Deloitte Access Economics

Forecast growth in labour costs: Queensland and Tasmania

Report prepared for the AER

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Deloitte.

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Mark McLeish
Director
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Dear Mark,

Report for Queensland and Tasmania utilities sector LPI

Our report on the Labour Price Index (LPI) for the Tasmania and Queensland utilities sectors is attached.

Yours sincerely,

Chris Richardson
Director
Deloitte Access Economics Pty Ltd

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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 Tasmania.

Nor has this surge yet stopped. Miners can be expected to remain a formidable competitor for some of the same workers currently (or potentially) employed in the utilities sector. Indeed, there were more people employed in the utilities than in mining as recently as 2003, but these days the mining sector employs seven people for every five in the utilities sector, and that ratio is projected to lift to nine to five by 2020.

Nor will the mining sector be the only key competitor to consider here. For the mining sector to grow fast, the construction sector has to do the same first. And the construction sector employs almost seven times the number of workers that the utilities does.

The key driver of this rapid employment growth and projections of continuing good gains in key sectors 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 quickened pace in 2009 and 2010, 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 – migrant numbers have halved, and the pace of retirement among Australia's baby boomers can be expected to lift sharply in the next few years.

After a considerable surge from mid-2009 to late 2010, national job growth has eased more recently.

It is likely that this slowdown reflects both demand and supply factors. At the national level some sectors and (to a lesser extent) States are struggling amid the 'two speed economy' negatives of the moment. Yet such has been the extent of the slowdown in working age population growth of late that it is likely that some of the weakness in job gains in the past six months or so also represents a lack of supply.

For the utilities, and after what was, in relative terms, an even larger surge in utilities sector employment, that sector has seen job numbers stagnate since mid-2010 (and even fall in recent months, though that is not true of electricity supply itself).

Again that slowdown is consistent with some recent developments, including the modesty of the current upswing in the housing construction cycle. However, it may also include a response to the uncertainty over the regulatory backdrop for the utilities sector, including carbon pricing.

The outlook for Queensland

At the State level, Queensland and Tasmania are estimated by Deloitte Access Economics to have been the two slowest growing economies in Australia in 2010-11. Queensland has been hard hit by floods and cyclones, and those natural disasters followed on from other pressures on the State's economy that have been evident since the global financial crisis first hit, and which imply lingering negatives for its construction sector.

The upshot was that Queensland went nowhere last year – the State's population kept growing, but its economy didn't. For that matter, population growth itself dropped away, as it has done in recent years, a consequence of the long period of poor performance that Queensland's economy has seen, as well as fewer foreign students starting courses. In turn, that mix led to yet further weakness in the pace of housing construction in Queensland – a factor of particular importance to its utilities sector.

Equally, the turning point is already here: Deloitte Access Economics expects Queensland to accelerate from a standing start, reaching a sprint inside the next six months. Most flood and cyclone impacts have already passed, and even the lingering effects on coal output will only last a few more months. The repair of the houses, roads and other infrastructure damaged by disasters is also increasingly evident, and that too will add to the rebound. Even the simple point that billions of dollars of coal weren't exported last year but will be in the coming year makes a big difference.

Yet the biggest difference of all isn't the rebound from the natural disasters. It will be in the striking surge in business investment spending which is now beginning. The resource investment in the rich arc from Gladstone to Townsville already has more than $50 billion of projects starting up, with the potential for another $50 billion to follow suit. To put that into context, consider two different facts. *First*, the amount that manufacturers spent on expanding their production capacity in Queensland was the same dollar value as the miners were spending just a decade ago, but in the coming year miners will outspend manufacturers by a factor of ten. *Second*, this is a State in which total investment spending has never yet exceeded $50 billion in any given year, but now miners alone in the triangle of land lying from just south of Gladstone out to Mount Isa and then across to Townsville have already committed to that sort of spending over the next few years.

The outlook for Tasmania

Similarly, Tasmania's economy is currently weak. The State began to slow just as Australia began to recover. Part of that was due to Australia's recovery being aided by emerging Asia – that was good news for the resource States, and even for Melbourne with its mining headquarters and Sydney with its business advisory strengths. However, that rising resource

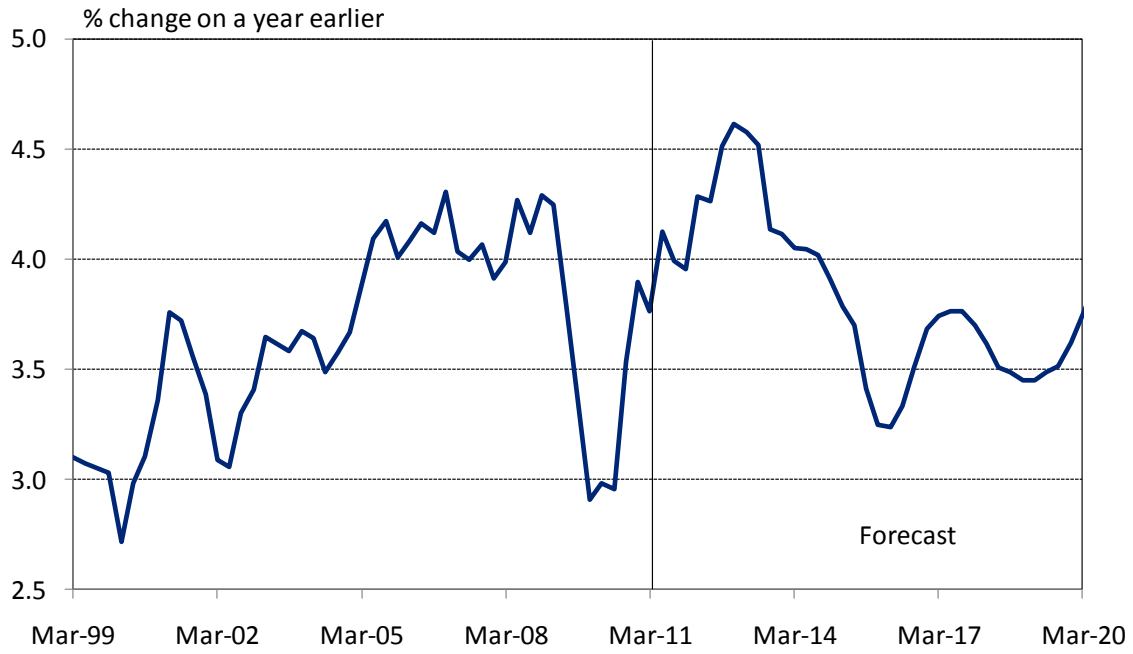
tide has been little or no use to Tasmania, while the combination of higher interest and exchange rates that came with it that proved a deepening challenge for the State's economy.

Looking ahead, whereas Queensland is expected to see a rapid and considerable recovery from its current weakness, that is not the case for Tasmania. A degree of pent up demand may provide some protection to the pace of housing construction, with knock on positive implications for the State's utilities sector, but the bigger question mark lies over how long the $A will stay above parity with the $US. Such an elevated exchange rate is extremely uncomfortable for many Tasmanian businesses – not just the exporters, but more particularly those who must do battle against imports in local markets. So far profitability has taken a hit but it hasn't buckled. The situation bears watching.

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 (seen in Chart i below) fell back rapidly as the global economy entered a period of uncertainty in late 2008. Yet wage growth in Australia has since rebounded, and Deloitte Access Economics sees further gains in prospect.

Chart i: Overall Labour Price Index forecasts



Source: ABS, Deloitte Access Economics' macroeconomic model

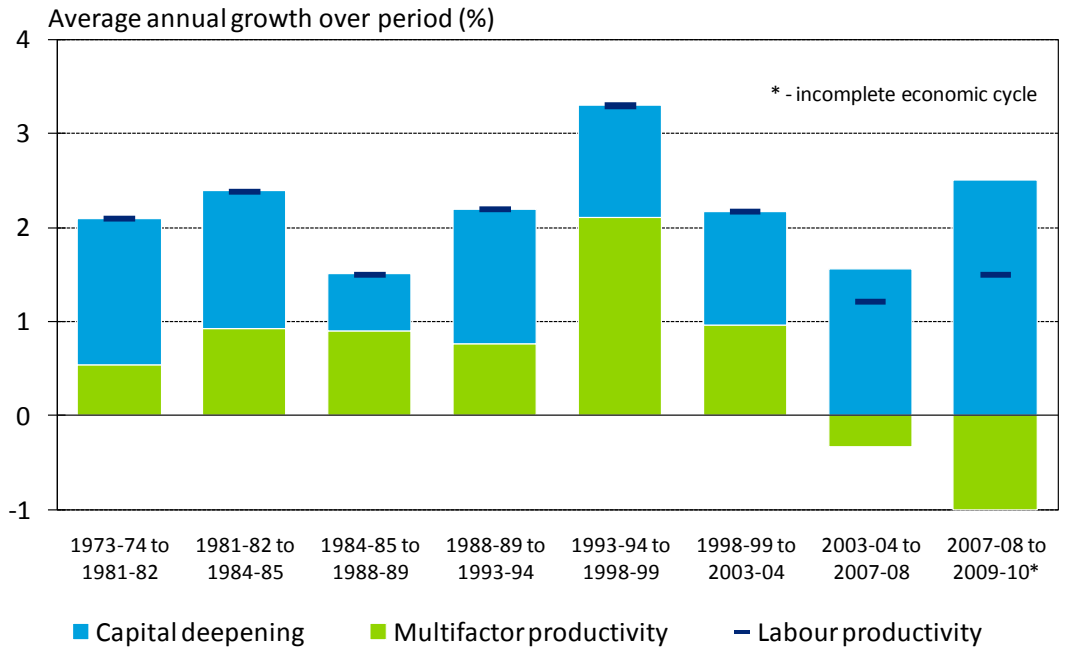
In particular, trends in both demand and supply factors in the labour market changed markedly in the past year and a half. The resilience of emerging economies in general means that many of the same demand factors that drove the mining boom from 2006 to mid-2008 are re-emerging, whereas weakening inflows of migrants and strengthening outflows of retirees are tightening the supply side of Australian labour markets.

As Chart i therefore shows, Deloitte Access Economics sees national wage growth (as measured by the LPI) briefly stabilising at around 4% per year until the middle of 2011 before accelerating closer to 4½% through 2012 and 2013.

Trends in national productivity

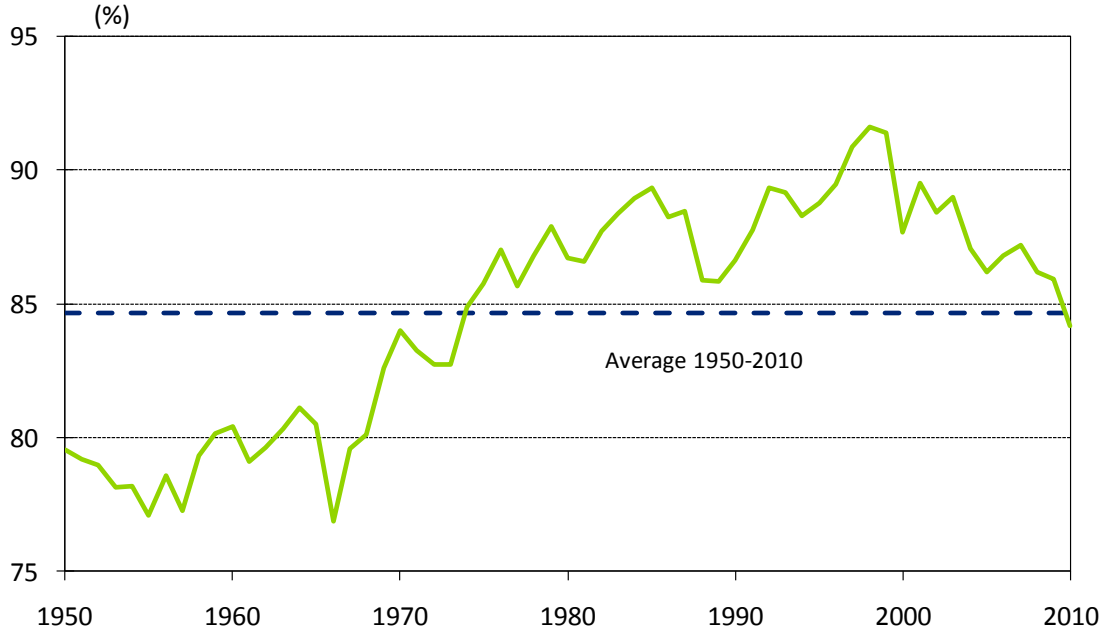
Australia's productivity performance faltered sharply in recent years, despite the heavy investment in capacity expansion made by those both inside and outside the resources sector.

Chart ii: Market sector productivity growth



Source: ABS, Federal Treasury

Chart iii: Australia's labour productivity relative to the US



Source: The Conference Board Total Economy Database, January 2011

The lift in productivity Australia saw in the 1990s – generated by the reforms of the 1980s and 1990s – has since dropped off.

Moreover, Treasury Secretary Martin Parkinson sees *"little reason to believe it will improve in the immediate term. ... Indeed the rate of improvement in the living standards of Australians, at least that part measured by incomes, has already begun to deteriorate"*.

In the late 1990s, Australia's labour productivity peaked at 92% of the US level. Since then it has dropped to 84%, the lowest seen since the early 1970s. Parkinson added that *"the root causes of Australia's present productivity performance are embedded in the decisions of the last decade"*, and that failing to tackle this productivity slowdown now *"will cement poor outcomes in the future". "Australians have not yet felt the consequences of this decline."*[1]

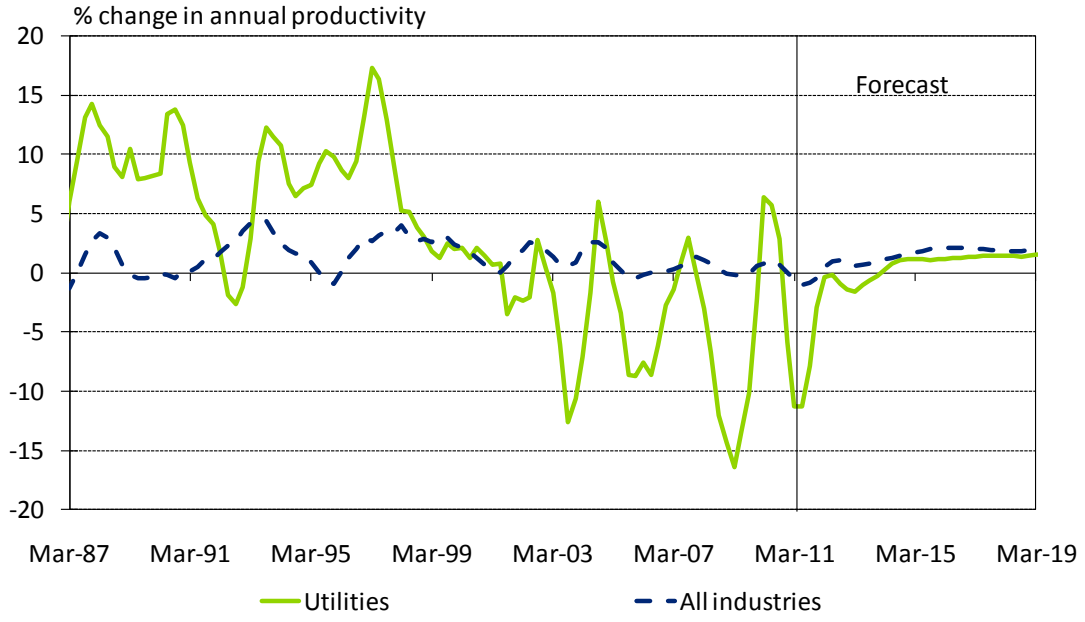
Reports by the Productivity Commission (2009), the House of Representatives (2010) and the Treasury suggest 70% of the rapid decline in productivity since 2003-04 is accounted for by:

- Declining resource quality and large capital investment that has not yet translated into output in the mining sector;
- Capital investment and reduced rainfall in the electricity, gas and water sector; and
- Drought affecting the agriculture sector.

Other possible causes of the decline in productivity growth include capacity constraints within the economy, following the very long period of uninterrupted economic growth.

That said, Deloitte 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.

Chart iv: Productivity growth



Source: ABS, Deloitte Access Economics' macroeconomic model

[1] http://www.treasury.gov.au/documents/2077/PDF/Sustaining_growth_in_living_standards.pdf, 30 June 2011.

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 – and as capital investment in the sector lifts – productivity growth should average a similar rate to the national, although it may be more volatile from year to year.

Utilities wage growth

The latest Labour Price Index (LPI) release saw continuing moderation in wage claims. At an increase of just 0.8% in the March quarter (after a gain of 1.0% in the December quarter), the LPI has risen by 3.8% over the past year:

- After a period in which weakness in the Australian economy – or fears of it – held private sector wage growth behind that of the public sector, the latter cycle has subsequently turned. Private sector wages rose by 0.9% in the March quarter while public sector wages rose by 0.8%. Compared with a year earlier, private sector wages rose by 3.9%, while public sector wages rose by 3.6%.
- Similarly, Australia's ongoing economic recovery means that bonuses are recovering as well. Including bonuses, wages rose by 0.9% in original terms in the quarter with annual growth of ordinary time hourly rates steady at 4.0% in the March quarter.
- The industries with fastest wage growth over the past year included Professional, scientific & technical services (where wages rose by 4.7% in the year to the March quarter), Mining (up 4.6%), Construction and wholesale trade (up 4.4%) and Financial & insurance services (up 4.3%).
- The industries with the slowest wage growth over the past year were Rental, hiring & real estate services (up 3.0%), Arts & Recreation services (up 3.1%), Retail trade and Wholesale trade (both up 3.3%) and Other services (up 3.0%).

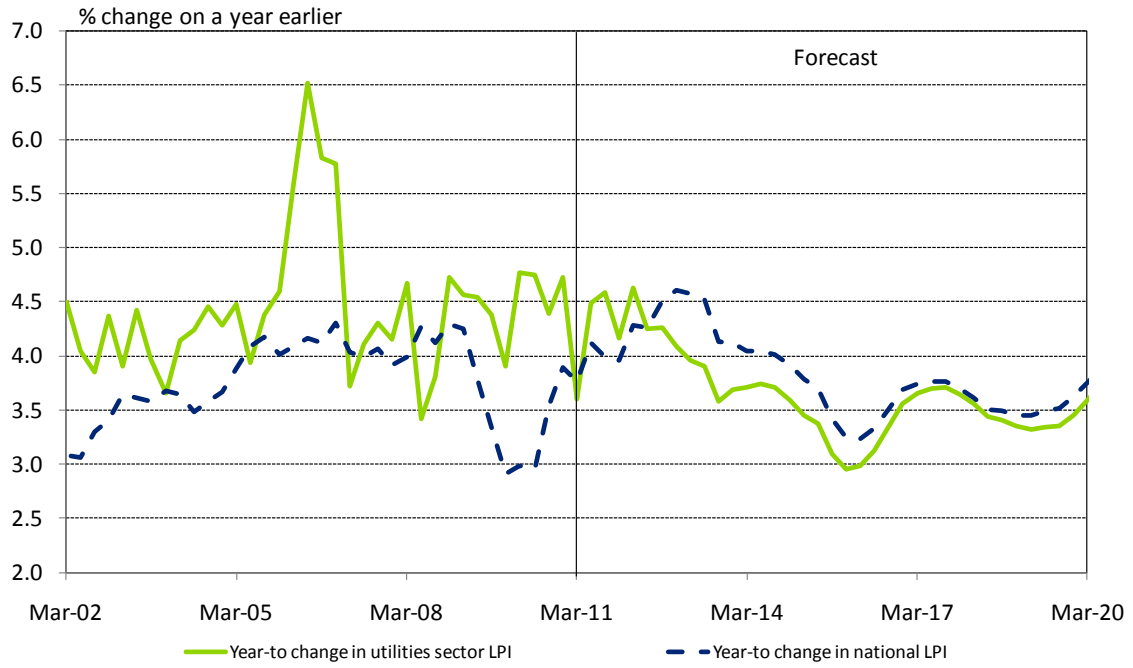
The utilities sector, with LPI gains of 3.6% over the past year (and 0.6% in the March quarter itself, though that followed the strong gain of 1.5% in the December quarter), was below average. The private utilities sector gain over the past year was higher, at 4.0%, while the public utilities sector gain was 3.3% over the past year. However, the current weakness is recent, and it is not expected to be sustained. Indeed, it follows a decade of strong relative gains in wages in the utilities. As Chart v shows, the decade saw LPI growth in the utilities sector exceed the national average by a large margin.

Looking ahead, Australia is entering another phase of resource strength as commodity prices regain their pre-2008 highs and demand from China and India returns.

Chart v shows LPI growth in the utilities and in Australia as a whole, while Chart vi below shows wages in the utilities relative to national wages.[2] 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.

[2] 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.

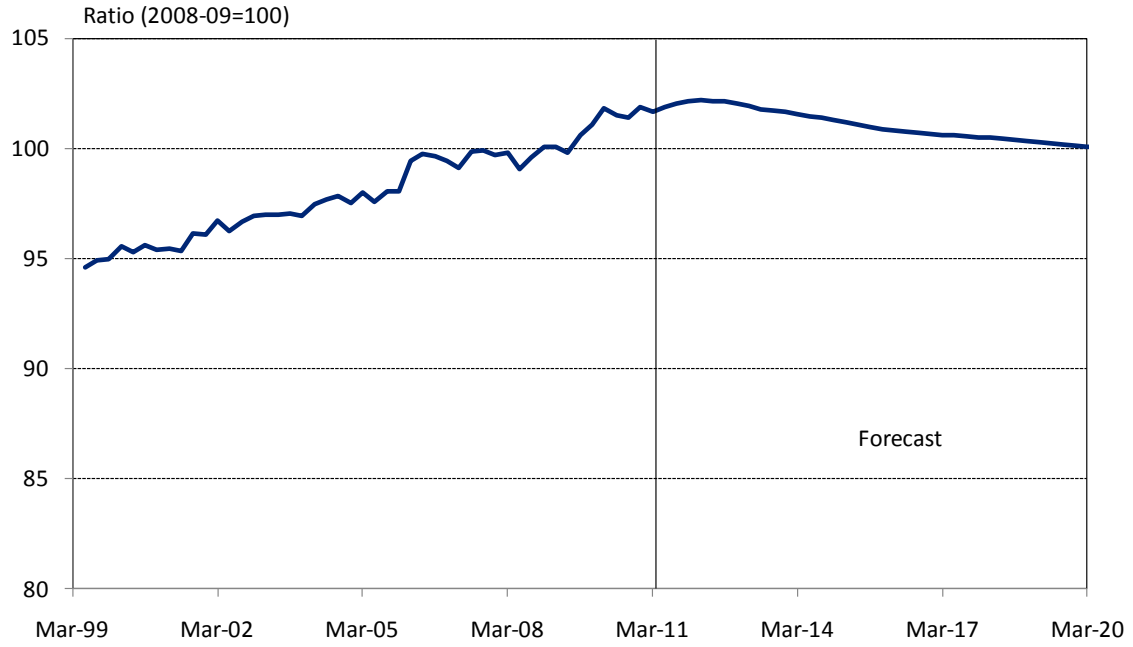
Chart v: Utilities Labour Price Index forecasts



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

Chart vi shows that Deloitte Access Economics projects wages in the utilities will rise further relative to national wages (which are themselves accelerating across this period) over the coming year. However, those further gains are projected to be modest.

Chart vi: The utilities LPI relative to the national LPI



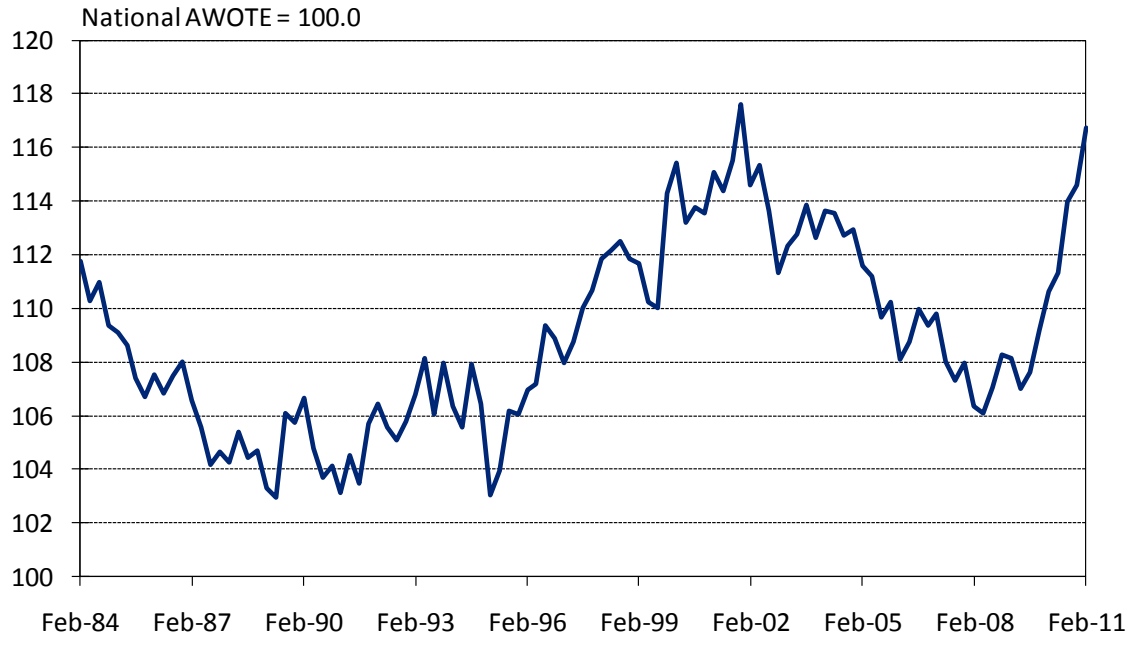
Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics labour cost model

As that chart also shows, we see a peak in relative utilities wages approaching. It is true that the coming engineering construction boom is again very big, and big booms in demand usually add to relative costs (as was seen in the last boom).

However, the past gains have been considerable, and 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).

It is, after all, worth noting that the period over which the LPI has been available is similar to the period over which China and other emerging economies have had a growing impact on Australia, including on the wages able to be earned in the utilities sector. Hence it is useful to look at the LPI comparison seen in Chart vi, but to also go back further in time using an AWOTE-based comparison (seen in Chart vii). The latter's longer timeframe helps to show the impact of long cycles (rather than the secular trend seen over the shorter timeframe seen in Chart vi).

Chart vii: The utilities AWOTE relative to the national AWOTE



Source: ABS

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, though we don't expect that latter phase to be evident until 2013 at the earliest.

Accordingly, amid an Australia in which wage gains are seen as set to accelerate over the next two years, those in the utilities sector will more than keep pace for 2011-12, but start to lose some relative strength thereafter.

General labour cost growth at the State level

Turning to the States, wage growth in the past year was highest in Western Australia and the Northern Territory (at 4.1%), followed by Victoria and Queensland (on 3.9%), NSW on 3.8% (the national average); the ACT on 3.7%; South Australia on 3.6%; and Tasmania on 3.5%.

That suggests 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 relatively concentrated in the 'resource States' of Western Australia, Queensland and the Northern Territory.

Table ii: State LPI forecasts

Financial year changes in nominal State Labour Price Index forecasts

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Queensland	3.3	4.1	4.2	5.0	4.2	3.9	3.3	3.7	3.6	3.4
Tasmania	3.8	3.4	3.8	4.1	4.0	3.8	3.2	3.5	3.4	3.3

Financial year changes in real State Labour Price Index forecasts

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	0.7	0.7	1.3	1.8	1.4	1.3	0.6	0.9	1.3	1.2
Queensland	0.6	0.8	1.8	2.2	1.1	1.0	0.3	0.7	1.1	1.0
Tasmania	1.1	0.5	1.8	1.5	1.0	1.0	0.3	0.7	1.1	1.1

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

At the other end of the scale, States such as Tasmania and South Australia saw their wage growth lag behind the national average consistently, caught by the relative weakness in their economies.

As is true of their respective economies, however, wage growth in Queensland may stay ahead of the national average over the next few years, while that in Tasmania may lag the nation – a pattern seen in the tables of State LPI forecasts above.

Utilities wage growth at the State level

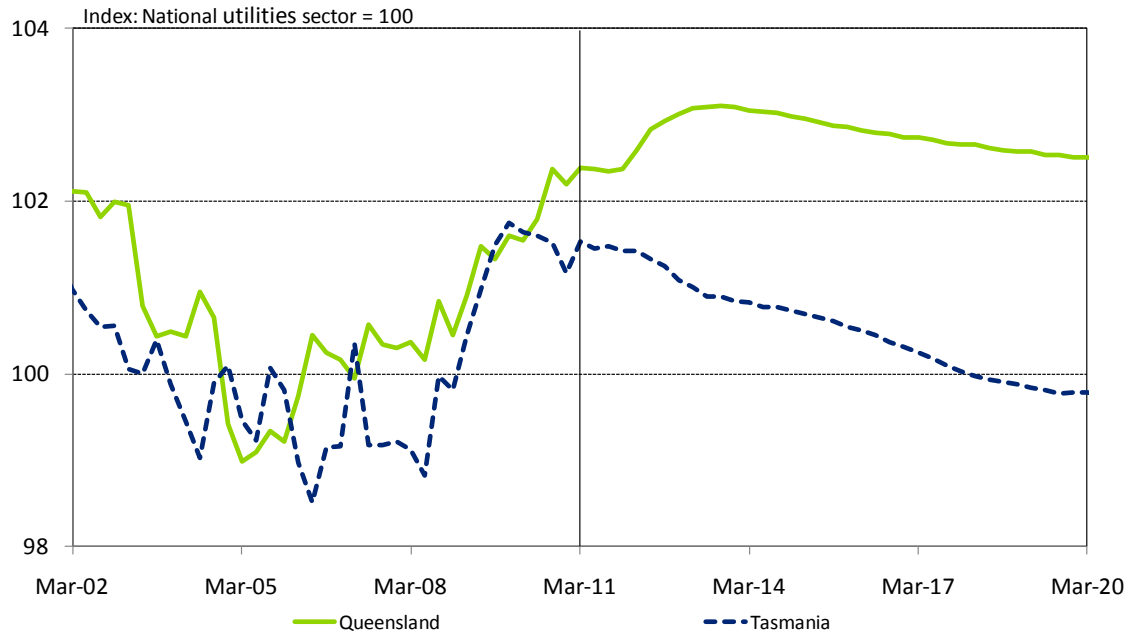
Utilities wage growth (measured by the LPI) has tended to outpace the national average consistently since the series began to be compiled in 1998. However, that growth has not been shared by all States equally, and States have seen different periods of strength in utilities wages.

For example, and as Chart viii below shows, Tasmanian utilities sector wages outpaced the national average by around 2¼ percentage points across the past three years, with a similar outperformance seen in Queensland.

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 Tasmanian LPI measures accelerating from around 2006 to the present.

Chart viii compares relative movements in State utilities sector LPIs for Queensland and Tasmania.

Chart viii: Relative utilities sector LPI by State



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

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 Tasmania 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, Tasmania is projected to lag in terms of overall economic 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.

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.

It should be noted that **there is no officially released time series estimate for utilities wages in Tasmania** (either in terms of an LPI or AWOTE or equivalent measures). Therefore extreme care needs to be taken in analysing these series over time. The modelling here implicitly assumes that overall Tasmanian LPI wages growth, overall utilities sector wage movements, data for enterprise bargaining agreements, as well as the data published for other States, can be used to create a reasonable estimate of the specific LPI series in history, but there is no guarantee that the data used matches what the ABS data would show were it to be released.

The demand growth for Tasmania's utilities sector may be more modest than that for Australia as a whole. With the State's population growth modest, so too is the demand for utilities connections driven by new housing construction. Moreover, with exchange and interest rates high, the manufacturing and tourism sectors are struggling, affecting business driven demand for the output of the utilities in Tasmania.

It is true that there is supply side potential – especially in renewable energy sources such as wind power – as well as the potential for interstate commerce in power.

That said, it is the modesty of the demand side which is central to the LPI forecasts here.

Tasmania's utilities sector LPI has grown consistently ahead of the national equivalent in recent years, surging to near 7% growth in the year to June 2009. Growth rates only eased gradually thereafter.

Looking ahead, we expect that utilities wage growth in Tasmania will be slower than the national average, giving up some of its recent relative gains. Gains in the wages on offer in other States in both the utilities and in and other related sectors will provide an important offset to the impact of the expected demand weakness in the Tasmanian utilities sector. However, that offset is projected to be partial at best.

On the other hand, just as the competition for workers by miners during the last boom began to affect the wages paid to the broader Queensland workforce (and not merely the State's utilities workers), the coming surge in mining and engineering construction should keep pressure on the LPI in the Queensland utilities sector.

Summary results

Summary tables of results follow.

