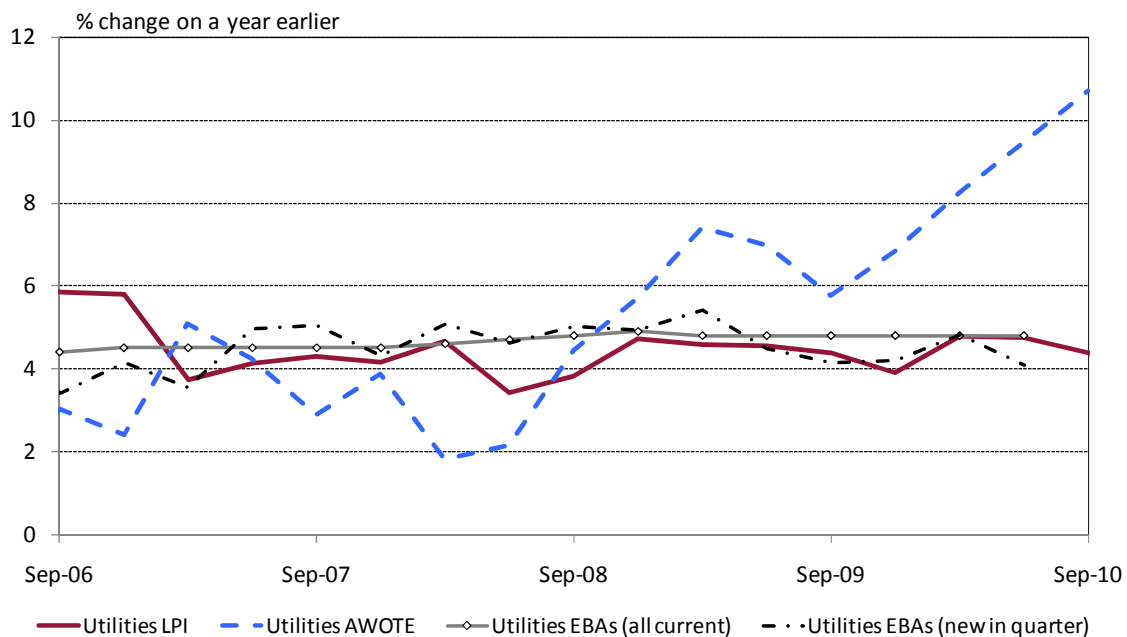
The first measure shown is the average weekly ordinary time earnings (AWOTE) result for the national utilities sector. As the chart amply illustrates, the growth in this wage series is particularly volatile, and, as noted elsewhere in this update, this volatility limits its use in forecasting.

The remaining two series come from the *Trends in Federal Enterprise Bargaining* publication produced by the Department of Education, Employment and Workplace Relations and cover growth in wages under enterprise bargaining agreements. Two series are shown:

<sup>7</sup> Those leaving the labour force include retirees, plus those leaving temporarily, including moving overseas

- the first shows growth in wages under all agreements current during the quarter. We would expect movements in this measure to be broadly reflective of trends in the broader utilities sector – or in other words, when this series accelerates we would expect a similar acceleration in growth in the sectoral LPI;
- the second series shows annual growth that will occur under any agreements commencing in the quarter shown. This series is more indicative of immediate future trends in the first EBA series – if there were to be, say, a sustained decline in wage growth, then that would show up first in new agreements.

**Chart 8.8: Measures of utilities sector wage growth**



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

In general, growth in new utilities sector EBAs is a solid predictor of the level and trend in the LPI in the immediately following quarters:

- Growth in EBA wage rates seen in newly submitted agreements has moved between 4% and 5% per year, as has the increase in the sectoral LPI.
- The trends across 2009 suggested that a moderation in utilities sector wages pressures was underway – with new agreements seeing implied wage rises at the lower end of that range.
- The current rate of growth (4.8% per annum for all agreements operating at the end of June 2010, as it has been since early 2009) will have an impact on wage growth over the medium term – only around one in every ten agreements are re-negotiated in any given quarter, meaning a typical agreement lasts around three years.

## 9 The national outlook for wages in competitor industries

### 9.1 Mining

The mining sector is one of the key competitors for the utilities sector.

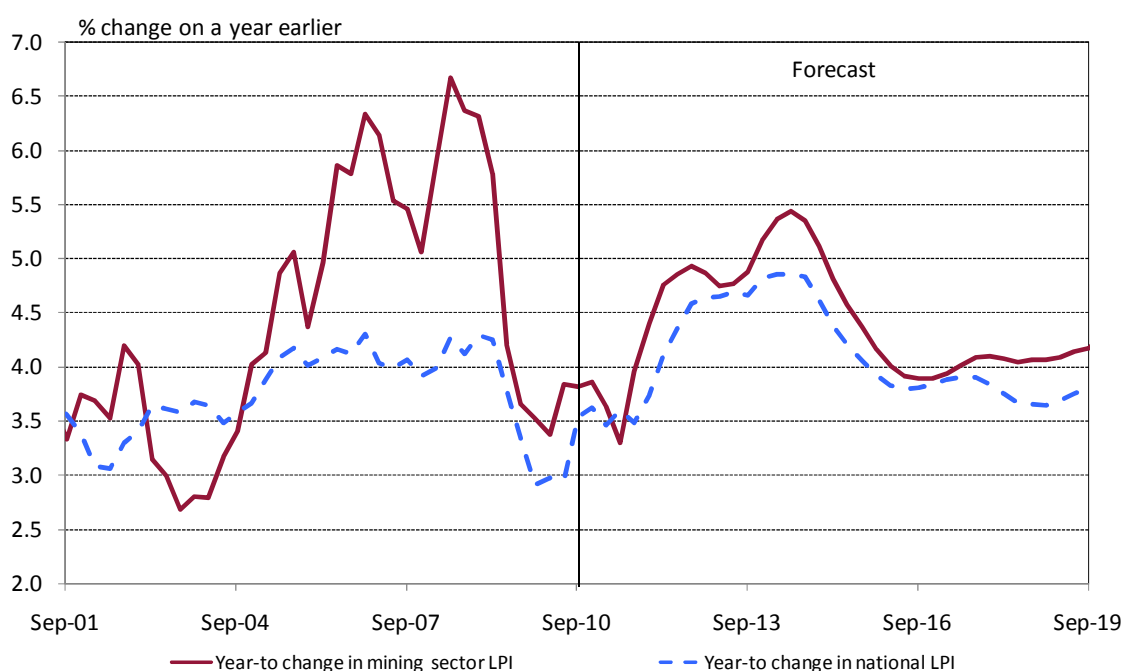
That is because some workers in the utilities sector are able to transfer their skills quite readily across these two sectors, so when wages in one sector move higher relative to the other, then employees are able to move – or able to at least point to the potential for making that move when they conduct wage negotiations.

The strong correlation between relative LPI movements between utilities and mining (and construction) seen in Chart 6.2 earlier illustrates how closely related the trends in these key sectors can be.

#### 9.1.1 Current LPI projections

Those correlations became increasingly important during the first commodity price boom (broadly from 2006 to mid-2008), which generated strong growth in both profits and employment (though not output) in the mining sector. The extent of the skills shortage saw mining wages grow at rates of around 6% for several years (see Chart 9.1).

**Chart 9.1: Mining growth forecast**



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

Those trends ended abruptly in late 2008 as miners retreated rapidly from expansion plans and shut operations that were deemed unprofitable.

However, the boom in mining has returned earlier and more sharply than has been expected. Such has been the strength of China and other emerging economies relative to the global

backdrop more generally that there has been a notable burst of good news – in relative terms – for the demand side of the mining sector.

That is already showing up in wage outcomes for that sector (despite the fact that it will take some time for miners to fully adjust to the new circumstances they face).

Miners have already lifted employment notably in recent months, and there has been a wage impact as well as employers 'stock-up' on employees in anticipation of the strength of demand they can see ahead, and in light of the supply expansions they already have in train.

While wage growth rates in mining fell in 2009, they remained ahead of the national average, and wage gains in the sector have since returned to greater strength in anticipation of the demand boom currently developing in mining.

Wage growth in the mining sector is therefore expected to remain ahead of the national average in the forecast period, although – partly thanks to a healthier outlook for the supply side, and partly thanks to the fact that there has already been a notable increase in wage relativities in the sector – the gap between mining wage growth and national wage growth is modest compared to that seen in history.

That said, the ability of the supply side to adjust will be very important – not merely to wage outcomes in mining, but indirectly to those in the utilities as well. It is therefore noteworthy that, on 18 November 2010, the Australian Financial Review reported that:

*“The Department of Immigration is quietly working on proposals to allow mining companies to quickly import skilled workers through a new “enterprise migration agreement”, which would dramatically cut red tape associated with 457 visas for temporary skilled migration.*

*The agreements would allow businesses to quickly access skilled migrants in the construction phase of so-called “mega” resources projects.*

*Under current practice in the industry, temporary skilled migrants are usually covered by 457 visas sought by project subcontractors. The new agreements would remove the need for these visas because the entire project could be covered by one streamlined migration agreement.*

*Employers would get pre-approval to use the new agreements, allowing them to quickly import workers with specific skills as the need arises during a project.*

*In return, mining companies could be forced to make greater investment in training local workers and improve predictions of their workforce needs at the time they apply for project approval.*

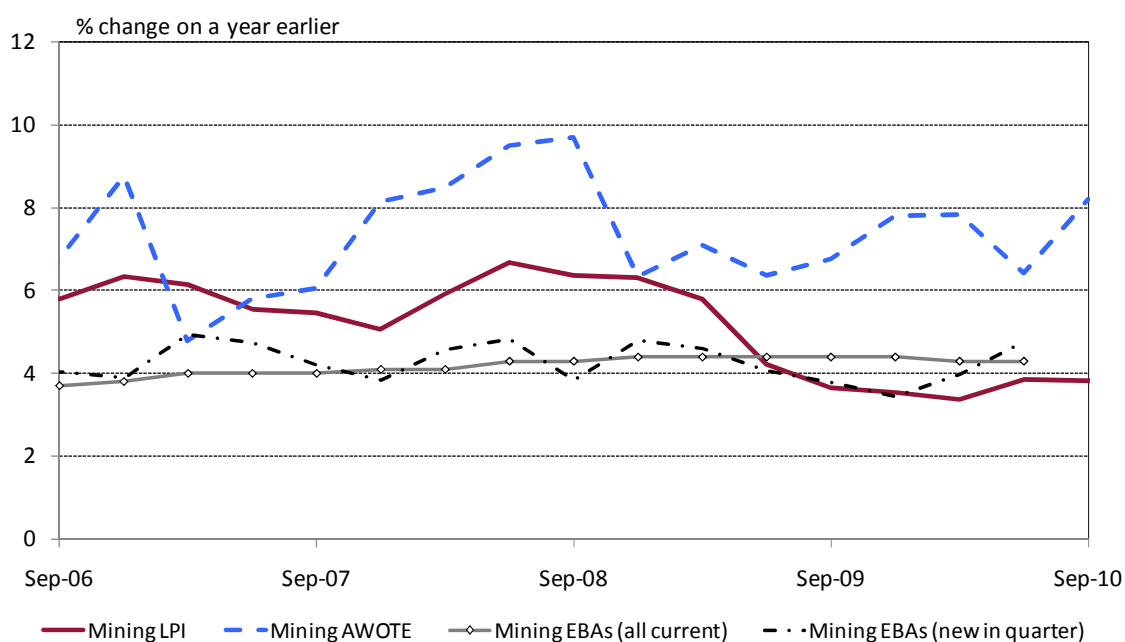
*The Federal Government is also considering backing an innovative training program designed by Queensland-based training organisation East Coast Apprenticeships that could result in the four-year qualification being condensed to 18 months.”*

### 9.1.2 Comparison with results from enterprise bargaining agreements

Movements in the mining sector LPI have been strongly correlated with trends in new EBAs in the sector (see Chart 9.2). This solid relationship reflects the use of EBAs in the sector (around 23% of workers in the industry were covered by EBAs at the end of 2009, compared to around 17% of all workers).

There has also been a far closer relationship between the LPI and AWOTE series in this sector – suggesting slightly smaller impacts from compositional shifts in the workforce.

**Chart 9.2: Measures of mining sector wage growth**



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

As the mining boom has gathered strength across 2010 there has been a noticeable acceleration in the rate of wage increases in newly submitted EBAs – the latest data showing that increases in the sector are now running second only to the surging construction sector. That too is to be expected – both because mining does compete with the construction sector for workers (and hence must respond to the rises elsewhere) but also because the construction boom is a precursor to further mining expansion.

## 9.2 Construction

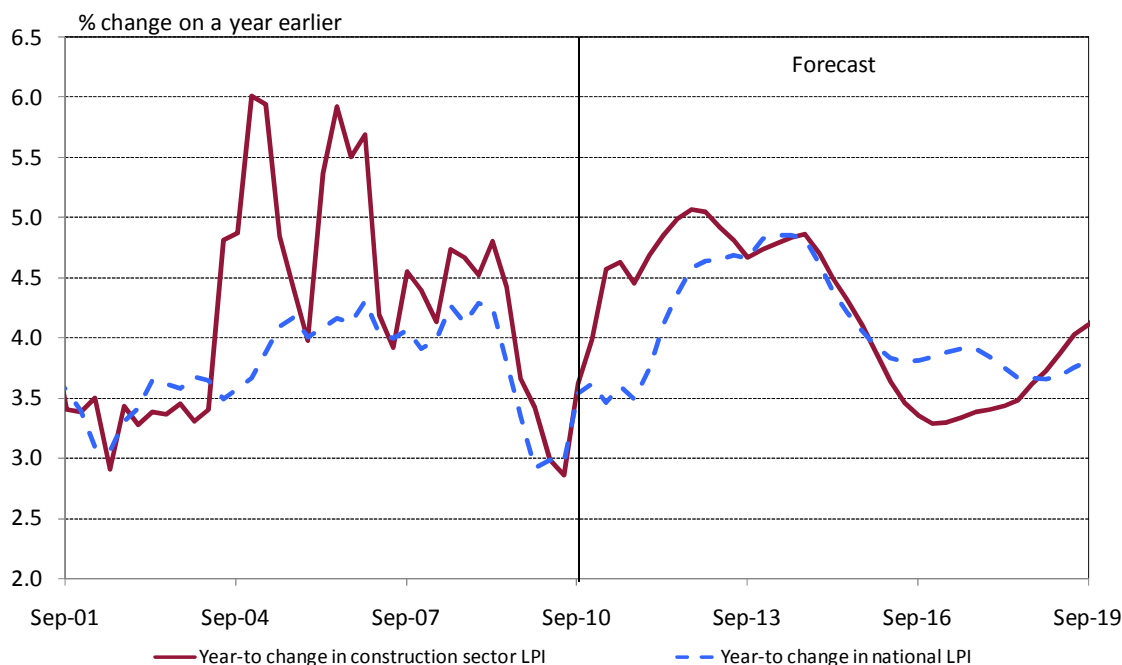
The construction sector has always played a large (and cyclical) role in Australia's economy.

When Australia does well, construction grows strongly, and when Australia slows, construction can fall notably.

The next move for the industry will be a renewal of sectoral strength as the baton passes from public sector works (public housing, schools, roads and rail) to private sector activity, with 2009-10 seeing the go-ahead for a number of additional resource projects thanks to stronger commodity prices – with those projects particularly centred in Western Australia, but also notable in Queensland.

Yet this is not just a resource story: a key part of that strength will be in sectors outside mining (where the National Broadband Network is a good example).

**Chart 9.3: Construction growth forecast**



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

### 9.2.2 Current LPI projections

Access Economics projects that construction wages will lift into the coming boom. For example, over the past year the construction wage index ('LPI') grew 3.6%, a gain slightly above than that for all Australian wages (at 3.5%).

Both will gather pace from here, but more so in construction, with the wage cycle there set to peak nationally during 2014 (see Chart 9.3).

A comparison is handy here. During the four years to 2013-14, construction wages are expected to average 4.7% a year. That may be benchmarked against the 4.7% they averaged in the three years to 2007-08 (the height of the last boom).

Chart 9.3 shows that the construction sector LPI can be quite volatile when compared with the overall LPI. The growth in the construction LPI has generally been above its national equivalent since 2003, though it slipped below the national benchmark over the year to June 2010 before recovering more recently.

Looking forward, the coming boom in construction demand is expected to see the construction sector LPI generally growing at a faster rate than the national LPI.

However, it is worth stressing that this relative boost to wages ultimately proves temporary – it brings forward the timing of demand in these two sectors, but has less of an impact on the relative size of those sectors by the end of the ten year forecast horizon we consider in this report.

In part that reflects the role of the supply side, as more workers leave occupations in other sectors, arrive from overseas, put off study, stay longer in the workforce, or return to the workforce.

Or, in other words, the earlier-than-expected demand boost to mining and construction provides a long-lived impact on wage relativities in these sectors, but not a permanent one.

The construction sector is one of the most cyclical in Australia, with the eventual slowdown in the sector dragging LPI growth lower in the later years among those forecast for this report.

Productivity effects are likely to boost wage growth in the short term, as may the growth in other sectoral wages in the longer term. However, this last trend should be mitigated by the fact that construction wages have moved relatively early compared to other sectors.

### **9.2.3 Comparison with EBA results**

While the EBA results for utilities, mining and administration services have been fairly stable in recent years – and all are currently sitting very close to their average since 2006 – construction sector EBAs have seen a significant upward trend in the past eighteen months.

The year to June 2010 saw the average wage growth under all EBAs in the sector grow by 5.4% – well above the average rate of 5.0% seen since 2006.