Table iii: Summary results – key variables

Financial year changes in key variables

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Output	2.3	1.9	3.5	3.5	3.1	3.1	3.4	3.4	3.0	3.0
Consumer price index	2.3	3.1	2.8	2.8	2.6	2.5	2.7	2.7	2.3	2.3
Labour Price index	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Average weekly earnings	5.3	3.8	3.7	4.6	4.4	3.9	2.8	3.1	3.0	2.9

Source: ABS, Deloitte Access Economics macroeconomic model

Table iv: Summary results – economic variables

Financial year changes in key Economic variables

Annual % change (unless noted)	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Consumption										
Private sector	2.1	3.0	2.3	3.3	2.7	2.8	2.8	3.0	2.7	2.6
Public sector	1.7	4.2	3.0	2.5	2.3	2.2	2.0	1.9	1.6	1.4
Private sector investment										
Non-business housing	2.1	3.0	7.3	6.5	-0.3	2.6	9.7	5.8	-4.8	1.0
Non-business real estate	10.7	-15.6	2.9	6.4	0.0	2.7	9.5	6.3	-3.5	1.7
Non-residential building	-18.7	1.0	4.8	8.0	6.3	1.9	3.0	7.0	4.2	3.6
Engineering construction	0.9	12.7	16.2	14.0	7.1	-0.9	-0.2	3.7	1.1	0.5
Machinery and equipment	-4.8	0.2	9.3	6.2	1.5	3.8	8.7	9.0	6.3	5.2
IP and livestock	3.3	5.4	18.1	9.2	4.4	1.8	4.5	6.9	4.2	3.4
Public investment										
General Government	29.8	8.4	3.6	-5.6	-3.0	0.4	2.2	1.4	1.0	1.9
Public enterprises	17.9	9.7	41.4	9.4	3.6	0.7	-1.6	0.6	3.5	3.1
Domestic final demand	2.1	3.5	5.0	4.1	2.5	2.4	3.3	3.6	2.2	2.4
Private sector	0.7	3.0	4.7	4.9	2.8	2.5	3.8	4.2	2.4	2.7
Public sector	7.0	5.3	5.9	1.7	1.5	1.7	1.6	1.7	1.7	1.6
Gross national expenditure	2.4	3.5	5.0	4.1	2.4	2.3	3.3	3.6	2.4	2.5
Interntional trade										
Exports	5.3	0.1	7.9	10.3	8.7	8.1	7.3	7.1	6.9	6.1
Imports	4.9	9.3	12.8	12.0	5.5	4.7	6.6	7.6	4.7	4.3
Net (% additon to growth)	-1.6	-2.5	-1.2	0.2	0.6	0.6	-0.1	-0.1	0.8	0.1
Total output (GDP)	2.3	1.9	3.5	3.5	3.1	3.1	3.4	3.4	3.0	3.0
Non farm output	2.3	1.5	3.6	3.5	3.1	3.1	3.4	3.4	3.0	3.0
Employment	1.2	3.0	2.6	2.8	1.8	1.3	1.3	1.4	1.2	0.8
Unemployment rate (%)	5.5	5.1	4.4	4.5	4.6	4.7	4.7	4.6	4.5	4.8

Source: ABS, Deloitte Access Economics macroeconomic model

Table v: Summary results – wages and prices

Financial year changes in national wage and prices variables

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Consumer price index (CPI)	2.3	3.1	2.8	2.8	2.6	2.5	2.7	2.7	2.3	2.3
Labour price index (LPI)										
Nominal	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Real	0.7	0.7	1.3	1.8	1.4	1.3	0.6	0.9	1.3	1.2
Average weekly earnings (AWE)										
Nominal	5.3	3.8	3.7	4.6	4.4	3.9	2.8	3.1	3.0	2.9
Real	2.9	0.7	0.9	1.8	1.8	1.4	0.1	0.4	0.7	0.5
Average weekly ordinary time earnings (AWOTE)										
Nominal	5.6	4.0	3.5	4.9	4.5	4.3	3.3	3.5	3.6	3.6
Real	3.1	0.9	0.7	2.0	1.8	1.8	0.6	0.8	1.2	1.3
Unit labour costs										
Nominal	-0.2	6.1	2.3	4.1	3.9	2.4	1.6	1.9	1.9	0.9
Real	-2.5	2.9	-0.5	1.3	1.2	0.0	-1.1	-0.7	-0.5	-1.3

Source: ABS, Deloitte Access Economics macroeconomic model

Table vi: Summary results – National sectoral wages

Financial year changes in nominal national industry sector LPI

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Utilities	4.5	4.3	4.6	4.4	3.7	3.5	2.9	3.5	3.5	3.3
Mining	3.6	4.3	4.8	5.1	4.6	4.3	3.5	3.7	3.7	3.6
Construction	3.2	4.1	4.9	4.8	4.1	3.9	3.3	3.4	3.4	3.6
Administration services	2.2	3.8	3.7	4.0	3.4	3.2	2.9	3.5	3.5	3.2

Source: ABS, Deloitte Access Economics labour cost model

Table vii: Summary results – State utilities sector

Financial year changes in nominal utilities sector LPI

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	4.5	4.3	4.6	4.4	3.7	3.5	2.9	3.5	3.5	3.3
Queensland	5.1	5.1	4.8	4.9	3.8	3.4	2.8	3.4	3.4	3.2
Tasmania	5.8	4.1	4.6	4.0	3.5	3.3	2.7	3.2	3.2	3.1

Source: ABS, Deloitte Access Economics labour cost model

Deloitte Access Economics

2 August 2011

1 Background

The Australian Energy Regulator (AER) commissioned Deloitte Access Economics to provide forecasts for labour cost growth for the electricity, gas, water and waste services (utilities) industry to 2017-18 for Queensland and Tasmania, 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.

Deloitte Access Economics' report:

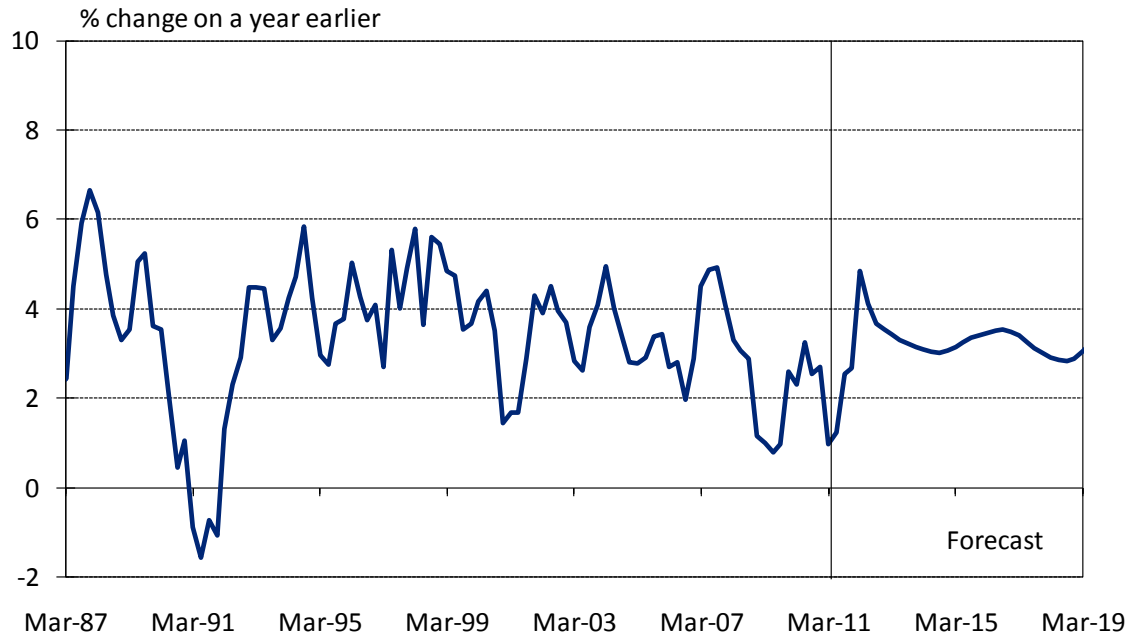
- **Discusses the economic outlook**, starting with Australia as a whole (see Chapter 2), then looking at Queensland and Tasmania (see Chapter 3), and then at the utilities sector (see Chapter 4), as well as the outlook for sectors which compete with the utilities sector for workers (mining, construction 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 Deloitte Access Economics macro model and the Deloitte Access Economics wage model, a discussion of different wage measures, and a discussion of data sources and derivation.

2 The Australian economic outlook

The weather wiped out what would otherwise have been continuing growth in Australia's economy in early 2011. Mines couldn't be worked, sugar, banana and cotton crops were destroyed, livestock drowned, grain crops were flooded, building sites were abandoned, employees couldn't get to work, shoppers couldn't get to the stores, and tourists stayed away in droves – the impact was huge.

Moreover, when news of just how much Australia's economy had shrunk in the opening months of 2011 finally came out, that figure was worse than most analysts had imagined – including Deloitte Access Economics.

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



Source: ABS, Deloitte Access Economics' macroeconomic model

Yet there is a risk of reading too much into these flood and cyclone effects. Yes, the damage was big, but it was also temporary. And the growth bounce back seen in Chart 2.1 above may be taking longer than had been hoped – pumping out Queensland's mines proved to be not merely a technological challenge but also a bureaucratic nightmare – but affected production is well underway once gain.

That is an important point to understand: Australia didn't take a hit to our economy because the world stopped being interested in buying from us. Rather than any lack of demand, what we suffered from was a supply side shortfall – an inability to get our output to market both within Australia and to the rest of the world.

Accordingly, there is a risk that the soft data which accompanied the floods and cyclones may lull businesses and families into a false sense of security about the potential for interest rate increases.

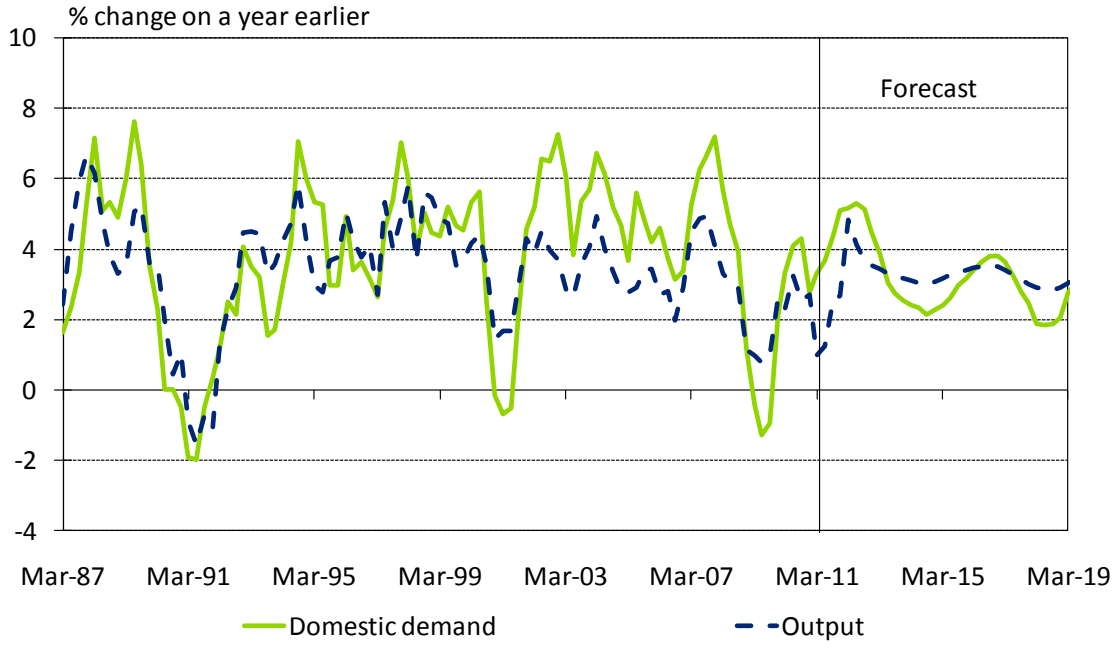
That is not to say there aren't problems aplenty in Australia's patchwork economy. There certainly are, and many (indeed, arguably a majority) of families and businesses are finding current conditions tough.

Most notably, consumers remain cautious. They haven't had any lack of income growth, but they have been trying very hard to save rather more substantively than they did in times past. Moreover, if interest rates do rise in the coming year, Australian families are now so indebted that any such increase in the cost of credit is likely to see saving rates lift further still. That isn't because consumers desperately need to save more than they are doing. After two decades of decline the sharp swing back towards saving in the last two and a bit years has returned family finances to a rather more even keel. But further interest rate increases would add to 'involuntary saving', keeping consumers sidelined from being quite the growth driver in this recovery that they would usually be.

Another strike against the growth and demand outlooks seen in Chart 2.1 and Chart 2.2 is the weakness projected in housing construction. It is not that Australians won't be spending more on building new homes and renovating old ones. Rather, it is that the strong population growth of the last five years occurred across a time when we were building fewer and fewer new homes. The upshot is considerable pent up demand in housing construction, and earlier projections – Deloitte Access Economics' and Federal Treasury's – had seen stronger growth in the offing as demographic driven demand pushed up construction. However, that earlier expectation of recovery in housing construction has now gone missing in action as the combined weight of higher interest rates and the relative lack of interest coming from both investors and home buyers saw such projections of a sharper recovery sidelined.

In turn, that slower-than-earlier-projected upturn in housing construction weighs on the demand outlook for the utilities sector, with fewer new homes to connect up to power and water than previously forecast.

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



Source: ABS, Deloitte Access Economics' macroeconomic model

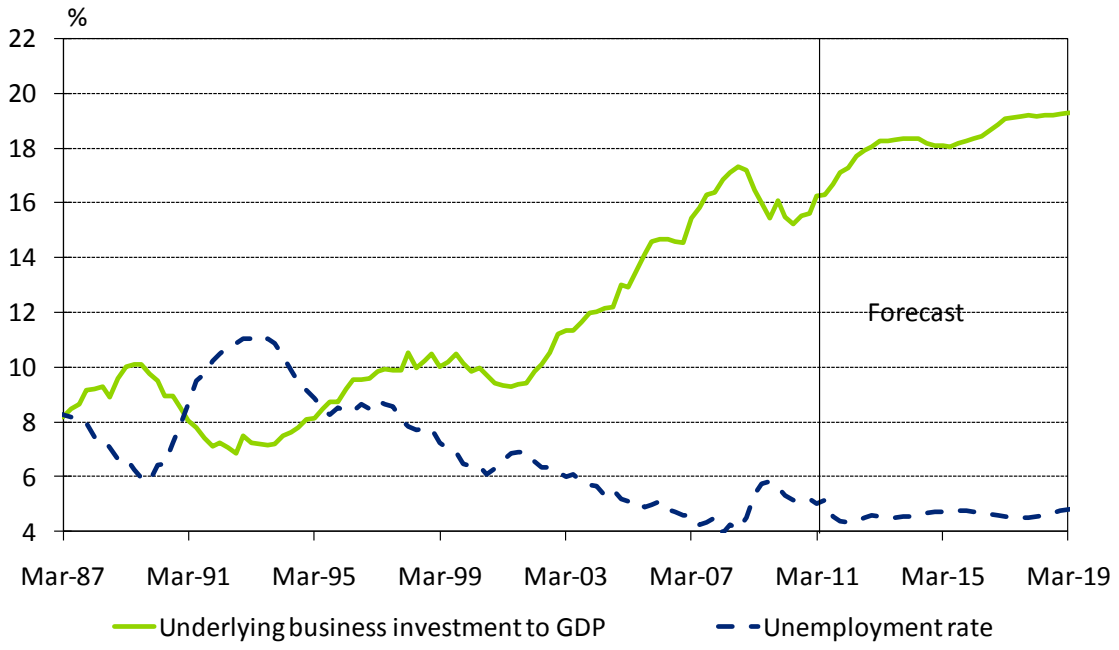
Moreover, even stripping out the flood and cyclone effects, the gains in export volumes (as opposed to value) have remained pretty modest despite the big money spent on capital expansion in recent years. Although Australia is getting good gains in resource export volumes, the good news on that front is still rated as 'trickling' rather than 'tremendous', whereas the offsetting currency-driven squeeze on tourism and manufacturing exports is already well and truly evident.

Finally, Federal stimulus is winding back. That wind down is slow and – given the need to repair and rebuild in the wake of floods and cyclones – less dramatic than you might otherwise think. However, it doesn't change the fact that the pace of government spending will eat into economic growth in Australia in the next little while.

If you cast your eye back over the above list, it tells you that Australia's usual engines of growth may either be absent or ill in the next little while – consumers are cautious, the housing construction recovery is anaemic, gains in export volumes have been modest, and the boost given to growth by government spending has already peaked and is now starting to work the other way.

All of that leads to a very simple conclusion: the growth outlook for Australia is completely a capex story. Luckily, the news on that front is very good. Businesses want to spend a lot more on capacity expansion so as to catch up to the opportunities directly and indirectly offered to us by the historic opportunity of a global industrial revolution among three billion people. If businesses can do just a portion of what they plan to do, then the wider Australian economy will still grow comfortably.

Chart 2.3: Business investment and the unemployment rate



Source: ABS, Deloitte Access Economics' macroeconomic model

However, that growth rests on a narrow base. Not enough people noticed that the economic forecasts accompanying the Federal Budget saw two-thirds of all the growth in Australia's

economy in each of 2011-12 and 2012-13 as dependent on increased business investment spending.

As Chart 2.3 shows, Deloitte Access Economics sees a substantial climb in capex in Australia in the next couple of years. We too are believers that, despite the series of negatives dogging much of the outlook, capex will prove to be the much needed white knight of Australian economic recovery.

After all, the world's price signals show that it is begging Australia to grow faster – to supply more resources than we can possibly hope to supply at prices that we've never seen before (and rarely dreamt of).

Accordingly, this nation's success (or otherwise) at delivering the capex surge in the pipeline will determine our short term real output growth prospects.

As Deloitte Access Economics notes below, that does point to some important risks – including the likelihood of skill shortages and cost overruns, to name just two. After all, growth prospects are rarely this narrowly based, and it wouldn't take much to see them go wrong.

Yet it is worth underscoring the point that these forecasts imply that businesses will only be able to achieve a fraction of what they say they are trying to spend on capacity expansion. And even just a fraction of success would be enough to drive our continuing recovery.

Hence although the capex surge will be bedevilled by a series of challenges, we see a degree of success on the capex story as the most likely scenario – and one sufficient to underpin the growth prospects laid out in these forecasts.

2.1 The changing macro backdrop to these wage forecasts

Deloitte Access Economics last provided a detailed report to the AER on 23 April 2011.

This section details some recent changes and their implications.

The world economy

Forecasters have dialled down estimates for **advanced economy growth** in the wake of a surge in commodity prices and Japan's awful earthquake. Out of the six largest advanced economies, only the US and Germany are bigger today than three years ago, while government spending cuts and tax hikes are cutting a swathe through prospects for Europe's drowning periphery, slowing down growth everywhere from the UK to Italy, Portugal and Greece.

That said, current fears for advanced economies may be overblown, and their recovery is continuing.

Elsewhere, China and India are starting to cool. But that slowdown – like the associated lift in their interest rates – is modest so far. That not merely leaves their short term outlook excellent, it also means overheating risks remain.

With developed economies doing better than many think and emerging economies only throttling back a bit, the upshot is continued above trend global growth both this year and next.

Global growth goes for broke? For all the concerns that many have about the longevity of this global growth cycle – and Deloitte Access Economics shares some (but not all) of those doubts – it is worth remembering that the global recovery remains young, and that the world still has some slack: unemployment is high and many factories are not working at full pace, especially in the developed world.

And although many governments in the advanced economies of the world are juggling debts and deficits, suffering much angst as they do so, it remains true that profits are up and families are saving more than they have in a while. Although that duo has not yet translated into increased spending on investment by businesses and a return to retail therapy by families in some of the major advanced economies, these latter phases will come.

That is why the global forecasts underpinning these forecasts continue to point to above trend growth in the world economy for the next few years.

Nor is Deloitte Access Economics as concerned as many others that the scourge of inflation is once again set to reappear. You can argue that global spare capacity isn't as big as it may appear at first glance, but it's hard to see the inflation sparks of the moment – evident in Asia on the one hand and in commodity prices on the other – lighting a global inflationary fire any time soon.

Indeed, arguably the biggest short term risk is that global growth is faster rather than weaker than the baseline scenario set out in these forecasts. Although emerging economies appear to be tapping on the brakes, that is likely to be rather less effective than many may think. Moreover, while interest rates are rising in Asia, so too is inflation, and the cost of money remains all too low in a number of economies already running at full capacity. Even the increased reserves that China's banks are being required to hold have as much to do with offsetting the hot money inflows chasing the all-too-cheap Chinese currency rather than genuinely trying to slow an economy that is growing too fast.

In addition, although the developed world is hearing much sabre rattling about the size, scale and speed of cutbacks to government spending in the pipeline, so far that mostly reflects the rhetoric of politicians amid the unpopularity of debts and deficits. True fiscal tightening is really only evident in the UK and parts of Europe's periphery, leaving the dominant influence on fiscal finances as a modest unwinding of earlier stimulus rather than an aggressive cutback in spending.

There are genuine headwinds to global recovery, including rising energy prices on the one hand, and the less than deft handling of interest rates and budget policy in many nations on the other. Perhaps most importantly, banks and banking systems remain more fragile than is recognised.

Yet, even so, there is a possibility that the globe will travel faster than these forecasts allow.

Emerging economies import low interest rates: A specific headwind worth noting is that many of the imbalances which helped trip up the global economy in recent years remain just

as evident as they were before the crisis. One that bothers us is the desire of much of Asia to avoid appreciation against the $US. That means many key economies – including that of China – are effectively importing the incredibly expansionary interest rates set in developed economies back into emerging economies for which those rates are supremely inappropriate.

In turn, that explains much of the running around in China and elsewhere as the authorities try to put out spot fires as cheap money bubbles out in an inappropriate fashion everywhere from food prices to property prices.

So far adopting poor policy settings in emerging economies hasn't thrown a spanner into global growth. Rather, it has boosted overall global growth by keeping the policy pedal to the metal in many emerging economies. But global growth risks are rising as a result. That is unlikely to pose particular problems for global growth in either 2011 or 2012, but there are no miracle economies. Ireland wasn't one, and nor was Iceland. Nor are China and Australia miracle economies – they are just riding a big cycle and running increasing risks as they do so.

The Eurozone's woes won't go away any time fast: A number of nations saw their costs run ahead of the rest of the Eurozone during the latter's long running strength ahead of the global crisis. But the receding tide of the business cycle showed many nations in the arc from Ireland to Greece were swimming naked.

Ideally their central banks would cut interest rates and markets would cut their exchange rates. However, they don't have their own central banks, and their exchange rate is set by the centre of European gravity – Germany and France. That leaves the region's periphery grinding its way through austerity packages and continuing poor growth. Yet even these are unlikely to keep effective debt default at bay for too long for some nations.

The Eurozone is a political triumph but it is increasingly being revealed as an economic mistake. This story hasn't finished yet, and further unpleasant surprises lie ahead.

How unpleasant? Although we can't claim to see any outcome which isn't messy both politically and economically, the more likely outcome is still one where the problems are mostly confined to Europe rather than infecting the rest of the world. That said, the global banking system remains sufficiently fragile that the cost of default to a number of banks could trigger a renewed round of panic (and so bringing attendant 'double dip risks' to the wider world economy).

The domestic policy environment

Carbon capers: Here and around the world the big disasters that hit in early 2011 – floods, cyclones, earthquakes, tsunamis, nuclear accidents, revolutions and wars – saw Australian and global growth stagger. Yet it is too easy to overreact to that. Human tragedies have important impacts, but typically the horror headlines and the drama seen on the nightly news make people think these events are more important for the economy than they really are. Although the short term impact of these disasters is indeed severe and their human toll is enormous, they are already history. Here and around the world, people and businesses are back at work.

However, there is another risk of overreaction worth noting – and one of particular importance to the utilities sector. The politics of carbon pricing in Australia have been running

white hot, dominating the front pages and the radio waves. So many think the imposition of a carbon price in Australia is big news for this nation's economic outlook.

And it certainly will have an impact. Yet that impact may well be rather smaller than the huge headlines would have it. Although the eventual structural change in Australia's economy will be large, the initial impact is unlikely to come with a bang.

Measured against the yardstick of its political impact, the economic implications of carbon pricing may be rather more modest. Indeed, another potential offset is that, if the Government succeeds in generating greater certainty, this could even unlock investment potential in a range of industries, particularly in the utilities.

For further comment on the carbon price backdrop, please see section 4.2.

The domestic economic environment

Turning to the Australian economy, and as noted above, the floods and cyclones of early 2011 have combined with the pain for many sectors associated with high interests and exchange rates ('two speed economy pressures') to dampen the confidence of both businesses and consumers. However, it is not widely recognised that the growth of Australia's economy in 2011-12 and 2012-13 was always expected to be dominated by the capital spending of business, rather than by the contributions of either consumers or governments. Hence, Australia's growth outlook remains essentially intact.

The main risk revolves around the sheer narrowness of the drivers of projected economic growth. Not only are the latter dominated by the business spending, they are dominated by the spending of resource companies in particular.

Therefore it remains possible that a combination of skill shortages and slow approvals processes (both corporate and government approvals) could constrain growth to rates below those underpinning these forecasts.

That said, these forecasts already contain a very considerable discount to the announced capex plans of business.

Domestic wage growth

Turning to the outlook for wages, the latest LPI release saw continuing moderation in wage claims. At an increase of just 0.8% in the March quarter (after a gain of 1.0% in the December quarter), the LPI has risen by 3.8% over the past year:

- After a period in which weakness in the Australian economy – or fears of it – held private sector wage growth behind that of the public sector, the latter cycle has subsequently turned. Private sector wages rose by 0.9% in the March quarter while public sector wages rose by 0.8%. Compared with a year earlier, private sector wages rose by 3.9%, while public sector wages rose by 3.6%.
- Similarly, Australia's ongoing economic recovery means that the bonuses are recovering as well. Including bonuses, wages rose by 0.9% in original terms in the quarter with annual growth of ordinary time hourly rates steady at 4.0% in the March quarter.

- The industries with fastest wage growth over the past year included Professional, scientific & technical services (where wages rose by 4.7% in the year to the March quarter), Mining (up 4.6%), Construction and wholesale trade (up 4.4%) and Financial & insurance services (up 4.3%).
- The industries with the slowest wage growth over the past year were Rental, hiring & real estate services (up 3.0%), Arts & Recreation services (up 3.1%), Retail trade and Wholesale trade (both up 3.3%) and Other services (up 3.0%).
- Turning to the States, wage growth in the past year was highest in Western Australia and the Northern Territory (at 4.1%), followed by Victoria and Queensland (on 3.9%), NSW on 3.8% (the national average); the ACT on 3.7%; South Australia on 3.6%; and Tasmania on 3.5%.

The utilities sector, with LPI gains of 3.6% over the past year (and 0.6% in the March quarter itself, though that followed the strong gain of 1.5% in the December quarter), was below average. The private utilities sector gain over the past year was higher, at 4.0%, while the public utilities sector gain was 3.3% over the past year.

Domestic employment growth

After a considerable surge from mid-2009 to late 2010, national job growth has eased more recently.

It is likely that this slowdown reflects both demand and supply factors. At the national level some sectors and (to a lesser extent) States are struggling amid the 'two speed economy' negatives of the moment. Yet such has been the extent of the slowdown in working age population growth of late that it is likely that some of the weakness in job gains in the past six months or so also represents a lack of supply.

For the utilities, and after what was, in relative terms, an even larger surge in utilities sector employment, that sector has seen job numbers stagnate since mid-2010 (and even fall in recent months, though that is not true of electricity supply itself).

Again that slowdown is consistent with some recent developments, including the modesty of the current upswing in the housing construction cycle. However, it may also include a response to the uncertainty over the regulatory backdrop for the utilities sector, including carbon pricing.

2.2 The resultant summary view on wage growth

Because we happen to live in the blink of an eye in which half the world's population is having their industrial revolution – a moment in time when global demand for industrial commodities has leapt ahead of their supply – the price for what Australia sells to the world has leapt.

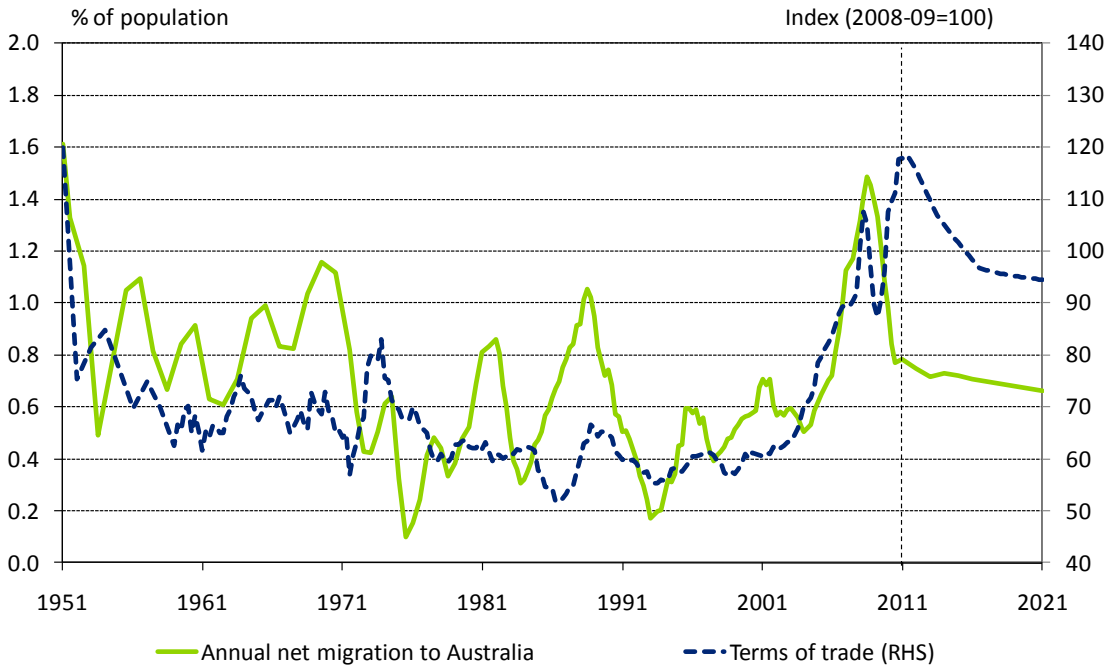
Yet while demand growth is high, supply growth is poor, because both sides of Australia's political spectrum have been happy to live with the implications of policy changes that have led to a halving in migrant numbers between 2008 and 2011.

Moreover, that slowdown in migration comes at the same time as the pace of retirement is about to lift (partly because some boomers put off retirement in recent years as poor markets

hit their superannuation nest eggs, and in part as a bulge of boomer numbers are about to hit age 65).

The chart below shows the terms of trade – the ratio of export to import prices (a proxy for global demand for what Australia produces) relative to the pace of migration. It shows a simple 'migration equation' – the balance between the demand for migrants and the actual supply of them. That gap between demand and supply has just become strikingly large.

Chart 2.4: The 'terms of trade' and the pace of migration



Source: ABS, Deloitte Access Economics

With demand growth for skills high but their supply growth low, there will be costs to corporates and the wider nation:

- Skill shortages are about to proliferate.
- Rates of labour turnover will rise, meaning that firms will lose the specific skills that employees have learned by being at their particular organisation.
- Wage growth will rise, and that will be a key channel by which the shortfall in skills can be expected to pressure the Reserve Bank into raising interest rates.
- In turn, those higher-than-necessary interest rates will add to the exchange rate.

That is why the latest Federal Budget had a series of announcements around skills and training, and also why it included a lift of 16,000 in the skilled migration intake (to 185,000).

In addition, there have been specific measures being adopted to feed temporary migrants into some big construction and mining projects (so-called Enterprise Migration Agreements).

Even so, Deloitte Access Economics expects wage growth in Australia to rise from here, albeit at a moderate pace.

3 State economic outlooks

Which regions will lose out as capacity constraints bite in the next few years? Will it be those States hoping to grow the fastest – Western Australia and Queensland? Or will it be those that won't be able to compete with the wages on offer to the north and the west, with NSW, Victoria, South Australia and Tasmania seeing workers lost to other States, compounding their population slowdowns already underway? We see a mix of both these shortfalls in the offing.

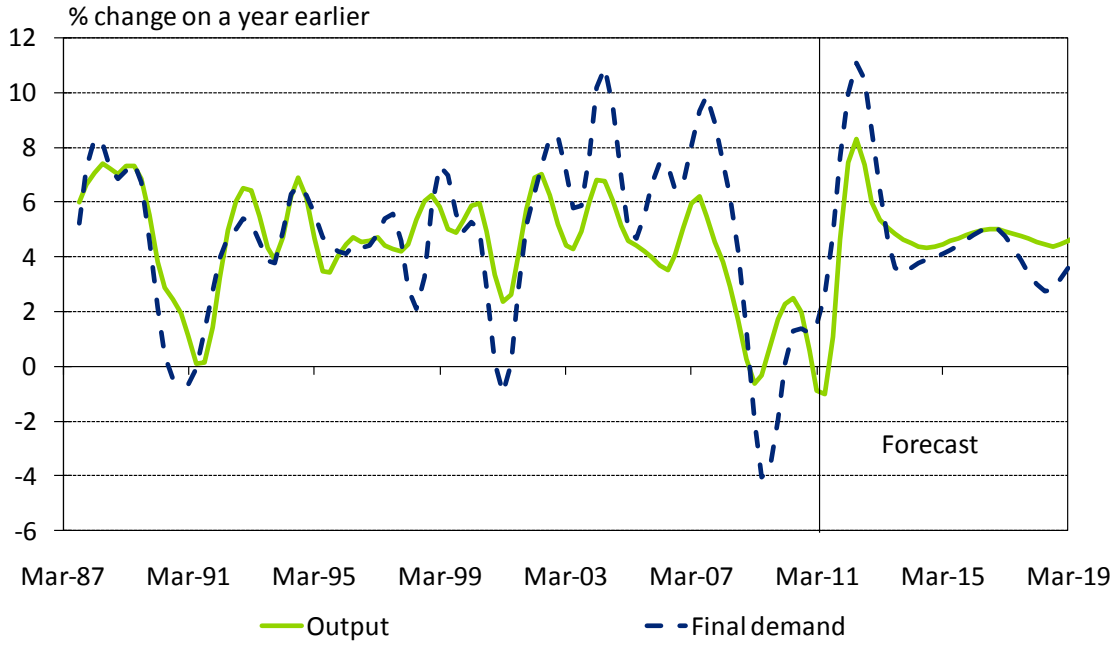
3.1 Queensland

It's well known just how hard hit Queensland was by cyclones in early 2011. The sugar harvest was hurt and flooding also played havoc with cotton and sorghum, while the banana crop was torn from the trees. Further south, crops and stock were flooded out, road and rail transport was cut, and many in Brisbane just couldn't get to work for a time.

However, the biggest dollar losses were in coal production. It wasn't simply that mines were flooded: the technical challenge of getting the water out was hard enough, but that then got topped up by the bureaucratic nightmare of pumping out the dirty water. That means that the State's coal mines aren't yet back at full production.

In addition, the earthquakes and tsunamis in Japan played havoc with one of this State's best customers. As a result, and as shown in Chart 3.1, a fall in output with a sharper fall in demand is forecast to take place through the course of 2011 and into early 2012.

Chart 3.1: Queensland output and demand



Source: ABS, Deloitte Access Economics' macroeconomic model

However, what may be less well realised is that the Queensland which suffered the slings and arrows of these natural disasters was not the Queensland of old – a State growing fast and at or near the top of most measures of relative economic performance across Australia's regions.

Rather, this bad news hit a Queensland which itself had been hard hit by the global financial crisis in recent years – indeed, harder than any other State. It has been harder to get a loan in Queensland than anywhere else, and that has hurt the State's housing construction and commercial construction sectors – traditionally stars of its growth record.

The upshot was that Queensland went nowhere last year – the State's population kept growing, but its economy didn't. For that matter, population growth itself dropped away, as it has done in recent years, a consequence of the long period of poor performance that Queensland's economy has seen, as well as fewer foreign students starting courses. In turn, that mix led to yet further weakness in the pace of housing construction in Queensland – a factor of particular importance to its utilities sector.

Adding in the impact of the $A – which hasn't been the only thing holding off tourists, but it's been a key contributor – and this is an economy doing it tough.

Nonetheless, Queensland's economic outlook for the next 12 or so months depends in large part on how quickly it can recover from the flooding and cyclones and, to a lesser extent, the changed conditions brought about by Japan's natural disasters.

Queensland Treasury estimates the natural disasters to have reduced economic activity by 2.25% 2010-11, and the cost of rebuilding has been estimated at $6.8 billion. That said, 75% of the bill is expected to be footed by the Federal Government, so the fiscal impact of the disaster (at least from Queensland's perspective) should be relatively modest.

Deloitte Access Economics expects Queensland to accelerate sharply from a standing start, reaching a sprint inside the next six months. Most flood and cyclone impacts have already passed, and even the lingering effects on coal output will only last a few more months. The repair of the houses, roads and other infrastructure damaged by disasters is also increasingly evident, and that too will add to the rebound. Even the simple point that billions of dollars of coal weren't exported last year but will be in the coming year makes a big difference.

Yet the biggest difference of all won't be the rebound from the natural disasters. It will be in the striking surge in business investment spending which is now beginning. The resource investment in the rich arc from Gladstone to Townsville already has more than $50 billion of projects starting up, with the potential for another $50 billion to follow suit. To put that into context, consider two different facts:

- *First*, the amount that manufacturers spent on expanding their production capacity in Queensland was the same dollar value as the miners were spending just a decade ago, but in the coming year miners will outspend manufacturers by a factor of ten.
- *Second*, this is a State in which total investment spending has never yet exceeded $50 billion in any given year, but now miners alone in the triangle of land lying from just south of Gladstone out to Mount Isa and then across to Townsville have already committed to that sort of spending over the next few years.

There are some obvious longer term points to make. If the rise of emerging Asia is good news for Australia, then it's very good news for Queensland. And if the shock to public opinion in

Japan over the nuclear developments at Fukushima leads Japan to lessen its dependence on nuclear power, then that will also be to the benefit of Queensland's stunning strength in coal and coal seam gas. On the other side of the ledger, the policy reaction to global warming here and around the world may not have an early impact on the value of those resources, but they are likely to in the long run.

On the **housing** front, the notable rebuilding effort required for the State to get back on its feet will make economic growth in 2011-12 higher than it would have otherwise been. Indeed, the latest housing data from the ABS suggest that this is well underway.

Queensland's **agricultural sector** was not as badly affected by the devastation as it could have been, because most winter harvests had already been undertaken at the time of the flooding. Nonetheless, Queensland Treasury estimates the total loss of agricultural production to be around $1.4 billion. Equally, tourism was spared the worst because key tourism areas were not significantly damaged. However, Queensland Treasury estimates a direct loss to the tourism sector as a result of the floods and Cyclone Yasi of some $400 million.

Manufacturing faces a tough road ahead, with a persistently strong $A and uncertainties surrounding the carbon price continuing to weigh heavily on the sector.

Queensland's **mining sector**, and in particular coal mines, bore the brunt of destruction. Moreover, the State is rather more dependent on mining than it is on other sectors, and also relatively more dependent on mining than Australia as a whole. Mining accounts for about 15% of GSP in Queensland, but only about 10% of Australia's GDP; it also accounts for over half of the State's export of goods, 90% of which are coal.[3]

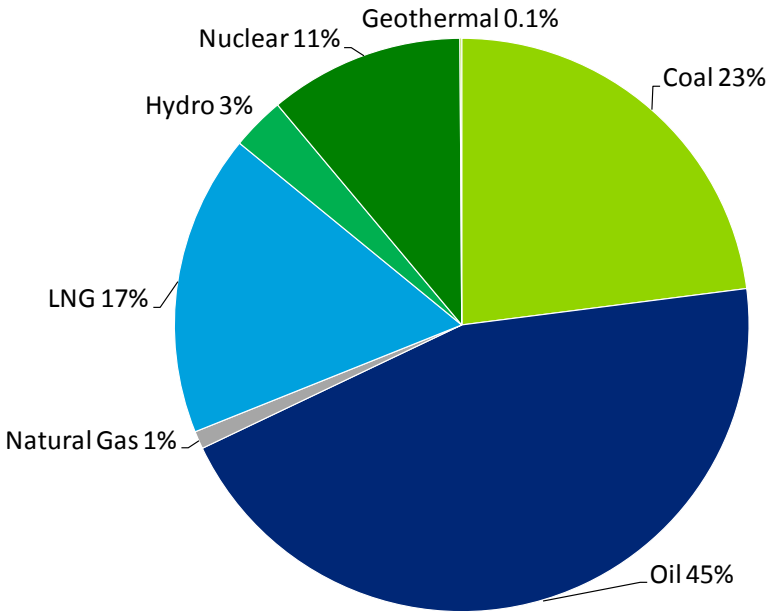
As if the State's coal miners had not had enough bad news of late, the recent earthquake and tsunami in Japan have crippled their biggest customer. The disaster has affected a number of coal power plants on the eastern side of Japan. According to the Institute of Energy Economics, Japan (IEEJ), five power stations were rendered inoperable by the disaster. In 2011-12 (the Japanese fiscal year runs from April 2011 to March 2012), the IEEJ expects that Japan's demand for coal will fall by about 6.3 MT to 7.5 MT. That will not help Queensland's already struggling coal miners.

In the short term Queensland will be harmed by Japan's reduced coal consumption. However, as that country recovers from the tsunami, and if its consumers demand non-nuclear power sources, Queensland's coal miners would be well placed to pick up the slack. Over the medium to longer term, fossil fuels are likely to become less attractive. That may be timely for Queensland's burgeoning LNG sector, where several large scale investments are underway, to stand it in good stead to become a major world supplier. Hence what hurts in the short term may well help in the longer term.

A significant decline in nuclear production in Japan will place a heavy call on the country's alternative power sources. The most obvious alternative is oil, which accounts for about 45% of total energy use (Chart 3.2). However, oil use in Japan has been declining over the past half-decade or so. This leaves coal and LNG as the next likely contenders. According to Japanese trade data Australia supplies about 64% of Japan's total coal import and 19% of its LNG.

[3] ABS; Queensland Office of Economic and Statistical Research.

Chart 3.2: Japanese electricity consumption, by type



Source: Institute of Energy Economics, Japan

The **Queensland investment agenda** is dominated by urgent flood repair and reconstruction work, and then a huge tail of resources investment as the State becomes a new LNG hub.

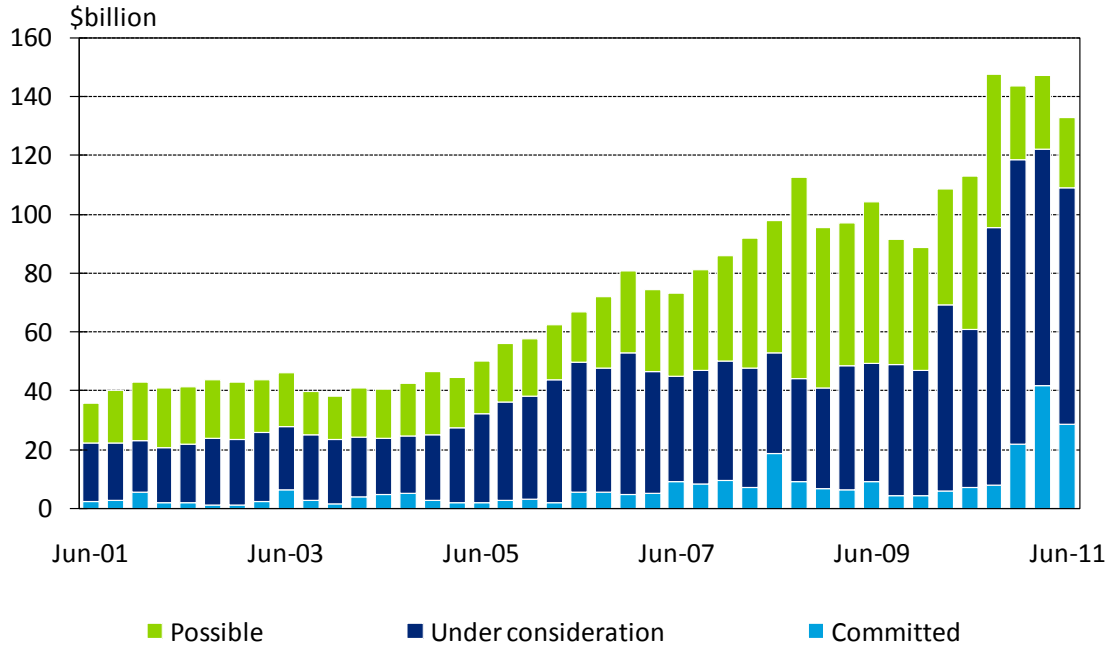
In 2009-10, private business investment in Queensland fell as a share of GSP as investors began to feel the full effect of an ailing global economy. The global downturn came earlier, but with existing projects still underway it took some time to filter through to overall investment. This was not just a Queensland phenomenon – it also occurred for Australia as a whole.

However, the investment downturn (as measured by share of GSP/GDP) was rather more pronounced for Queensland than for Australia as a whole. This reflected the absence of new mining investment for a period of time, and more protracted problems facing the State's commercial construction sector. The latter have included difficulties in accessing finance and modest demand for new retail and tourist facilities.

However, business investment in Queensland is now rising and in 2011-12 looks like exceeding the level seen for Australia as a whole (as measured by share of GSP/GDP). That is largely being led by new investment projects in mining, as well as a deal of repair work following the devastating floods and Cyclone Yasi (though the lion's share of the latter is public sector spending rather than business spending).

Chart 3.3 shows that Queensland's investment outlook, as measured by the total value of projects in the possible, under consideration or committed categories (but not under construction), took a hit during the GFC. However, the ongoing thirst in China and the developing world for Queensland's resources, has seen the pipeline of projects move up again over the past year. That should result in Queensland out-performing Australia as a whole on the investment front over the next few years.

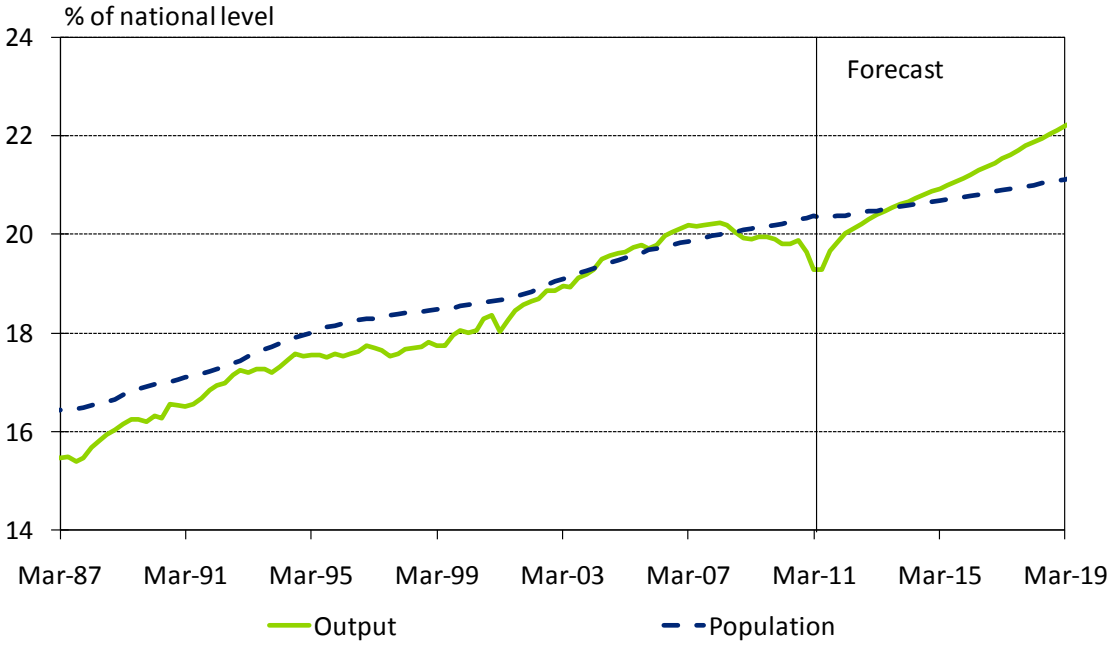
Chart 3.3: Trends in Queensland's planned project investment



Source: Arup and Deloitte Access Economics' Investment Monitor

Queensland's share of Australia's output is forecast to remain flat through 2011 as damage from natural disasters has effect. However, as shown in Chart 3.4, Deloitte Access Economics projects that, beyond the ructions of the moment, Queensland will gain a growing share of Australia's economy and population over the next few years.

Chart 3.4: Queensland output and population share



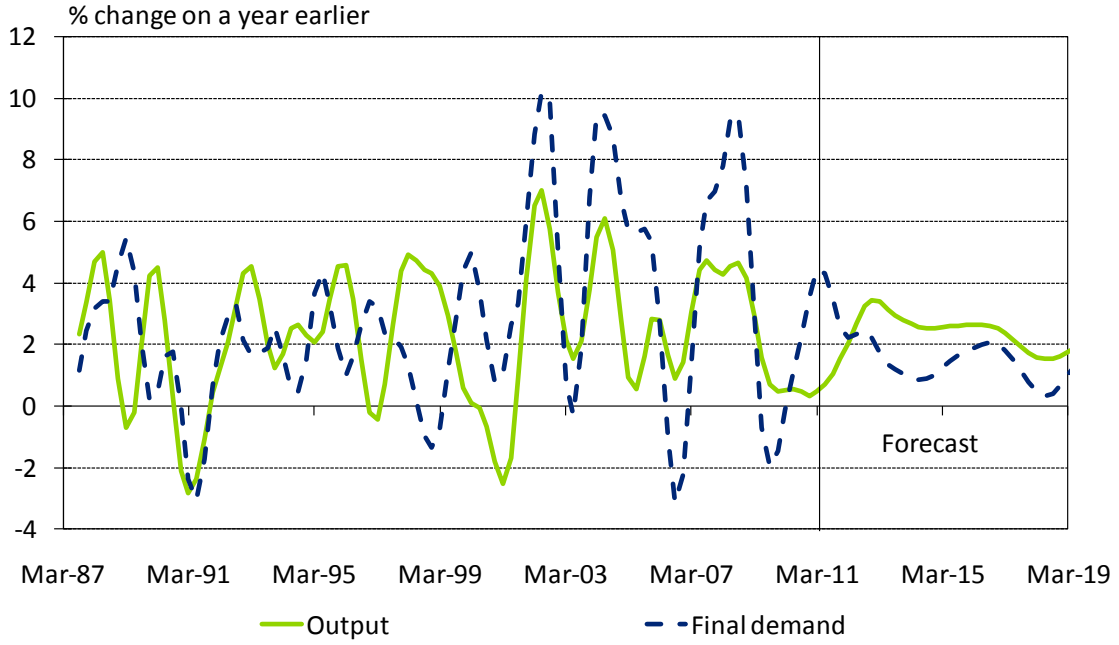
Source: ABS, Deloitte Access Economics' macroeconomic model

3.2 Tasmania

Tasmania travelled solidly through much of the last decade, with its economy holding up through the global financial crisis. In part the latter was because stimulus measures went further in Tasmania than they did elsewhere, and in part as the State's export markets held up better than the average.

Yet as shown in Chart 3.5 below Tasmania began to slow just as Australia began to recover. Part of that was due to Australia's recovery being aided by emerging Asia – that was good news for the resource States, and even for Melbourne with its mining headquarters and Sydney with its business advisory strengths. However, that rising resource tide has been little or no use to Tasmania, while the combination of higher interest and exchange rates that came with it that proved a deepening challenge for the State's economy.

Chart 3.5: Tasmanian output and demand



Source: ABS, Deloitte Access Economics' macroeconomic model

Those challenges showed up for both labour and capital: job levels stagnated and businesses began to put less money into capacity expansion. Then the $A began to hurt both manufacturers and the forestry sector. That is, Tasmania doesn't benefit by selling to emerging Asia at a time of commodity boom, and it doesn't benefit from selling into Australia's booming resource sector either. That means it is getting few of the positives from the current conditions, whereas the high interest and exchange rates that accompany high commodity prices have hurt manufacturers and its forestry sector.

Manufacturing has seen its share of cutbacks and closures of late as a result, affecting the likes of food and beverages, textiles, and the machinery and equipment sector, while **woodchip** sales have dropped, leading several timber mills to close or to cut back their hours. Moreover, although consumers are cautious all around the nation, in Tasmania they've dropped into their

foxholes. Retailers are taking less through the tills than they were a year ago, and discretionary spending has been slashed, further adding to the loss of momentum in the State's economy.

Employment in Tasmania fell back when the crisis hit and businesses sharply reduced the pace of investment. Moreover, the State's trend unemployment rate has continued to climb despite the national rate easing back from its peak a couple of quarters ago, while wages have been on the rise but remain below the national average. After a peak in growth in 2008, population gains are easing back, with the drain of young people to the mainland continuing to drag on growth.

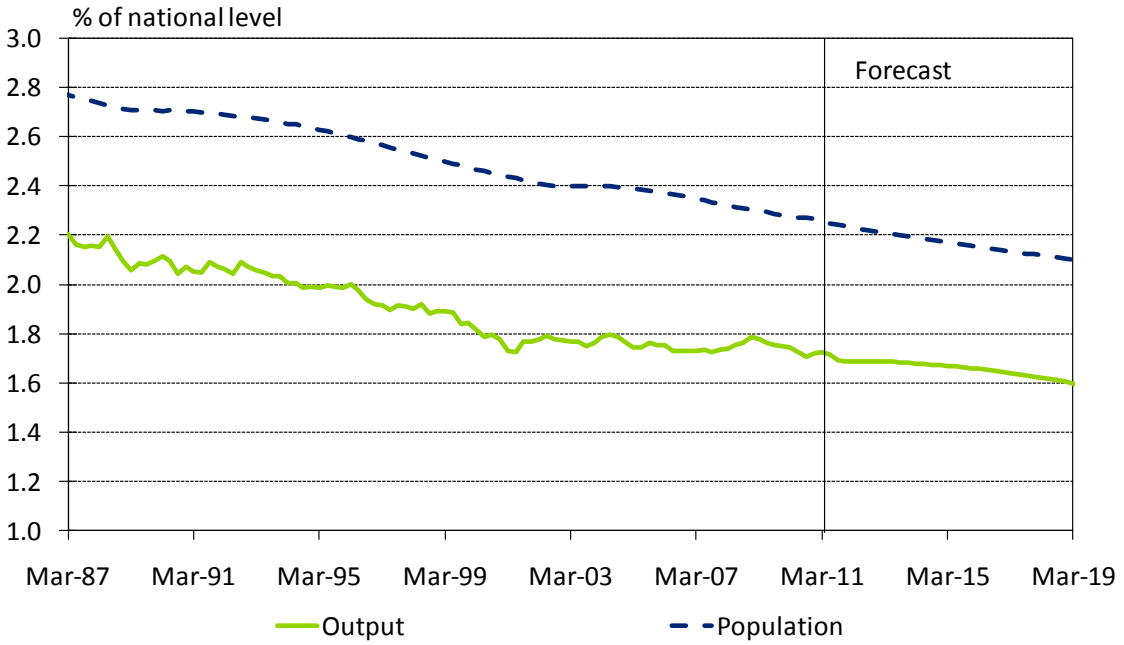
Median house prices have been climbing steadily since early 2009. **Housing** starts received a boost from Federal stimulus, encouraging them to match Tasmania's share of the population for the first time in almost a decade, although the winding back of the First Home Owners' Grant and higher interest rates may again dampen the sector and ease the pace of construction in 2010. Rental vacancy rates remained steady over 2009 with the trend looking set to continue over the medium term.

Looking ahead, a degree of pent up demand may provide some protection to the pace of housing construction, with knock on positive implications for the State's utilities sector, but the bigger question mark lies over how long the $A will stay above parity with the $US. Such an elevated exchange rate is extremely uncomfortable for many Tasmanian businesses – not just the exporters, but more particularly those who must do battle against imports in local markets. So far profitability has taken a hit but it hasn't buckled. The situation bears watching.

Investment spending by businesses in the State has picked up of late, although it remains patchy, and the outlook for business investment remains clouded. The Gunns pulp mill at Triabunna, which had seemed to be a possible project for some time, is now looking extremely unlikely, having been sold off as a possible eco-tourism venture. Outside the Musselroe wind farm (which has also been lingering for some time) the pipeline is poor – although there has been some improvement in recent months.

As shown in Chart 3.6 Tasmania's share of Australia's economy is forecast to remain relatively stable over the next few years. This chart also shows that Tasmania's share of the population is will continue its downward trend.

Chart 3.6: Tasmania output and population share



Source: ABS, Deloitte Access Economics' macroeconomic model

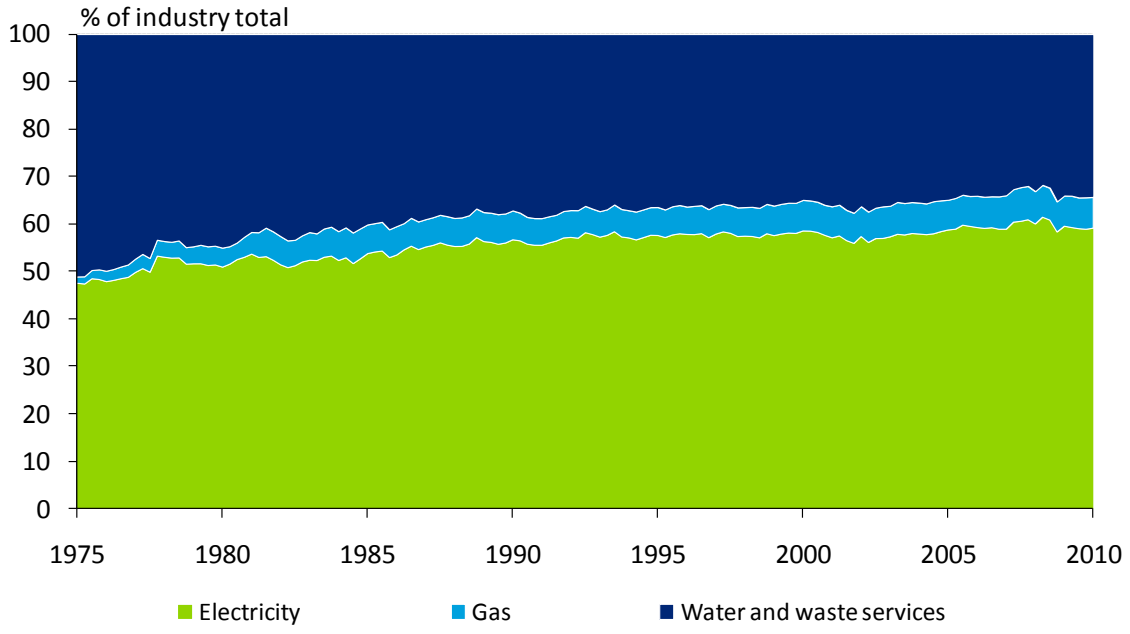
4 The utilities sector outlook

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.

As Chart 4.1 below shows, electricity has accounted for a rising share of the utilities sector over time.

Chart 4.1: Composition of output in the utilities sector

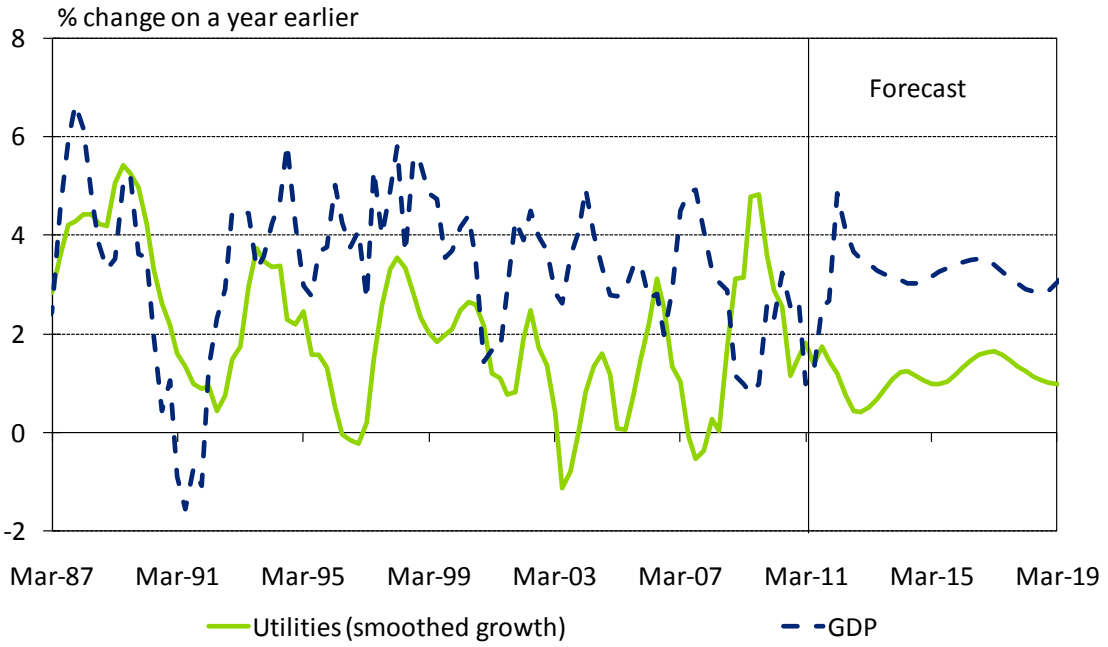


Source: ABS

Investment in electricity and water supply is primarily driven by industrial demand and population growth respectively. The utilities sector has generally experienced solid growth in recent years as the strength of mining investment and good population growth underpinned demand for water and electricity services. Moves by various State Governments to shore up water supplies have also helped to attract investment dollars to the sector, particularly for desalination plants and dams.

That said, and as Chart 4.2 below shows, the utilities sector recently saw a fall in growth.

Chart 4.2: Utilities output growth



Source: ABS, Deloitte Access Economics' macroeconomic model

Although the level of rainfall and subsequent flooding across many parts of the country last summer was substantial, investment in water supply infrastructure is expected to be considerable over the medium to longer term as Australia's growing population underpins increasing demand for water over time.

The gradual restructure and privatisation of the electricity network has also contributed to increased investment throughout recent years by breaking up State owned monopolies and allowing new entrants into the market. New South Wales has become the latest State to privatise government owned energy retailers (though that sale was made to existing operators rather than new entrants into the market).

The high demand for power and water has combined with a desire to fund investment and renewal to lead to a significant increase in the retail price of utilities services in Australia. Over the past five years the average annual increase in electricity and water prices has been 9.3% and 10.8% respectively, compared to a 3% rise in the broader Consumer Price Index.

In comparison, the previous five years saw utilities price growth far more in line with general price growth. Between 2000 and 2005, the average annual lift in electricity and water prices was 3.3% and 3.7% respectively, while the CPI rose by 2.7%.

Looking ahead, resurgent commodity prices and signs of a second mining boom are again helping to lay a platform for further expansion in the utilities sector. However, the sector is facing a number of important challenges which may constrain growth and investment spending over the medium term.

Australia's rapid population growth of the last few years – which culminated in a record increase of nearly 466,000 people over the year to September 2009 – has since faded notably to 325,500 through 2010, with further falls in prospect.

Indeed, the cut back in the official migration target and changes to student visa regulations are likely to see a further deceleration over the coming years. That will have implications for new housing commencements and demand for utilities, particularly water. However, although slowing population growth is a concern for the utilities sector outlook, it may be some time before the impact of the slowdown translates into weaker investment in power and water infrastructure.

More broadly, Deloitte Access Economics remains very worried about the wider regulatory framework of the utilities sector, and we increasingly think that a lack of supply may dominate some of the production forecasts. That said, at least some State Governments and local councils have put money into desalination plants to lift capacity in water, and the modesty of the production growth seen in the outlook is in part linked to further downward revisions in the outlook for new housing starts – fewer new homes means fewer new connections to electricity, gas and water.

However, part of the modesty of the forecasts rests with what may be increasing inadequacy on the supply side – this sector may not be able to keep up with its demand.

4.2 The carbon price backdrop

The current carbon price debate is not a focus of this report. That said, this section notes some factors important as a backdrop to forecasting labour costs in the utilities sector.

In brief, climate change policies are, among a range of factors, having a large bearing on the electricity generation sector and the price of electricity paid by customers.

A broad-based carbon price represents the lowest cost means of reducing carbon pollution. That said, the shape of the future carbon pricing system in Australia was somewhat of an unknown quantity for a considerable time. That has generated considerable investment uncertainty for utilities corporations. The electricity sector in particular is a large producer of carbon emissions (mainly through coal-fired power plants), and the absence of a carbon policy framework has hampered long term investment decisions.

At the same time electricity prices in Australia for both industrial and residential customers have risen substantially over the last few years. In real terms, prices have increased by around 30% since 2006, with electricity prices paid by households outpacing those faced by businesses, though all electricity consumers have seen steep price increases. While these prices remain lower than the OECD average, the prices for industrial users are now higher than in some economies such as South Korea, which are large importers of Australian thermal coal.

Hence a key issue is that climate change policies affecting the electricity sector are occurring in the context of an increasing electricity price environment. This places greater importance on not only minimising uncertainty on relevant (especially long term) policy action but ensuring that policy responses are directed at least cost abatement options.

The climate change policy environment presently comprises a mix of Commonwealth- and State-based schemes with the stated aim of directly reducing the level of carbon emissions.

- At the State level, policies include mandated building standards for energy efficiency, solar rebates and feed-in tariffs.

- Federally, subsidy programs for household solar hot water and electricity generation are in place to encourage the deployment of small-scale low-emission technologies.

- The Federal Government's carbon pricing scheme, announced in July 2011 to take effect in July 2012, will move Australia away from coal-fired electricity generation towards lower carbon emitting power generation. The scheme also aims to increase the efficient use of electricity and will consequently impact demand.

A national Renewable Energy Target (RET) has also been established to foster renewable energy generation. The RET requires that 20% of Australia's electricity is sourced from renewables by 2020. Under recent changes, the scheme will now run to 2030.

A carbon price has been set, with provision to transition to an emissions trading scheme thereafter. As expectations for future carbon prices are now clearer, this has created greater certainty around investment decisions – though that clarity remains subject to considerable political uncertainty.

The newly announced carbon tax will indirectly affect the retail price of electricity through the wholesale market. Treasury modelling estimates the impact to be $3.30 per week in 2013 on average for households. The Treasury modelling indicates investment in renewable energy will be 18 times its current size by 2050, with 40% of electricity generated by renewable sources, while gas-fired electricity will increase by 200%.

Any company producing at least 25,000 tonnes of direct carbon dioxide equivalent (CO2-e) will be included in the scheme, unless exempt. The high emissions intensive nature of electricity generation makes it likely that fossil fuel electricity generators will be among the 500 companies directly affected by the scheme.

The Government will provide payments for the closure of approximately 2,000 megawatts of very high emitting electricity generators, eligibility for this scheme is limited to coal-fired generators (such as Port Augusta's Playford B and Victoria's Hazelwood power stations). Replacement power generation and the subsequent impact on wholesale electricity prices will need to be addressed so, as a result, these closures will likely take place over time.