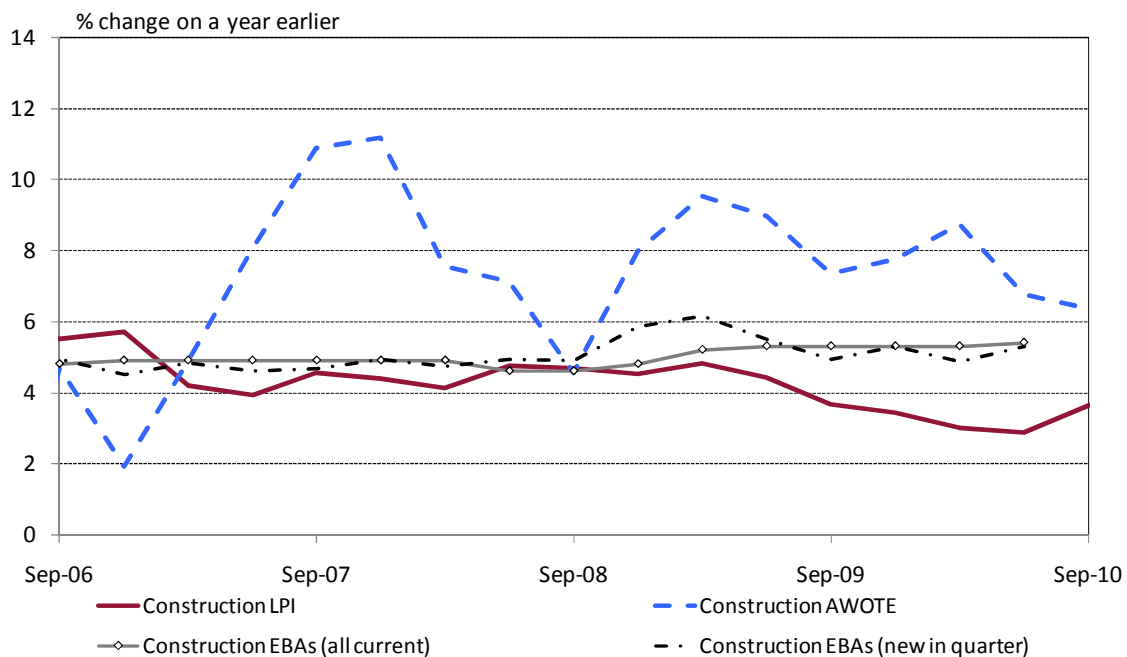
As Chart 9.4 makes clear, and following a sharp decline in growth as the GFC hit, wage growth in the sector has rapidly returned to strength as it became apparent that:

- the downturn to national growth was likely to be less than initially feared; and
- government stimulus would be weighted heavily towards the construction sector, most notably through the Building the Education Revolution scheme.

That initial surge has stabilised in the past year, although strength in the EBA measures of growth is remained even though the growth in measured LPI has eased in line with underlying wage trends.

It is worth noting, however, that only around 15% of construction sector employees are covered by the EBAs included here – below the national average and the lowest proportion of the key sectors considered in the report.

**Chart 9.4: Measures of construction sector wage growth**



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

### 9.3 Administration services

Over recent years growth in LPI in the administration services sector has lagged well behind the national average. While the volatility in the data means there have been some periods of relative strength (Chart 9.5 shows stronger than average growth in 2003 and 2008 but significantly weaker growth in 2004-2006 and 2009).

#### 9.3.1 Current LPI projections

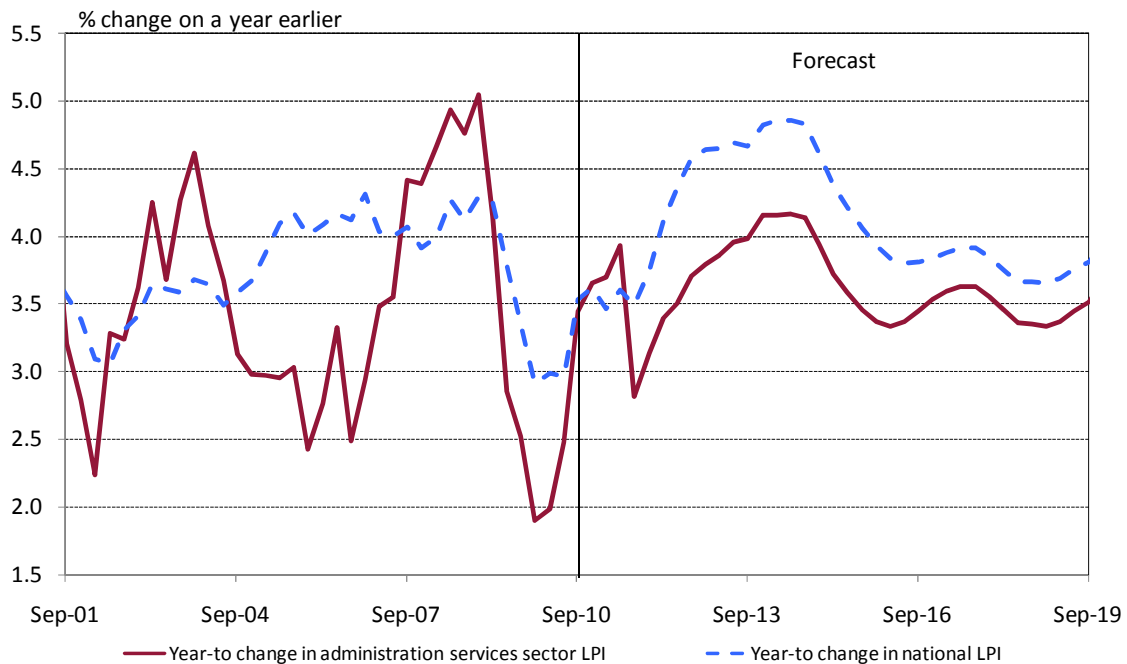
The earlier return to strength in emerging economies (combined with the relative boost to wages in sectors which have to compete with the mining and construction sectors) will continue to weigh on the relative wages in the administrative services sector (a sector which does not directly benefit from the earlier return to strength in emerging economies).

As Chart 9.5 shows, growth in the LPI in this sector has been volatile in recent years, and currently stands at 2.5% in the year to June 2010. That is a lift from the historically low rates seen earlier, though the latter were at least in part driven by the very strong growth rates recorded in the run-up to the GFC, when the employment market was at its strongest.

That period of strength in job markets (and hence in sectors providing services to job markets) drove administration sector wages higher. That occurred not only due to the general trends in the economy, but because key sub-sectors such as employment services (head hunters, placement agencies and the like) were in very high demand.



**Chart 9.5: Administration services LPI growth forecast**



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

This sector contains a significant number of workers on minimum wage levels. As a result, legislated changes to those wage rates will have a more measurable impact on the LPI in this sector than may be obvious more generally.

For example, the weakness in this sector in 2009 (where measured LPI rates actually declined on a quarter-to-quarter basis) can be linked directly to the decision by the Australian Fair Pay Commission to maintain the standard Federal Minimum Wage and all adult rates of pay in Australian Pay and Classification Scales at 2008 levels.

Since that decision, the Federal Government introduced legislation designed to modernise the Australian award system. The Fair Work Bill, passed in March 2009, provided for a new Australian workplace system, including the introduction of modern awards and the National Employment Standards from 1 January 2010.

The Fair Work Bill aimed to replace existing State and Federal awards containing a wide variety of terms and conditions with a consolidated set of 93 modern national awards. The National Employment Standards will act as a safety net of award provisions and supersedes the Australian Fair Pay and Conditions Standard.

These changes have a stronger impact on the administration services LPI than on other sectors.

In particular, recent data suggests that some employers have been transitioning to the new *Modern Award* system more rapidly than required. This has resulted in some large wage increases, particularly in South Australia.

While that will affect the results for 2009-10, Access Economics projects that the pace of growth in the sector's wages will struggle to keep up with the average in the medium term. As noted above, other sectors are more likely to see growth driven by skills shortages and (unlike

utilities and to a lesser extent manufacturing) this sector is not a competitor with those sectors, limiting the likelihood of ‘catch-up’ wage demands.

Moreover, average skill levels are lower, whereas there is a longer term trend towards an increased skill differential in wages and salaries.

Growth in the sector may also swing towards lower skill components of the sector – such as building cleaning and pest control – driving a compositional wedge between this sector and the national average.

That said, the latter phase will not last forever, and wage growth in the sector is likely to move gradually towards tracking the general rate of LPI increase.

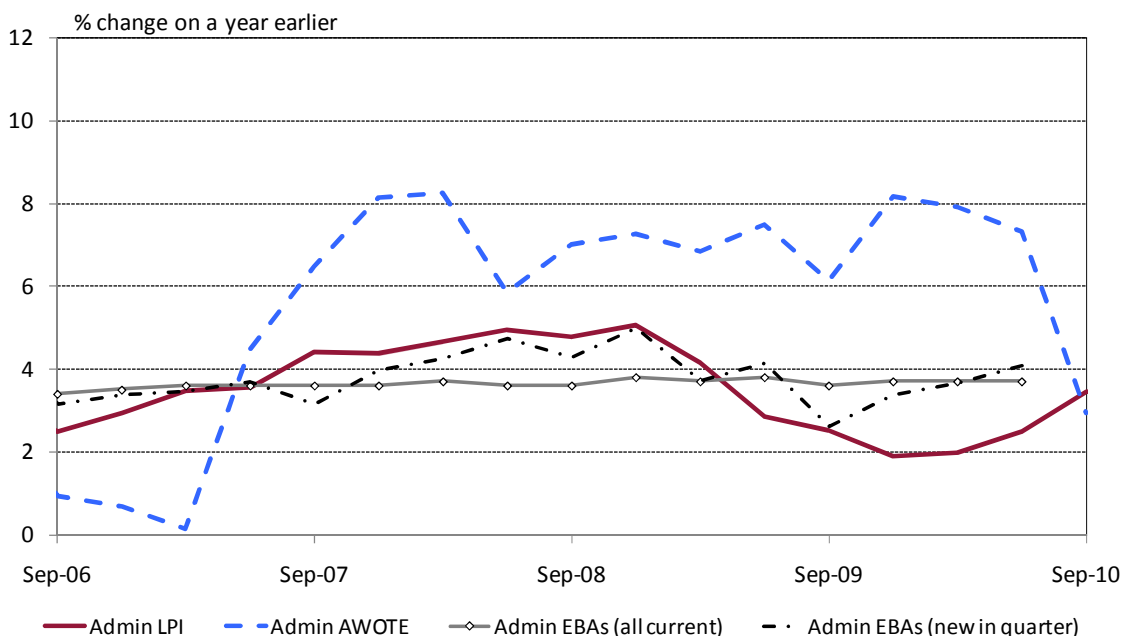
### 9.3.2 Comparison with EBA results

Growth in wages under EBAs in the administration services sector eased across 2009, in line with the measured performance of the LPI in the sector. Slightly fewer than average workers in this sector are covered by EBAs (around 18% – compared with 19% overall and close to 30% in the utilities sector).

As with most other sectors, AWE levels surged sharply from mid-2009.

Agreements in this sector have tended to run for a relatively long period (around a year longer on average in the last couple of years), suggesting it may take longer for the acceleration in general wage growth to flow through to this sector – constraining wage growth somewhat in the short term.

**Chart 9.6: Measures of administration services sector wage growth**



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

Because the EBA data do not yet extend into the current financial year (ending in the June quarter of 2010), the impacts of transitioning to the new awards system are yet to be fully

seen in this measure. The latest data for AWOTE were significantly weaker than in previous quarters, although this may be due to volatility in the data.

## 9.4 Summary results

The forecasts for national and sectoral wage growth are shown in Table 9.1. Forecast components include real and nominal LPI, and real and nominal productivity adjusted LPI.

**Table 9.1: National wage forecasts**

### Financial year changes in nominal national industry sector LPI

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	4.1	3.0	3.6	3.9	4.6	4.8	4.5	3.9	3.9	3.8
Utilities	4.4	4.5	3.8	4.4	4.7	4.7	4.3	3.6	3.7	3.6
Mining	5.7	3.6	3.7	4.5	4.8	5.2	5.0	4.1	3.9	4.1
Construction	4.6	3.2	4.2	4.7	5.0	4.8	4.6	3.8	3.3	3.4
Administration services	4.2	2.2	3.7	3.2	3.8	4.1	3.8	3.4	3.6	3.5

### Financial year changes in real national industry sector Labour Prices

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	0.9	0.7	0.7	0.8	1.7	2.2	2.1	1.2	1.1	1.4
Utilities	1.2	2.1	0.9	1.3	1.8	2.1	1.8	0.9	0.9	1.3
Mining	2.4	1.2	0.8	1.4	1.9	2.6	2.5	1.4	1.2	1.7
Construction	1.4	0.9	1.3	1.6	2.0	2.2	2.1	1.1	0.6	1.1
Administration services	1.0	-0.1	0.8	0.1	0.9	1.6	1.4	0.7	0.8	1.1

### Financial year changes in nominal productivity adjusted Labour Price aggregates

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	4.6	2.0	3.0	2.4	2.6	2.9	2.2	1.7	2.0	2.3
Utilities	5.4	3.1	3.5	2.7	2.7	2.7	2.0	1.3	1.8	2.1
Mining	7.4	2.6	3.5	2.8	2.8	3.3	2.8	1.9	2.2	2.6
Construction	5.2	2.2	3.3	3.6	3.1	2.9	2.2	1.5	1.8	2.1
Administration services	5.1	2.0	3.0	1.8	1.7	2.1	1.5	1.0	1.6	2.0

### Financial year changes in real productivity adjusted Labour Price aggregates

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	1.4	-0.4	0.1	-0.7	-0.3	0.4	-0.2	-1.0	-0.7	-0.1
Utilities	2.2	0.8	0.7	-0.3	-0.2	0.2	-0.4	-1.3	-0.9	-0.2
Mining	4.1	0.2	0.6	-0.3	-0.1	0.7	0.4	-0.7	-0.5	0.3
Construction	2.1	-0.2	0.5	0.5	0.2	0.4	-0.2	-1.1	-0.9	-0.3
Administration services	1.9	-0.3	0.2	-1.2	-1.1	-0.4	-0.8	-1.6	-1.1	-0.4

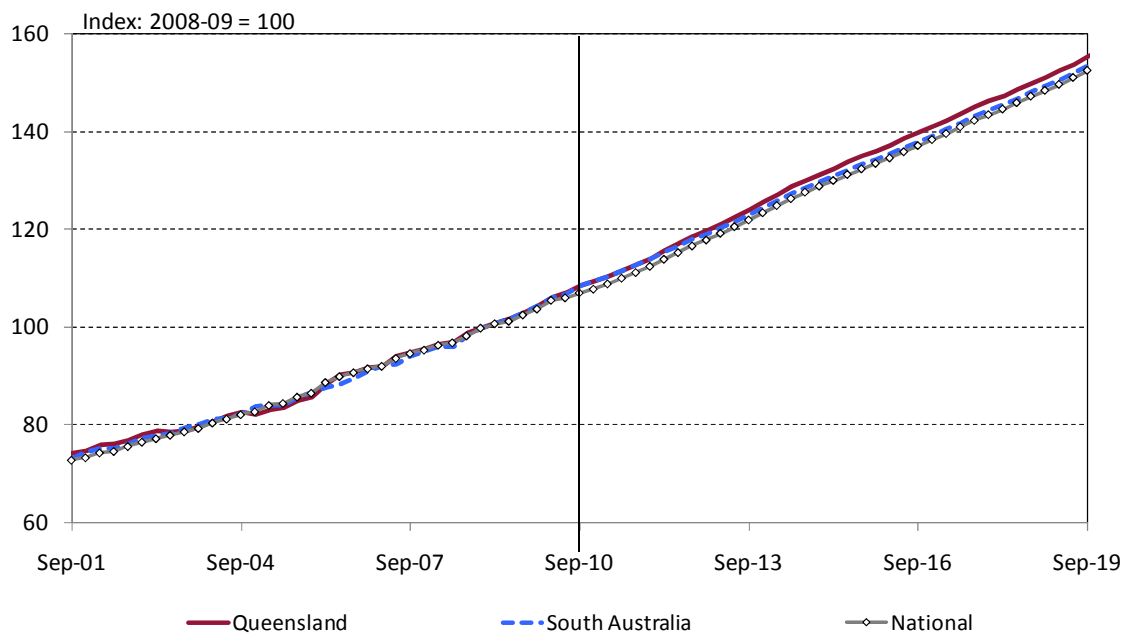
Source: ABS, Access Economics Macroeconomic model, Access Economics Labour Cost model

## 10 Utilities and competitor sector wage growth by State

### 10.1 National trends

National trends by industry will tend to dominate at the State and Territory level – particularly in the larger States, while volatility (‘noise’ in the data) can lead to significant movements in smaller jurisdictions.

**Chart 10.1: Utilities sector LPI forecasts by State**



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

As Chart 10.1 above shows, over the longer term the underlying trends in wages in the sector (that is, at the national level) dominate the movements by State. There are deviations from State to State, with these differences driven by a combination of:

- General trends in State wage growth. Slower growing States will likely see slower LPI growth; and
- One-off factors that affect a particular industry – such as movements in a specific award level or a single EBA.

However, as noted elsewhere, there are limits to how far wage rates can deviate over the longer term – large relative swings in either direction will tend to be prevented by competition between State and industries and the ability of workers to move towards better paying jobs.