Under the Clean Energy Finance Corporation the Federal Government has made provisions for the allocation of $5.5 billion over five years to assist highly emissions intensive coal-fired generators adjust to the carbon price. Cash will be provided in 2012-13 (the first year of the scheme) followed by free carbon permits thereafter. Assistance will be based on generators adopting clean energy investment plans to reduce emissions.

To assist investment in commercialisation and deployment of renewable energy and enabling technologies, and energy efficiency and low-emission technologies the Government will provide $10 billion over five years from 2013-14 in the form of equity investments, loans and loan guarantees.

5 The competitor industry outlook

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

- Longer term wage outcomes by occupation and by sector tend to 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, **while all three rebounded from a period of weakness to return to strong growth in 2010, each of these three sectors faces renewed worries**.

5.1 The mining industry

Australia's **miners** know what they want to do – they want to produce much more as soon as they possibly can. The investment plans they already have in place are remarkable.

Other things equal, miners say they are looking to double their development spend in 2011-12 alone.

So it's full steam ahead. Or, to be more exact, it is full steam ahead as far as intentions are concerned. To take a simple example, ABARES notes more than half the world's planned additions to LNG capacity is currently under construction here in Australia.

Yet recent history is a reminder of some key caveats. Across the better part of a decade, no Australian construction project costing more than a billion dollars has managed to be delivered both on time and on budget. Now the number and scale of projects in the pipeline is much bigger than anything we've ever seen before.

Accordingly, that enormous demand is likely to run into some of the same supply side constraints evident in recent years – only more so. Deloitte Access Economics has consistently stressed the coming crunch in skill shortages in these forecasts.

For its part, the Government has promoted its Enterprise Migration Agreements with considerable vigour, and comments on the ground from mining and construction companies are pretty positive. That said, the rubber hasn't really hit the road in terms of pressures on working age population and hence of specific skill shortages as construction and mining try to grow very fast at a time when Australia's 'people power' will be growing very slowly.

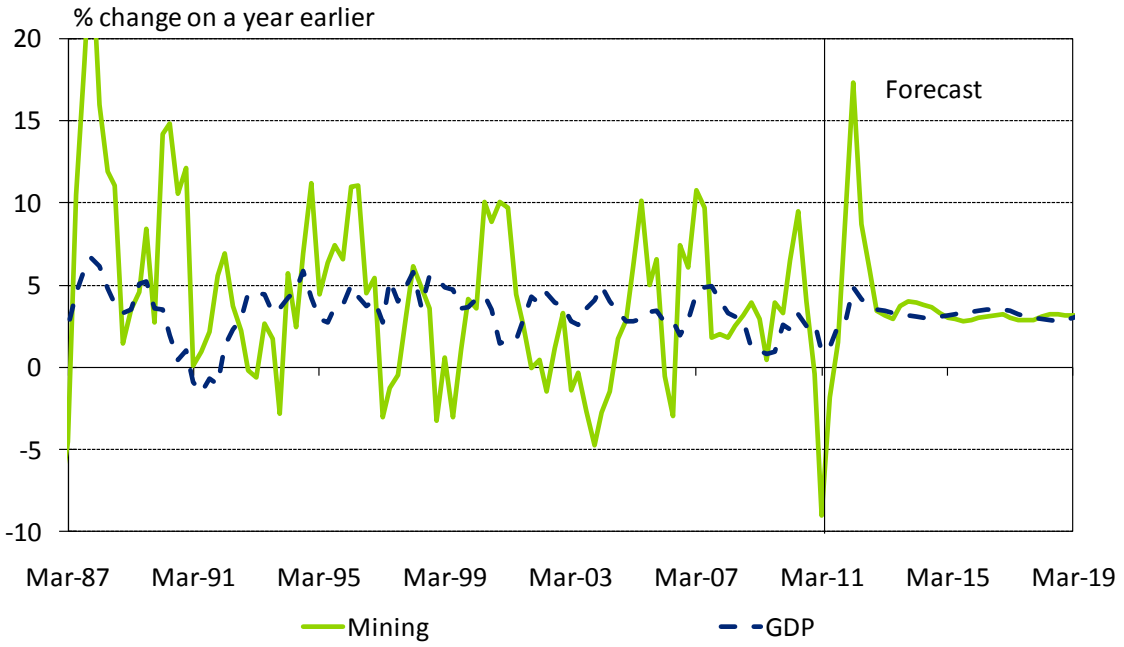
And as we've also noted before, skill shortages aren't the only issue here. Even with the high commodity prices of the moment, some miners are having difficulty getting finance, while others are having difficulty getting approvals – either the Federal, State, local, environmental and native title approvals often required for mining projects, or even as the internal corporate

approval for projects in Australia compete with those overseas for scarce development dollars amid the scramble of the moment.

That combination points to a series of supply side constraints which will stop Australia's mining sector being quite the growth sector that it would like to be. Besides, as Chart 5.1 shows, this is a sector which will be trying to sprint coming from a standing start.

The floods and cyclones of early 2011 hit mining production hard, and the subsequent recovery in mineral output has proved painfully slow. That said, we do see a very sharp recovery in mining output from the one off losses associated with floods and cyclones as well as the ongoing gains to be had from the dollars being poured into development.

Chart 5.1: Mining output growth



Source: ABS, Deloitte Access Economics' macroeconomic model

This will be a long cycle in this sector as far as mining output is concerned – the pipeline is huge, and the delivery of it will be slow. However, to focus on the short term:

- ABARES seeing LNG output up by 13.5% in 2011-12 alone. The fifth train on the North West Shelf is operating close to capacity, and output from Pluto will be on line relatively soon. Similarly, gas output is lifting thanks to the Black Tip and Henry fields, aided by coal seam gas from Spring Gully field, while oil production is seen lifting by 6.6%.
- Australian thermal coal output is projected by ABARES to grow by 7.6% in 2011-12, boosted by the likes of Moolarben and Cameby Downs, as well as Whitehaven's Narrabri Coal project.
- Coking coal output is expected to lift by a very healthy 14.2% in 2011-12, boosted by new mines, new capacity at old mines, and the expanded export capacity at Dalrymple Bay.
- Australian iron ore production is projected to climb by 5.7% in 2011-12, with lots more where that came from. This year's gains will occur 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.

- Uranium output is seen rising by 6.8% this year as Olympic Dam returns to full capacity and thanks to output from Uranium One's Honeymoon mine.
- Australian gold output is lifting (with a gain of 3.4% in 2011-12) thanks to contributions from Boddington, Cadia Hill, Northparkes and Prominent Hill as miners chase today's great prices.
- One of the few exceptions to the robust rude health otherwise evident across the minerals sector lies in bauxite, where output in 2011-12 is projected to increase by ABARES by 1.0%.

That adds up to notable growth. And, for the purposes of this report, it serves as a reminder that the mining sector can be expected to remain a formidable competitor for some of the same workers currently (or potentially) employed in the utilities sector.

Indeed, there were more people employed in the utilities than in mining as recently as 2003, but these days the mining sector employs seven people for every five in the utilities sector, and that ratio is projected to lift to nine to five by 2020.

5.2 The construction industry

Nor will the mining sector be the only key competitor to consider here. For the mining sector to grow fast, the construction sector has to do the same first. And the construction sector employs almost seven times the number of workers that the utilities does.

Construction has three components – housing, commercial construction and engineering work. Of these, the **housing** sector is the biggest. The bad news is that housing activity is all too weak at a time when builders, not unreasonably, might have expected it to be picking up. After all, even though Australia's population growth has just dropped to a five year low, that is because the last five years saw a surge in the number of people in Australia, and our housing stock hasn't yet caught up. The building of new houses made a half hearted recovery that peaked in the first half of 2010 and has lost a lot of altitude since then. There's a lack of interest across a range of parties, including investment properties and first home owners, with today's weakness also concentrated in Western Australia (where approvals are down by a third in the last year alone) and New South Wales (with approvals down notably over the past year) and coming after a long run of relatively weak results.

A series of factors are to blame, including tighter credit conditions in the wake of interest rises through 2010, but also the continuing slow pace of land release in many States, and increasingly now a shortage of skilled labour as well. It probably also hasn't helped that commentators and markets are continuing to speculate on further interest rate rises out of the Reserve Bank.

Hence housing – the largest single component of the construction sector – is currently weak, and is only headed for a relatively modest recovery (one that looks likely to still leave a worrying degree of pent up demand in a number of markets).

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

Source: ABS, Deloitte Access Economics' macroeconomic model

The news is also pretty modest in **commercial construction**. Given that shoppers aren't shopping, it is no surprise that approvals for retail construction are nowhere near where they were ahead of the global financial crisis. With very little approved in recent years, the pipeline of retail construction work is looking decidedly thin. Similarly, office approvals are in the doldrums. Although white collar employment growth has been more than healthy, the reaction to the global financial crisis also saw fewer new office buildings being approved. Additionally, the surge of school building work in response to the Federal stimulus of recent years has increasingly done its dash.

In sum, then, although commercial construction activity is expected to rise in the next few years, its recovery – like that in housing – looks set to be relatively modest rather than something stronger.

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

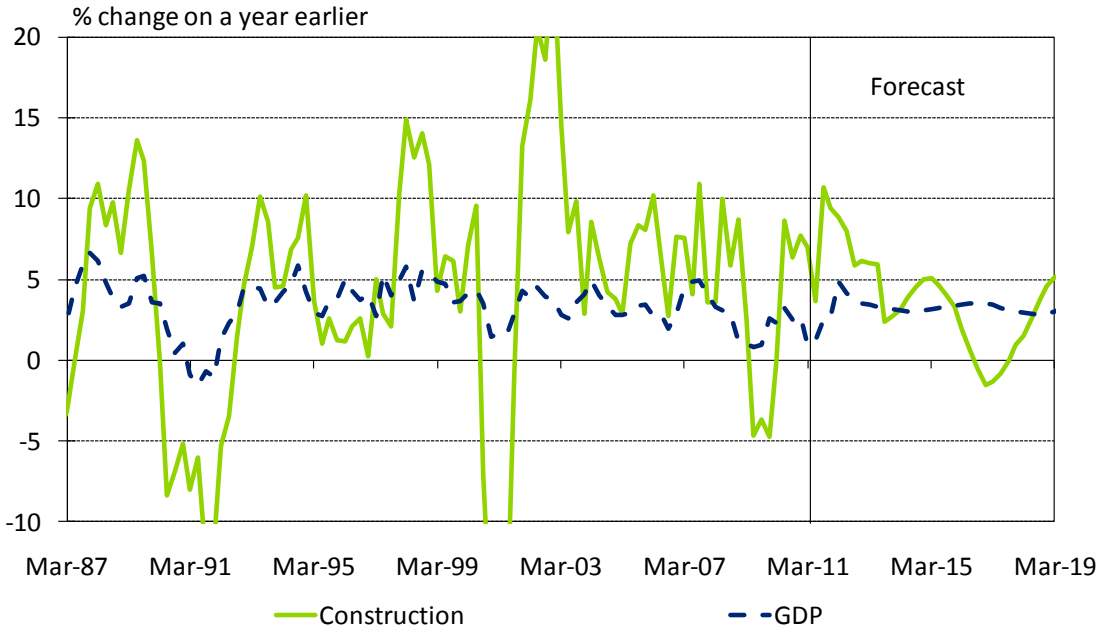
	Definite		In planning		Total	
	$m	% change	$m	% change	$m	% change
Manufacturing	10,427	37.3	24,783	-12.4	35,210	-1.8
Transport	71,999	1.0	125,883	9.6	197,882	6.3
Communication	200	0.0	40,900	-6.1	41,100	-6.0
Mining	117,918	10.5	236,347	26.7	354,265	20.8
Power & water	22,981	-9.7	23,920	-21.1	46,901	-15.9
Rural and forestry	455	5.8	0	-100.0	455	-48.3
Total engineering	223,980	5.8	451,833	11.9	675,813	9.8

Source: Arup and Deloitte Access Economics' *Investment Monitor*

Yet despite those two important caveats – on housing and commercial construction – Chart 5.3 below shows a more than solid upswing in the offing in the construction cycle. The latter will almost solely be driven by good news in **engineering construction**. Much of the action is in the

resources sector, with a number of huge projects already underway, including the Gorgon LNG project (weighing in at $43 billion – the most ever spent on a construction project in Australia), and the likes of the Pluto LNG project (well on its way to being completed, and costing $14.9 billion). Moreover, work has now begun on two enormous coal seam gas projects in Queensland – Gladstone LNG and Queensland Curtis LNG.

Chart 5.3: Construction output growth



Source: ABS, Deloitte Access Economics' macroeconomic model

And so far we've only quoted some of the big projects in the gas sector. We could also mention iron ore, as well as a rush of projects in coal and base metals. And outside of the resources sector is work such as that for the National Broadband Network (NBN), itself accelerating at a notable pace. That means that the strength in engineering construction should be enough off its own bat to drive the lift in the construction sector.

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

	Definite		In planning		Total	
	$m	% change	$m	% change	$m	% change
Trade	6,038	53.7	3,524	-44.1	9,562	-6.6
Business parks	3,490	93.6	1,341	-64.3	4,831	-13.1
Hotels and resorts	238	-59.2	977	-68.5	1,215	-67.0
Offices	2,348	-6.9	3,021	-59.6	5,369	-46.3
Education	20,561	12.9	307	-62.8	20,868	9.6
Health and community services	16,418	25.6	6,512	-13.3	22,930	11.4
Culture, recreation & other	6,883	-6.9	4,579	33.0	11,462	9.0
Business services	727	85.5	3,715	-4.6	4,442	3.6
Government	2,148	24.6	0	-100.0	2,148	6.5
Mixed use	4,590	-33.4	4,308	-27.5	8,898	-30.6
Total other commercial	63,441	14.2	28,284	-37.4	91,725	-8.9

Source: Arup and Deloitte Access Economics' Investment Monitor

On the other hand, commercial construction continues to lag engineering sector. Approvals remain soft and stimulus spending for school projects and the like has all but disappeared.

Retailers continue to struggle, and vacancy rates indicate that new office space isn't in strong demand either. That suggests it may be some time before commercial work picks up again.

5.3 Administration services

Administration services sector can be broken into two broad areas:

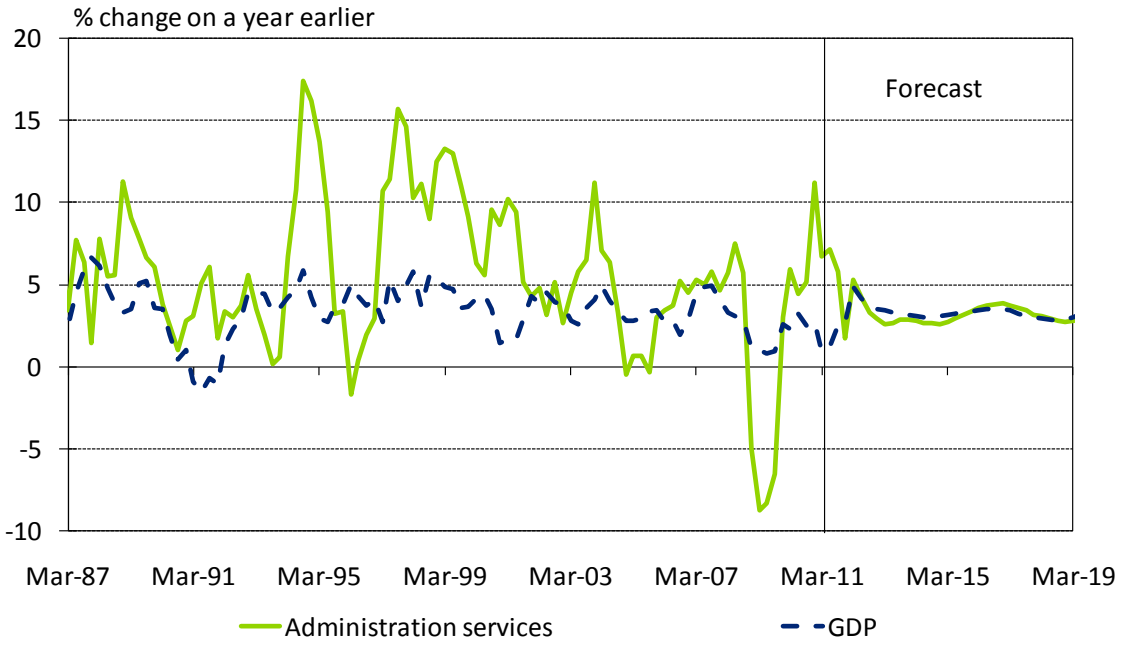
- Administrative services, of which the largest component is employment services (including employment and recruitment services and labour supply services); and
- Building and pest control services.

The impact of the GFC was felt keenly in the administration services sector (see Chart 5.4) – 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 11.2%, compared with 8.8% in administration services, with the next weakest being the dip in the transport sector of 5.1%).

Administrative services (most notably employment services) suffered more in the downturn – employer-led demand fell away as recruitment of new employees stopped (even though employment levels tended not to decline). In addition, employee-led demand (from workers looking to move to a better job) also fell away as workers became reticent to risk their current jobs.

Some strength in building and pest control services employment across 2009 did limit the downside in the sector, even though even that 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.

Chart 5.4: Administration services output growth



Source: ABS, Deloitte Access Economics' macroeconomic model

As Chart 5.4 shows, there has been a subsequent surge in growth – partly catch-up from previous declines – which saw the sector move ahead of overall growth in Australia's economy across 2010. That said, the short term projection is for this sector's output in for it to return to growth in line with the national average.

While the term business services tends to conjure up images accountants and lawyers, it is worth remembering that household services such as cleaning and gardening are also in this category. And the latter – think Jim's Mowing – are doing well as rising pressures on personal and business time leads many to outsource.

Although these services are also subject to the pressures of the business cycle, their relative resilience amid current conditions is noteworthy, and their longer term outlook is good.

6 The national outlook for wages and prices

Note that the specifics of the national wage outlook are covered in section 6.5 below, but this chapter also considers a series of related issues.

Employment showed a surge in strength from the second half of 2009 onwards, and job gains spent the course of 2010 travelling particularly fast.

Not only was the economy recovering, but the surge in commodity prices created a profit boom that percolated through much of Australia's economy. Moreover, a profit boom is a job boom. The real cost of employing workers has fallen very sharply across the past decade. Simply put, that means workers are more profitable for businesses than they've ever been.

However, the fall in real labour costs has levelled off of late. And the move of the $A above parity with the $US has combined with renewed speculation of further rises in interest rates to intensify the 'two speed economy' pressures that were already very evident. In addition, while profits are still rising, profit gains are now much more modest than they have been.

That is why job growth has cooled somewhat in recent months. Although the demand for workers is still very high, it is also very concentrated, and the latter means that mismatches between demand and supply are growing increasingly evident across different regions, industries and occupations.

So not only has demand growth lost some momentum, the supply side of labour markets has done the same. Working age population growth is amid its sharpest fall ever recorded, and part of the job weakness we are now starting to see is because of a lack of workers rather than a lack of jobs.

You could see those patterns starting to become evident in the latest job stats. There have been gains in both construction and mining as the latter try to facilitate Australia's swing in its industrial structure towards the big dollars available in resources. And there have been notable job losses in those with the slower of the 'two speeds': manufacturing, wholesale and retail trade, and transport.

Those swings represent not merely the woes of the losing sectors and the strengths of the gainers, but also the difficulty in sourcing any workers at all to achieve the growth that some desperately want to achieve, with construction and mining increasingly having to poach workers from other sectors.

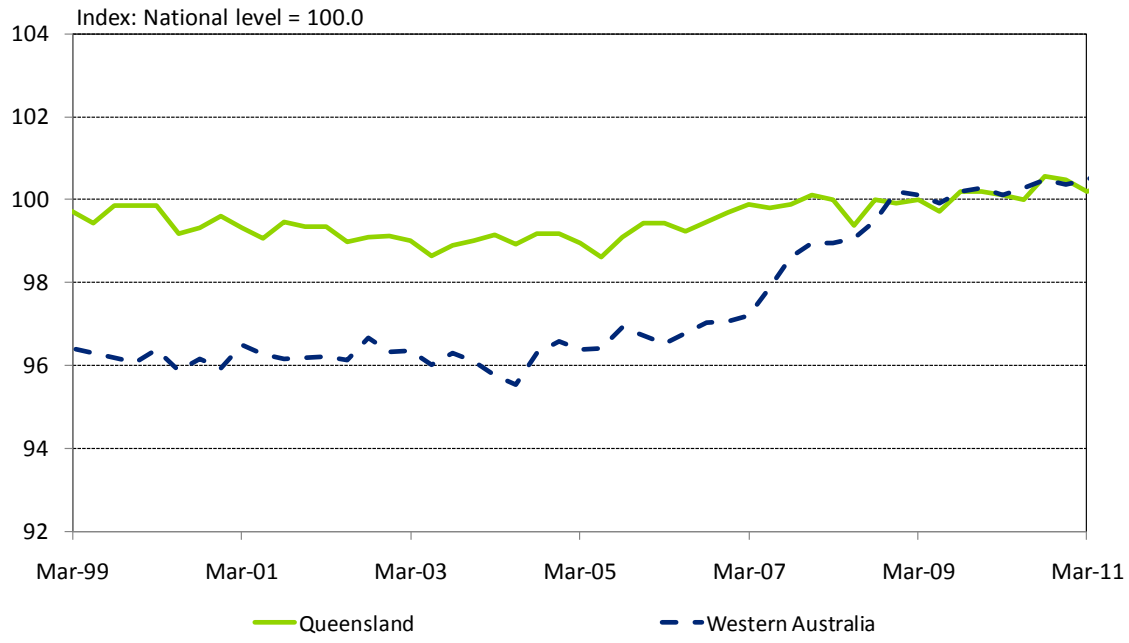
6.1 Impact of the last boom on costs and wages

There is a good yardstick for assessing the impact of the coming boom on costs in Australia – what happened last time around.

In particular, 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 6.1 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 6.1: 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.

6.2 How long can these effects persist?

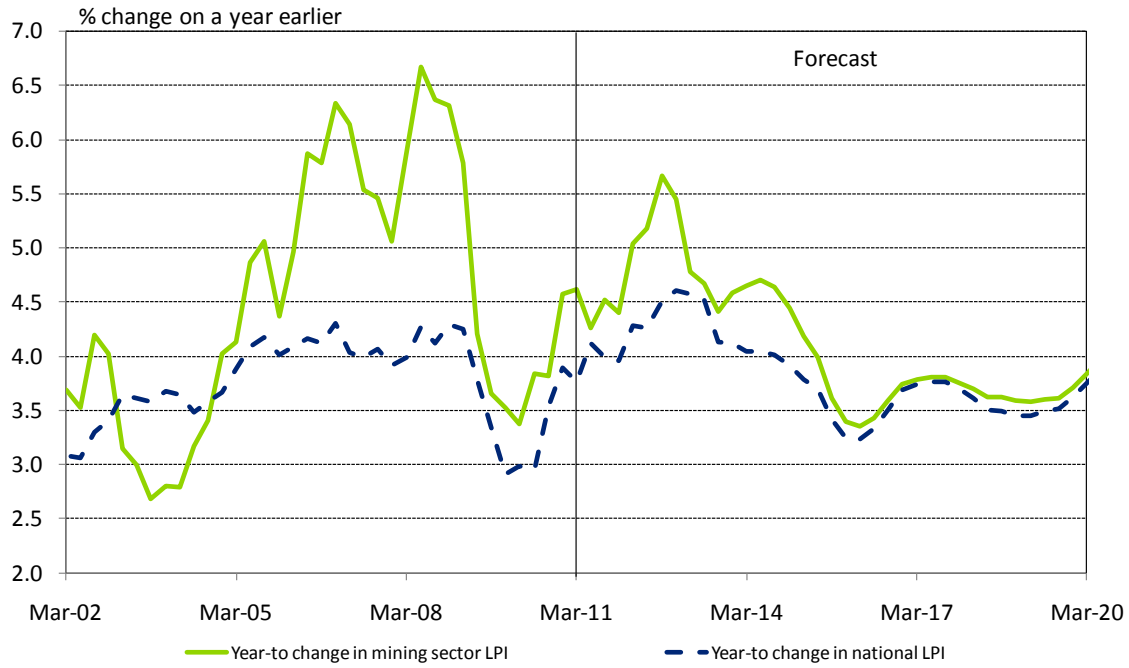
As Chart 6.1 above also shows, the global financial crisis which brought an end to the first resource boom also saw relatively rapid wage growth end in key sectors and States. Much the same is true of the shift in relative materials costs.

The most recent data suggests mining pressures have lifted wage growth in that sector once again, and Deloitte Access Economics' short term projections foresee further relative gains in the mining sector, though these do not persist in the longer run (see Chart 6.2).

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, Deloitte 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 6.2: Trends in mining LPI



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

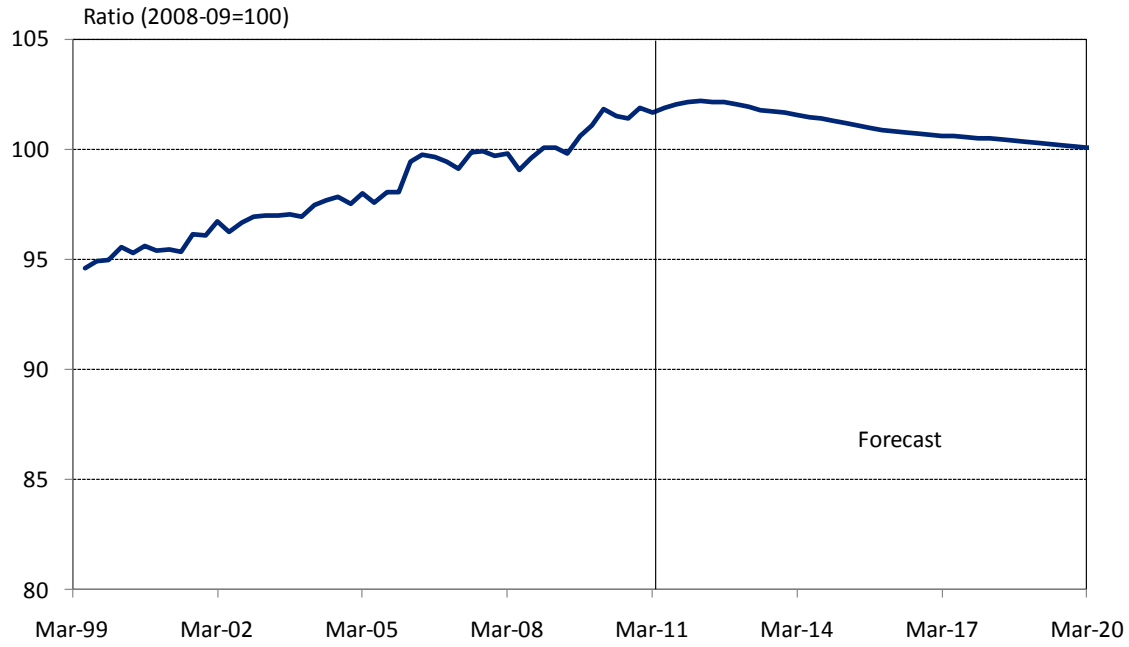
These different viewpoints are important. The longer term trends that arise can be seen in the movements of wages in the utilities sector in recent years. Similar to what the construction sector may witness in coming years, the strength (and the rise in specific sector wages) of mining and construction 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 6.3 and Chart 6.4 below.

Chart 6.4 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 – tends to support the 'business cycle' view of wage relativities in the utilities sector rather than the 'permanently increasing' view.

Chart 6.3: Utilities LPI relative to national LPI



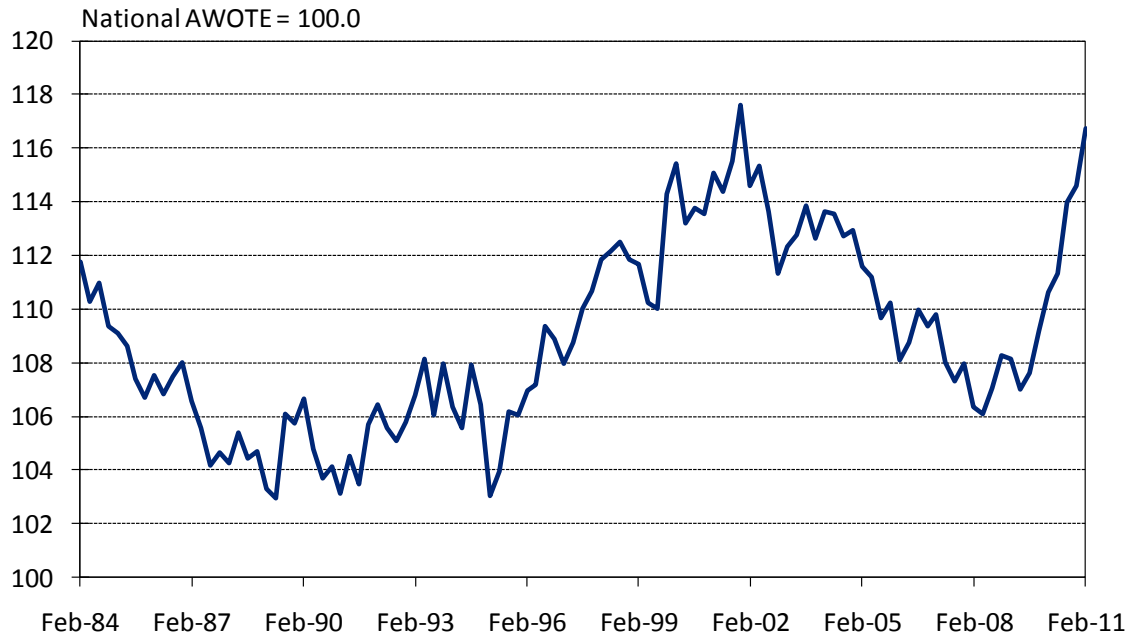
Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics labour cost model

That is not to say that this index must always return to previous values. It is possible that some sort of 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 6.4: Utilities wages relative to national wages (AWOTE)[4]



Source: ABS, Deloitte Access Economics

6.3 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 Hobart and try our luck in Brisbane").
- 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.
- 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").

[4] 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.

6.4 The outlook for the CPI

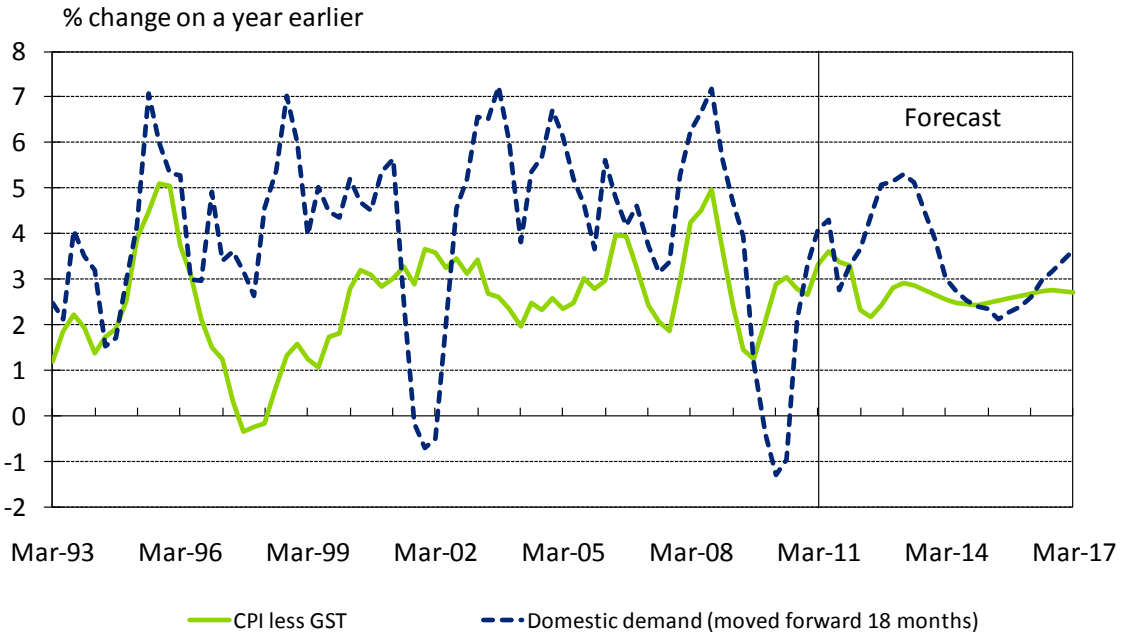
There was a downtrend in inflation in Australia for several years. Underlying inflation halved in a little more than two years, dropping to 2¼% in early 2011 (the lowest since the mid-2000s) amid the effects of a slowing in the economy and in wage growth, with these factors also joining forces with the jump in the $A to sap the strength from price pressures.

Yet the forces that halved inflation have largely run their course already, and the Reserve Bank has gone out of its way to suggest underlying inflation has "troughed", with the next move expected to be up. How far up? The June quarter 2011 CPI release showed that the two main measures of 'underlying inflation' that the Reserve Bank concentrates on rose by 0.9% in the quarter, and an annualised 3.5% in the past six months.

There will be three drivers of the turnaround: demand, labour costs and the $A. First, strengthening **demand** will lead to increases in pricing power, allowing some businesses to lift margins, while moves in the likes of housing rents and electricity prices will also add fuel to this particular fire.

It may surprise many to hear of 'strengthening demand' given the 'two speed' economy pressures on many families and businesses. Yet while floods and cyclones rocked the productive capacity of Australia in early 2011, it is noteworthy that demand – the speed of our spending – didn't even miss a beat. Moreover, there is further demand strength ahead. Although there will be a lag between those demand gains and the cautious price reaction of many businesses to them (as seen in Chart 6.5), the shifts already underway here point to building price pressures on the road ahead.

Chart 6.5: CPI and domestic demand



Source: ABS, Deloitte Access Economics' macroeconomic model

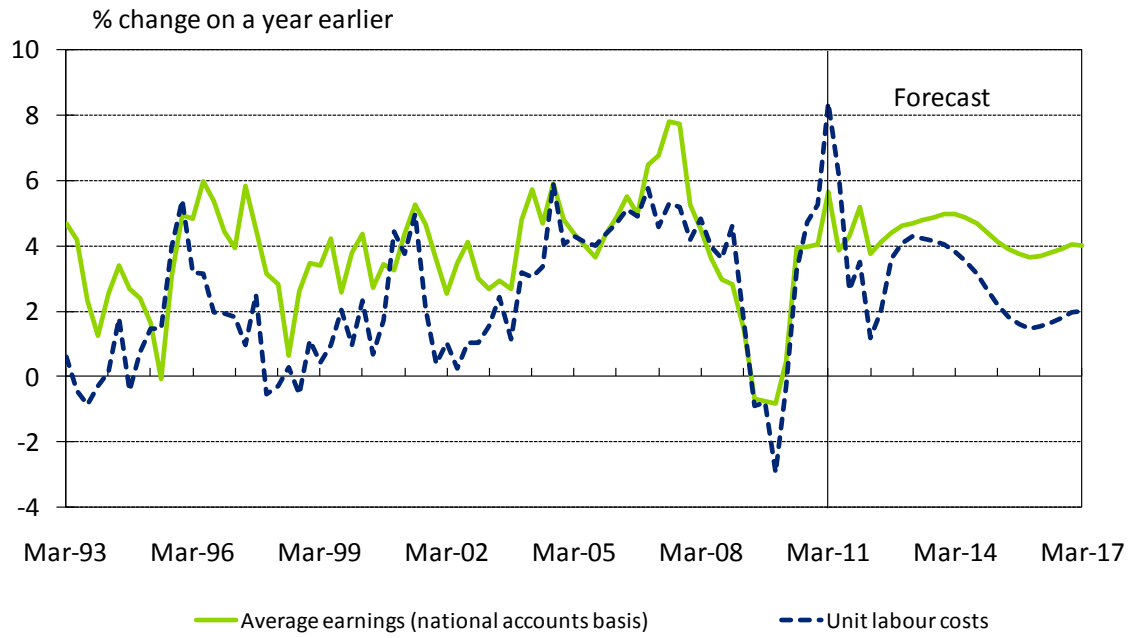
That said, there are three important caveats:

- Most of the strength in demand will be in investment in the resource sector as businesses struggle to catch up to the profit opportunities now on offer from the industrialisation seen in emerging economies. As the CPI measures consumer prices (rather than, say, construction prices), the impact of demand on consumer pricing may be less than Chart 6.5 implies.
- That is all the more true with online sales hurting bricks and mortar margins more than ever.
- On the other hand there are structural trends adding to price pressures almost regardless of what is happening to demand. That is most notable for housing rents (still catching up to past gains in housing prices) and electricity (where prices are rising amid renewable energy targets and the need to finance capacity expansion). There are also other areas – such as health and education – where a lack of competition means price rises tend to run ahead of the average.

The upshot is rising demand and tightening capacity will be putting more pressure on prices down the track, topped up by specific developments in important prices such as rents and electricity costs.

The news is also sobering on **labour costs** (see Chart 6.6), now rising at the fastest pace seen for two decades. Although the current peak is artificially high – the wage data underlying it has been volatile, and flood and cyclone effects have temporarily depressed productivity – the trend is clear. Labour costs are rising fast because of two factors: a measured pick up in the strength of wage growth on the one hand, and our continuing poor productivity performance on the other hand.

Chart 6.6: Wages and labour costs



Source: ABS, Deloitte Access Economics' macroeconomic model

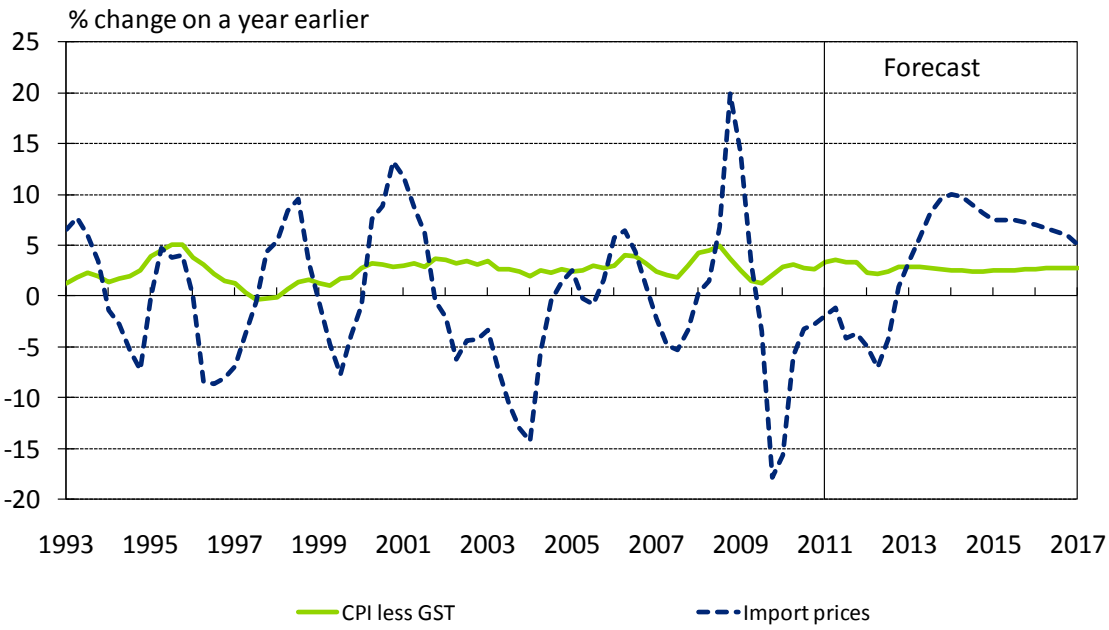
In turn, wages are gathering pace as:

- they are still catching up for their earlier overreaction to fears that the downturn would be bigger than it was;
- the economy itself is strengthening and unemployment is already below 5%; and
- the fall off in migrant numbers will combine with a stepped up pace of retirement among baby boomers to mean further skill shortages lie ahead.

And at the same time as wage gains are rising, productivity growth – seen below in Chart 6.9 – remains in the doldrums, currently plumbing lows last recorded in the mid-1980s. The net impact of rising wage gains and poor productivity is that labour costs are already working to raise inflation rates in Australia. Beyond some bounces induced by the recent artificial spike in labour costs, the pressure on consumer prices from labour costs is expected to intensify over the next two years.

So that's two challenges – demand pressures and labour costs are both rising. What of **import prices**? As Chart 6.7 shows, the latter can jump around, with their most recent spectacular cycle a direct function of the $A's peak and subsequent fall in 2008-09. And now, with the $A again in the ascendency, import prices are continuing to hold down the wider CPI.

Chart 6.7: Import prices



Source: ABS, Deloitte Access Economics' macroeconomic model

6.5 The outlook for wage growth

Wage growth has every reason to lift further – workers think they missed out on some wage rises in recent years, and so want to catch up to that shortfall. They also see good job gains and falling unemployment already, and recognise that those labour market pressures will only increase as migrant numbers fall and the pace of retirement among baby boomers increases.

Or, in other words, wage growth will rise amid strong demand and weak supply in Australia's labour markets. Moreover, although there is a degree of sectoral spread on the wage front, there isn't a big gap between public and private sector LPI gains (up 3.9% and 3.6% in the past year, respectively). That range is somewhat wider at a more disaggregated level, with mining wages up 4.6% in the past year versus the 3.1% gain seen in a clutch of sectors.

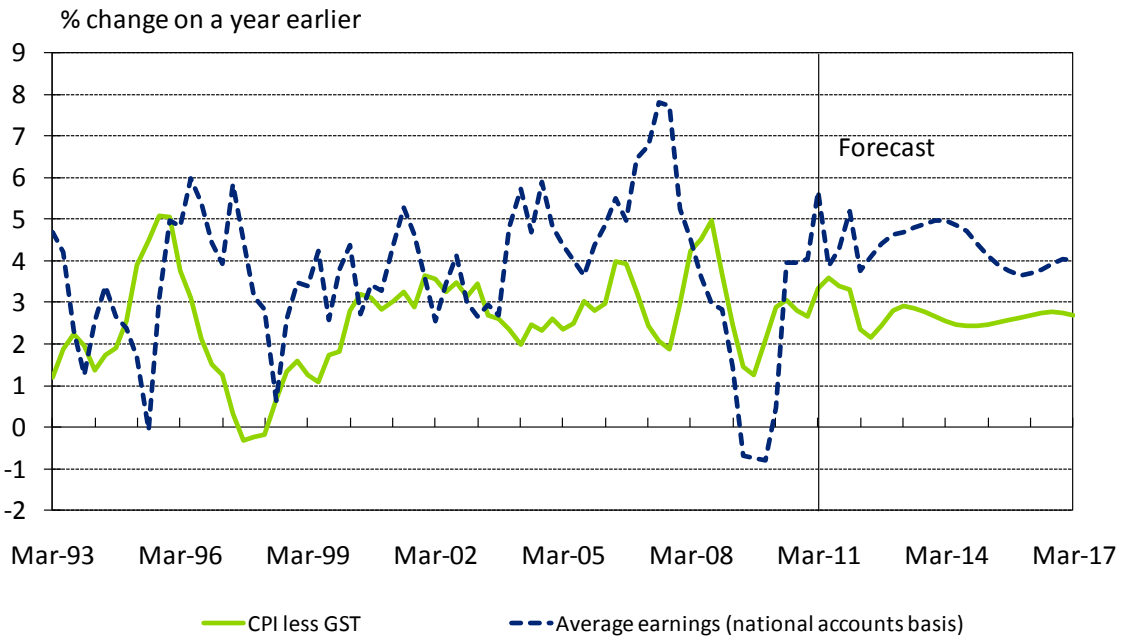
Turning to the States, wage growth in the past year was highest in Western Australia and the Northern Territory (at 4.1%), followed by Victoria and Queensland (on 3.9%), NSW on 3.8% (the national average); the ACT on 3.7%; South Australia on 3.6%; and Tasmania on 3.5%.

Certainly if all you knew about Australia's wage landscape is that:

- major skill shortages loom and that
- there is a sharp delineation between the two speeds seen across sectors, you would expect wages growth to be rising fast and for the sectoral spread to be considerable.

Yet so far that's not particularly true on either front – wage gains are growing, but only slightly so (and they remain around 4%), while the sectoral spread is still well within the bounds of history.

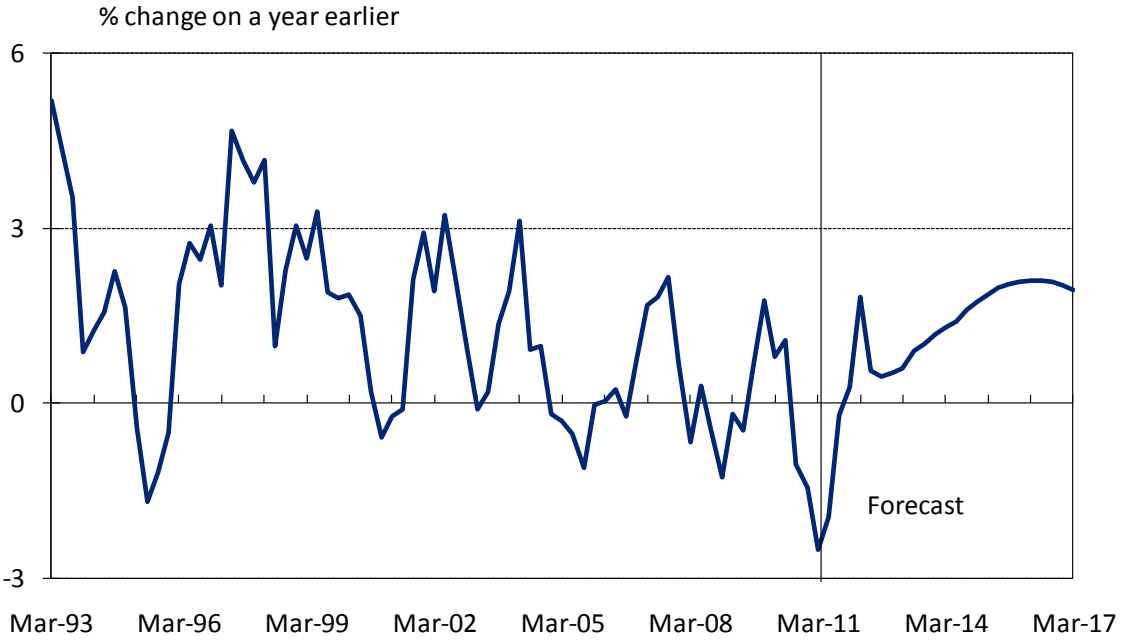
Chart 6.8: Wages and inflation



Source: ABS, Deloitte Access Economics' macroeconomic model

That said, the 'two speed screws' can be expected to continue to tighten, while the skill shortages evident today are likely to be only a small down payment on those to be evident down the track. Accordingly, wage growth is expected to lift further in the next few years.

Chart 6.9: Productivity growth

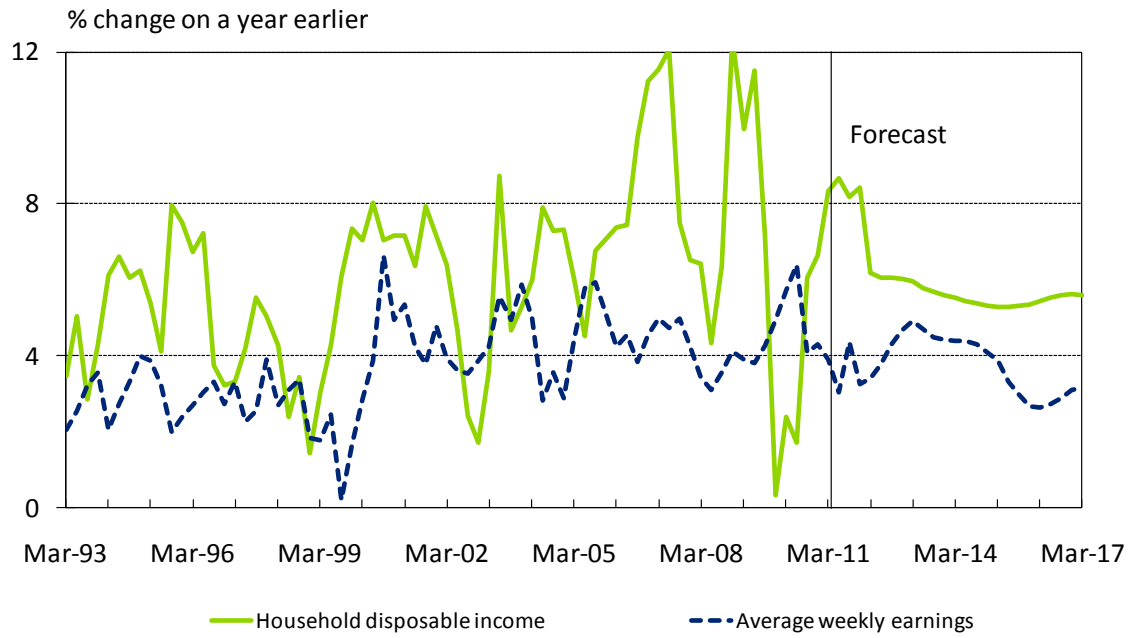


Source: ABS, Deloitte Access Economics' macroeconomic model

The good news is that productivity growth should eventually recover from its current slump, making those wage gains more affordable. But that increase in affordability will come

relatively late in the cycle, and the pressure on profits from falling commodity prices is expected to ensure that wages as a share of output jump back up in the next few years, returning to more familiar territory.

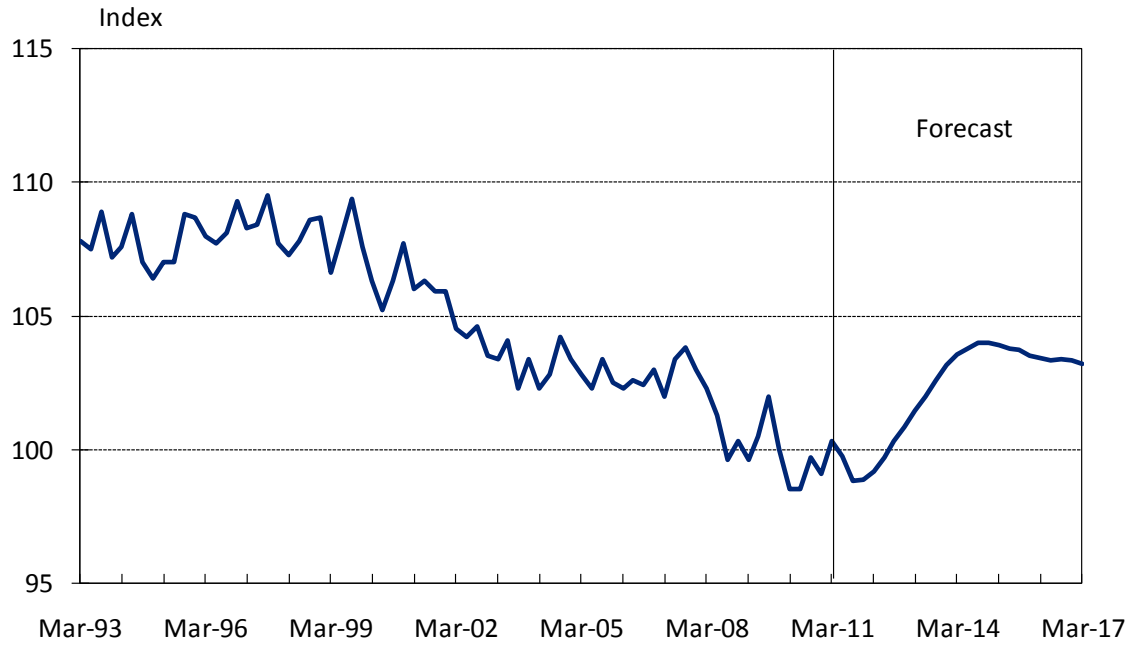
Chart 6.10: Wages and household disposable income



Source: ABS, Deloitte Access Economics' macroeconomic model

That said, to date the acceleration in wage growth has been both mild and measured.

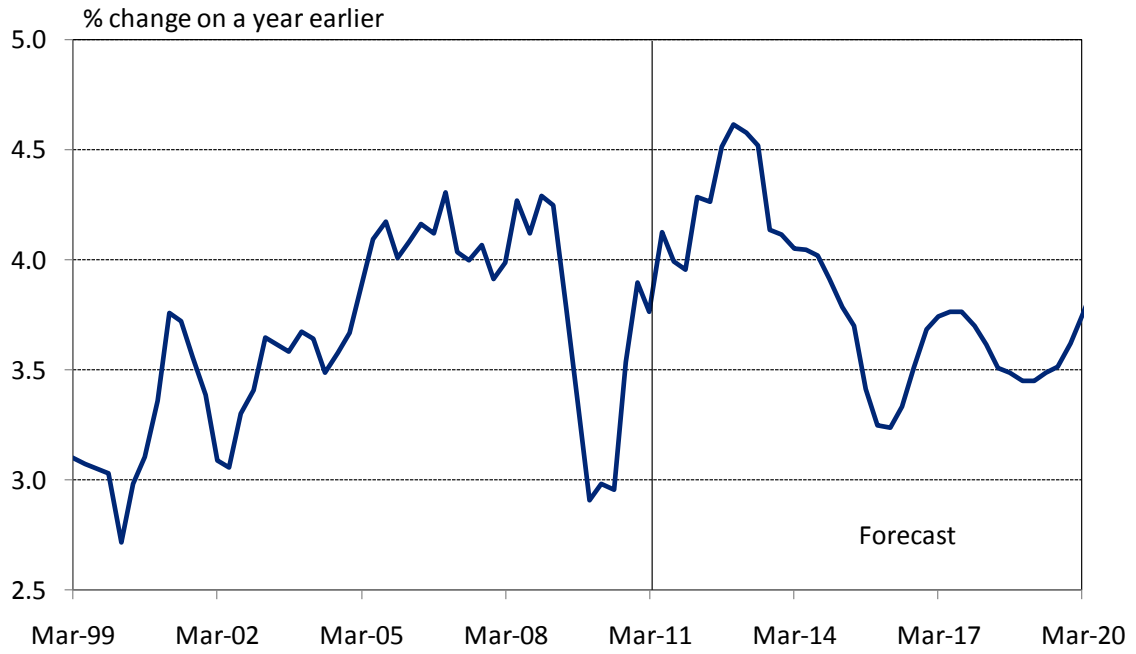
Chart 6.11: Real unit labour costs (Index: 2006-07 = 100)



Source: ABS, Deloitte Access Economics' macroeconomic model

With the exception of the earnings estimate derived from the national accounts (currently high, but subject to increasing volatility in recent years), almost all the other measures of wage growth place the latter at a little under 4% in the past year. The labour price index (LPI) is up by 3.8%, as are average weekly ordinary time earnings (AWOTE), with average weekly earnings (AWE) slightly more, up 3.9% in the past year, while new wage bargains are running at 3.8%.

Chart 6.12: LPI forecast growth



Source: ABS, Deloitte Access Economics' macroeconomic model

Table 6.1: National wage forecasts

Financial year nominal wages forecasts

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Labour price index	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Average weekly earnings	5.3	3.8	3.7	4.6	4.4	3.9	2.8	3.1	3.0	2.9
Ordinary time earnings	5.6	4.0	3.5	4.9	4.5	4.3	3.3	3.5	3.6	3.6
Unit labour costs	-0.2	6.1	2.3	4.1	3.9	2.4	1.6	1.9	1.9	0.9

Financial year real wages forecasts

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Labour price index	0.7	0.7	1.3	1.8	1.4	1.3	0.6	0.9	1.3	1.2
Average weekly earnings	2.9	0.7	0.9	1.8	1.8	1.4	0.1	0.4	0.7	0.5
Ordinary time earnings	3.1	0.9	0.7	2.0	1.8	1.8	0.6	0.8	1.2	1.3
Unit labour costs	-2.5	2.9	-0.5	1.3	1.2	0.0	-1.1	-0.7	-0.5	-1.3

Source: ABS, Deloitte Access Economics' Labour Cost model

7 General labour cost growth across States

Current developments have different implications across different parts of Australia. Floods and cyclones gave Queensland a bruising following on from the knocks it took from the global financial crisis. Yet there are good reasons to believe a turnaround is coming in Queensland, and the State's growth spurt will start with its huge repair task, with that offsetting continuing big negatives from interest rates and a lack of tourists.

However, the true driver of the State's growth will be its biggest ever surge of project work, centred on the rich arc from Gladstone to Townsville. That should push Queensland back towards Western Australia at the head of the State growth table.

On the other hand, Tasmania doesn't sell to Asia, and it doesn't benefit from selling into Australia's booming resource sector either. So it gets few current positives, while the mix of high interest and exchange rates has hurt the State's manufacturers and its forestry sector.

Like Victoria and South Australia, the State is being dragged down by consumer caution as families react to higher interest rates by cinching their belts. And, like South Australia, Tasmania faces a relatively large demographic downturn due it is older-than-average population demographic.

7.1 Technical notes

The revisions to our forecasts over the past four months since we last delivered a report to the AER are mainly driven by the changing economic climate.

However, State results are also affected by a number of technical points that should be borne in mind:

- Unlike the national accounts, State accounts do not produce output estimates on a quarterly basis, only in annual terms. The components that are not released each quarter, notably estimates of interstate trade, are often revised notably each year. This can change historic estimates of growth, particularly for smaller States and Territories. Deloitte Access Economics uses its own in-house methodology to create quarterly historical estimates of State output, which use (in part) historical job levels by industry.
- Seasonal employment patterns have been revised (as happens each February) and the ABS have updated recent labour force trends with information from population surveys. This results in revisions to what were the most recent job statistics in the last report.
- The ABS has updated its price basis for the calculation of real economic variables from 2007-08 to 2008-09, resulting in modest changes to historical growth rates and the estimated "jumping-off points" for our forecasts.

In general, these impacts are not particularly significant, though they are a reminder that State level results are subject to greater caveats than matching Australian aggregates.

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. 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	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Queensland	3.3	4.1	4.2	5.0	4.2	3.9	3.3	3.7	3.6	3.4
Tasmania	3.8	3.4	3.8	4.1	4.0	3.8	3.2	3.5	3.4	3.3

Financial year changes in real State Labour Price Index forecasts

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	0.7	0.7	1.3	1.8	1.4	1.3	0.6	0.9	1.3	1.2
Queensland	0.6	0.8	1.8	2.2	1.1	1.0	0.3	0.7	1.1	1.0
Tasmania	1.1	0.5	1.8	1.5	1.0	1.0	0.3	0.7	1.1	1.1

Financial year changes in State nominal productivity adjusted Labour Price Index

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	2.0	4.9	3.0	3.9	2.9	2.0	1.2	1.7	1.8	1.3
Queensland	2.0	6.2	1.7	3.0	1.9	1.6	0.6	1.0	1.1	0.5
Tasmania	-0.2	4.5	2.5	2.9	2.6	2.3	1.8	2.5	2.9	2.4

Financial year changes in State real productivity adjusted Labour Price Index

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
National	-0.3	1.8	0.2	1.1	0.3	-0.5	-1.4	-1.0	-0.5	-1.0
Queensland	-0.7	2.8	-0.6	0.3	-1.1	-1.2	-2.3	-1.9	-1.4	-1.8
Tasmania	-2.8	1.7	0.6	0.4	-0.4	-0.5	-1.1	-0.3	0.6	0.2

Source: ABS, Deloitte 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 strong population growth – particularly in the south-east of the State – and strong growth in tourism and retail. Queensland's exposure to the global commodity boom has added to these effects and helped boost labour cost growth in the State.

As a result, Queensland (along with Western Australia) has seen the fastest increases in most wage measures since 1999-00, making gains largely at the expense of New South Wales and Victoria.

Yet Queensland was estimated by Deloitte Access Economics to have been the slowest growing State in Australia in 2010-11. Queensland has been hard hit by floods and cyclones, and those natural disasters followed on from other pressures on the State's economy that have been evident since the global financial crisis first hit, and which imply lingering negatives for its construction sector.

The upshot was that Queensland went nowhere last year – the State's population kept growing, but its economy didn't. For that matter, population growth itself dropped away, as it has done in recent years, a consequence of the long period of poor performance that Queensland's economy has seen, as well as fewer foreign students starting courses. In turn,

that mix led to yet further weakness in the pace of housing construction in Queensland – a factor of particular importance to its utilities sector.

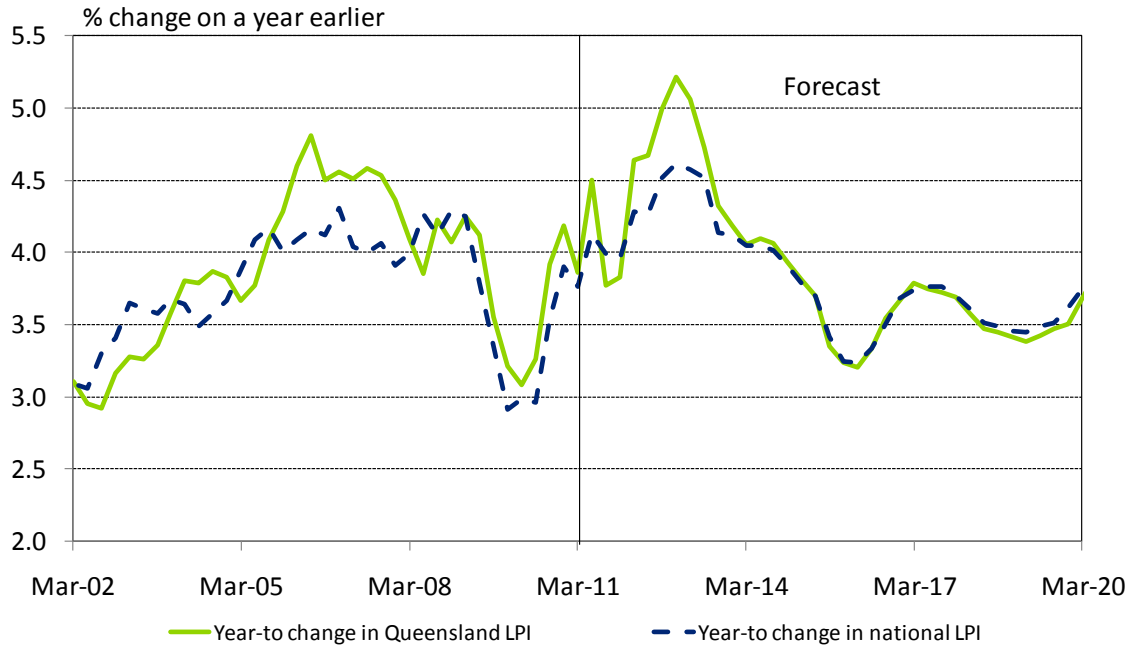
Those developments temporarily pulled the State's rate of LPI growth – which was notably ahead of the national average from 2004 to 2007 – back into line with that average (as seen in Chart 7.1).

However, even at the weakest point, wage growth in Queensland was still ahead of the average, with the belief that prospects for the mining sector helped maintain the demand for labour.

That said, the turning point in the cycle is already here: Deloitte Access Economics expects Queensland to accelerate from a standing start, reaching a sprint inside the next six months. Most flood and cyclone impacts have already passed, and even the lingering effects on coal output will only last a few more months. The repair of the houses, roads and other infrastructure damaged by disasters is also increasingly evident, and that too will add to the rebound. Even the simple point that billions of dollars of coal weren't exported last year but will be in the coming year makes a big difference.

And, as we have noted, the biggest difference of all isn't the rebound from the natural disasters. It will be in the striking surge in business investment spending which is now beginning. That will see demand in construction initially and then in mining as the projects mature. Both of those will have further downstream impacts on the utilities sector.

Chart 7.1: Queensland general labour cost growth



Source: ABS, Deloitte Access Economics' macroeconomic model

As Chart 7.1 shows, the growth in Queensland LPI is expected to continue trend upwards in line with the national average through 2012 before moving ahead of that average in 2013.

In effect, wages will tend to rise marginally faster than the rest of Australia on average through to 2013 and into 2014, as the economy sees a strong period of mining and construction growth.

Beyond that, we expect those gains to be maintained, with Queensland LPI growth moving back into line with the national average in the long run.

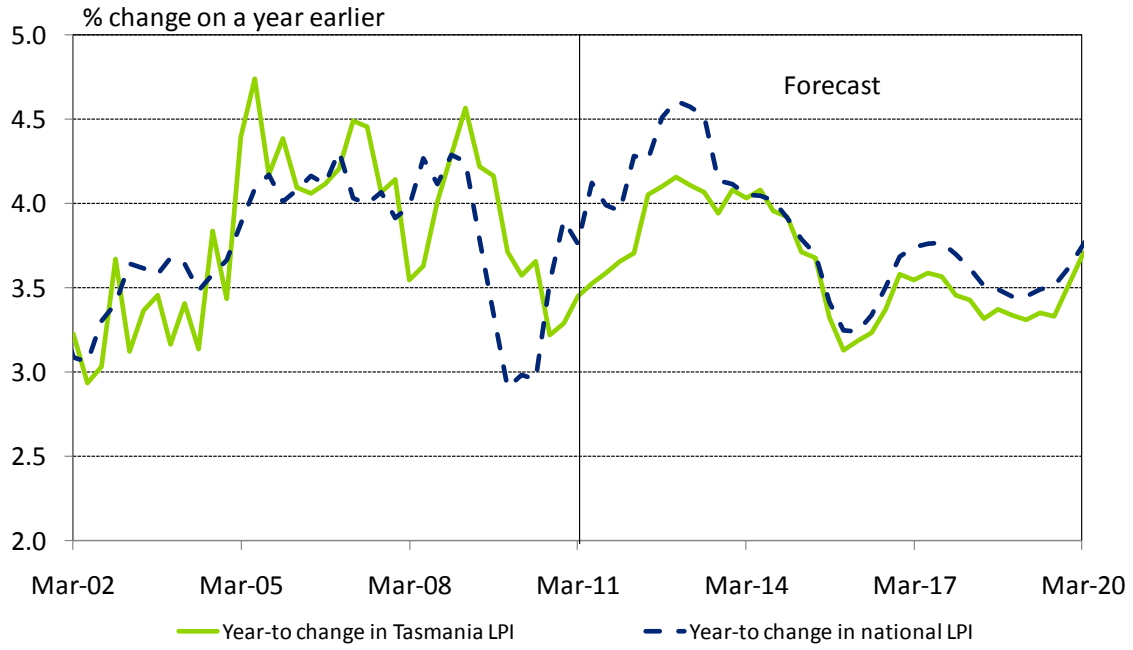
7.3 Tasmania

Tasmania had seen a population and construction led renaissance across much of the last decade. While the State continued to lag somewhat in terms of population (as States such as Queensland and Western Australia increased their shares of the total), these declines were modest compared with those seen in the 1990s and the State's output remained fairly stable at 1.8% of the Australian total.