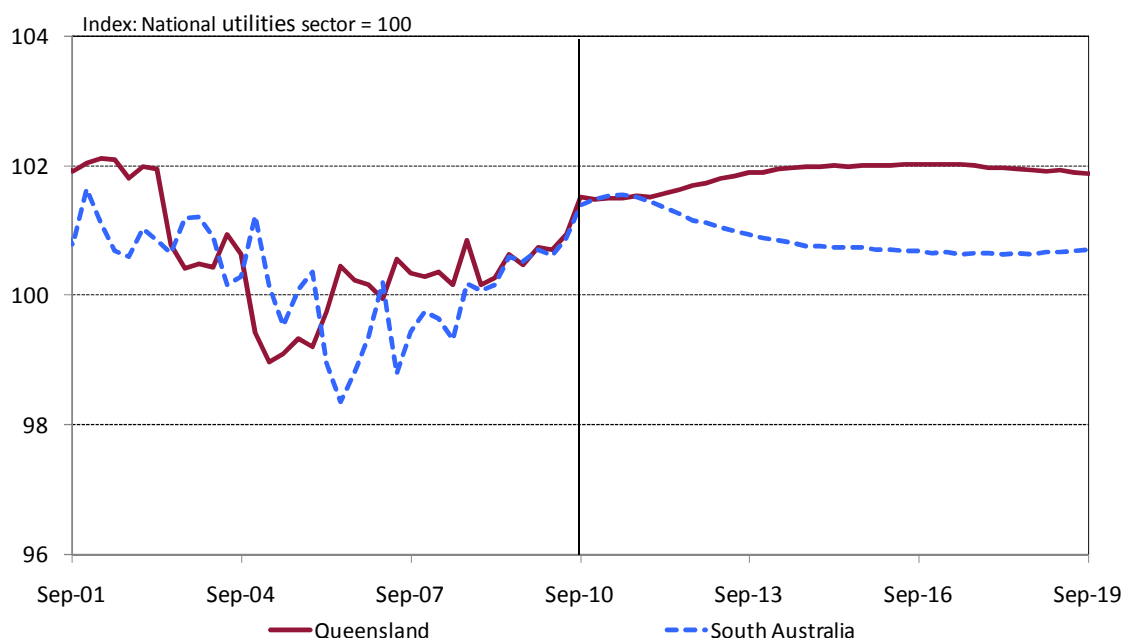
Overall, the differences in index levels for utilities wages by State are easier to see when expressed in relative terms, as they are in Chart 10.2 below.

In that chart the national utilities index at any point in time is set to a value of 100 and the index in the State is expressed relative to that value<sup>8</sup>. Both the volatility at the State level and the tendency for indices to revert towards the national average over time are evident.

In brief, and although the utilities sector has seen relatively faster wage growth nationally, much of that strength from the late 1990s to around 2005 was due to strength in New South Wales. In more recent times the competition effects from the Queensland and Western Australia mining sectors have been a more important driver of LPI growth, with South Australia’s utilities sector tending to move with trends in these two States.

Wage gains among the two jurisdictions considered here (as well as Western Australia) were more moderate than those in NSW through to 2005, and those relativities have not changed much since then – no State or Territory has moved much more than 1% above or below the national trends in recent years, even the smaller jurisdictions that might show temporary effects from volatility.

**Chart 10.2: Relative utilities forecast by State**



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

We have noted that the fact that relative wages have diverged in recent years does not mean those moves are permanent. Short term wage growth in the sector at the State level is affected by growth in the sector and in the State, but there is also a longer term trend towards a narrowing of wage relativities.

Relatively small movements are more likely to be maintained. The forecast profile in Chart 10.2 shows a slight moderation in South Australia’s relative performance while Queensland’s recent gains are largely maintained. These patterns are partly driven by the relative strength

<sup>8</sup> As noted elsewhere, this does not imply an ordering for wage levels, as each individual series is an index equal to 100 in 2008-09.

of the two State economies – the more rapid pace of general economic growth in Queensland being more conducive to wage growth than the slower growth in South Australia.

However, as the earlier Chart 10.1 makes clear, these deviations are quite modest compared with the general upward trend in the utilities sector LPI.

The volatility in the State indices implies that actual movements in State-by-industry LPI in the future are likely to be far less smooth than shown in the charts here. This makes picking point-to-point growth rates particularly hard.

The results in Chart 10.2 therefore illustrate the broad trends in movements – both relative and absolute.

## 10.2 Queensland

Queensland has generally grown faster than the national average across the past two decades, boosted by generally strong population growth – particularly in the south-east of the State – and strong growth in tourism and retail. As a result, labour cost growth in the State has been ahead of the national average.

Queensland's exposure to the global commodity boom has accelerated these trends. Since 1999-00 Queensland and Western Australia have seen the fastest increases in most wage measures, largely at the expense of New South Wales and Victoria.

More recently, Queensland suffered relatively more in the downturn as its commercial and residential construction sectors were starved of financing, and the tourism sector has struggled with the effects of the high \$A.

However, a combination of a recovery in economic growth in the State, the likelihood of strong domestic demand growth in the next twelve months and the necessity to keep pace with mining sector wage growth in Western Australia has seen the State's LPI growth jump in recent months. That may also be the case in the medium term, as the solidly growing State will need to tempt workers from other States to maintain its pace of expansion.

**Table 10.1: Queensland wage forecasts**

### Financial year changes in Queensland nominal Labour Price aggregates

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	4.2	3.3	4.1	3.9	4.8	5.0	4.6	4.0	3.9	3.7
Utilities	4.6	4.7	4.6	4.5	4.9	4.9	4.3	3.6	3.7	3.6
Mining	6.7	3.8	3.5	4.4	5.0	5.4	5.2	4.3	4.0	4.1
Construction	5.9	2.9	3.8	4.8	5.2	5.0	4.8	4.0	3.5	3.5
Administration services	4.3	1.6	3.7	3.3	4.2	4.5	4.2	3.6	3.7	3.6

### Financial year changes in Queensland real Labour Price aggregates

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	1.5	0.1	1.0	0.9	2.1	2.4	1.8	1.1	1.4	1.3
Utilities	1.9	1.4	1.5	1.4	2.3	2.3	1.5	0.8	1.2	1.2
Mining	3.9	0.5	0.4	1.3	2.3	2.9	2.3	1.4	1.6	1.7
Construction	3.1	-0.3	0.7	1.7	2.5	2.5	2.0	1.1	1.0	1.0
Administration services	1.5	-1.6	0.6	0.3	1.5	1.9	1.4	0.8	1.2	1.1

**Financial year changes in Queensland nominal productivity adjusted Labour Price aggregates**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	6.5	0.9	2.8	2.3	2.0	2.2	2.0	1.2	1.6	1.8
Utilities	6.4	3.0	4.4	2.7	2.7	2.7	2.0	1.2	1.7	2.0
Mining	9.5	2.5	3.4	2.6	2.8	3.3	2.9	2.0	2.2	2.5
Construction	7.1	1.5	2.7	3.7	3.2	3.1	2.3	1.6	1.9	2.0
Administration services	5.8	1.4	2.9	1.9	1.9	2.3	1.8	1.1	1.6	1.9

**Financial year changes in Queensland real productivity adjusted Labour Price aggregates**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	3.7	-2.3	-0.2	-0.7	-0.6	-0.3	-0.7	-1.6	-0.8	-0.5
Utilities	3.6	-0.2	1.3	-0.3	0.1	0.2	-0.8	-1.6	-0.7	-0.4
Mining	6.6	-0.7	0.3	-0.4	0.2	0.8	0.2	-0.8	-0.2	0.1
Construction	4.3	-1.6	-0.4	0.7	0.6	0.5	-0.4	-1.2	-0.5	-0.4
Administration services	3.1	-1.7	-0.1	-1.1	-0.7	-0.2	-1.0	-1.7	-0.8	-0.5

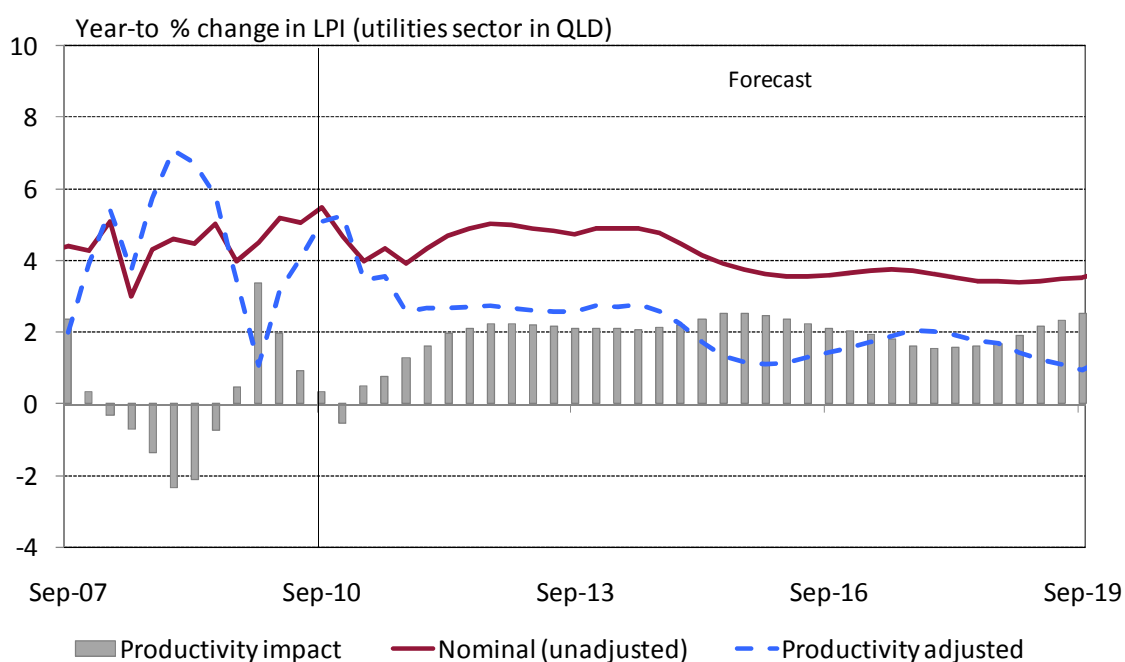
Source: ABS, Access Economics labour cost model

### 10.2.2 The utilities sector

Work in the utilities field in Queensland has surged in recent years – the value of construction done for electricity generation peaked at just over \$3.35 billion in the year to September 2009, about five times its 2003 level. Even more stunning was the amount of work done in water supply related construction – which doubled between 1988 and 2006, but grew six-fold in the following two years to reach \$3.7 billion in the year to September 2008. That work affected demand for construction workers at the time, but also had implications for construction wages at the time (through the competition for scarce skills) and in the future (with increased demand for workers colliding with increasing competition from the mining sector).

The competition for workers by cashed-up miners during the last boom began to affect the wages paid to the broader Queensland workforce (not merely the State’s utilities workers) by mid-2008. As a result, Queensland’s utilities sector wages grew faster than the national equivalent, being one of the areas of fastest growth in an industry with rapid wage rises.

**Chart 10.3: Queensland utilities LPI forecasts**

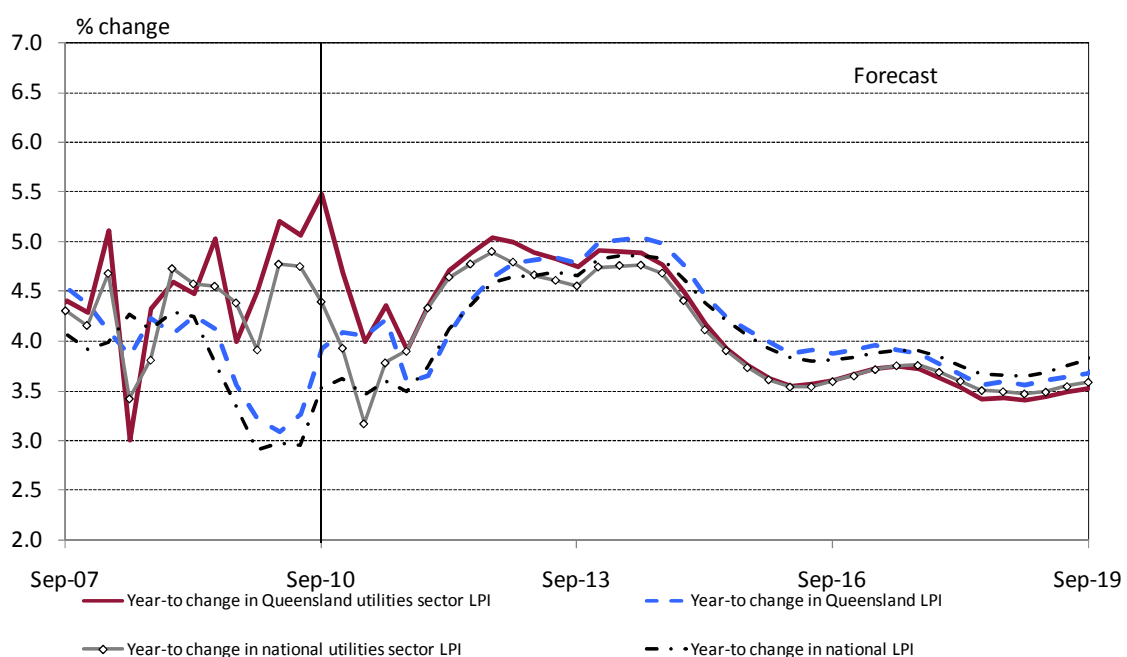


Source: ABS, Access Economics estimates, Access Economics labour cost model

The public sector work underway in the utilities sector in Queensland remains focussed on water supply projects. Current State Government projects under construction include Stage 2 of the Northern Pipeline Interconnector, at a cost of \$900 million and the \$350 million development of the Wyaralong Dam southwest of Brisbane. In addition, the Gold Coast City Council is continuing work on raising the Hinze Dam (with Stage 3 of that project costing just under \$400 million) and the Gladstone Area Water Board’s Fitzroy Pipeline project valued at a similar amount.

The main electricity supply projects in Queensland are Xstrata’s Callide coal-fired power plant and AGL/CS Energy’s upgrade of the Mica Creek gas-fired station, both costing around \$200 million.

**Chart 10.4: Queensland utilities forecast comparison**



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

Those developments, along with possible longer-term projects such as the 900 megawatt Galilee coal-fired power station, the Connors River Dam and Pipelines project and a possible \$4.2 billion Integrated Gasification Combined Cycle (IGCC) power plant with Carbon Capture and Storage (CCS) at Rockhampton would underpin continued employment demand in the utilities sector.

On balance therefore, Access Economics projects that utilities sector wage growth in Queensland will remain at rates ahead of the overall average in the medium term. Beyond 2013 the slowdown in the construction cycle and the easing of competition pressures on wages may see some moderation in LPI growth in the sector, although rates will remain relatively high compared to their historical averages.



### 10.2.3 The mining sector

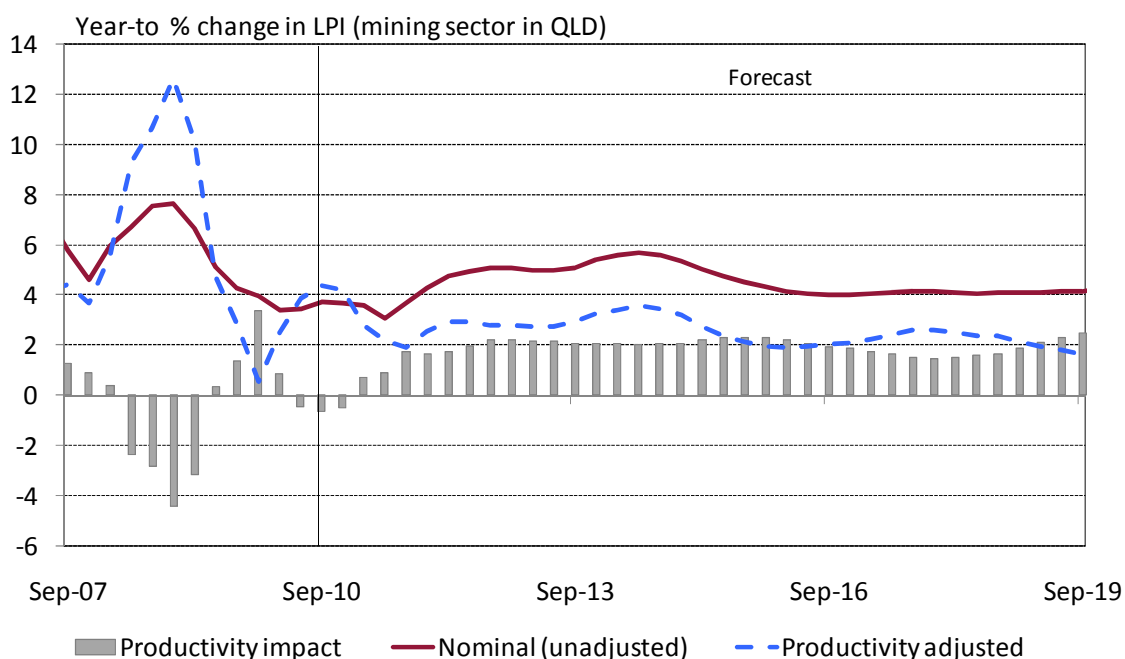
Weaker industrial commodity prices hurt the mining sector in Queensland through 2009, with the global financial crisis contributing to April 2009 price settlements which saw coking coal prices fall by 60% and thermal coal prices by 44%. It also led to job losses in the coal rich Bowen Basin and the temporary shelving of some plans to further develop the State’s resource riches.