However, like Queensland's, Tasmania's economy is currently weak. The State's economy began to slow just as Australia began to recover. Part of that was due to Australia's recovery being aided by emerging Asia – that was good news for the resource States, and even for Melbourne with its mining headquarters and Sydney with its business advisory strengths. However, that rising resource tide has been little or no use to Tasmania, while the combination of higher interest and exchange rates that came with it that proved a deepening challenge for the State's economy.

Looking ahead, whereas Queensland is expected to see a rapid and considerable recovery from its current weakness, that is not the case for Tasmania. A degree of pent up demand may provide some protection to the pace of housing construction, with knock on positive implications for the State's utilities sector, but the bigger question mark lies over how long the $A will stay above parity with the $US. Such an elevated exchange rate is extremely uncomfortable for many Tasmanian businesses – not just the exporters, but more particularly those who must do battle against imports in local markets. So far profitability has taken a hit but it hasn't buckled.

Chart 7.2: Tasmania general labour cost growth



Source: ABS, Deloitte Access Economics' macroeconomic model

The recent trends in Tasmania LPI in Chart 7.2 show a general lag in the movements in LPI for Tasmania compared to the rest of the country, as well as a more muted fall in the past of growth across the past few years. The expectation for a slower acceleration in Tasmanian LPI growth is partly based on the fact that, relatively speaking, local wages have risen more since 2009 than they have nationally.

In addition, Tasmania will not see the sort of ramping up in construction and mining workforce demand in the next few years that is fuelling the acceleration expected in national LPI growth.

That is not to say that these effects will not have implications for Tasmanian wages. Eventually the pace of national wages growth will flow through to the State's wage rates as firms seek to retain their workforce.

In the longer term, the slightly slower pace of growth in the Tasmanian economy will tend to see the local LPI grow slightly behind the national average.

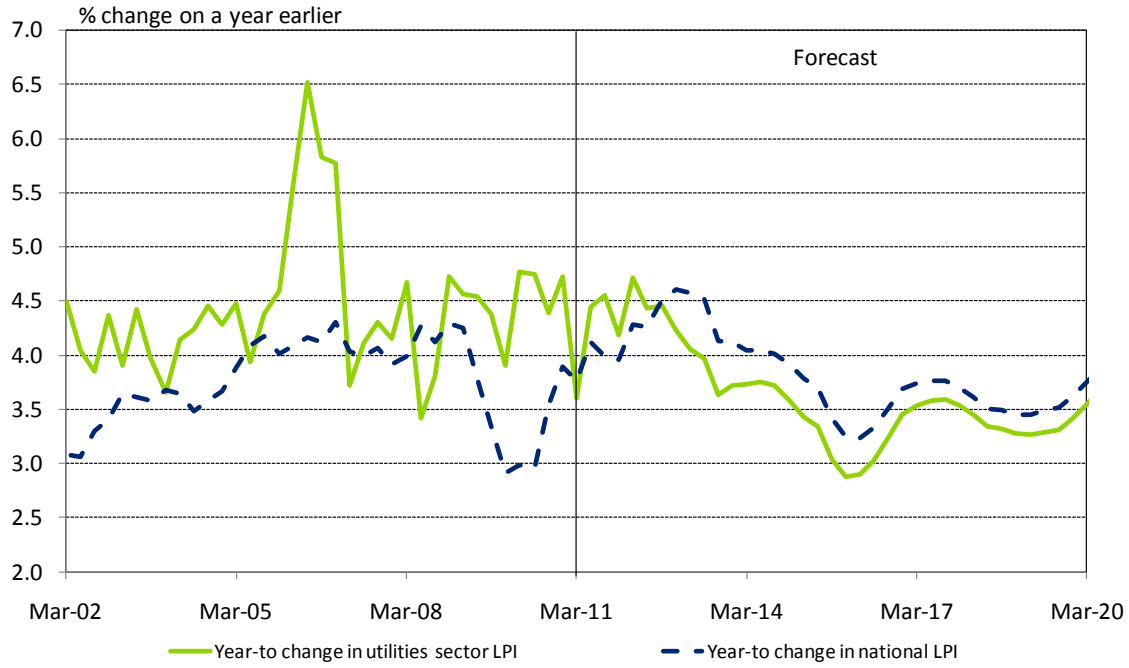
8 The national outlook for wage growth in the utilities sector

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 (although they may be more a reflection of the volatility that is found in data with smaller sample size – 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, from 2002 to 2008 this relative strength in wage gains in the utilities occurred across a period where Australia's rate of wage increase itself accelerated. However, when the national wage growth rate slipped sharply in 2009, utilities growth stayed quite high (broadly in the range of 4.0% to 4.5% per year).

Chart 8.1: Wage growth nationally and in the utilities



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

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

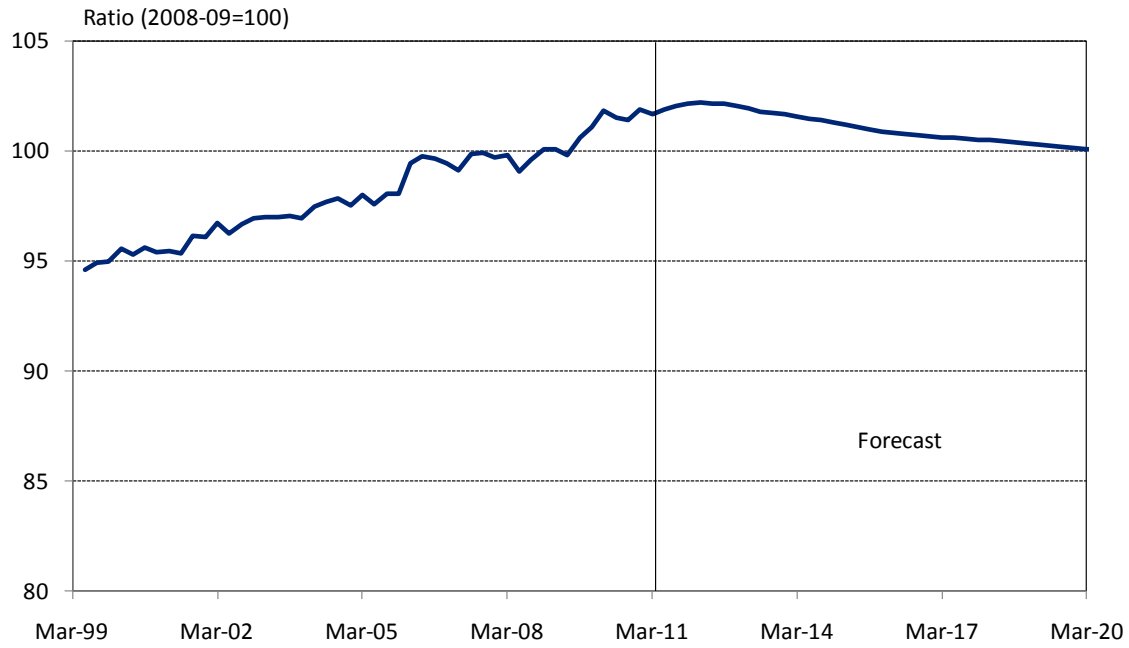
- Job growth in the 2000s averaged 2.3% a year, almost double the 1.2% a year evident in the 1990s.
- That stronger economy pressured a range of prices, including the price of labour, with rising inflation also leading to rising wage growth.

However, for the utilities sector the composition of the job boom was particularly significant. Blue collar occupations did far 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.

The fears of the extent of the likely downturn in Australia's economic growth that developed from late 2008 through to early 2009 cut into LPI growth sharply – the acceleration in annual LPI growth from 3.0% to 4.5% that took place across six years (from 2002 to 2008) was unwound in just six months.

Chart 8.2: Utilities LPI relative to national LPI



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

Yet that decline wasn't really evident in all industries, and the result for the utilities sector saw annual growth rates broadly stable across this period, although the results were quite volatile.

However, as the fears of the downturn spreading to China and India were 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.

As Chart 8.1 earlier shows, the return of the upswing in national LPI growth is only just beginning, with growth expected to continue to accelerate until 2013.

Chart 8.1 shows 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 gives a better indication of the relative strength of utilities wages, as it shows wages in the utilities relative to national wages.[5] As Chart 8.2 shows, the LPI in the utilities sector consistently outpaced the national equivalent across the period that the ABS has produce the figures. This was true in the period of strong economic growth from 1999 to 2008, but was even more evident as the economy stuttered across 2009 – the LPI in the utilities sector rising about 2% relative to the national LPI from mid-2009 to early 2010.

Ratios have broadly stabilised since, although there is a slight upward trend that we expect to continue across the next eighteen months.

Chart 8.2 shows that Deloitte Access Economics projects wages in the utilities will rise further relative to national wages (which are themselves accelerating across this period) over the coming year. However, those further gains are projected to be modest.

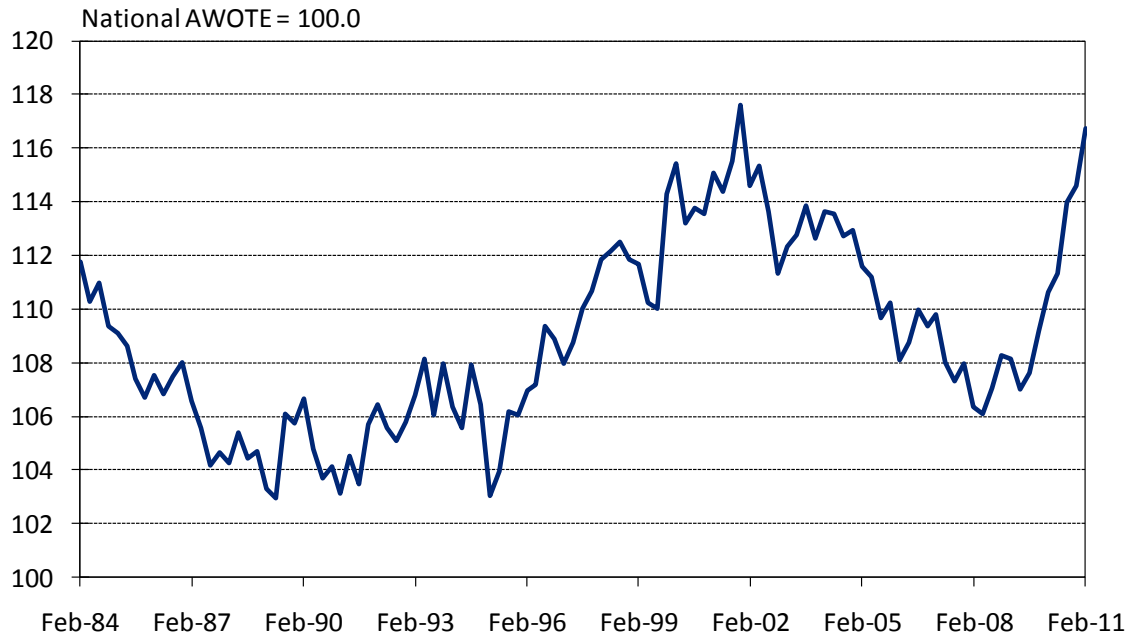
As that chart also shows, we see a peak in relative utilities wages approaching. It is true that the coming engineering construction boom is again very big, and big booms in demand usually add to relative costs (as was seen in the last boom).

However, the past gains have been considerable, and 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).

It is, after all, worth noting that the period over which the LPI has been available is similar to the period over which China and other emerging economies have had a growing impact on Australia, including on the wages able to be earned in the utilities sector. Hence it is useful to look at the LPI comparison seen in Chart 8.2, but to also go back further in time using an AWOTE-based comparison (seen in Chart 8.3). The latter's longer timeframe helps to show the impact of long cycles (rather than the secular trend seen over the shorter timeframe seen in Chart 8.2).

[5] 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.

Chart 8.3: The utilities AWOTE relative to the national AWOTE



Source: ABS

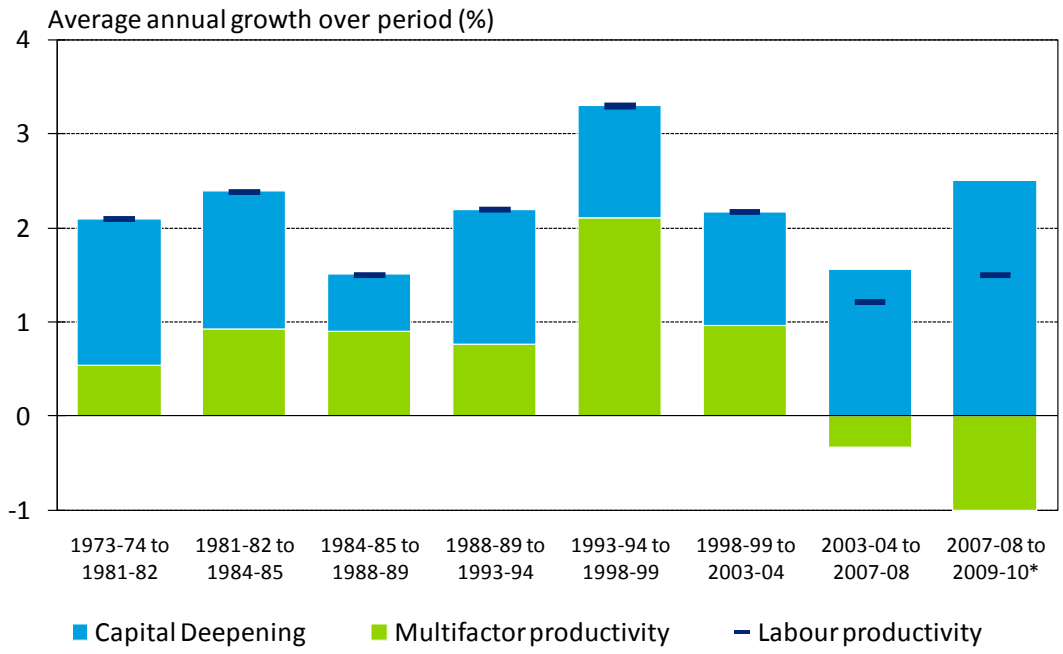
Moreover, the factor which underpinned both the last boom and the current one – very high prices for Australia's key exports such as coal and iron ore – are also unlikely to be permanent. There are reasons to believe that, even if China and India keep growing fast, the world's miners may dig faster still,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

Accordingly, amid an Australia in which wage gains are seen as set to accelerate over the next two years, those in the utilities sector will more than keep pace for 2011-12, but start to lose some relative strength thereafter.

8.2 Weaker relative productivity in recent years

Australia's productivity performance faltered sharply in recent years, despite the heavy investment in capacity expansion made by those both inside and outside the resources sector.

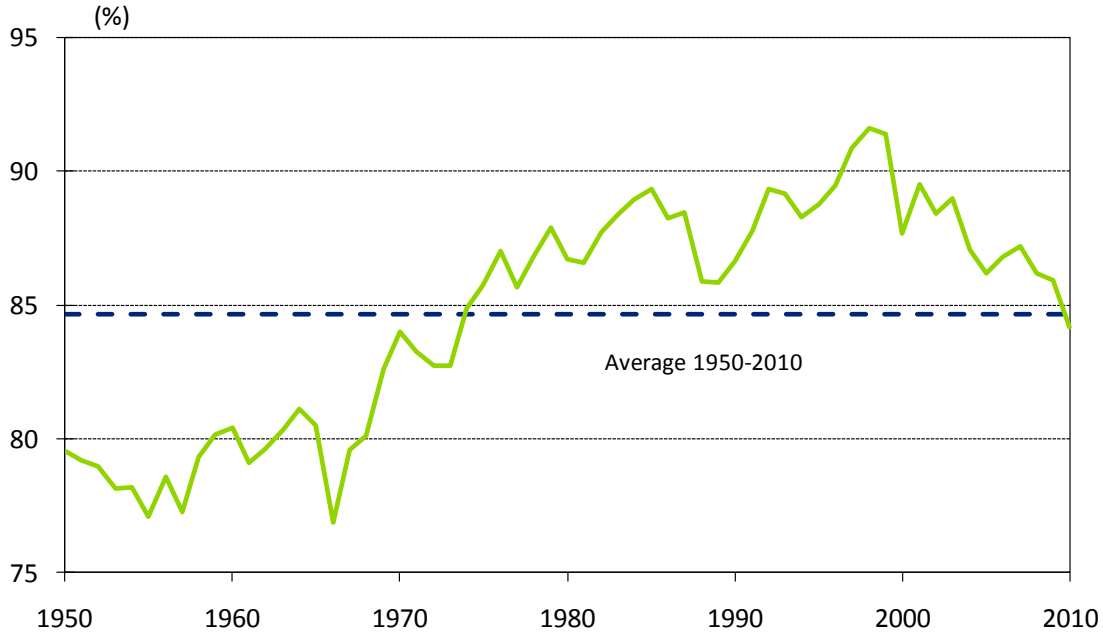
Chart 8.4: Market sector productivity growth



Source: ABS, Federal Treasury

The lift in productivity Australia saw in the 1990s – generated by the reforms of the 1980s and 1990s – has since dropped off.

Chart 8.5: Australia's labour productivity relative to the US



Source: The Conference Board Total Economy Database, January 2011

Moreover, Treasury Secretary Martin Parkinson sees *"little reason to believe it will improve in the immediate term. ... Indeed the rate of improvement in the living standards of Australians, at least that part measured by incomes, has already begun to deteriorate"*.

In the late 1990s, Australia's labour productivity peaked at 92% of the US level. Since then it has dropped to 84%, the lowest seen since the early 1970s.

Parkinson added that *"the root causes of Australia's present productivity performance are embedded in the decisions of the last decade"*, and that failing to tackle this productivity slowdown now *"will cement poor outcomes in the future". "Australians have not yet felt the consequences of this decline."*[6]

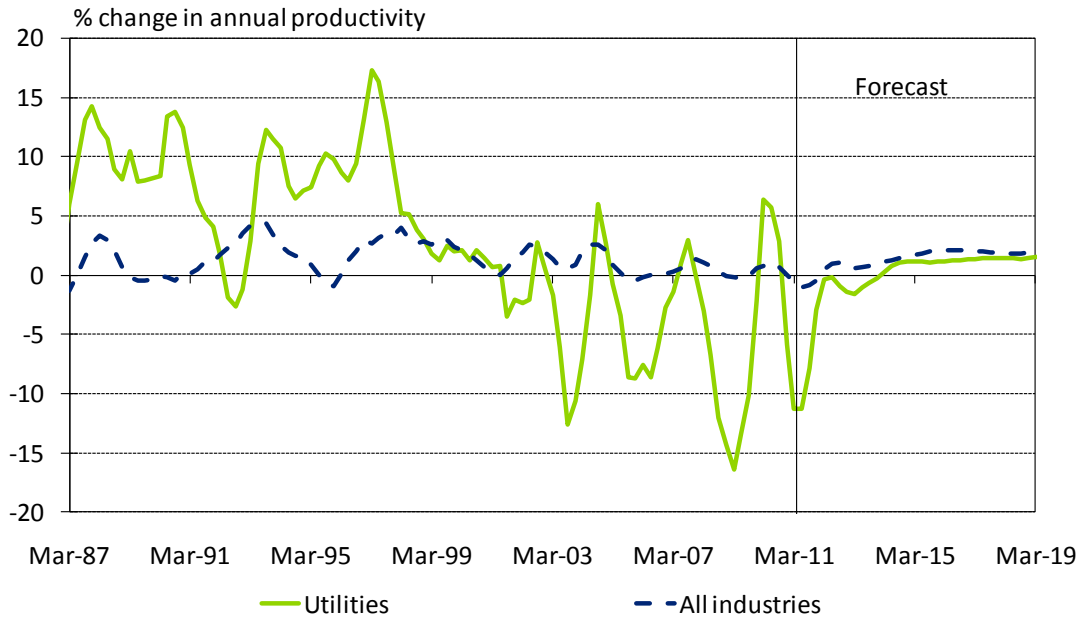
Reports by the Productivity Commission (2009), the House of Representatives (2010) and the Treasury suggest 70% of the rapid decline in productivity since 2003-04 is accounted for by:

- Declining resource quality and large capital investment that has not yet translated into output in the mining sector;
- Capital investment and reduced rainfall in the electricity, gas and water sector; and
- Drought affecting the agriculture sector.

Other possible causes of the decline in productivity growth include capacity constraints within the economy, following the very long period of uninterrupted economic growth.

That said, Deloitte 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.

Chart 8.6: Productivity growth



Source: ABS, Deloitte Access Economics' macroeconomic model

As the above chart shows, the utilities sector is projected see a more volatile version of the national productivity trend in the short term. In the longer term – and as capital investment in

[6] http://www.treasury.gov.au/documents/2077/PDF/Sustaining_growth_in_living_standards.pdf, 30 June 2011.

the sector lifts – productivity growth should average a similar rate to the national, although it may be more volatile from year to year.

8.3 Business cycle developments in the sector and its competitors

After the global financial crisis hit the economy, causing a sharp contraction in demand and falls in construction level, the sectors covered in this report were the ones to rebound first.

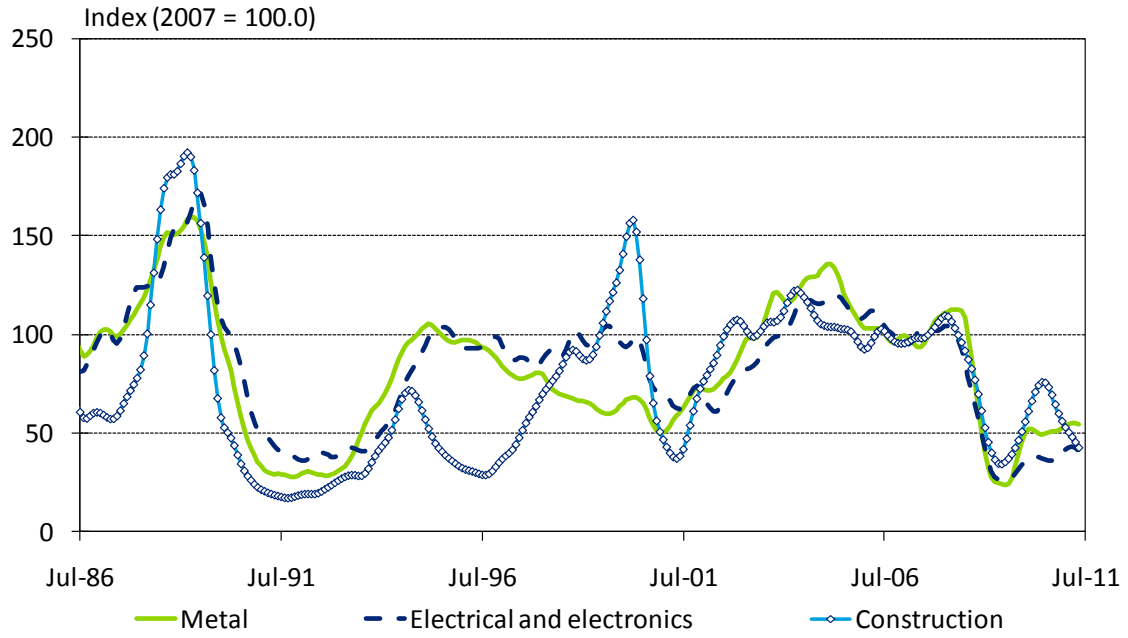
However, their outlooks at present are now more mixed:

- The **utilities** sector did not actually see a downturn in its output in 2009 (in fact growth hit a high during this period). While strong underlying population growth insulated the utilities sector more effectively from the downturn than other sectors were, it is also true that public sector (which is relatively more important in the utilities 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. That showed up in sharp rises in output in the sub-industries of electricity (up 10.5% in the year to June 2009) and water and waste services (which leapt by 20% at the start of 2009). 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 – partly due to the demands of the public, but also because 'big projects' were viewed as a good investment during the downturn to boost demand and maintain economic confidence. However, the level of funds available for such investment is now declining, and one of the key drivers to demand growth – population increases – is easing, dragging down the level of housing starts. That leaves the outlook modest at present, even as the announcement of the carbon tax begins to potentially ease the uncertainty over future investment.
- 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. Yet that fall was short lived and employment levels are surging again. The sectoral employment data (for May 2011) shows mining sector employment is now at 218,000 – up more than 25,000 in the past year – even with the slowdown in production due to Queensland's natural disasters. That is because the rest of the world is desperate to gets its hands on the minerals beneath Australia's surface and producers are just as desperate to beef up levels of supply. Yet that very desperation may lead to problems, with national labour force growth ebbing away it is more likely that relative wages in mining will be a key lever to dislodge workers from other industries and into mining. That can only lead to upward pressure across the economy.
- So the utilities are looking weaker, mining looking stronger, and **construction** is doing both and more – depending on which part of the construction sector you look at. The housing component (the largest) is weakest, hurt by slowing population growth, a lack of funding, the easing in Government assistance and stimulus and concerns over future interest rate movements. Commercial construction is looking better, but modestly so. Retail is weak and office construction is yet to rise much even as white collar employment levels improve. Engineering construction, however, is booming thanks to the demands of the mining boom. The strength of this sector of the industry is likely to easily outweigh the weakness in other components. Given the evidence of the last boom, that could push

construction sector LPI well ahead of other industries, forcing them to push through higher wages to compete successfully for workers.

- **Administration services** were savaged by the downturn, particularly employment and recruitment services, but both bounced back with a vengeance through 2010. Results have been less impressive so far in 2011, suggesting that growth will ease back in line with the national average in the short term.

Chart 8.7: Trades vacancies



Source: DEEWR Vacancy Report

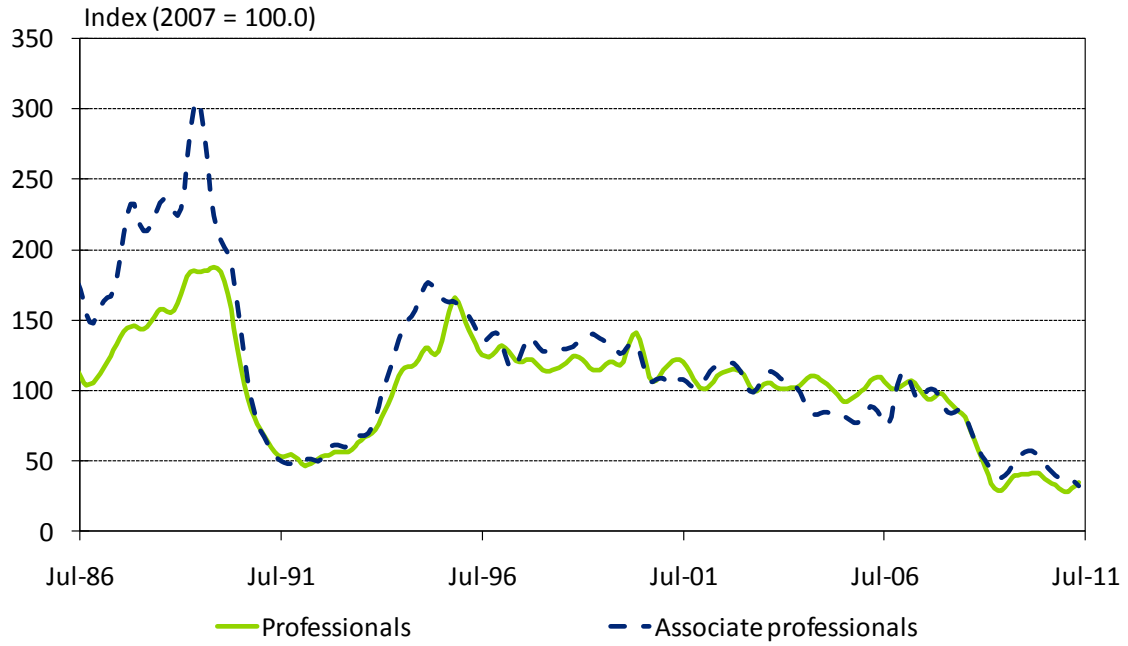
Many of the cyclical effects noted for the construction and mining sectors were readily evident in the vacancies data compiled by the Federal Department of Education, Employment and Workplace Relations (DEEWR) – both in terms of the sharp decline in demand for construction and related workers, but also in the subsequent rebound. More recently the construction sector's demand has ebbed away again, largely as Government stimulus has been withdrawn, reflecting the weakness in the housing construction sector.

Chart 8.7 focuses on vacancies in the trades. Several relevant trades are noted – construction, electrical and electronics, and the metal trades. As the chart shows, for both the latter two the decline in 2009 drove vacancies to their lowest level since 1983. They have since rebounded, although to well below their longer term average. Construction vacancies also fell in the downturn – hitting their lowest level since 1996 – but lifted sharply thanks to the Building Education Revolution scheme as well as improved demand for housing construction. That Federal assistance and the population-led housing demand are now both disappearing, and the upswing in construction vacancies has almost entirely unwound.

While basic trades demand has generally improved, there has been no improvement in vacancies for professionals and associate professionals (Chart 8.8 below). Demand for both these categories of labour remain at record lows and did not increased significantly during the period of Government stimulus, but have actually declined more recently to be at, or even below, their GFC lows.

That suggests that there is limited scope for growth in the administration services sector – particularly downstream from the construction sector. The data for construction is of more concern, as it does go against our expectations for strong construction demand. However, the trades data here is weighted more towards those parts of construction that we expect to underperform (housing construction) than the stronger performers (engineering construction).

Chart 8.8: Professionals and associate professionals vacancies in building and engineering



Source: DEEWR Vacancy Report

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)

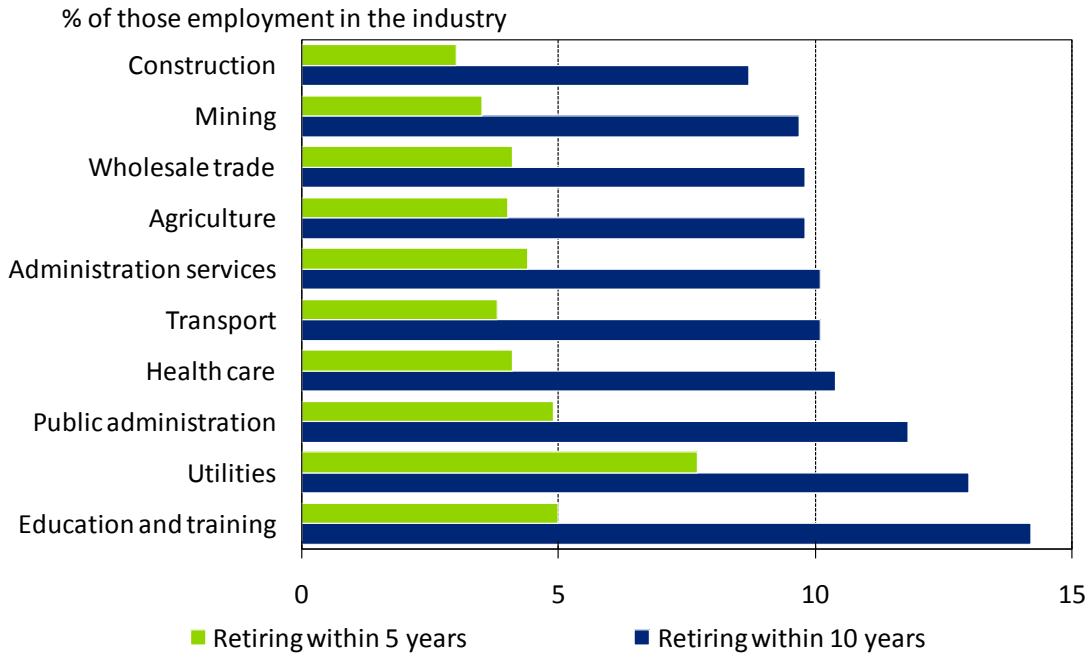
	2003	2004	2005	2006	2007
Natural and physical sciences	0.82	0.83	0.83	0.80	0.80
Information technology	1.22	1.05	0.90	0.86	0.66
Engineering and related technologies	3.12	3.04	3.15	3.39	3.38
Architecture and building	1.03	1.11	1.16	1.28	1.34
Agriculture, environmental and related studies	0.91	0.87	0.83	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 8.9: 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 greater 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[7]

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 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, Deloitte 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 8.10 compares growth in the utilities sector LPI with a number of other wage growth measurements that are produced on a regular basis.