While the impact was greater in Queensland than in the non-resource intensive States, it was also greater than that seen to date in Western Australia. That is because Queensland exports more heavily to Japan, a country which is one of the biggest casualties of the global financial crisis, whereas Western Australia has been helped by China’s rapid rebound. This led to relatively more mine closures and staff layoffs in Queensland than in Western Australia, with a corresponding larger fall in mining output.

However, commodity prices are riding high once more so the mining sector is entering another boom phase. This is great news for the State but approvals for new investment did stall during the debate over the Resources Super Profits Tax, and some projects may still be delayed or shelved by its replacement, the Minerals Resource Rent Tax. This uncertainty has created a delay for business investment in Queensland.

That said, Japan’s weakness would have affected Queensland even more sharply were it not for the impact of China’s rapid rebound from the global financial crisis. China has gone from accounting for 1% of Australia’s coking coal sales as recently as 2008 to more than a quarter today, a development of considerable assistance to Queensland’s mining sector in general, and to developments in the Bowen Basin in particular.

**Chart 10.5: Queensland mining LPI forecasts**



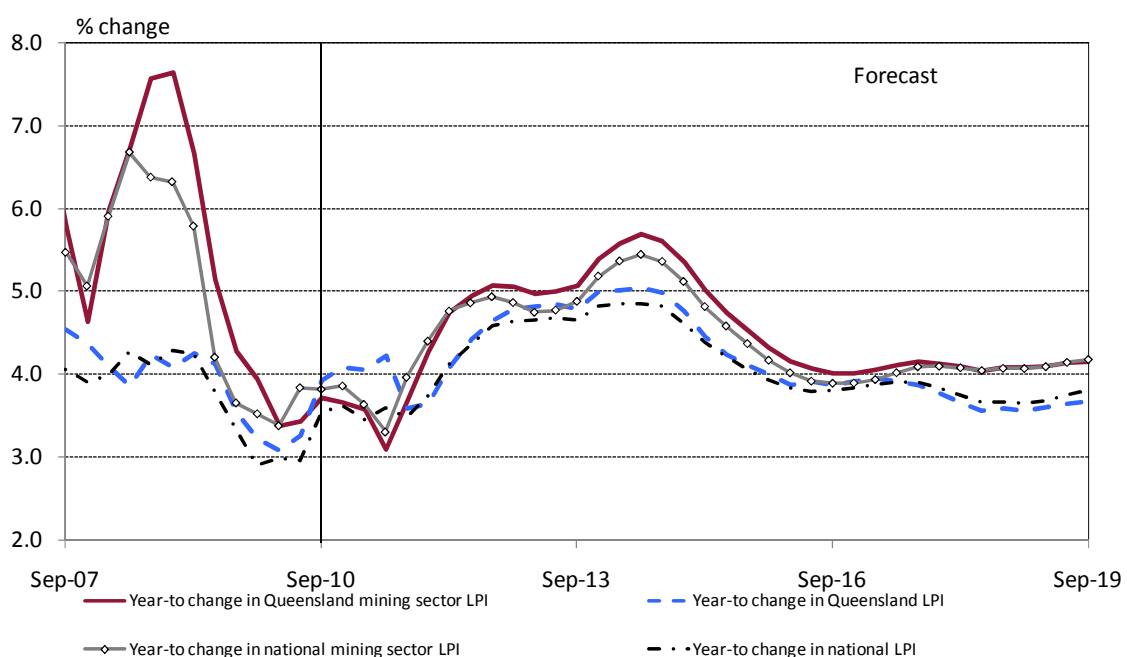
Source: ABS, Access Economics estimates, Access Economics labour cost model

Moreover, the medium to longer term economic outlook for Queensland remains very solid. Queensland is on the right side of a global industrial revolution that has seen demand for its

coal surge, boosting export strength. Queensland is expected to once again carve out a growing share of Australia’s economy and population over the longer term. That will again put slightly more upward pressure on local wages than seen nationally – and as a result Queensland’s mining LPI growth is projected to exceed the national mining LPI growth rates (see Chart 10.6).

Looking further out, work in planning sees some very big projects. The State’s pipeline is dominated by mining, including a new facility to convert coal seam gas to LNG which could cost some \$35 billion, as well as the \$10 billion Curtis LNG project and the \$2.7 billion first stage of the Gladstone nickel project. Other projects in planning include a new \$1.25 billion coal-fired power station at Galilee and the \$800 million Connors River Dam project.

**Chart 10.6: Queensland mining forecast comparison**



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

### 10.2.4 The construction sector

Queensland’s housing performance remains in the doldrums. There is strong evidence of a shortage of housing, yet little evidence of a response. Part of the answer to that riddle lies with funding – or the lack of it. Queensland’s developers were hurt during the GFC as funding dried up and the pace of apartment construction slowed notably.

Those effects are still being seen in the lack of new apartment developments getting the funding tick. Even outside apartments approval numbers for housing in Queensland aren’t healthy, suggesting it may be some time before activity begins an earnest recovery.

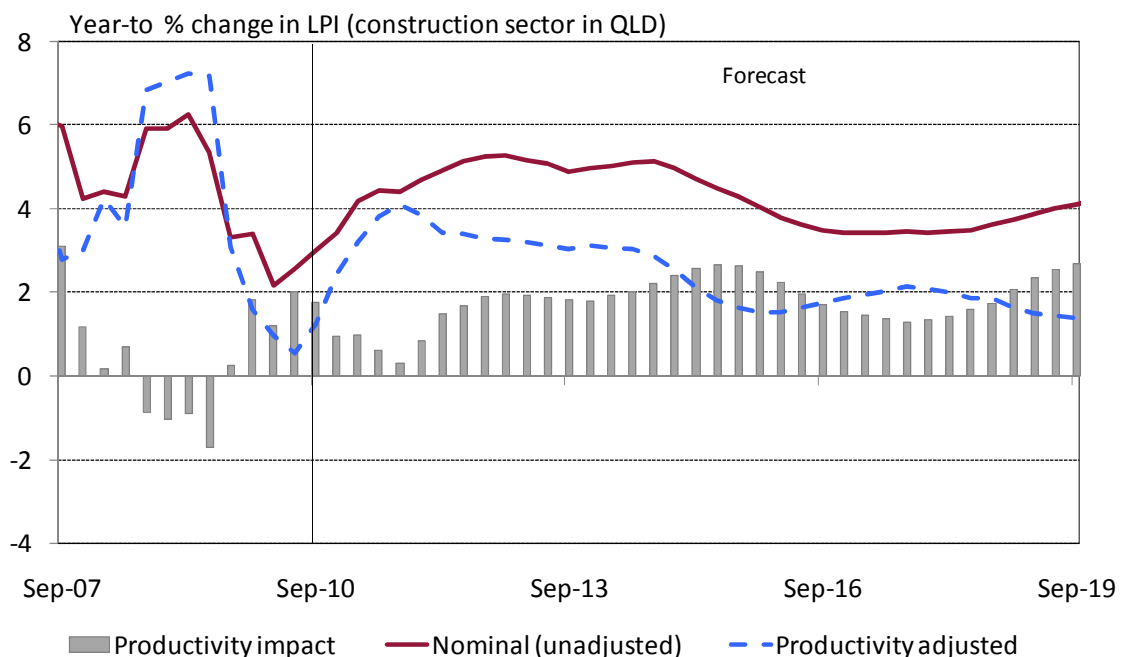
One indicator which isn’t pointing to short term pressures is the rental vacancy rate, which continues to edge up and is now closing on 4%. That makes Queensland’s rental market the second weakest nationwide (behind WA), with growth in Brisbane rents still softening. That said, the vacancy rate does appear to have started flattening off, and may soon be again reflecting the (otherwise) apparent undersupply in Queensland housing, though the short term recovery, while strong, won’t see the State soon regain its former market share.

The housing construction outlook for the State hasn't been helped by a reversal in a number of migration trends. That includes:

- A recent decline in migration to Australia overall;
- A longer term decline in the share of migrants moving directly to Queensland; and
- A decline in interstate migration to Queensland – crucially being lost to Victoria.

Despite being on the right side of the global industrial revolution, Queensland remains on the wrong side of the global financial crisis. The resultant constraints on credit mean that, for now, the good news in engineering activity is matched by bad news in commercial work.

**Chart 10.7: Queensland construction LPI forecasts**

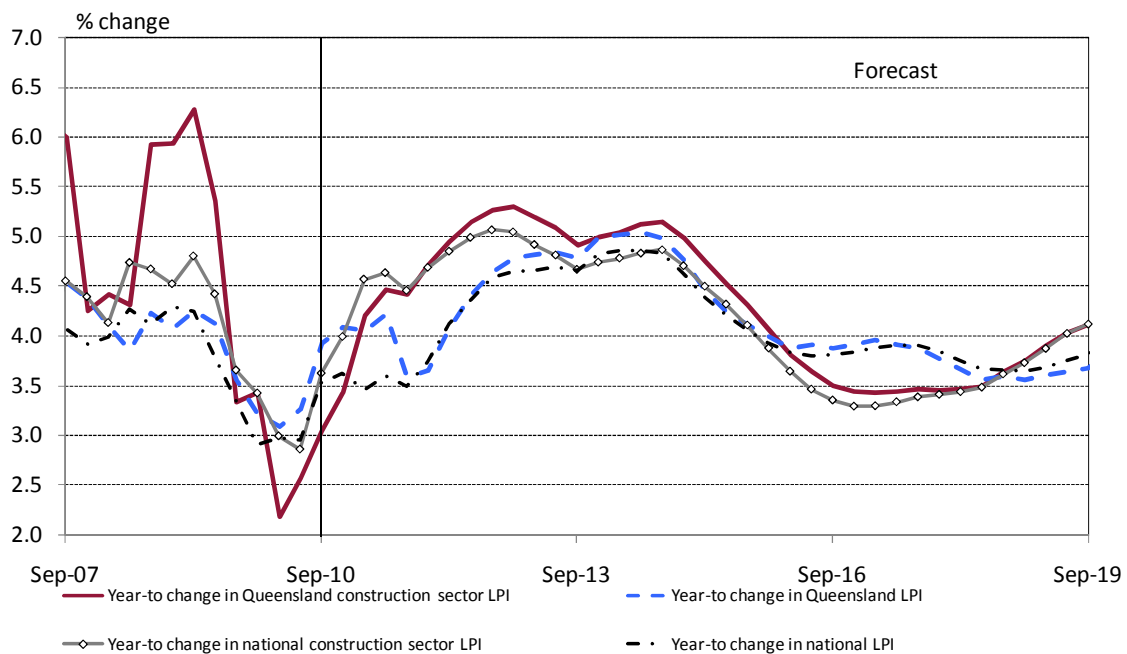


Source: ABS, Access Economics estimates, Access Economics labour cost model

Engineering project work dipped notably through 2009-10, and commencements remain flat. Work underway includes the \$2.2 billion second stage of Comalco's Yarwun Alumina refinery at Gladstone, due to be completed in 2011, along with road projects including upgrades to the Pacific Motorway, Bruce Highway and Cunningham Arterial. Incitec Pivot's \$935 million Bowen Basin ammonium nitrate plant is due to be completed next year, while Wesfarmers' Curragh coal mine expansion north of Blackwater is underway at a cost of \$800 million.

The \$450 million third stage of the Abbot Point coal terminal expansion is also under construction at Bowen, while the Gold Coast City Council is spending \$394 million on the third stage of raising the Hinze Dam. The \$350 million Wyaralong Dam is underway between Boonah and Jimboomba south-west of Brisbane, while \$315 million is being spent to duplicate the bridge across Moreton Bay. Cairns Airport has a \$250 million upgrade, while renovating the Stanwell power station is costing \$125 million.

**Chart 10.8: Queensland construction forecast comparison**



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

Moreover, while engineering work took a pause, commercial construction took a tumble. Commercial building approvals fell in 2009-10, suggesting the recent weak performance of commercial construction activity may worsen in the short term. Current projects are led by the \$1.8 billion Gold Coast University Hospital underway at Parklands and due to be complete by late 2012, while the \$1.1 billion Queensland Children’s Hospital is also underway. Seven new schools are being built in the State’s south-east at a cost of \$1.1 billion, while a \$485 million correctional facility is being developed at Gatton. The Mt Isa and Cairns Base hospitals are being redeveloped at a cost of \$920 million, while a new \$405 million, 155-bed hospital is underway in Mackay. Other health projects include a \$240 million expansion of the Robina hospital, and a \$150 million upgrade and refurbishment of the Rockhampton hospital. Leighton is building two new office towers in Brisbane, while the Gold Coast’s Carrara Stadium redevelopment is also underway. Planned projects include a \$1.6 billion, 450-bed hospital at the Sunshine Coast and the construction of a Woolworths at nearby Slippy Downs.

Before the economic downturn of the past two years, growth in Queensland’s construction sector saw very rapid rises in wage rates in the sector. These were maintained into early 2009 as the State worked through the construction pipeline.

However, once funding dried up for new projects the trend in wage growth rapidly reversed.

While the short term outlook local construction is modest, increasing wage rates in other States (particularly in construction but also in mining and utilities) will tend to lift the Queensland rate as well. As Chart 10.8 shows, the national rate of construction LPI growth is already moving ahead of the all sector average and Queensland is forecast to do so as well.

Once the State returns to its place as one of the faster growing regions of Australia, construction sector LPI growth in the State should move back ahead of the national equivalent, before then moving closely in line with the construction cycle over the longer term.

### 10.2.5 The administration services sector

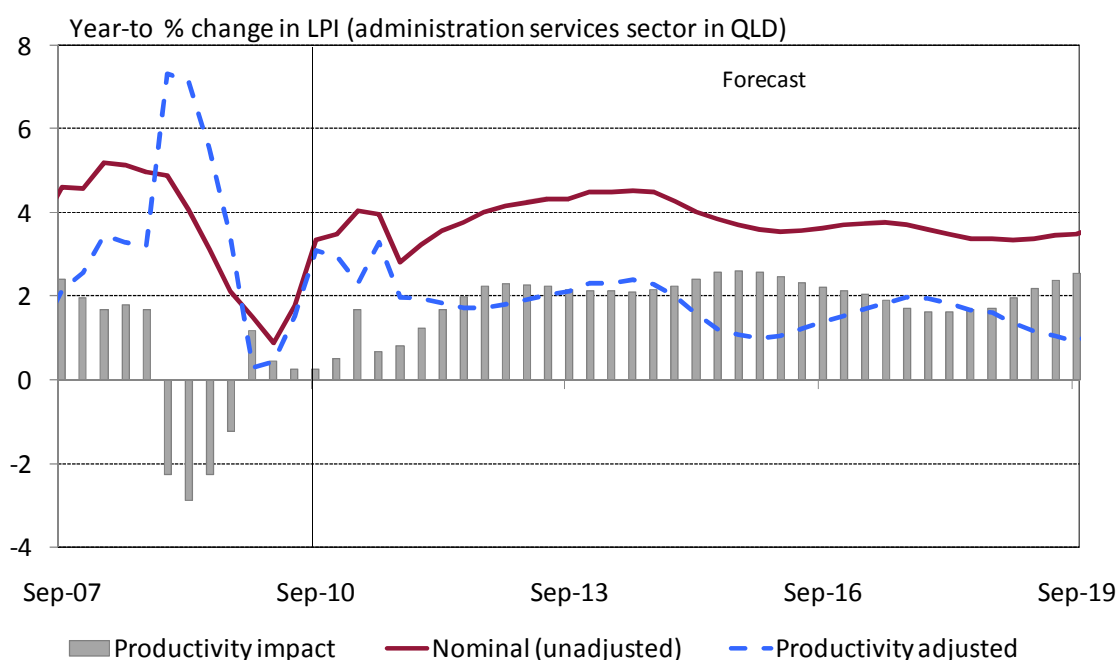
Administration services performed fairly solidly in Queensland during the downturn, and the losses seen at that time have been made good in the past year.

In particular the building services side of the industry has remained strong, actually increasing its overall importance to the national industry in recent months. Nearly a quarter of all building service employees nationally are located in Queensland.

There have been areas of weakness. In particular, travel-related employment such as travel agents and tour organisers are still suffering thanks to the high \$A which is discouraging foreign visitors here, as well as tempting Australians to head overseas. Travel agents are also struggling with the rapid increase in competition from online booking services.

The strength in building services comes at a time when the commercial construction sector has struggled, one of the key reasons for the State's poor performance in the past eighteen months. However, in the lead up to the downturn the Brisbane office market in particular had become extremely tight, with vacancy rates suppressed and premium grade rents rises to approach those in Sydney, providing some strength to underpin the growth in employment in that section of the administration services sector.