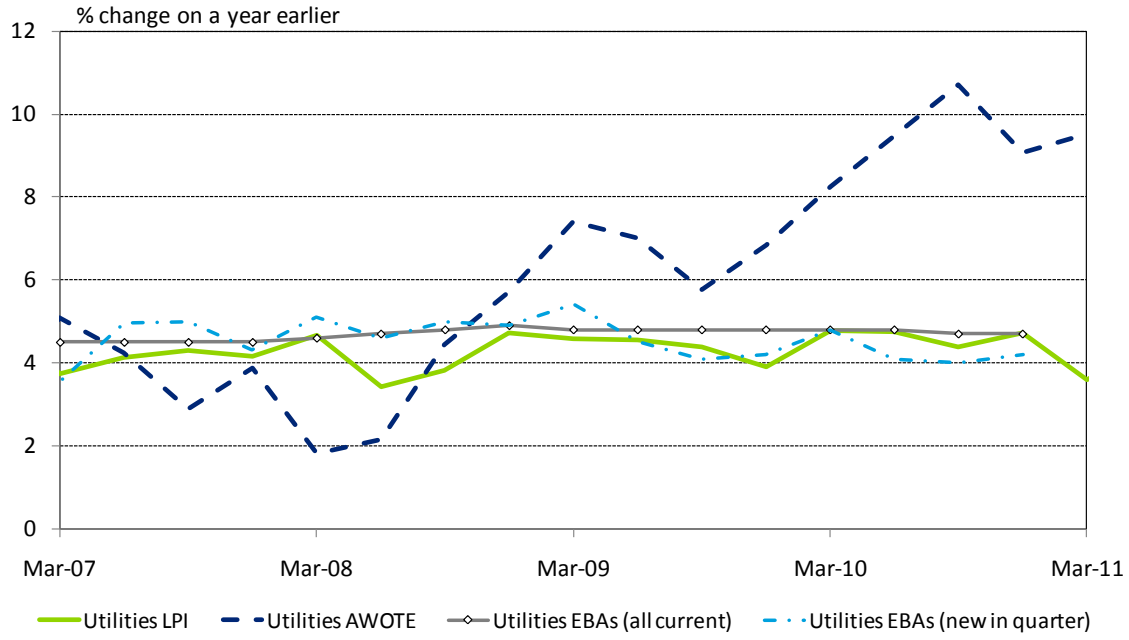
The first measure shown is the average weekly ordinary time earnings (AWOTE) result for the national utilities sector. As the chart amply illustrates, the growth in this wage series is particularly volatile, and, as noted elsewhere in this update, this volatility limits its use in forecasting.

[7] Those leaving the labour force include retirees, plus those leaving temporarily, including moving overseas

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:

- 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 8.10: 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, while the AWOTE movements have been almost unrelated to the EBA results over this time:

- 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 (4.7% per annum for all agreements operating at the end of December 2010, slightly down on the early 2010 results) 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 just over three years.

9 The national outlook for wages in competitor industries

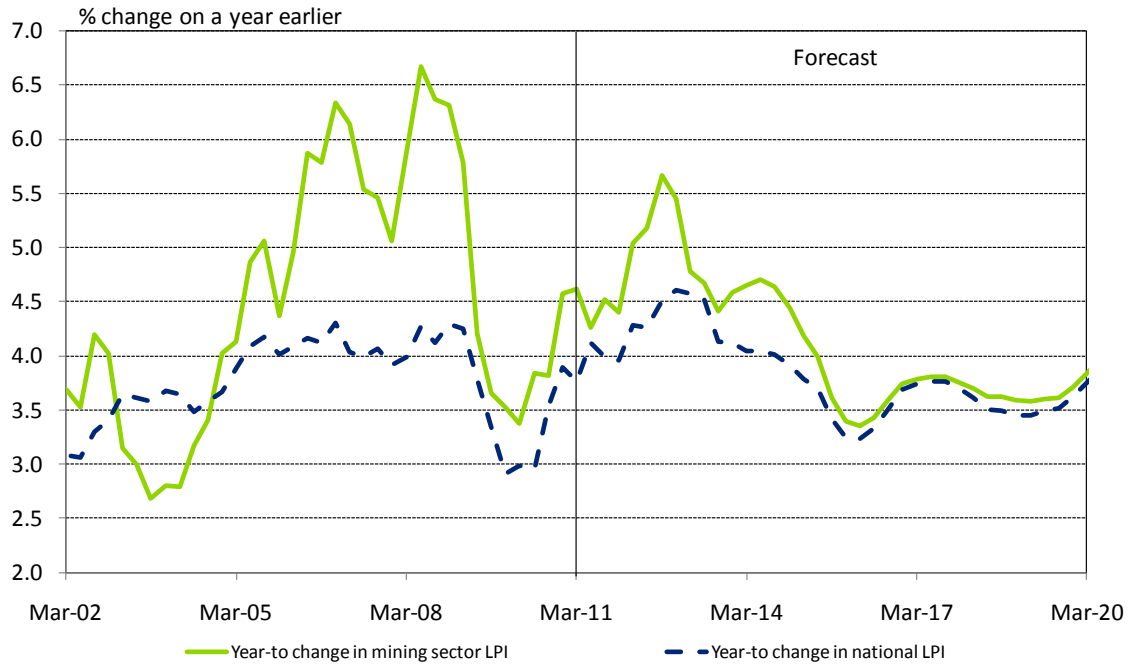
9.1 Mining

Not only is the mining sector a key competitor for utilities sector workers, given the downstream impact of the surge in mining demand on the construction sector, the mining sector's fortunes are a key driving of wages in the utilities sector.

That is because some workers in the utilities sector are able to transfer their skills relatively 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.

9.1.1 Current LPI projections

Chart 9.1: Mining growth forecast



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

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 skill shortages saw mining wages grow at rates of around 6% for several years (see Chart 9.1).

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

Yet the mining boom has moved into a second phase, reversing those trends fairly rapidly. The strength of China and other emerging economies relative to the global backdrop meant a recovery in confidence in the sector – at least in relative terms – and a strong boost to demand from the mining industry. That lifted wage outcomes across 2010 and into the start of 2011.

The chaos in Queensland due to floods and cyclones has cut sharply into mining output – an impact on supply (or production) rather than demand.

It is worth remembering that while wage growth rates in mining fell in 2009 they remained ahead of the national average, although they fell back to just 0.5% ahead of the overall average rather than the 2–2½% gap seen at the height of the last boom.

The demand boom currently developing in mining may see the gap between the two measures increase across 2012, 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 expected to remain modest compared to that seen in recent 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.

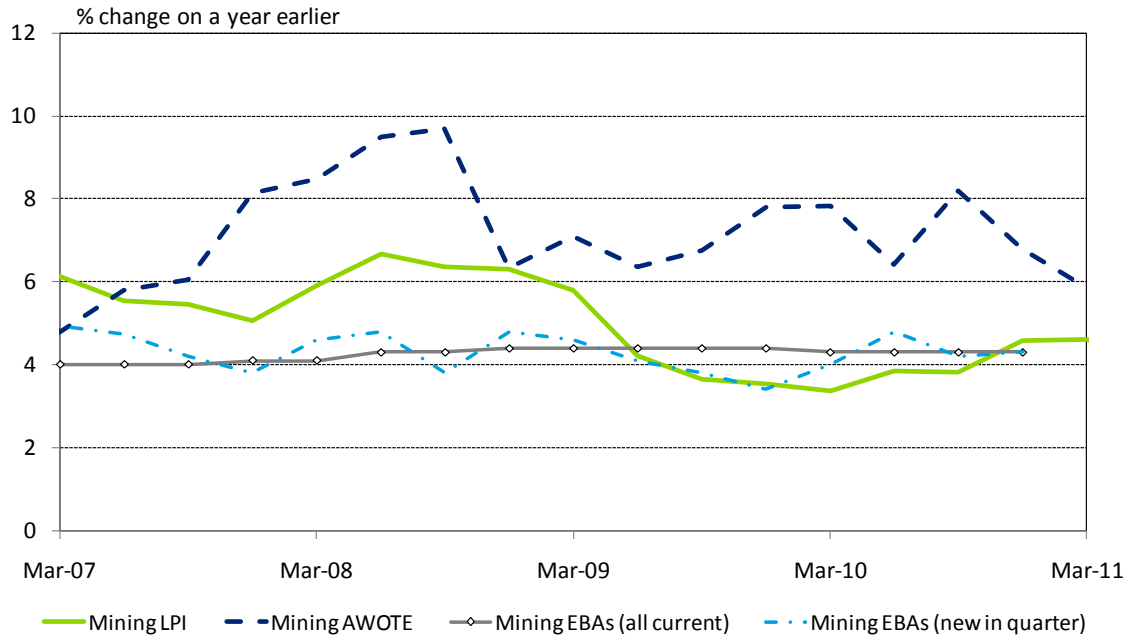
The good news is that the latest Federal Budget had a series of announcements around skills and training, and also why it included a lift of 16,000 in the skilled migration intake (to 185,000).

In addition, there have been specific measures being adopted to feed temporary migrants into some big construction and mining projects (so-called Enterprise Migration Agreements).

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). There has also been a far closer relationship between the LPI and AWOTE series in this sector.

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 lift 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 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 wage rises elsewhere), but also because the construction boom is a precursor to further mining expansion.

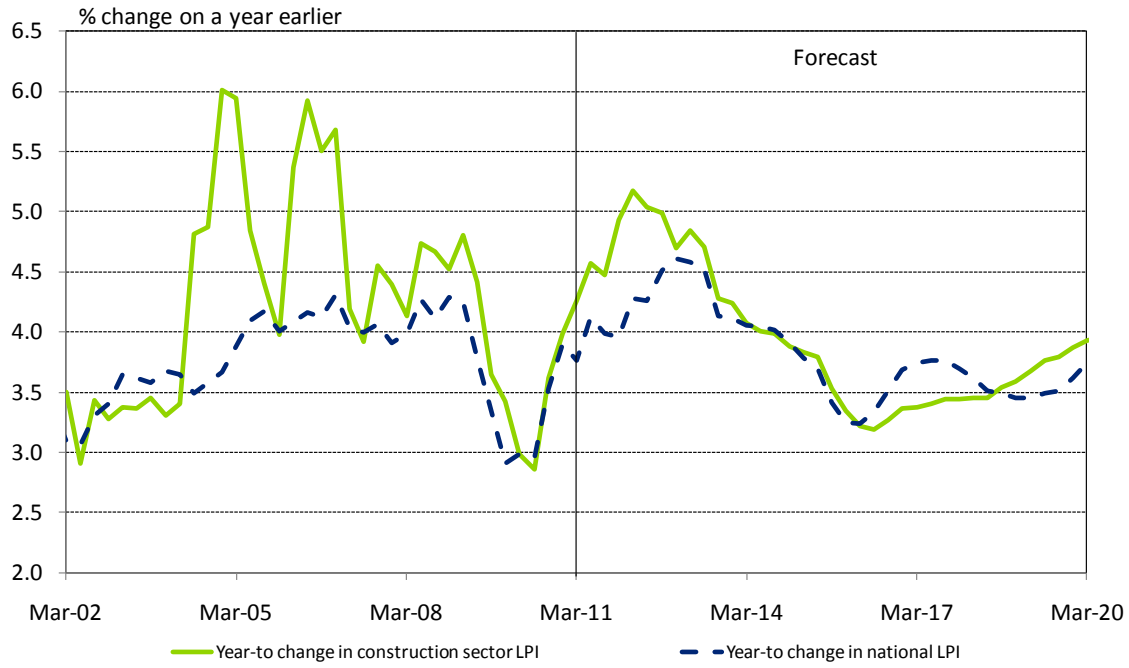
9.2 Construction

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. Add to that the requirements for rebuilding in Queensland (and parts of Victoria) and the underlying demands for construction workers are expected to run through the medium term.

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, Deloitte Access Economics estimates, Deloitte Access Economics labour cost model

9.2.2 Current LPI projections

Construction wages are already lifting ahead of the coming boom. For example, over the past year the construction wage index (measured by the LPI) grew 4.3%, a gain well above than that for all Australian wages (at 3.8%).

Both will continue to gather pace from here, but more so in construction, with the wage cycle there set to peak nationally across 2012 at just above 5% growth per year (see Chart 9.3).

A comparison is handy here. During the four years to 2013-14, construction wages are expected to average 4.5% a year. That would be only slightly below 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 expected strong 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 edging down very slightly – construction sector EBAs have seen a significant upward trend recently.

The average rate of increase for EBAs in the construction sector has lifted from 4½% in the middle of 2008 to close to 5½% at present.

The year to December 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.

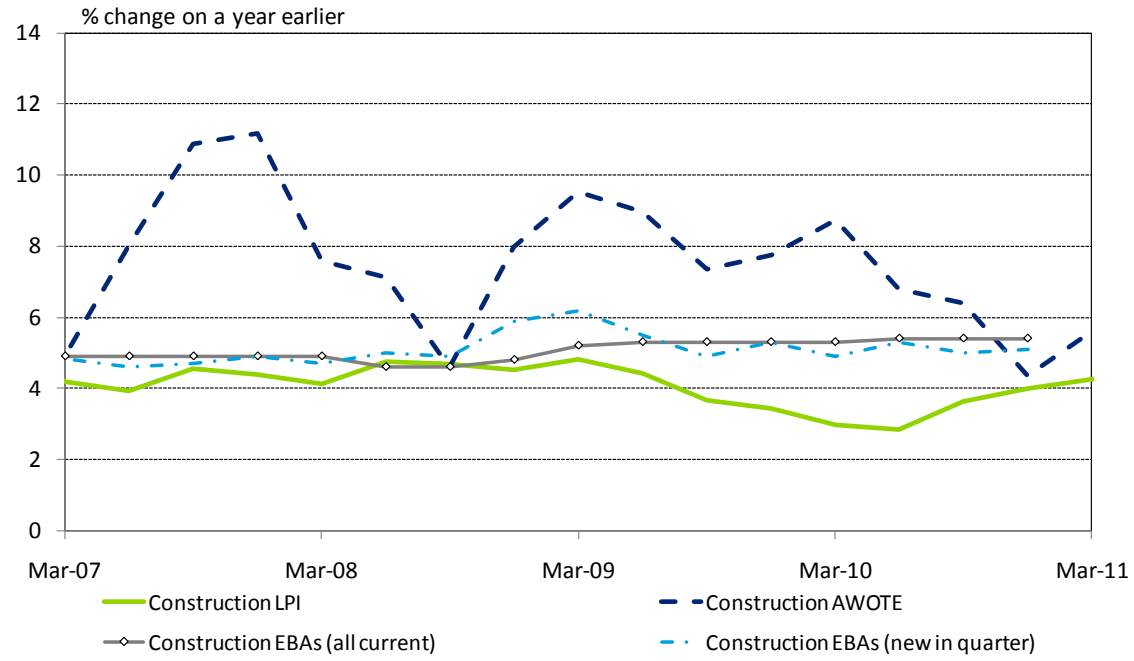
As Chart 9.4 makes clear, and following a sharp decline in growth as the GFC hit, wage growth in the sector has rapidly returned to strength as it became apparent that:

- 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 has 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 saw significantly weaker growth in the period 2004-2006 and again in 2009).

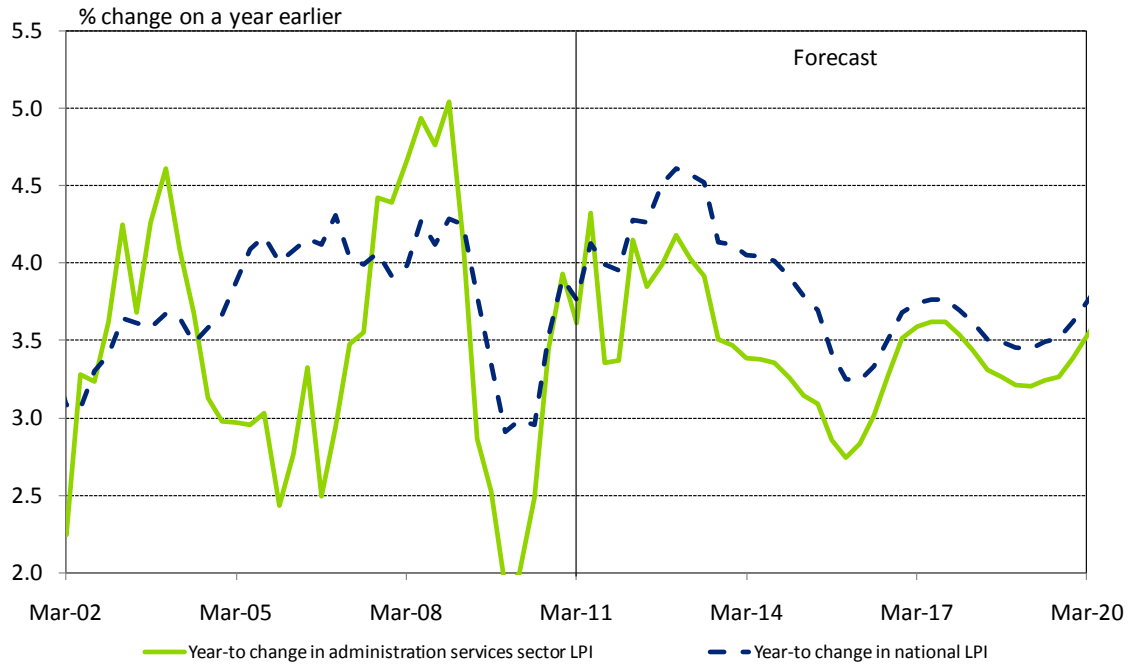
9.3.1 Current LPI projections

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, because it is 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 3.6% in the year to March 2011. 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. It is also broadly in line with overall LPI increases (at 3.8% in the past year).

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, Deloitte Access Economics estimates, Deloitte 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 fell 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 Tasmania.

While that affected the results for 2009-10, Deloitte Access Economics projects that the pace of growth in the admin 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 skill 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 administration services sector is likely to move gradually towards tracking the general rate of LPI increase.

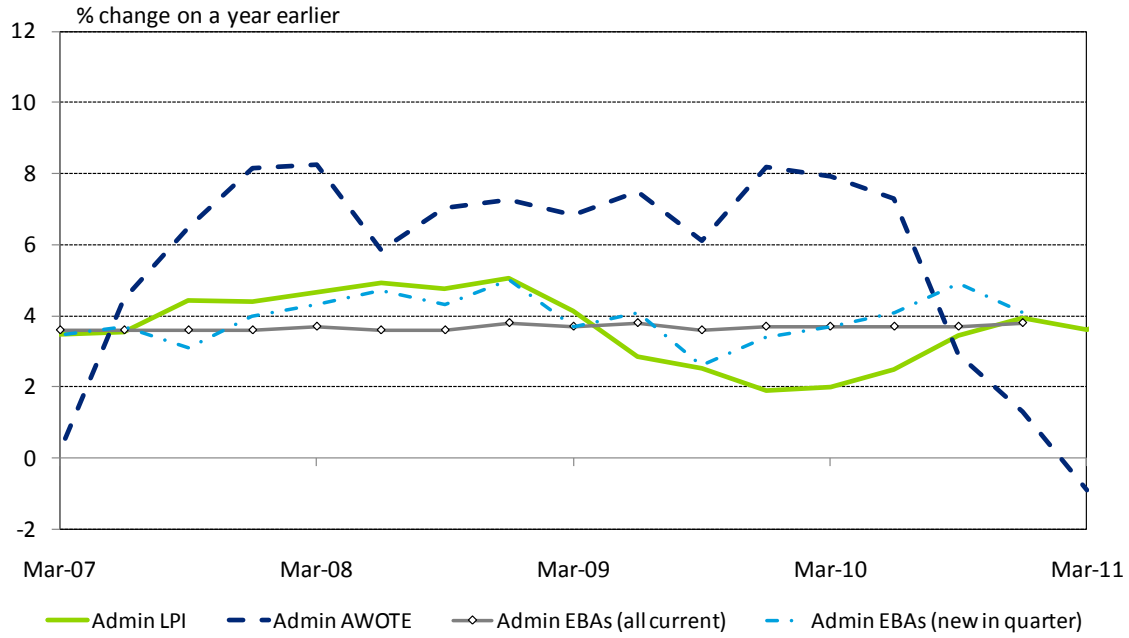
9.3.2 Comparison with EBA results

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

Initial EBA data for the 2010-11 financial year (September quarter) suggest the impacts of transitioning to the new awards system are beginning to flow through to the LPI – new agreements in the quarter jumping up to a near-record implied growth of 4.9%. December EBA data then fell back slightly, but the overall pressure on the LPI in the sector appears to be upward.

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	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	3.0	3.8	4.1	4.6	4.1	3.9	3.3	3.7	3.6	3.5
Utilities	4.5	4.3	4.6	4.4	3.7	3.5	2.9	3.5	3.5	3.3
Mining	3.6	4.3	4.8	5.1	4.6	4.3	3.5	3.7	3.7	3.6
Construction	3.2	4.1	4.9	4.8	4.1	3.9	3.3	3.4	3.4	3.6
Administration services	2.2	3.8	3.7	4.0	3.4	3.2	2.9	3.5	3.5	3.2

Financial year changes in real national industry sector Labour Prices

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	0.7	0.7	1.3	1.8	1.4	1.3	0.6	0.9	1.3	1.2
Utilities	2.1	1.2	1.7	1.6	1.1	1.0	0.3	0.7	1.1	1.0
Mining	1.2	1.2	1.9	2.3	1.9	1.8	0.8	1.0	1.3	1.3
Construction	0.9	1.0	2.1	2.0	1.5	1.4	0.6	0.6	1.1	1.3
Administration services	-0.1	0.7	0.9	1.2	0.8	0.7	0.2	0.8	1.1	0.9

Financial year changes in nominal productivity adjusted Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	2.0	4.9	3.0	3.9	2.9	2.0	1.2	1.7	1.8	1.3
Utilities	3.2	5.9	3.6	3.8	2.4	1.6	0.9	1.5	1.7	1.1
Mining	2.3	7.2	3.9	4.6	3.3	2.5	1.4	1.8	2.0	1.5
Construction	2.3	4.7	3.3	4.0	3.0	1.9	1.3	1.7	1.8	1.4
Administration services	1.9	4.8	2.6	3.4	2.2	1.3	0.7	1.4	1.6	1.1

Financial year changes in real productivity adjusted Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	-0.3	1.8	0.2	1.1	0.3	-0.5	-1.4	-1.0	-0.5	-1.0
Utilities	0.8	2.7	0.8	1.0	-0.2	-0.8	-1.8	-1.2	-0.7	-1.1
Mining	0.0	3.9	1.1	1.8	0.7	0.0	-1.2	-0.9	-0.4	-0.8
Construction	0.0	1.6	0.5	1.2	0.4	-0.5	-1.3	-1.0	-0.6	-0.9
Administration services	-0.4	1.7	-0.2	0.6	-0.4	-1.1	-1.9	-1.2	-0.7	-1.2

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

10 Utilities and competitor sector wage growth by State

This chapter sets out the updated projections for LPI projections at the State level for the utilities sector and in the three key competitor industry sectors.

10.1 Technical notes on LPI data and forecasts

The key factors affecting industry history and projections (particularly the change in the base year for the calculation of 'real' economic variables) and the State history and forecasts have also affected our detailed results.

While there is some additional discussion of these matters in Appendix D, the key points to bear in mind are:

- Not all industries have LPI published for all States (see Table E.1 for a detailed list). Some of those for which data is suppressed do have forecasts for average weekly earnings available. As noted later, the differential movements in overall AWOTE (compared with overall LPI) need to be accounted for if the AWOTE measure is used to inform an estimate of the detailed LPI measure.
- Where no State-specific industry LPI or AWOTE figures are available, a combination of the overall national growth rate for that sector and the overall State growth rate is assumed. Among the key sectors shown here, this only affects the mining and utilities sectors in Tasmania, which are particularly small.[8] (Note that over time the ABS has been reducing the range of sectoral by State level AWE and AWOTE data which it is willing to release – and may cease altogether at the end of 2011 – see Appendix E for further discussion.)
- Note this means **there is no officially released time series estimate for utilities wages in Tasmania** (either in terms of an LPI or AWOTE or equivalent measures). Therefore extreme care needs to be taken in analysing these series over time. The modelling here implicitly assumes that overall Tasmanian LPI wage growth, overall utilities sector wage movements, data for enterprise bargaining agreements, as well as the data published for other States, can be used to create a reasonable estimate of the specific LPI series in history, but there is no guarantee that the data used matches what the ABS data would show were it to be released.[9]

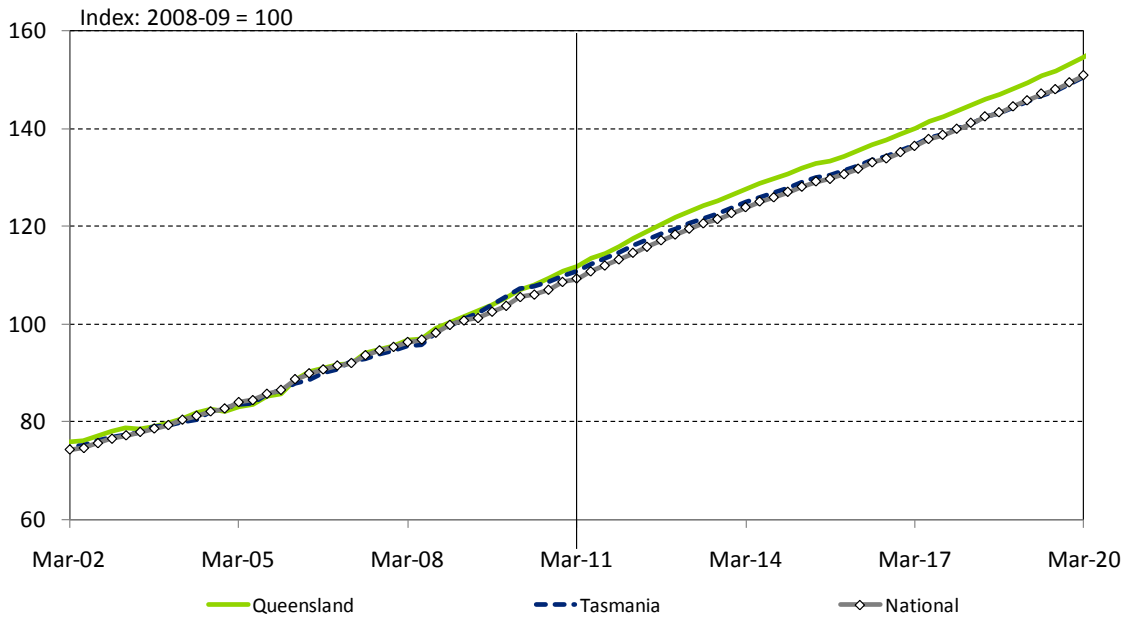
[8] The Tasmanian mining industry employs around 3,500 people and utilities a similar amount. These are out of a total employment of 225,000. Both are similar in importance to their sector's nationally, mining being a slightly smaller share of employment in Tasmania than nationally, and utilities slightly more.

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

10.2 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, Deloitte Access Economics estimates, Deloitte 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.

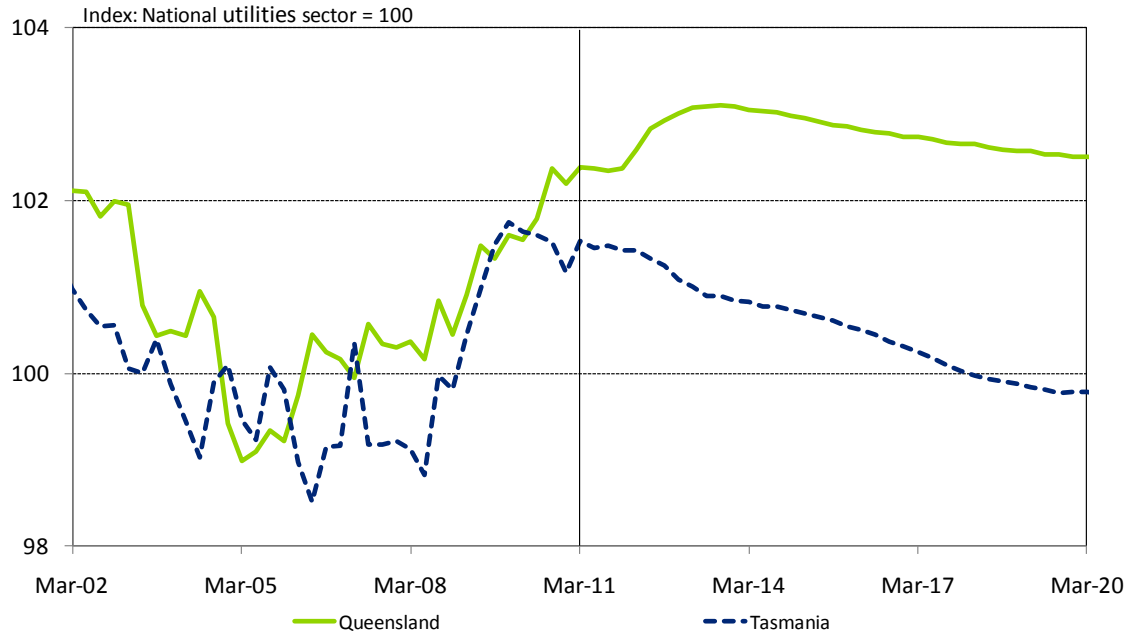
In that chart the national utilities index at any point in time is set to a value of 100 and the index in the State is expressed relative to that value[10]. Both the volatility at the State level and the tendency for indices to revert towards the national average over time are evident.

[10] As noted earlier, this does not imply an ordering for wage levels, as each individual series is an index equal to 100 in 2008-09.

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 our estimation of Tasmania's utilities sector LPI measure 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. With the exception of New South Wales, no State or Territory has moved much more than 1 percentage point above or below the national trends in recent years.

Chart 10.2: Relative utilities forecast by State



Source: ABS, Deloitte Access Economics estimates, Deloitte 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 necessarily 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 moderation in Tasmania's relative performance while Queensland's recent gains are largely maintained. These patterns are partly driven by the relative strength of the two State economies – the more rapid pace of general economic growth in Queensland being more conducive to maintaining the differential in wages than the slower growth in Tasmania.

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.

10.3 Queensland

Queensland's economy has generally grown faster than the national average across the past two decades, boosted by strong population growth – particularly in the south-east of the State – as well as by strong growth in tourism and retail. Queensland's exposure to the global commodity boom over the past decade has added to these effects and helped boost labour cost growth in the State.

However, a key pre-requisite for the local expansion was the availability of credit to finance the new development (as well as the tax revenues to help public sector and infrastructure improvements). That credit dried up in the wake of the global financial crisis, hitting the residential construction sector particularly hard. And the natural calamities that plagued the State around the start of 2011 cut further into construction output and State demand.

Yet LPI growth remained ahead of the national average across this period – even though it did slow sharply in line with national trends. As Table 10.1 shows, overall LPI growth is expected to accelerate through until 2012-13, and should continue to outpace the national average across this period.

Table 10.1: Queensland wage forecasts

Financial year changes in Queensland nominal Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	3.3	4.1	4.2	5.0	4.2	3.9	3.3	3.7	3.6	3.4
Utilities	4.5	4.3	4.6	4.4	3.7	3.5	2.9	3.5	3.5	3.3
Mining	3.8	4.1	4.9	5.8	4.8	4.5	3.5	3.8	3.8	3.6
Construction	2.9	3.7	5.1	5.4	4.3	4.0	3.4	3.4	3.5	3.7
Administration services	1.6	3.5	3.8	4.8	3.8	3.5	3.0	3.6	3.6	3.3

Financial year changes in Queensland real Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	0.6	0.8	1.8	2.2	1.1	1.0	0.3	0.7	1.1	1.0
Utilities	1.7	0.9	2.2	1.6	0.6	0.6	0.0	0.5	1.0	0.9
Mining	1.0	0.7	2.5	3.0	1.7	1.6	0.5	0.9	1.3	1.2
Construction	0.2	0.3	2.7	2.7	1.3	1.1	0.4	0.5	1.0	1.3
Administration services	-1.1	0.2	1.5	2.0	0.7	0.6	0.0	0.7	1.1	0.9

Financial year changes in Queensland nominal productivity adjusted Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	2.0	6.2	1.7	3.0	1.9	1.6	0.6	1.0	1.1	0.5
Utilities	3.7	7.1	3.5	3.9	2.3	1.4	0.6	1.2	1.4	0.9
Mining	2.3	7.8	3.8	5.0	3.3	2.6	1.4	1.7	1.8	1.3
Construction	2.0	4.3	3.0	4.2	3.1	2.0	1.3	1.8	1.7	1.2
Administration services	1.6	4.6	2.5	3.8	2.3	1.5	0.7	1.4	1.5	0.9

Financial year changes in Queensland real productivity adjusted Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	-0.7	2.8	-0.6	0.3	-1.1	-1.2	-2.3	-1.9	-1.4	-1.8
Utilities	1.0	3.6	1.2	1.2	-0.8	-1.4	-2.3	-1.7	-1.1	-1.5
Mining	-0.3	4.3	1.4	2.2	0.2	-0.2	-1.5	-1.2	-0.6	-1.0
Construction	-0.7	0.9	0.6	1.5	0.1	-0.8	-1.6	-1.1	-0.8	-1.2
Administration services	-1.1	1.3	0.1	1.1	-0.7	-1.3	-2.2	-1.5	-1.0	-1.4

Source: ABS, Deloitte Access Economics labour cost model

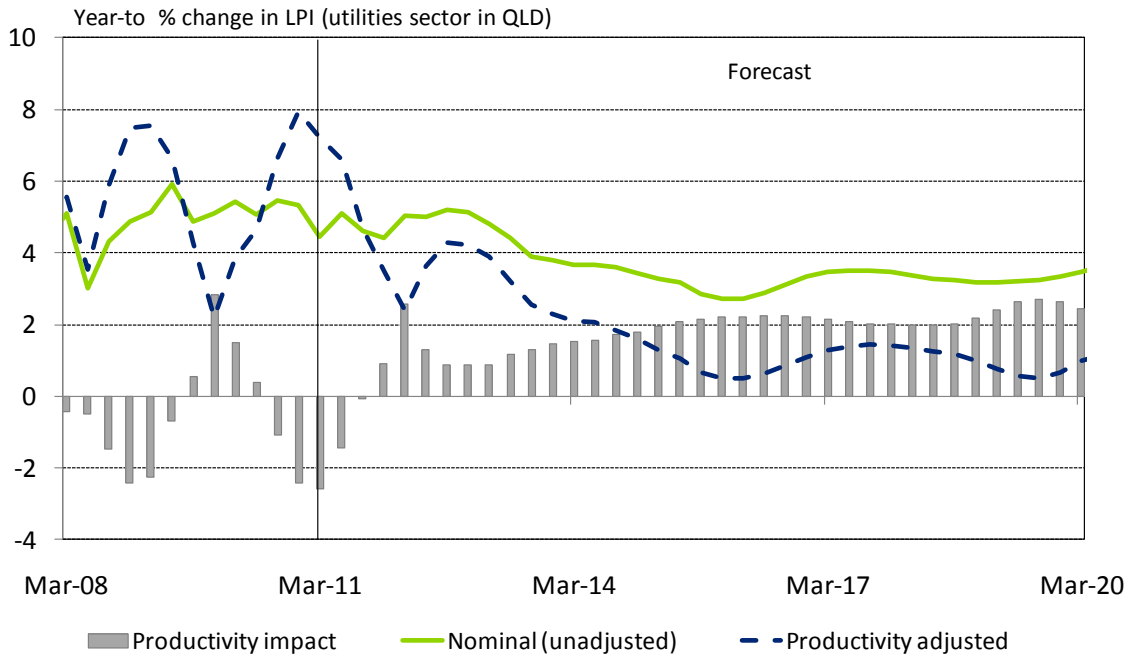
That is largely because, as noted earlier, the turning point for the Queensland economy is already here: Deloitte Access Economics expects Queensland to accelerate from a standing start, reaching a sprint inside the next six months. Most flood and cyclone impacts have already passed, and even the lingering effects on coal output will only last a few more months. The repair of the houses, roads and other infrastructure damaged by disasters is also increasingly evident, and that too will add to the rebound.