**Chart 10.9: Queensland administration services LPI forecasts**



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

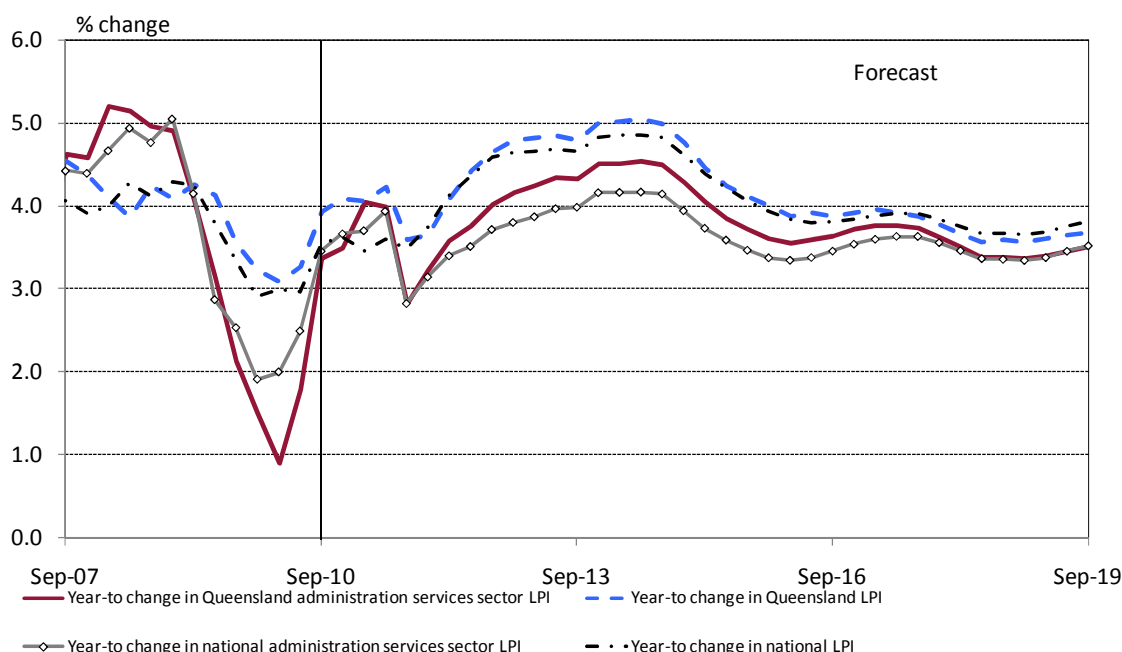
However, the strength was not sufficient to keep the sector's LPI growing at the rates seen in 2007 and 2008. As with the national sector, the year-to rate of growth in the LPI slumped from 5% wage gains in early 2008 to 1% by the end of 2009 (see Chart 10.9).

There has been a recovery across 2010, partly due to the rebound in wages generally, partly due to the continued strength in employment in the sector, and partly due to one-off impacts from the transition to the *Modern Awards* system. While not as dramatic as seen in South

Australia, this latter effect may have added around one percentage point to the LPI rise in the year to date, but will prove to be a one-off event.

As a result, there is an expectation that growth rates in Queensland administration services LPI are somewhat overstated at present, and will dip as we enter 2011-12 (the projection shown in Chart 10.10). After the recent boost to rates of growth pushes the sectoral LPI to rise in line with the overall rate of LPI growth in the near term, the projection is that growth rates will lag the average thereafter, reverting to the trends seen over recent years.

**Chart 10.10: Queensland administration services forecast comparison**



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

There are limits to that pattern, and eventually the gap between the measures should narrow. Offsetting the industry effect is the projection that Queensland's faster pace of economic growth will lift wages slightly over time, particularly over the next three years as the State unwinds the relative downturn in its fortunes that has occurred in the past two years.

### 10.3 South Australia

South Australia's economy has grown more slowly than Australia as a whole in recent decades. In part that is attributable to the State's relatively heavy reliance on the manufacturing sector, which has also grown more slowly than Australia as a whole.

However, another notable contributor to slower output growth in South Australia has been the State's weaker population growth and its relatively older population.

These demographic factors are both linked to the tendency – particularly through the 1990s – for younger South Australians to move to other States.

The past decade saw faster growth in States with a stronger resource base (such as Western Australia and Queensland) than in States more exposed to the manufacturing sector (such as New South Wales, Victoria and South Australia).

Moreover, the continuing relatively rapid growth out of emerging economies such as China suggests that resource exposure should remain a broad positive for the output growth outlook over the next two decades.

That is why South Australia's potential to shift its industry structure more in favour of the resource sector and related activities poses some important opportunities.

The key will be the expansion of the Olympic Dam mine. The State's potential is considerable, but Olympic Dam is a very large part of that potential. The decision on that mine – which may become the world's largest – will be affected by a number of factors.

**Table 10.2: South Australian wage forecasts**

**Financial year changes in South Australian nominal Labour Price aggregates**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	3.9	2.8	3.6	3.8	4.4	4.6	4.4	3.9	3.8	3.8
Utilities	5.2	4.9	4.6	4.3	4.4	4.5	4.1	3.6	3.6	3.6
Mining	5.4	3.7	3.6	4.3	4.5	5.0	4.9	4.1	3.9	4.0
Construction	3.5	3.0	3.9	4.8	4.8	4.7	4.6	3.8	3.3	3.4
Administration services	4.0	2.3	5.6	2.5	3.4	3.8	3.6	3.3	3.4	3.4

**Financial year changes in South Australian real Labour Price aggregates**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	1.7	-0.2	0.5	0.7	1.9	2.2	1.7	1.2	1.5	1.5
Utilities	2.9	1.8	1.5	1.3	1.9	2.1	1.5	0.9	1.3	1.3
Mining	3.2	0.7	0.6	1.3	2.0	2.7	2.2	1.4	1.6	1.7
Construction	1.3	0.0	0.9	1.7	2.3	2.3	1.9	1.1	1.0	1.1
Administration services	1.8	-0.7	2.5	-0.5	0.9	1.5	1.0	0.6	1.1	1.1

**Financial year changes in South Australian nominal productivity adjusted Labour Price aggregates**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	5.0	2.3	3.3	3.2	2.6	2.9	2.2	1.8	2.3	2.7
Utilities	6.4	3.4	4.7	2.6	2.4	2.6	1.9	1.3	1.8	2.2
Mining	7.8	2.7	3.8	2.6	2.6	3.1	2.8	2.0	2.2	2.7
Construction	4.1	2.0	3.1	3.8	3.1	3.0	2.1	1.6	2.0	2.2
Administration services	5.1	2.6	5.0	1.2	1.3	1.9	1.4	0.9	1.5	1.9

**Financial year changes in South Australian real productivity adjusted Labour Price aggregates**

Annual % change	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
All industries	2.7	-0.7	0.2	0.2	0.2	0.6	-0.4	-0.9	0.0	0.4
Utilities	4.1	0.4	1.6	-0.4	0.0	0.3	-0.7	-1.3	-0.5	-0.1
Mining	5.5	-0.3	0.8	-0.4	0.1	0.8	0.2	-0.6	-0.1	0.4
Construction	1.9	-1.0	0.0	0.8	0.6	0.6	-0.5	-1.0	-0.3	-0.1
Administration services	2.8	-0.4	1.9	-1.8	-1.1	-0.4	-1.2	-1.7	-0.8	-0.4

Source: ABS, Access Economics labour cost model

### 10.3.2 The utilities sector

South Australia has three major electricity and gas suppliers, while water and waste management is carried out by SA Water, a government-operated company.

As with Queensland, utilities wages in South Australia have risen faster than the national average – rising by three percentage points more than the overall national increase across the past four years.

The forecasts here suggest that some of that relative gain may be lost over the next few years, partly due to the slower rate of growth in the State's economy, but also due to the weak

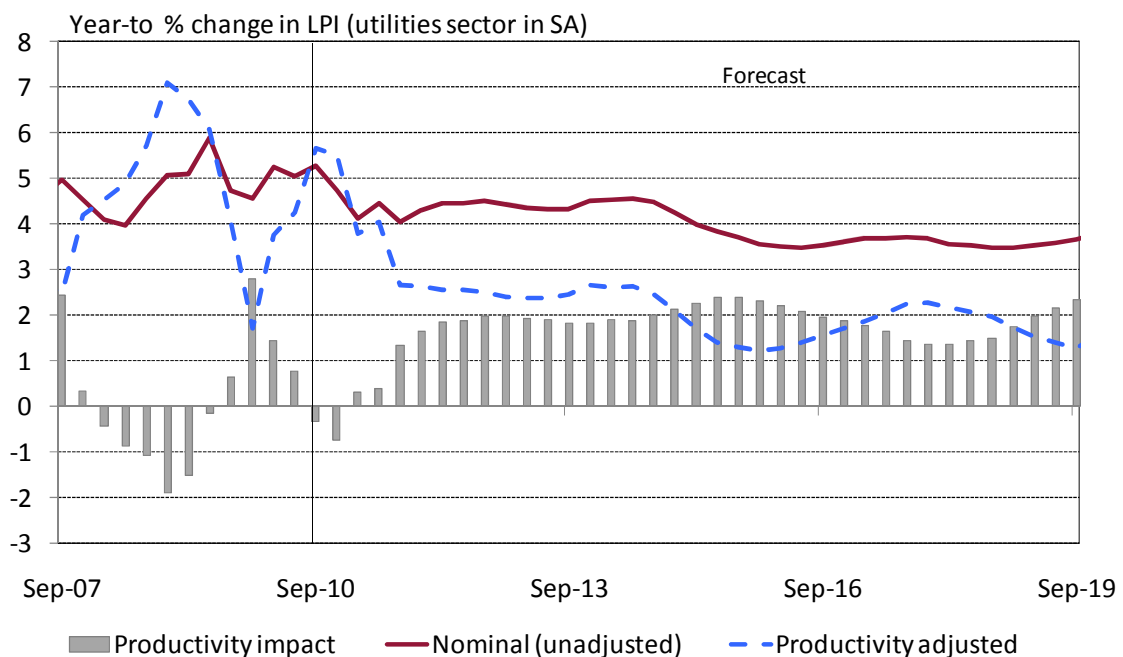
position of the local manufacturing sector, which should lessen the impact of competition for workers marginally.

That is because although the opportunities on offer in mining and construction are likely to be considerable in the next couple of years, most of them are likely to be evident in other States. That means in many cases South Australians (including utilities workers) who would be interested in jumping to competitor sectors would also have to move States to do that.

Other things equal, that limits the competitive impact of strength in the mining and construction sectors on utilities sector wages in SA in the next few years.

In the medium term, the impacts of the rebounding mining sector, both locally and interstate, will continue to keep local utilities LPI growth ahead of the national average, before the longer term easing in the construction cycle lessens pressure on wages beyond 2013. On the demand side the eventual completion of the \$1.8 billion Adelaide desalination plant at the end of 2012 will keep some underlying pressure on wages in the interim.

**Chart 10.11: South Australian utilities LPI forecasts**



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

However, a key factor for the sector in South Australia will also be the pace of retirements in coming years. Nationally, the utilities sector as a whole will be facing a surge of retirements (where, according to an ABS survey, 13% of utility workers are expected to retire in the next decade).

Yet the age profile of the South Australian utilities sector is – as is true of the overall State workforce – likely to be older than the national average, therefore pointing to relatively greater short term pressures from staff lost to retirement.

This loss of staff and industry knowledge will have an even greater impact in SA for two reasons. The first is that South Australia is a relatively small State competing with larger States for the same workers. The second is that, as noted, SA has a relatively older population. This

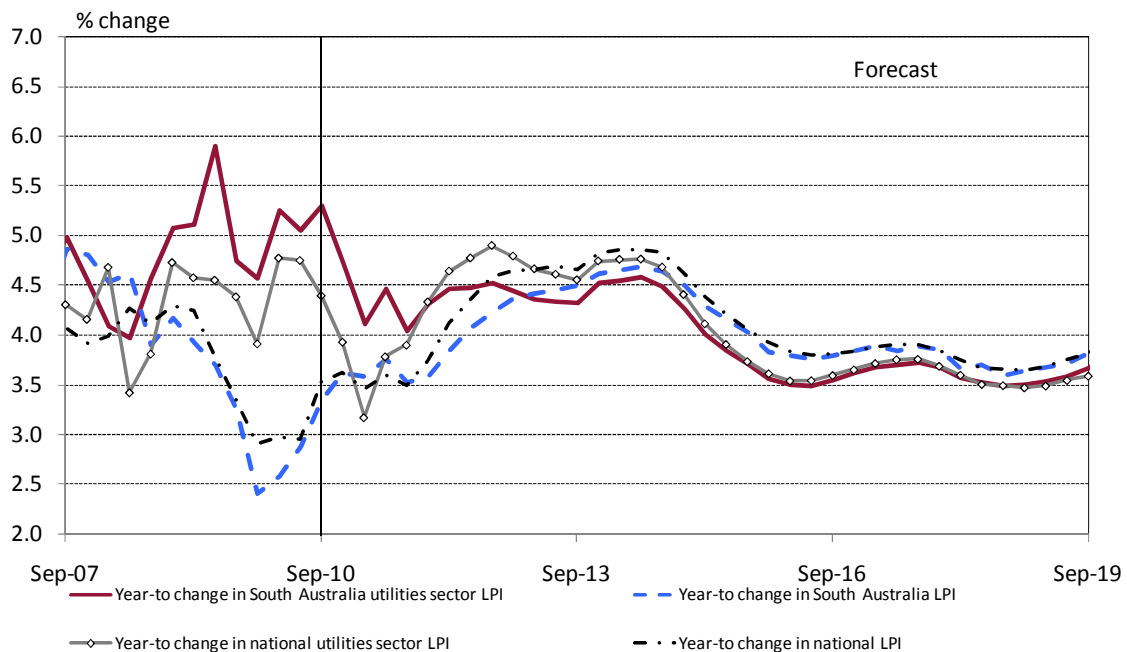


means that it will be facing increasing pressure to attract or retain younger workers to a State that traditionally sees net flows of young people leaving the State.

Other things equal, this competition for workers is likely to see labour costs rise faster in South Australia than that seen nationally as the State tries to retain and attract new workers.

That said, the resultant change in the age composition of the workforce in the utilities sector in the State will – other things equal – reduce measured average wage growth.

**Chart 10.12: South Australian utilities forecast comparison**



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

As Chart 10.12 shows, South Australia’s utilities sector LPI has grown consistently ahead of the national equivalent in recent years, even though total (all-sector) LPI increases has been very similar across that period. This has occurred across a period where resource-sector strength and weakness in the New South Wales economy in particular has seen demand shifting towards States such as South Australia.

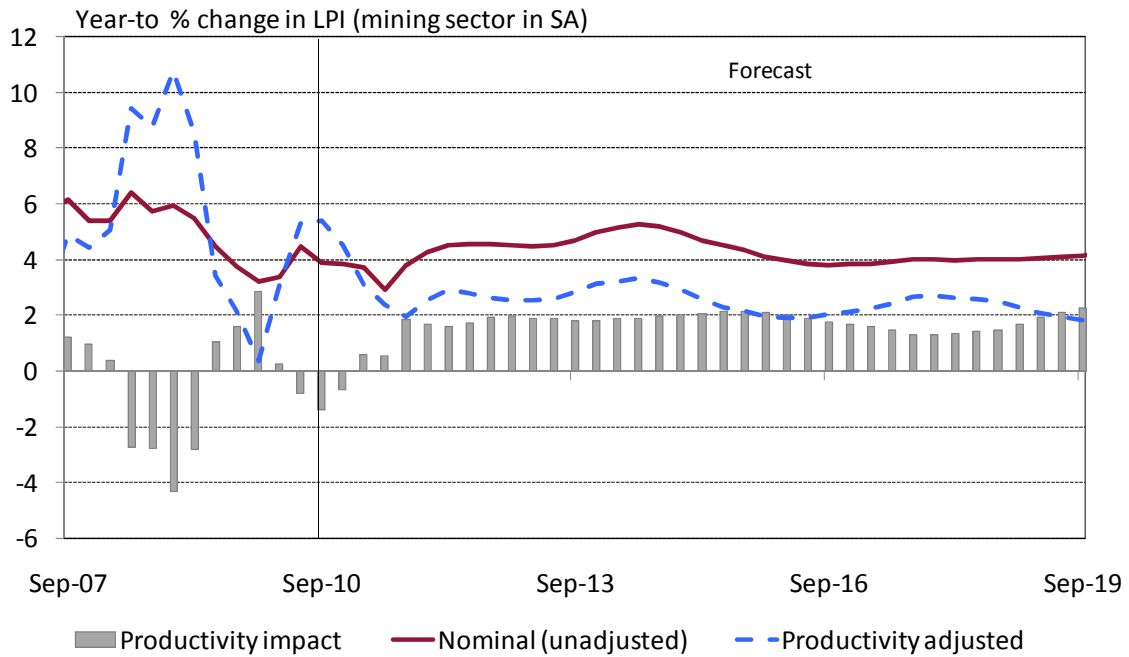
Looking ahead however, there is likely to be some moderation in these effects, and our medium term expectation is that local LPI rates dip below the national average, both at the sectoral level, but overall as well.

### 10.3.3 The mining sector

Chart 10.13 shows that productivity in the mining sector in SA slumped as the GFC hit, with output falling sharply while employment remained steady.

That partly reflected employees being hoarded even as demand for minerals fell away, but the key factor was the State’s ambition to become a bigger player in the Australian and global mining sector.

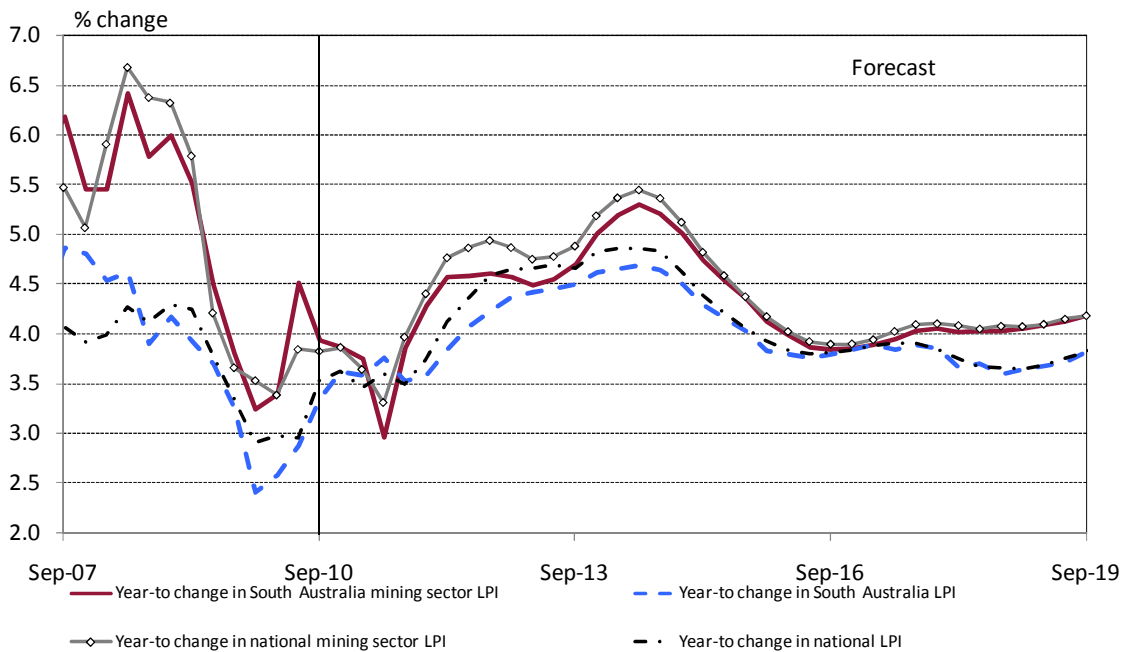
**Chart 10.13: South Australian mining LPI forecasts**



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

Most well known is the potential for the State’s world class Olympic Dam deposit to receive a very substantial increase in investment and output in coming years. However, there are also other areas of potential around the State, which leads it to be highly ranked by the Fraser Institute as a potential resource powerhouse of the future.

**Chart 10.14: South Australian mining forecast comparison**



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

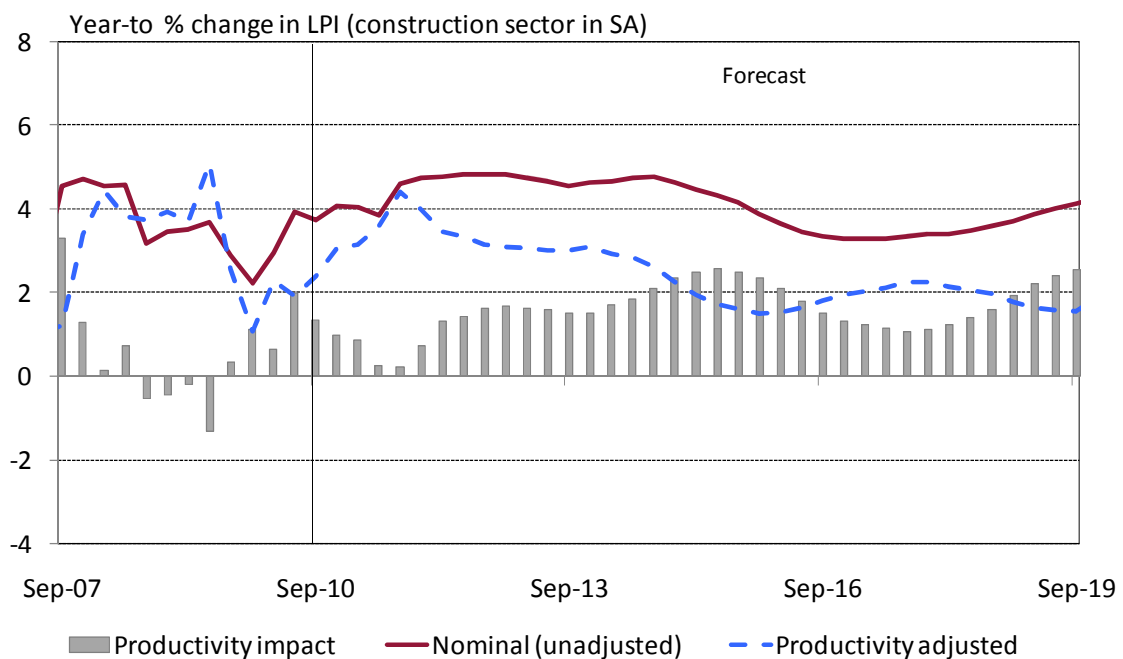
Indeed, the South Australian mining sector should see increased activity in the future, regardless of whether Olympic Dam proceeds or not, in the form of mineral exploration.

However, in recent months demand has swung particularly sharply towards the northern States which are now exhibiting a stronger trend than expected. While the increased demand for skilled labour is will lift South Australia’s mining LPI growth rate, the results may still lag the growth in national mining LPI in the medium term.

### 10.3.4 The construction sector

Building approvals continue to edge up in the State, and housing activity still looks solid enough. South Australia’s housing construction sector wasn’t as hard hit during the GFC, with good affordability and some pent up demand helping to sustain the sector through 2008-09. The good news is that approvals of apartments are showing signs of greater health, the pace of public sector housing is on the rise, vacancy rates are dropping once again and rents are now growing in line with the national average. That may help to encourage investors, helping to offset a decline in first home owner activity due to the withdrawal of the additional First Home Owners Grant and weaker affordability.

**Chart 10.15: South Australian construction LPI forecasts**

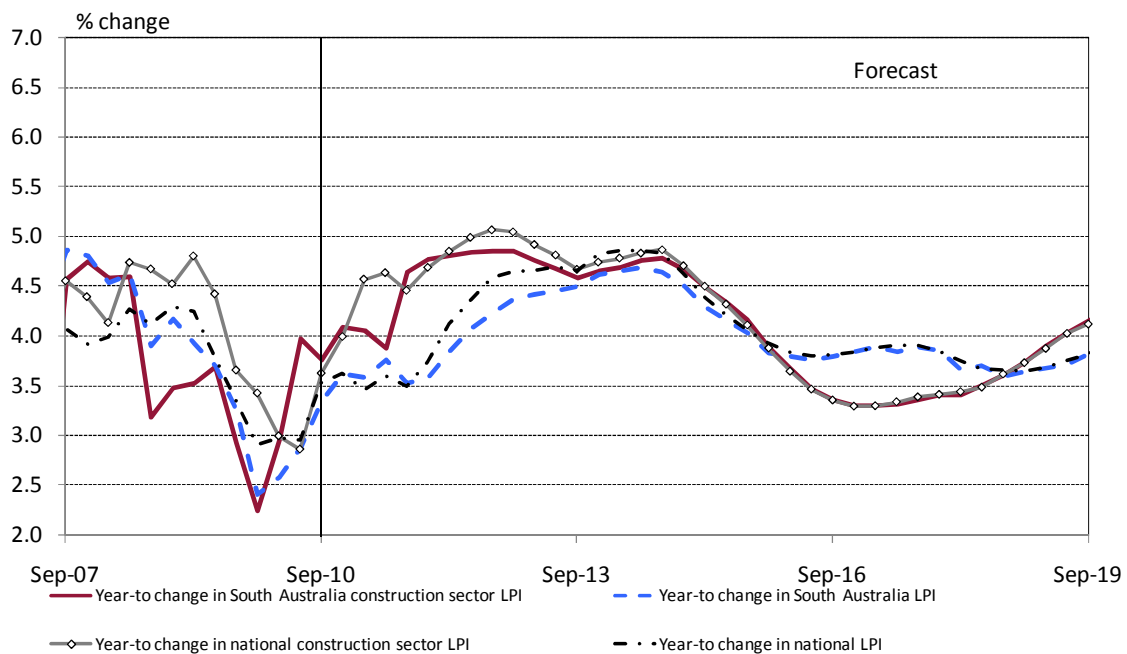


Source: ABS, Access Economics estimates, Access Economics labour cost model

Engineering work has strengthened notably since mid-2008 – an impressive result given the falls in some other States. Work underway includes the \$1.8 billion desalination plant at Port Stanvac in Adelaide and a bunch of transport projects. The \$860 million South Road upgrade is underway, the \$560 million Gawler bypass on the Northern Expressway is being finalised, and the \$340 million rail revitalisation program on the Noarlunga line is also underway.

SA Water Corporation is upgrading the Christies Beach waste water treatment plant at a cost of \$270 million, while a \$180 million, 37-turbine wind farm is underway in the Clare Valley and the new \$35 million Bird in Hand water treatment plant is also being built. The \$175 million Port River Expressway is being finalised, while the \$100 million Sturt Highway upgrade is also nearly done. Work in planning includes the \$812 million South Road Superway and Oz Minerals’ \$135 million copper/gold mine at Prominent Hill. Both will get underway shortly.

**Chart 10.16: South Australian construction forecast comparison**



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

Commercial approvals have dropped sharply following their education-related boost in late 2009. That fall has exposed weakness in the sector and suggests construction activity may remain modest in the short term. Projects include the new \$409 million Edinburgh Defence precinct in Adelaide, with work to be completed in early 2011, and six new super schools to cost \$216 million. The \$201 million third stage of the Lyell McEwin Hospital redevelopment is underway and not scheduled to be finalised until 2015, and a new \$200 million medical research institute adjacent to the Royal Adelaide Hospital is also underway and set to be complete by late 2012.

Work in planning includes a new Royal Adelaide Hospital, slated to cost some \$1.7 billion, while the \$450 million second stage of the grandstand enlargement and refurbishment at the Adelaide Oval is due to begin shortly. Meanwhile, Westfield has announced plans to redevelop the Marion shopping centre at a cost of \$200 million.

After a period of relative weakness across 2008 and 2009, where South Australian construction wages were the slowest growing among all the States, growth rates in wages in the State's construction sector lifted through 2010.

They did so partly due to wider sectoral influences (with construction sector wage rates lifting across the country) and partly due to the general movements in the LPI (recovering from the artificial lows it hit when a bigger downturn was expected in the State's economy).

It is not surprising that the relatively slower wage growth in South Australia has largely ended. The State's construction wages drifted well below those available elsewhere, even though both the State's economy and its construction sector performed strongly relative to the rest of the country.

While the construction outlook is still modest, as noted above, the impacts of competition from other local sectors (as well as the Queensland and Western Australian mining and related sectors) will be an incentive to keep the local construction sector LPI growing strongly.

Overall, Chart 10.16 suggests that LPI growth in this sector will be more closely aligned to the general construction sector growth rate (and the underlying construction cycle) than it is to broader local trends.

### 10.3.5 Administration services

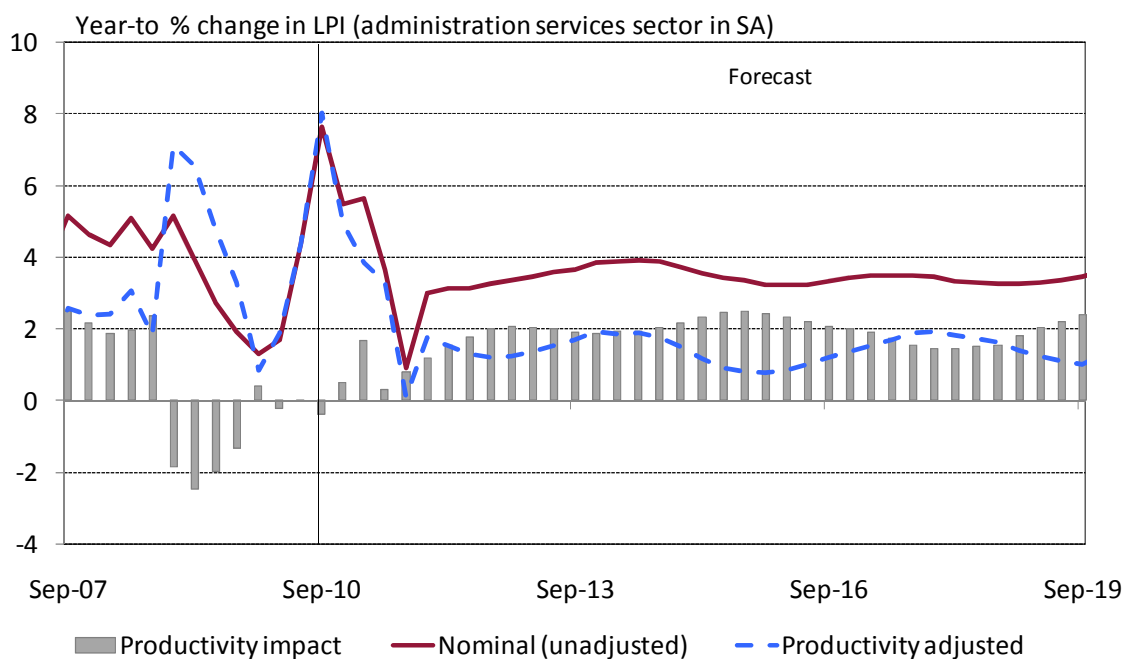
Wages in the administration services sector in South Australia surged in the past two quarters.

As Chart 10.18 shows, the increase of 7.5% in the past twelve months is more than twice the average seen across the State (around 3.5%) and in the administration services sector in general (around 3.4% – although that has risen in part due to the impact of the South Australian rises which account for around 7% of the industry overall).

In this case in particular these increases have been driven to a large extent by the flow through of the minimum wage increase handed down by Fair Work Australia in June 2010 which saw a \$26 per week increase in the minimum rates of pay from 1 July. That has had an obvious affect in the September quarter.

Additionally, in the case of South Australia, the Bureau of Statistics suggests that there is some evidence of an additional affect across 2010 from businesses changing from the old system to *Modern Awards* and the National Employment Standards. While employers have five years to transition to the new system, some South Australian employers have moved straight to the *Modern Awards*, which has resulted in some large wage increases in specific jobs.

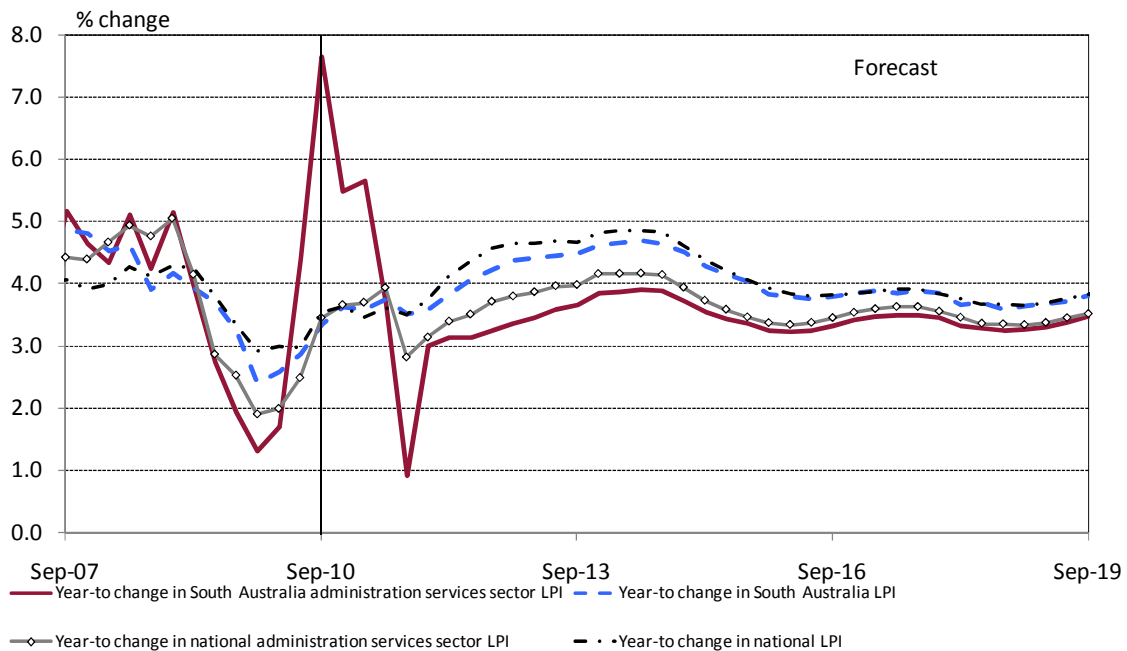
**Chart 10.17: South Australian administration services LPI forecasts**



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

That has meant a sharp rise in wages in a sector that has traditionally lagged the overall State average. The short term effects will continue until later in 2011 as the jump is not caused by volatility in the data but a combination of one-off 'step-changes'.

**Chart 10.18: South Australian administration services forecast comparison**



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

Beyond this the traditional trends seen in the growth of administration services wages are projected to re-emerge, meaning that wage growth in the sector will lag the broader State average.

South Australian administration services LPI growth will also lag the national equivalent due to:

- Slower growth in South Australian wages in general; and
- An additional shorter-term factor due to the slower adjustment to *Modern Awards* being seen in other States.

## 11 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.<sup>9</sup> 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 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.

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<sup>9</sup> See <http://www.abs.gov.au/AUSSTATS/abs@.nsf/90a12181d877a6a6ca2568b5007b861c/9b6a7239b96304ddca2570930000e4bf!OpenDocument>

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.



## Summary of the surveys and their key series

Table 11.1 (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.

### 11.1 The best measure: AWOTE or LPI?

The BIS Shrapnel report *Wages Outlook for the Electricity Distribution Sector in Victoria* of July 2010 argues (at pages A1 and A2) that:

*“... the LPI reflects pure price changes, and does not measure variations in quality or quantity of work performed. However, like the CPI (Consumer Price Index), the weights are fixed in a base year, so that the further away from that base and the more the composition of the labour market changes over time, the more ‘out of date’ the measure becomes.*

*Importantly, the LPI does not reflect changes in the skill levels of employees within industries or for the overall workforce, and will therefore understate (or overstate) wage inflation if the overall skill levels increase (or decrease). The labour price index is also likely to understate true wage inflationary pressures as it does not capture situations where promotions are given in order to achieve a higher salary for a given individual, often to retain them in a tight labour market.*

*Average weekly earnings would be boosted by employers promoting employees (with an associated wage increase), but promoting employees to a higher occupation category would not necessarily show up in the labour price index. However, the employer’s total wages bill (and unit labour costs) would be higher.*

*For this reason, BIS Shrapnel prefers using AWOTE as the measure that best reflects the increase in wage cost changes (or unit labour costs, net of productivity increases) for business and the public sector across the economy. On the other hand, labour price index can be used as a measure of underlying wage inflation in the economy.”*

### 11.2 The Access Economics view

The ABS view, as quoted above, is that:

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

*The WPI was first compiled for the September quarter 1997 and is the main ABS measure of changes in wages. The WPI measures quarterly changes over time in the cost to an employer of employing labour, and is unaffected by changes in the quality or quantity of work performed.”*

As the above discussion from the ABS suggests, they see the LPI as their preferred measure for “changes in the price of labour”.

That is the task at hand here, and hence the LPI (excluding bonuses) is Access Economics' preferred measure for this type of analysis.

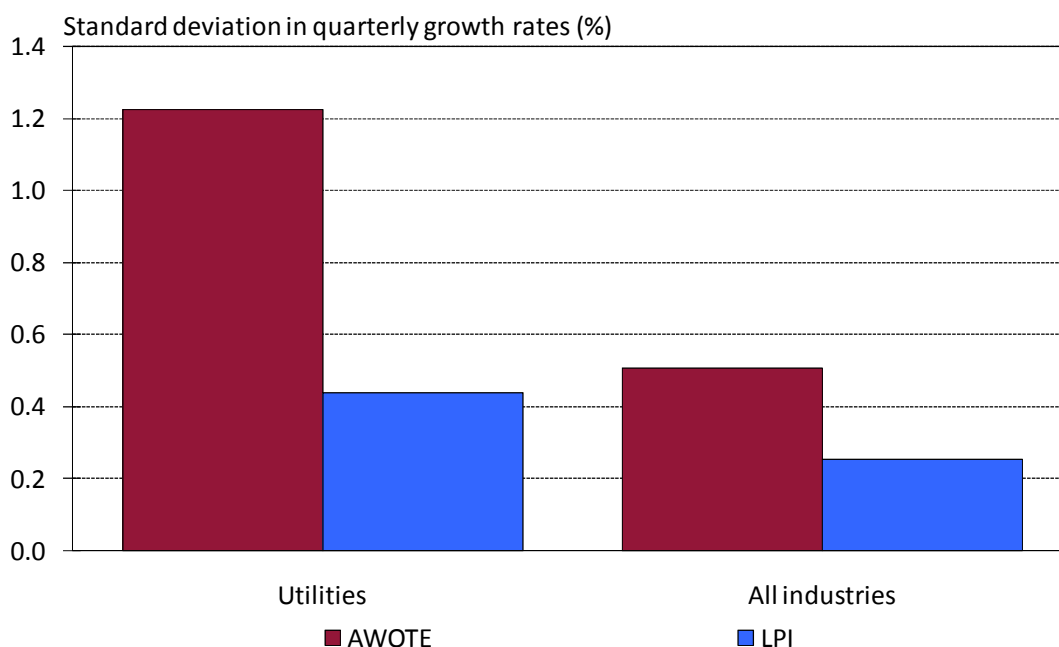
Indeed, the LPI was originally developed because of the shortcomings of existing wage measures for this type of analysis. For example, AWOTE is affected by shifts in the composition of employment. For example, if a sector employs relatively more high paid full time workers over time (as has happened, for example, in the manufacturing sector as low skilled jobs have been lost to competitors in developing Asia), then that will tend to raise measured AWOTE even if the wage levels for a given level of skill have not changed at all.

Those compositional effects tend to make AWOTE far more volatile than the LPI. Chart 11.1 shows the standard deviation in quarterly growth for AWOTE and LPI in the utilities sector and across all industries over the past decade. The chart shows that AWOTE has been notably more volatile than the LPI over the last decade.

These volatility problems become more pronounced at greater levels of disaggregation, with the difference in volatility more pronounced in the utilities sector than across all industries as a whole (quarter-to-quarter changes are some two to three times more volatile for the AWOTE measure than the LPI measure).

The higher level of volatility at the industry level compared with the national level is to be expected due to the smaller sample size (indeed, similar patterns are evident at the State level) as each individual wage movement has a much larger impact on the utilities sector than it does nationally. As a result, effects such as timing and unusual movements in individual firms have a greater effect on quarter-to-quarter movements, increasing the measured level of volatility in the smaller segment.

**Chart 11.1: Standard deviation in quarterly wage growth, ten years to June 2010**



Source: ABS, Access Economics

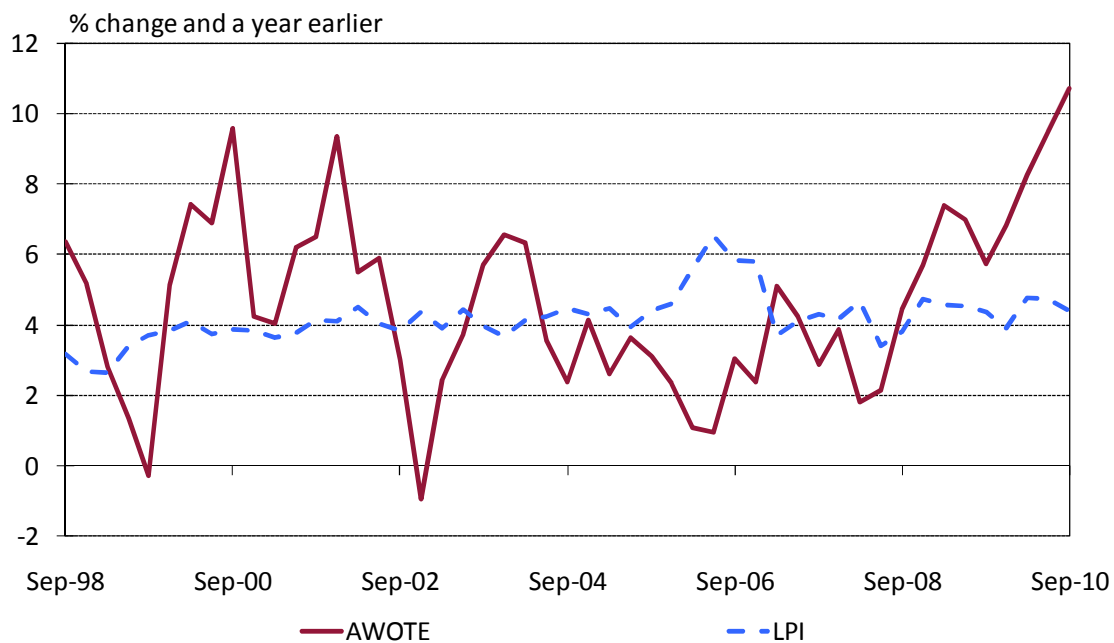
As the analysis at issue here is not merely at the sectoral level, but at the sectoral by State level, these volatility problems rapidly compound.

However, sample size does not explain the even more significant difference in volatility between the LPI and AWOTE wage measures.

**These compositional effects and the resultant volatility make AWOTE a poor base for undertaking wage forecasts for the utilities sector. The volatility in the series does not accurately reflect wage outcomes for utilities employees, and can result in starting point (or “jumping off”) problems at the beginning of the forecast period.**

The latter point is highlighted by Chart 11.2 below. It shows year-to growth in AWOTE and LPI for the utilities sector.

**Chart 11.2: Growth in AWOTE and LPI, Australian utilities sector**



Source: ABS, Access Economics

While the greater volatility in the AWOTE series compared to the LPI series is clear, the chart also shows a recent surge in wage growth as measured by AWOTE. Utilities wages grew by 10.7% over the year to August 2010 according to the AWOTE measure – nearly two-and-a-half times the pace recorded by the LPI series.

Few observers are likely to claim that AWOTE is providing a more accurate indicator of recent developments in the cost of labour in the utilities sector.

It is therefore worth calculating the degree of compositional change that would explain the current divergence in the AWOTE and LPI assessments of the pace of wage growth in the utilities sector over the past year – that is, generating 10.7% growth instead of 4.4% growth.

**Say the compositional change that other commentators are concerned about involved firing 1% of the workforce, and then hiring replacements. Further, for the sake of the simplicity of the example, assume that the average wage in the sector is \$100,000 a year.**

**To get a gap in wage growth equal to that evident currently (10.7% growth instead of 4.4% growth) as a result of such compositional change, then the past year would have to have**

**seen 1% of the workforce (some 1,300 people) earning only half the average (\$50,000) being sacked, with their replacements earning an average of almost fourteen times that (\$680,000).**

**That result is unlikely.**

More broadly, compositional changes arising from the business cycle, changed educational levels, the pace of recruitment and retirement, the degree of outsourcing, changed relativities in the employment of men and women and compositional changes arising from shifts in average hours worked can all distort AWOTE as a proxy for “changes in the price of labour”.

### **11.3 Drawbacks to using the LPI measure**

That said, ‘best measure’ is not the same as ‘perfect measure’, and there are also drawbacks to using the LPI:

- First, the LPI is published by State and by sector separately, but not by State and by sector. That is, the LPI for NSW is published, and the mining sector LPI is also published, however the NSW mining sector LPI 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 LPI at the ‘by State and by sector’ level. Appendix D discusses how 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 LPI 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 LPI (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).

As noted above, BIS Shrapnel argue that:

*“Importantly, the LPI does not reflect changes in the skill levels of employees within industries or for the overall workforce, and will therefore understate (or overstate) wage inflation if the overall skill levels increase (or decrease).”*

However, there is an important flaw in such arguments. If these compositional effects are occurring, then they should also be having an impact on the productivity of the sector’s workforce.

That is, the higher skills should mean higher productivity – meaning that if the utilities are choosing to have a higher skilled workforce then, other things equal, that higher skilled workforce should be able to achieve the same output than would otherwise be achieved with fewer (less skilled) workers.

Or, in other words, cost impacts on utilities providers from this treatment of skills in the LPI measure are likely to be more apparent than real.

Moreover, it is worth stressing that this treatment in the LPI applies to skills – not to the much broader measure of ‘productivity’. That is, for example, if someone goes on a course and that qualifies them for a pay increment, then the ABS tries to remove the latter from its LPI measure.

However, the ABS makes no matching adjustment for the impact on productivity of workers being able to work with better equipment and/or new technology, or for the impact of productivity from ‘working smarter’ (such as more efficient organisational arrangements, and entrepreneurial activities).

Hence any such bias is unlikely to be large, and must be balanced against the rather more significant types of problems with AWOTE measures discussed above (and highlighted even at the national level in Chart 11.1 and Chart 11.2).

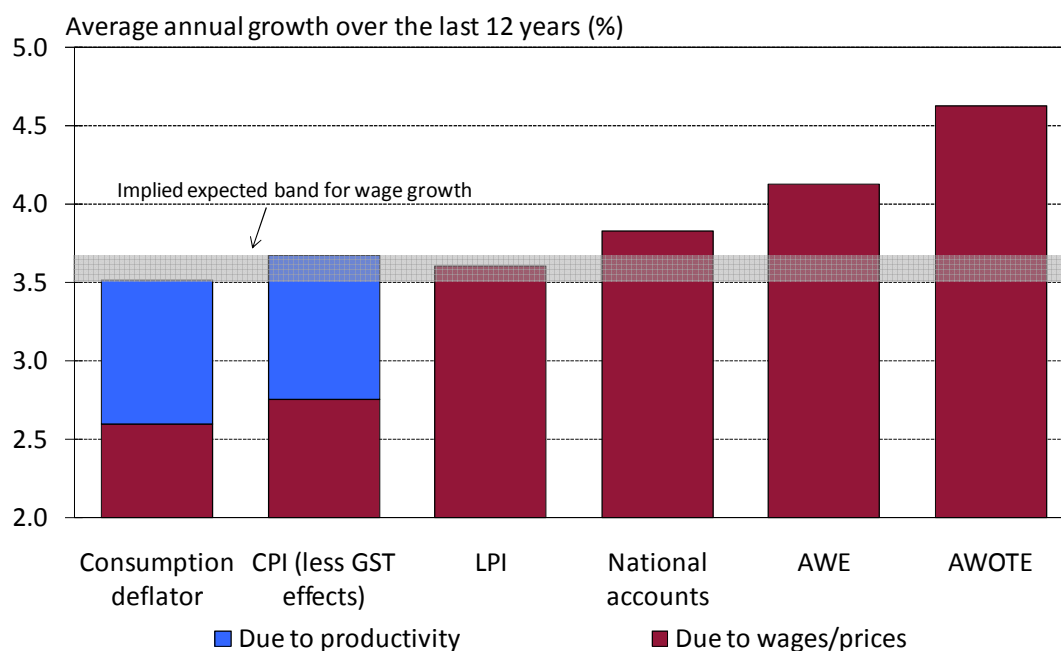
As noted, wages can shift in response to demand cycle in the short term. Over a long enough period of time, however, wages can be expected to reflect longer term economic building blocks of incomes. That is, wages will reflect price growth on the one hand, and productivity growth on the other. (Removing inflation from both sides of the equation, real wages will tend to grow in line with productivity).

That simple relationship may only hold over the longer term, but it also provides a useful yardstick against to which to measure the appropriateness of a variety of indicators of labour costs.

Chart 11.3 below begins on its left hand side with two different measures of prices, to which productivity growth has been added:

- One measure of prices is that provided by the consumption deflator in the national accounts. It is a very broad-based indicator of consumer price pressures in the Australian economy.
- The other price measure noted here is more narrowly based, but more readily recognisable – the Consumer Price Index.
- We have deducted the one off lift in prices attributable to the introduction of the GST from the latter. It should also be deducted from the former, but most analyses of the effect – including ours, focused on CPI impacts.
- Productivity growth here is measured in the simplest manner possible – the extent to which real output growth in the Australian economy has exceeded employment growth.
- A number of more sophisticated measures of productivity are available, including those that focus on a sub-set of sectors, and/or focus on different measures of labour input such as hours worked, and/or adjusted to measure productivity growth between given cycle peaks. That said, the advantage of the simple approach used here is that it can match the time period of the measurement we have established (which is determined by availability of the LPI measure) and which also encompasses the entire Australian economy.

**Chart 11.3: Yardstick assessment of different wage measures**



Source: ABS, Access Economics

In terms of the numbers, the last 12 years (the period over which the LPI is available) saw these two different measures of prices growth at a rate which fell within the Reserve Bank’s desired 2-3% target band for consumer price inflation – at 2.6% for the consumption deflator and 2.8% for the CPI less GST effects. Productivity growth was just 0.9% a year, shy of the 30 year average of 1.5%. A variety of commentators have focused on reasons for weaker productivity growth (see the various analyses of the Productivity Commission).

Other things equal, the combination of those price inflation and productivity growth rates suggest wage growth might have been expected to average somewhere around 3½% to 3¾% per year: a band which has been identified in Chart 11.3.

Of the various labour cost indicators in the chart above, only the LPI (at an average of 3.6% a year) and the measure of earnings used in the national accounts (3.8%) are close to that range.

AWE is higher at 4.1% per year, while AWOTE is higher still at 4.6%.

That comparison doesn’t necessarily suggest that the LPI is ‘right’ and AWOTE is ‘wrong’, but it provides useful insight into assessing whether there are large and systematic biases present in the LPI versus AWOTE.

Certainly this simple test against a common sense yardstick implies no particular bias in the LPI measure, but calls into question the extent to which AWOTE has outpaced what economic fundamentals might expect as longer term wage growth.

## 11.4 EBAs and contract rates

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, Access Economics notes developments in DEEWR's Trends in Federal Enterprise Bargaining reports at [www.workplace.gov.au/TrendsInFederalEnterpriseBargaining](http://www.workplace.gov.au/TrendsInFederalEnterpriseBargaining), and takes account of these in its short term forecasting if they appear likely to have a material impact.

**Table 11.1: National wage surveys**

	<b>AWE Survey</b>	<b>EEH Survey</b>	<b>EEBTUM Survey</b>	<b>LPI</b>	<b>CoE</b>
<b>Key series produced</b>	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)
<b>Designed to measure</b>	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
<b>Frequency and basis of survey</b>	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
<b>Benefits of the methodology</b>	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
<b>Limitations of the methodology</b>	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
<b>Publication description and ABS catalogue number</b>	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)



## Appendix A: 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 B: Regional wage variations in Australia

There are some natural limits to the extent or period to which wages and prices can be notably higher or lower in one State or region versus another.

For example:

- Workers can move between and within States (“we’ll leave Adelaide and try our luck in Perth”).
- Workers can move to Australia from other nations:
- Permanent and temporary (visa 457) migration may be bureaucratically slow to move, but has the potential to ease a transition period.
- As do shifts by permanent residents (Australians who decide to go to London next year rather than this, or to come back from working in Canada because prospects are now better here).
- Shifts by New Zealanders (who face fewer restrictions on migration than do those from other nations).
- Shifts in wages can and will see people substitute into growing areas related to their existing skills (“I’ll leave construction and try my luck in mining”).
- Ditto shifts in relative wages can delay retirements or exits (“We’ll have baby next year”), as well as encourage new entrants (“I’m going to study electrical engineering, because wages in that occupation are good”).
- Shifts in the use of labour due to changes in relative costs (“We’ll use more Enrolled Nurses and less Registered Nurses because wages for Registered Nurses have risen relative to those for Enrolled Nurses”).

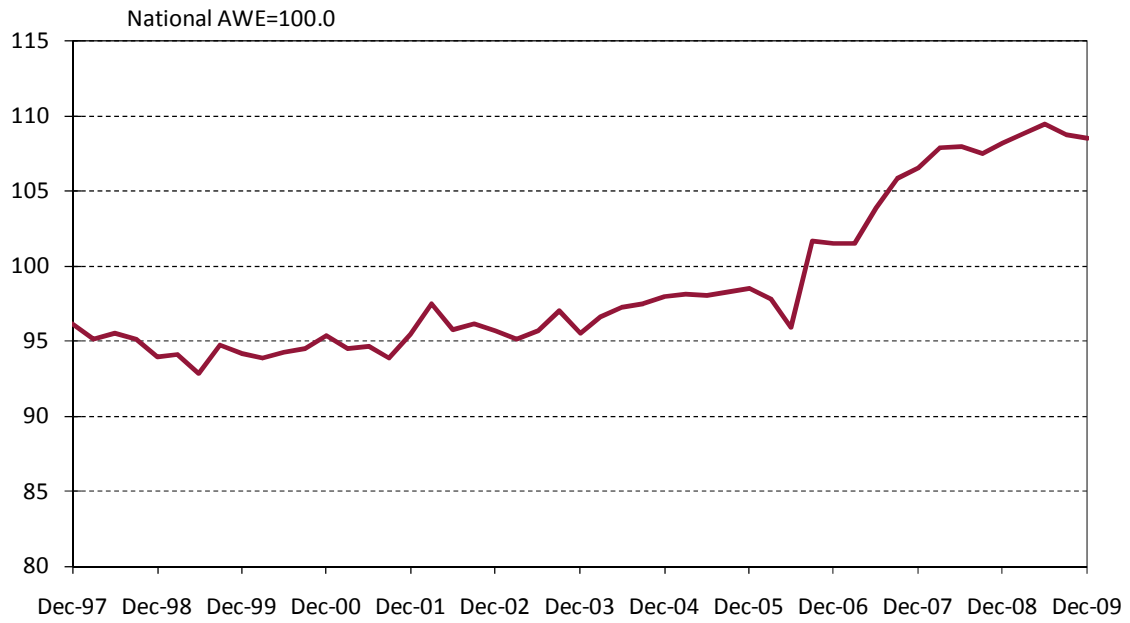
Many of these ‘equilibrating factors’ can be very slow to operate, meaning that divergences in wages across States (and, for that matter, across sectors and occupations within a State) can persist for long periods.

However, they will tend to narrow over time as these supply and demand factors in labour (and materials) markets gradually make their presence felt.

An example is Western Australian wages relative to national wages, as seen in the chart below.

That ratio rose during the boom, but is now starting to level off, and the next move in this ratio is likely to be downward.

**Chart B.1: Western Australian wages relative to national wages**



Source: ABS

## Appendix C: Macroeconomic and wage forecasting methodology

### Introduction

The model used by Access Economics to forecast the LPI by State and by industry has been created as a subsidiary component of our 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 LPI measures at more detailed levels.

The macroeconomic forecasts presented in this report are based on preliminary estimates from the AEM model (March 2010). The reason these forecasts can only be regarded as preliminary is that while the key December quarter output variables (contained in the quarterly national accounts publication) have been released a number of other important variables are not yet available. Key among these are the December quarter dwelling commencements (housing starts) as well as February employment levels. Both variables will have a considerable impact on our view of the current state of the Australian economy, as well as the short term output. As such the forecasts underlying this model will differ to some degree from those that will appear in the March quarter *Business Outlook* publication, with the level of difference depending largely on these latter economic releases.

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 Treasury Secretary Ken Henry noted in March 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 LPI will move, and the remainder of the modelling determines which industry, State and industries within States will see their LPI measures grow faster or slower than this value.

### **Industry and State Labour Price Indices**

Modelling of specific labour price indices (LPIs) begins with the movements in the total Australian LPI – taken from the 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.

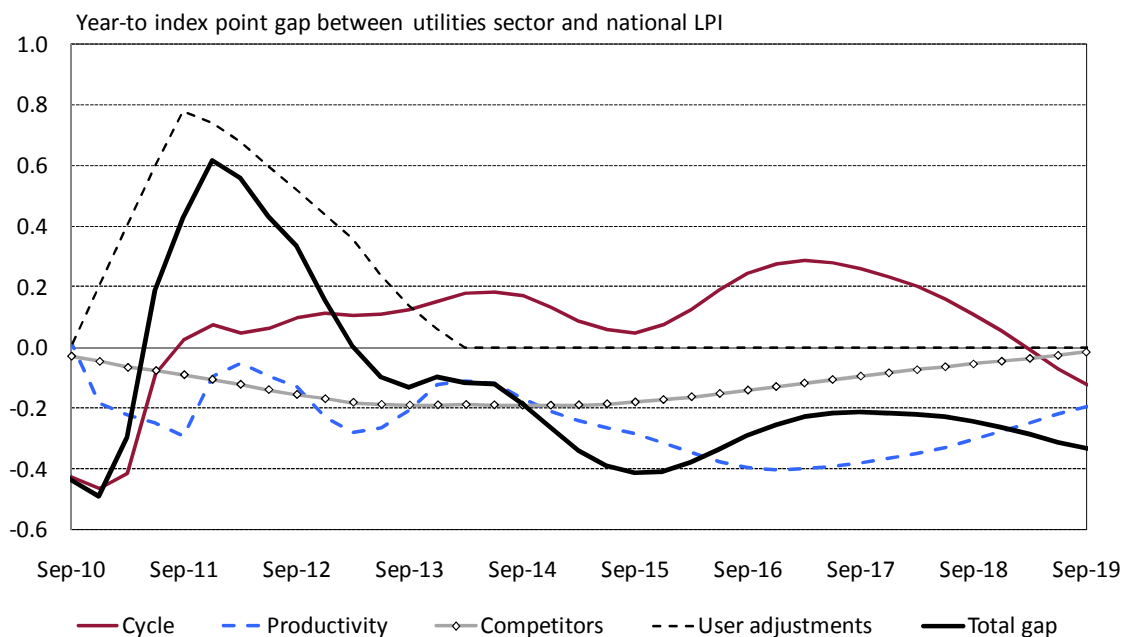
From this initial index, the model adds in deviations from the average. Three key factors will drive these wage differentials:

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

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

It is important to remember that the LPI 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 LPI may not be reflective of movements in the wages of individual employees. In an extreme case, it would be possible for (say) all the high-paid workers in an industry to take a pay cut but the overall LPI 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, Access Economics estimates, 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 LPI. The chart above (analysing the national utilities sector) compares movements to the national LPI – above the line means growth in the index of more than would be expected if it rose in line with the national LPI and below the line implies growth in the index less than that implied by the national LPI.

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

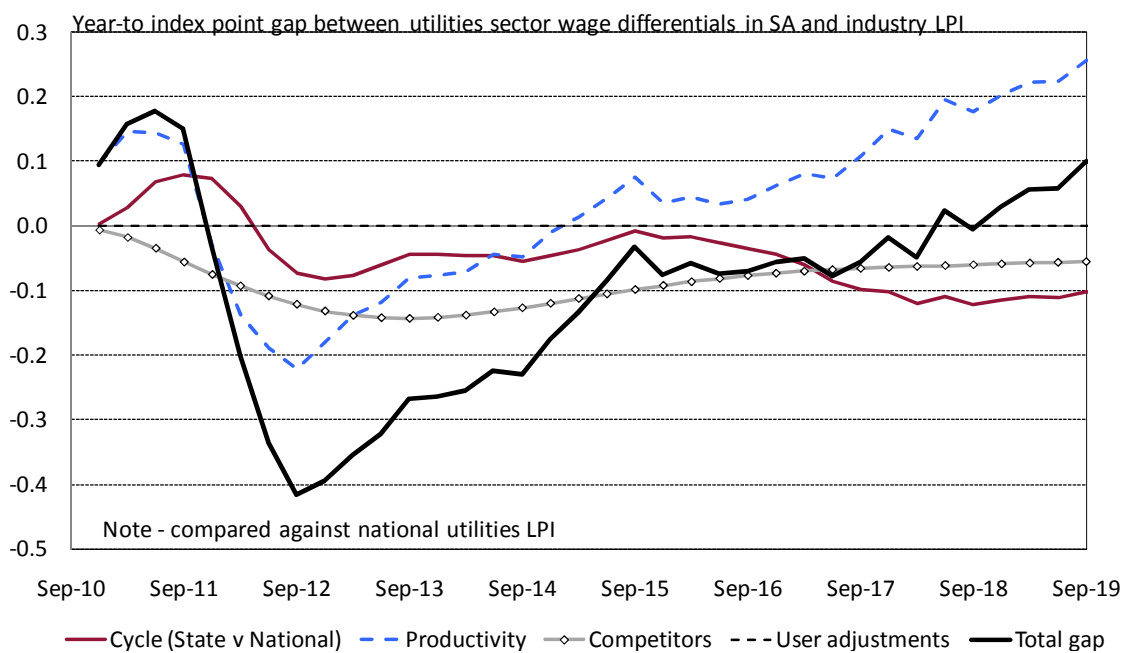
- The recent strength in the utilities sector will keep upward pressure on the wages in the sector (represented here by the **Cycle** line). By the end of 2011 growth rates will begin to move in line with the overall economy and the cyclical pressure will diminish; and
- The lower rate of productivity growth in the utilities sector will put downward pressure on the LPI for utilities across first few years of the forecast period (the **Productivity** line). This effect will largely dissipate beyond this point; but
- The relatively strong growth in utilities sector wages implied by these first trend (and the recent strength in the LPI) means the sector will face minor downward wage pressure. Weakness in the manufacturing sector is particular will limit the impact from competitor industry wages (the **Competitors** line). In the longer term the otherwise weaker wage growth in the sector will need 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 utilities sector LPI growth roughly in line with 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 LPI. So the chart below implies that South Australia’s utilities sector LPI will:

- Grow relative fast as the South Australia’s economy growth, while remaining below the national average, should in general be closer to the national average than it has been in the past;
- See a strong offset due to relatively weaker productivity growth, particularly in the earlier years; and
- Will initially be boosted as the South Australian LPI is currently low by historical standards, but will be constrained in the longer run as the LPI soon grows ahead of the national rate.

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



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

### Labour prices versus labour costs

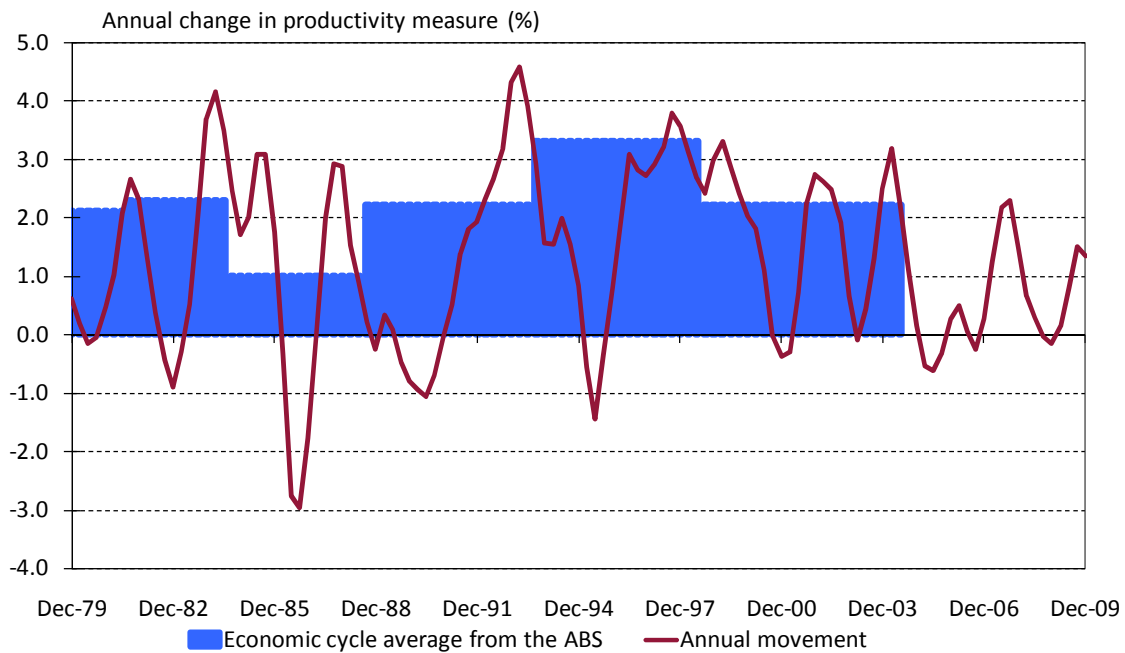
The methodology above estimates movements in labour prices – the cost of employing the average employee, whether broadly in the Australian economy, or in a specific industry in a specific State.

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 than those who have been working in an industry for longer, but productivity may

also rise as ‘economies of scale’ become available, and workers who may have been underemployed in their workplace increase their effective level of output) it is often best measured over an entire economic cycle. The chart below shows annual growth in a simple productivity measure against the ABS’ cyclical average measure (the last published cycle ends in 2003-04, so the last few years have no official cyclical productivity growth measure).

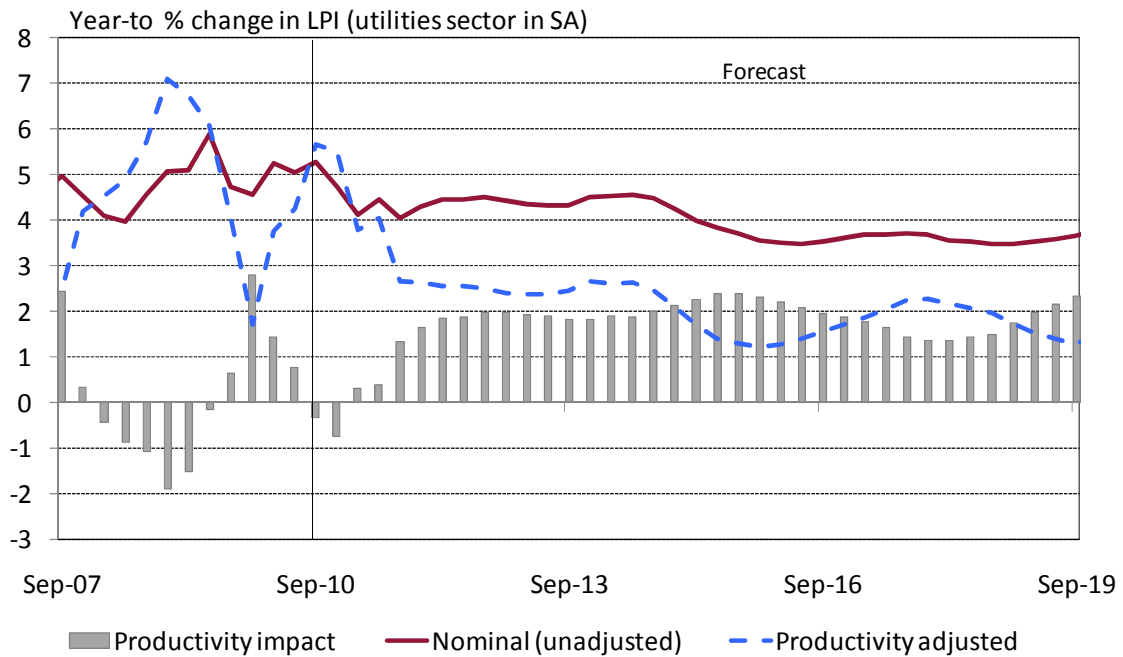
**Chart C.3: Growth in productivity – annual methodology vs economic cycle methodology**



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, Access Economics estimates, Access Economics labour cost model

In the example above, the cyclical impact of productivity becomes more clear. Across the latter part of the forecast (from 2012 to 2018), the nominal (or unadjusted) LPI rises by 3.8% per year, while the rate of increase adjusted for productivity improvements is just 2.4% per year – the gap implying productivity improvements of 1.4% per year.

## Appendix D: LPI sectoral history at the State level

As discussed in Appendix D, the historical LPI 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 LPI series is not available, a comparative series for average weekly earnings (AWE) can be obtained.

The following table shows (for the key States and sectors modelled) which data is available in time series for the LPI and (for those where LPI is not available) AWE. These are data series provided on the new ANZSIC06 basis. In the case of LPI data this has been provided across the period from September quarter 2008 to December quarter 2009 (six quarters of data on a consistent basis).

For the AWE data only estimates for three quarters (June, September and December 2009) have been calculated by the ABS.

**Table D.1: Wage data series availability**

	Utilities	Mining	Construction	Administration services
Queensland	AWE	LPI	LPI	LPI
South Australia	AWE	AWE	AWE	LPI

Source: ABS

As the table shows, we have some data for all the utilities series and competitor industries. However, the overall AWE data itself is not consistent with the LPI data for Australia (as noted in the chart in the executive summary), so rather than using the raw data, to obtain a State by industry LPI we have used the deviations in the AWE growth from State AWE averages and applied a consistent ratio to the known State LPIs.

In other words, if the Queensland utilities sector AWE measure is rising faster than the overall Queensland AWE measure, then we allow the Queensland utilities sector LPI measure to rise faster than Queensland's overall LPI over the past six months. Because the AWE data has been far more volatile than LPI in recent years, we limit the deviations that this might imply<sup>10</sup>.

<sup>10</sup> We do that by comparing the variations in published AWE and LPI measures within each State and adjust the unknown deviations accordingly.