10.3.2 The utilities sector

Even among the massive surges in engineering construction that has taken place across Australia in recent years, the growth in the Queensland utilities sector has been impressive. The acceleration in construction in the utilities sphere saw, on average, four times as much building in the last decade than in the 1990s, and the second half of the last decade saw three times as much building as the first. And while the aftermath of the GFC saw some falls in demand and an easing in the stock of work to be done, the latest data suggests that there is still close to $2.5 billion in work left in electricity and water supply construction alone.

Obviously that demand – not just from the utilities but from all sectors – affects the construction sector first, with scarcity in construction workers a key factor behind the strong LPI growth in that sector. However, as construction demand has continued – the total value of construction in Queensland in the last twelve months was $20.1 billion, only marginally below the 2009 peak of $21.1 billion – there is increasing competition from mining for workers and that has implications for related sectors as well.

Chart 10.3: Queensland utilities LPI forecasts



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

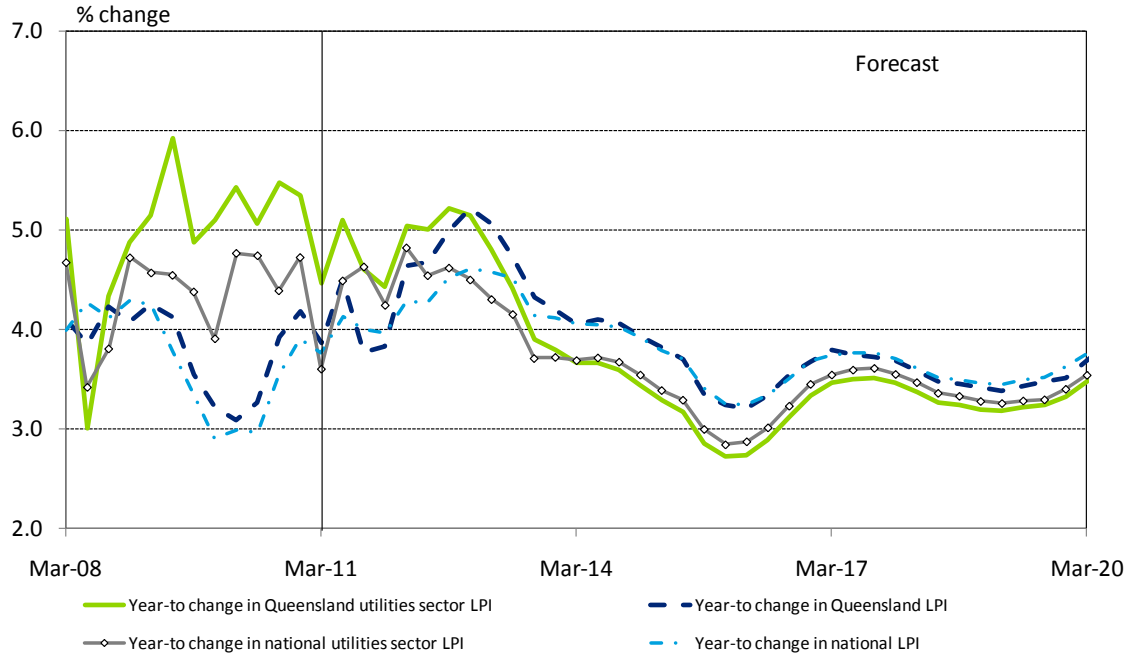
Just as the competition for workers by miners during the last boom began to affect the wages paid to the broader Queensland workforce (and not merely the State's utilities workers), the coming surge in mining and engineering construction should keep pressure on the LPI in the

Queensland utilities sector – the weakness in the latest data, partly due to flood effects, has merely been a short term respite.

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 Gladstone Area Water Board's $370 million Fitzroy Pipeline project. 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). All of these projects are scheduled for completion by the end of 2012.

The main electricity supply projects in Queensland are Xstrata's Callide coal-fired power plant and (costing around $200 million) and Stanwell Corp's continuing $125 million power station upgrade. Bow Energy has also commenced work on a new gas fired power plant near Blackwater (west of Rockhampton).

Chart 10.4: Queensland utilities forecast comparison



Source: ABS, Deloitte Access Economics estimates, Deloitte 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 720km high-voltage transmission line between Townsville and Mount Isa (at a cost of $1.5 billion) would underpin continued employment demand in the utilities sector.

In the last three quarters of 2010 sixteen enterprise agreements were lodged in the Queensland Electricity, Gas, Water and Waste Services Division. Two of them, signed in the June quarter, will account for a 3.3% average annualised wage increase (AAWI) per employee.

Twelve of them, lodged in the September quarter, will account for a 3.5% AAWI and the other two, signed in the December quarter, will account for a 4.2% AAWI. Overall, these agreements will affect around 600 employees, or around 2% of those employed in the division within the State at that time.

On balance therefore, Deloitte Access Economics projects that utilities sector wage growth in Queensland will remain at rates well ahead of the overall average through until 2013.

Beyond then the cyclical 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 are projected to remain relatively high compared to their historical averages.

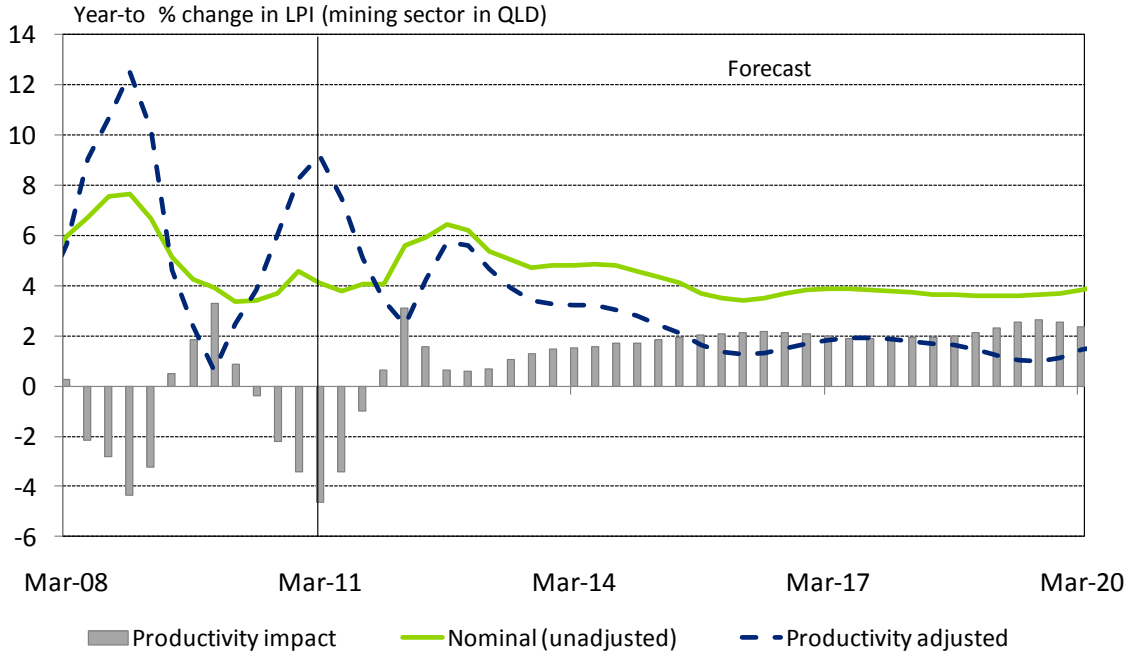
10.3.3 The mining sector

Weaker industrial commodity prices hurt the mining sector in Queensland through 2009, with the global financial crisis contributing to 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 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.

Add to that the combination of the damage to the short-term demand from Japan in the aftermath of the recent Tsunami, with the destruction of short-term supply from Queensland mines that have been inundated by floods and cyclonic rains, and the State has further to go now to recovery – certainly in terms of output volumes – than it did six months ago.

Chart 10.5: Queensland mining LPI forecasts



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

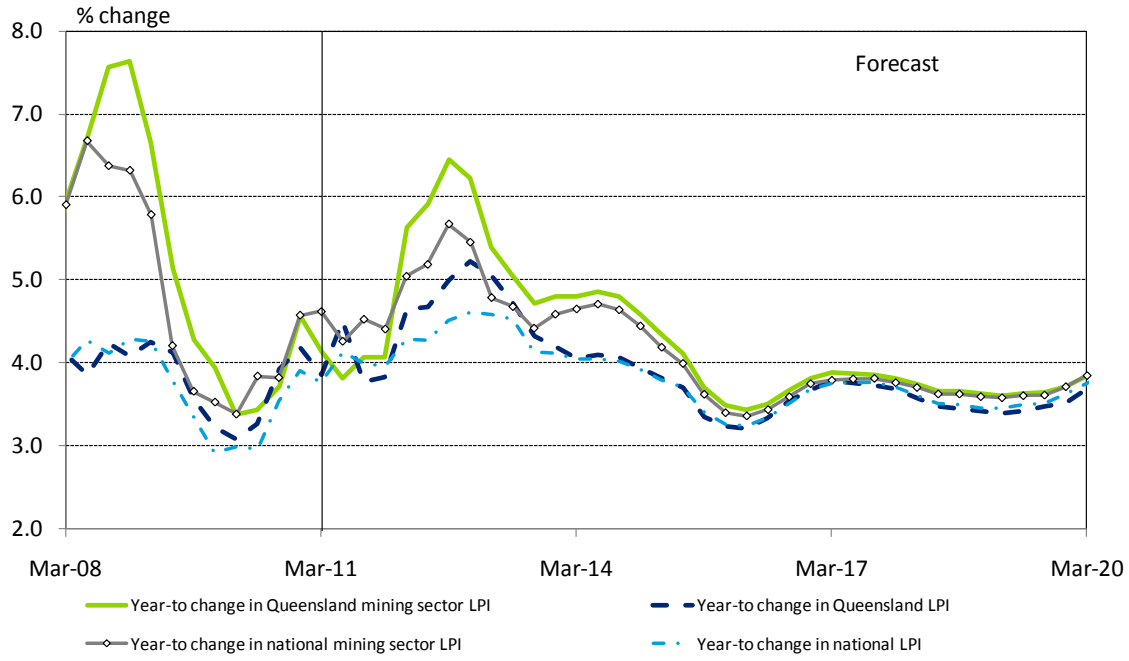
Japan's weakness would have affected Queensland even more sharply were it not for the impact of China's rapid rebound from the global financial crisis. China has gone from

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.

However, the price side of the equation remains the key strength in Queensland's armoury. Commodity prices are still riding high as the mining sector enters another boom phase, which is great news for the State. However, approvals for new investment did stall during the mid-2010 debate over the Resources Super Profits Tax, and some projects may still be delayed or shelved by its replacement, the Minerals Resource Rent Tax. Similarly, although it is clear that carbon pricing is the most efficient way to address emissions around the world, the impact of a carbon tax regime on the coal sector in particular is yet to be seen.

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).

Chart 10.6: Queensland mining forecast comparison



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

Looking further out, work in planning sees some very big projects. While the largest slice of future projects for coal and mineral extraction lie in Western Australia, Queensland's investment pipeline is also dominated by mining, including Rio Tinto's $1.1 billion extension of the Kestrel coal mine in Queensland's Bowen Basin, which is now underway, and Hancock Prospecting's $7.5 billion Alpha Coal project in Queensland (including a 490km train line and port infrastructure works) is awaiting approval.

Oil and gas are set to be an even bigger money spinner. Santos is leading a consortium which is building a new $16 billion LNG facility at Gladstone, which will be based on coal seam

methane reserves. There are also plenty of big projects in the pipeline. For example, Origin Energy has received approval to begin building a $35 billion LNG processing facility on Curtis Island off Gladstone.

10.3.4 The construction sector

Easing population growth has combined with the difficulty of getting credit (especially for developers) to drive a very marked fall in housing construction in Queensland in recent years.

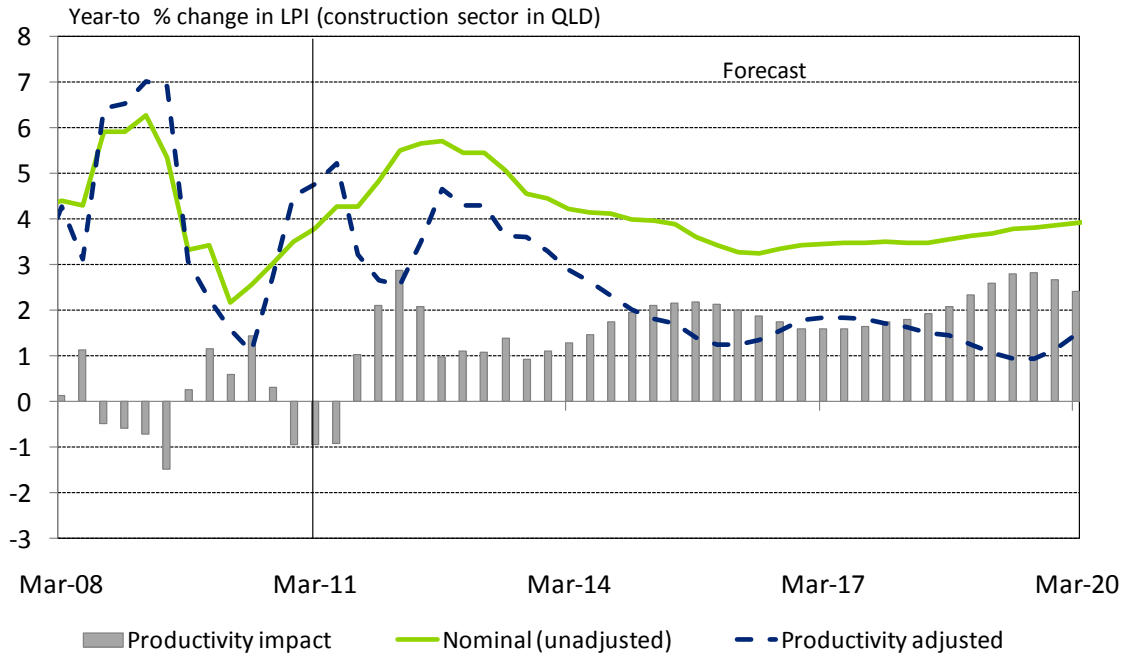
The housing construction outlook for the State hasn't been helped by a reversal in a number of migration trends. That includes:

- 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.

As is true of the wider Queensland economy, however, the seeds of the turnaround have already been sown. Further increases in interest rates may see the sector tread water through the rest of 2011, but reconstruction work is already making a difference, with around 3,000 homes destroyed and another 50,000 damaged.

Chart 10.7: Queensland construction LPI forecasts



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

And there should be better news on population growth ahead too. Queensland's recovering construction and mining sectors may need to kick and scratch to get the workers they want,

but chances are that they will gradually get them, improving the population flow from other States.

That points to a recovery in housing activity over the next few years, with an initial floor provided by rebuilding after floods and cyclones, followed by a more sustained turnaround as and when population growth lifts. That said, we shouldn't overstate the extent of the turnaround here. Chances are, allowing for inflation, the dollars spent on housing construction in Queensland won't hit their 2008 peak again until 2014.

Engineering commencements have been steady of late, though they remain slightly below the levels seen in 2007-08. In the short term work will be boosted by the repair and reconstruction of infrastructure damaged during the floods. Other work is led by the construction of a new $16.2 billion LNG processing facility at Gladstone, due to be completed by late 2015, while the $2 billion second stage of the Yarwun alumina refinery remains under construction nearby. Rio Tinto's $1.2 billion Kestrel longwall coal mine in the Bowen Basin is underway, while Incitec Pivot's $935 million Moranbah ammonium nitrate plant remains under construction, also at Bowen Basin.

In other sectors, the $2 billion Cunningham Arterial project is expected to remain underway until late 2012, while the $950 million first stage of the Gold Coast Rapid Transit project is also underway. Brisbane Airport's domestic terminal is being expanded at a cost of $500 million, while the Hinze Dam and Wyaralong Dam projects are ongoing. Projects in planning are led by the mining sector. The $15 billion Curtis LNG project has been granted approval, with work to begin shortly, while the $1.1 billion first stage of the Wiggins Island coal terminal project is also ready to proceed. Approvals have also been granted for the $35 billion Australia Pacific LNG Facility at Curtis Island, while Hancock Prospecting's $7.5 billion Alpha coal project, Xstrata's $6 billion Wandoan coal mine, and BHP Billiton's $4 billion Caval Ridge coal mine are all awaiting approval.

Commercial construction is far less healthy, though approvals did lift of late. Work underway is led by the $1.8 billion Gold Coast University hospital, which is expected to be completed by late 2012, along with the $1.1 billion Queensland Children's Hospital in Brisbane. Other health projects include redeveloping the Mt Isa and Cairns Base hospitals at a cost of $474 million and $446 million, respectively, while the new Mackay Base hospital is underway at a cost of $408 million. Leighton is building two office towers in Brisbane – on George and Ann Streets – at a total cost of $720 million, and a new police academy is underway at Wacol at a cost of $450 million. Work is due to start soon at Westfield's $300 million Carindale shopping centre expansion, while a new $2 billion, 450-bed hospital is planned for the Sunshine Coast, with work to begin in 2013. Meanwhile, a $175 million expansion of the Jupiters hotel and casino at the Gold Coast is planned, with its approvals pending.

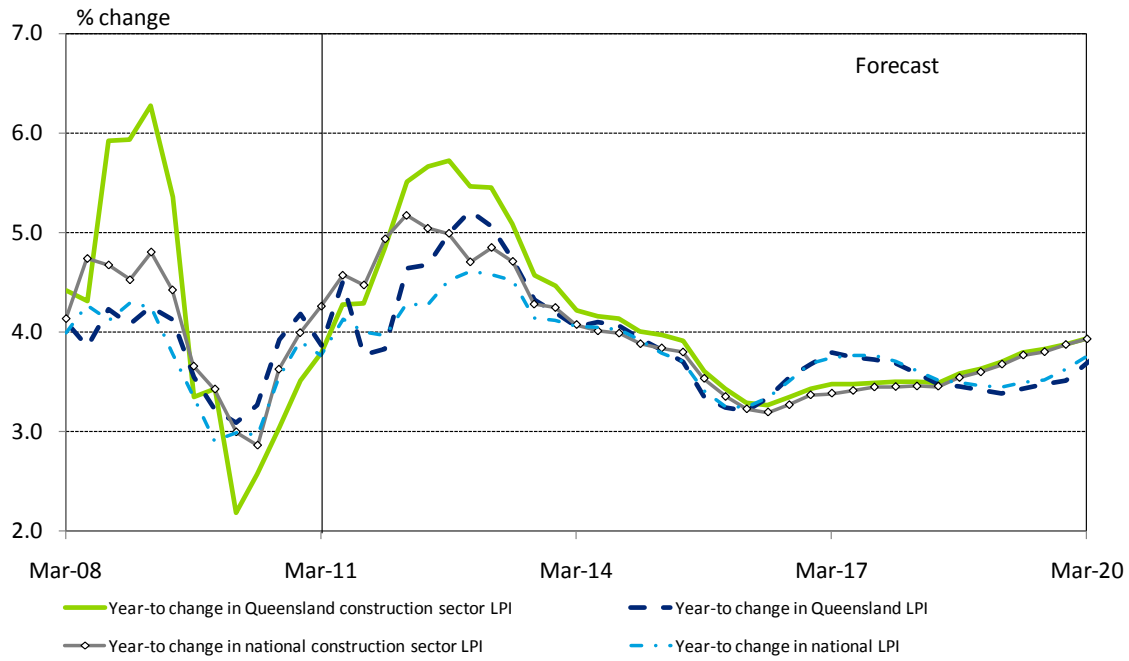
The past five years have seen wages in Queensland's construction sector follow an even more volatile path than their national counterparts, surging relatively quickly in the lead up to the global downturn and slumping relatively more in the aftermath, particularly once the peak of the backlog of construction pipeline had been worked through.

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

With the turnaround set to gather strength over the next eighteen months, construction LPI in Queensland may surge back ahead of both general Queensland LPI growth and the

construction sector nationally. As Chart 10.8 below 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.

Chart 10.8: Queensland construction forecast comparison



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

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.

10.3.5 The administration services sector

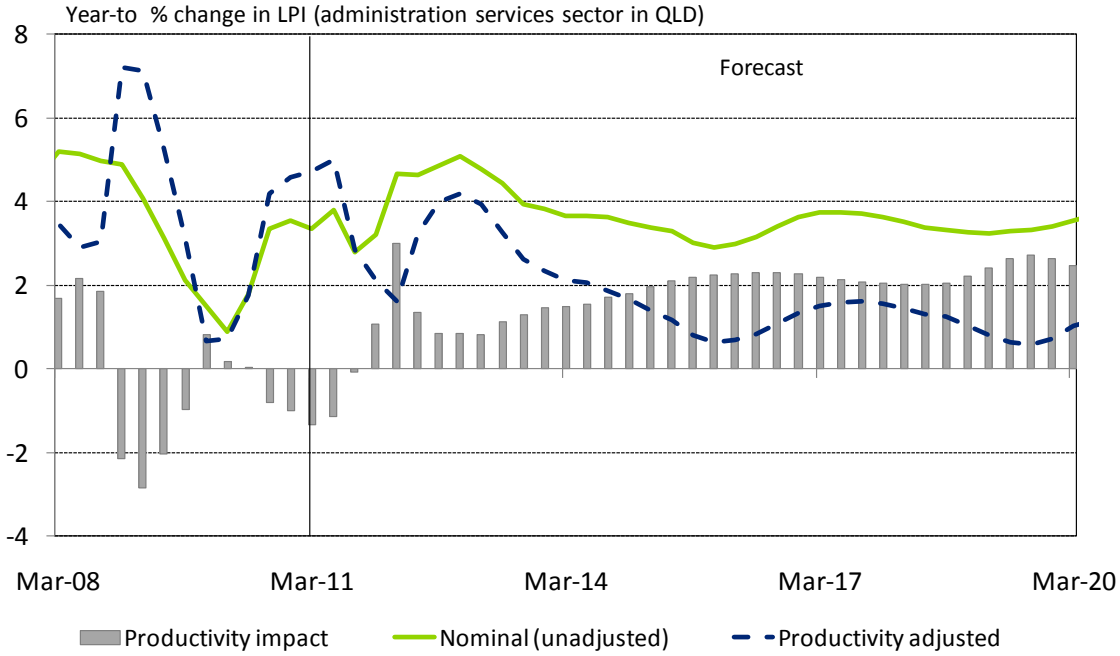
If administration services in Queensland saw a downturn during the GFC, it was particularly modest in terms of employment, and it was unwound rapidly. In particular the building services side of the industry remained strong, actually increasing its overall importance to the national industry in recent months. Nearly a quarter of all building service employees nationally are located in Queensland – well above the 18% share that the broader administration service sector accounts for in Australia.

Even though building services employment has been solid, the commercial and housing construction sectors have struggled (a key driver to the State's modest performance since 2008). The solid performance may be a delayed response to the extremely tight office vacancy rates, which drove premium grade rents almost as high as those in Sydney and led to a large number of new projects reaching the market in the past two years.

While the returns on these projects may not have matched earlier expectations, office occupancy levels in the Brisbane CBD have risen by 5.7% since the start of 2009, with a resultant increase in demand for building services.

There have been areas of weakness, and they appear to still be suffering thanks as much to the recent recovery as to the earlier downturn. Most obvious has been the impact on tourism-dependent employment – such as tour organisers – of the high $A which has discouraged foreign visitors here, as well as tempting Australians to head overseas. And while that may appear to be to the benefit of travel agents, they are struggling thanks to the rapid increase in competition from online booking services.

Chart 10.9: Queensland administration services LPI forecasts



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

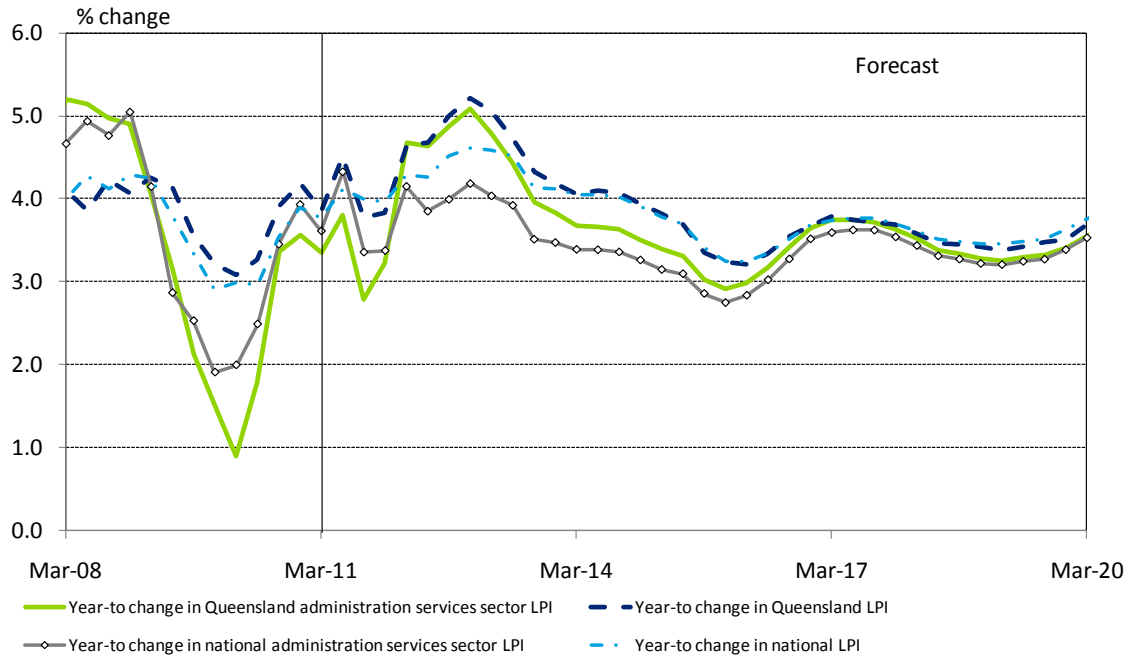
Yet, as Chart 10.9 shows, the sector's local LPI eased particularly rapidly, with growth troughing at below 1% growth in early 2010 (while total State LPI grew by more than 3% across the same period).

There has been a recovery across the past year, partly thanks 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 with became evident in the September quarter 2010 data. While not as dramatic as the impacts seen in some States (most notably South Australia), this final point 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. That goes some way to explaining the drop in expected growth in the September quarter 2011.

That means the real underlying expectations for Queensland are for a gradual acceleration in LPI growth from the previous trough to a peak in early 2012 (rather than two periods of acceleration with a pause in the middle as shown in the projection in Chart 10.10).

That would drive local sectoral LPI growth well ahead of the national average in the medium term as the Queensland economy recovers and its construction and building sectors begin to hit their straps again.

Chart 10.10: Queensland administration services forecast comparison



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

That would see above average growth in 2012 and 2013 unwinding the effects of the period of underperformance seen in 2009 and 2010. Eventually the historic patterns are expected to return, with administration services LPI lagging marginally behind average industry growth, but Queensland's sectoral outcome slightly outpacing the average of other States.

10.4 Tasmania

With its slow population growth and its industrial structure weighted towards sectors with more modest growth, Tasmania has lagged the rest of the country in terms of economic growth for decades.

These broad problems are exacerbated by additional specific factors, notably:

- The loss of young adults to the mainland; and
- The fact that the State exports relatively little to faster growing Asian economies.

The first issue means the State is already facing the types of demographic challenges that the rest of the country will face across the coming decade, with very weak to falling labour supply, low participation rates and hence a relatively high level of expenditure on retirees (who tend to have higher health demands) relative to the tax base.

The second has left Tasmania's niche exporters (particularly premium foods) at a disadvantage compared to other Australian exports.

Another problem has been the travails of the national tourism sector. The problems that Queensland faces due to the high $A (lowering inbound tourism and tempting Australians to holiday overseas) and relatively high fuel costs (hurting car-based travel that might otherwise

hop across Bass Strait on the Spirit of Tasmania) are just as much a problem for Tasmania, limiting the prospects of what might otherwise be a source of economic potential.

Table 10.2: Tasmanian wage forecasts

Financial year changes in Tasmanian nominal Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	2.2	3.9	4.0	4.3	3.9	3.9	3.4	3.7	3.6	3.3
Utilities	5.1	5.1	4.8	4.9	3.8	3.4	2.8	3.4	3.4	3.2
Mining	4.5	4.3	4.6	4.4	3.7	3.5	2.9	3.5	3.5	3.4
Construction	2.7	3.5	3.7	4.3	3.9	3.7	3.2	3.7	3.7	3.6
Administration services	4.0	4.3	4.8	4.8	4.5	4.3	3.7	4.0	4.0	3.0

Financial year changes in Tasmanian real Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	-0.4	1.0	2.0	1.8	0.8	1.0	0.5	0.9	1.3	1.1
Utilities	2.4	2.2	2.8	2.3	0.7	0.5	-0.1	0.5	1.1	1.0
Mining	1.8	1.4	2.6	1.8	0.6	0.6	0.0	0.6	1.2	1.2
Construction	0.0	0.6	1.8	1.8	0.8	0.9	0.3	0.9	1.3	1.4
Administration services	1.3	1.4	2.9	2.2	1.4	1.4	0.8	1.1	1.7	0.8

Financial year changes in Tasmanian nominal productivity adjusted Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	-0.2	4.5	2.5	2.9	2.6	2.3	1.8	2.5	2.9	2.4
Utilities	4.2	6.0	3.6	3.4	2.3	1.6	0.8	1.3	1.5	1.1
Mining	3.0	7.9	3.5	4.4	3.2	2.6	1.4	1.7	1.8	1.4
Construction	2.7	2.8	2.6	3.8	3.4	2.1	1.6	2.0	1.8	1.3
Administration services	3.7	5.2	2.2	3.0	2.0	1.3	0.6	1.2	1.4	1.0

Financial year changes in Tasmanian real productivity adjusted Labour Price aggregates

Annual % change	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
All industries	-2.8	1.7	0.6	0.4	-0.4	-0.5	-1.1	-0.3	0.6	0.2
Utilities	1.5	3.1	1.7	0.8	-0.8	-1.2	-2.1	-1.5	-0.7	-1.0
Mining	0.3	4.9	1.6	1.8	0.1	-0.2	-1.4	-1.0	-0.4	-0.7
Construction	0.0	0.0	0.7	1.3	0.3	-0.7	-1.3	-0.8	-0.4	-0.8
Administration services	1.0	2.3	0.3	0.5	-1.0	-1.5	-2.2	-1.5	-0.9	-1.2

Source: ABS, Deloitte Access Economics labour cost model

10.4.2 The utilities sector

There are three key government-owned enterprises in the electricity industry in Tasmania; Hydro Tasmania, Aurora and Transend. They were formed from the disaggregation of the Hydro-Electric Commission in 1998. Hydro Tasmania is now the key electricity generator in the State, while Transend operates the electricity transmission network and Aurora, the retail arm, operates the electricity distribution network.

A potential growth industry for Tasmanian investment lies in renewable energy. The State is currently a leading producer of renewable energy in Australia, with wind and hydro power comprising 87% of its installed electricity generation. Public and private wind turbines make use of the geographical advantage that Tasmania has in being in the path of the Roaring Forties.

A wind farm off Little Mussleroe Bay has been discussed in recent years, although it has been delayed from an earlier proposal that had envisaged a late 2010 start. Development of sites off Flinders and King Islands is also under investigation. A 100 turbine wind farm at Cattle Hill in the Central Highlands is also under consideration, part of a total of around $1 billion in

projects that may be undertaken. However, recently developments mean the construction of a 19km effluent water pipeline as part of Gunns Tamar Valley development is now off the table.

That said, the key here lies on the demand side. And with the State's population growth modest, so too is the demand for utilities connections driven by new housing construction. Moreover, with exchange and interest rates high, the manufacturing and tourism sectors are struggling, affecting business driven demand for the output of the utilities in Tasmania.

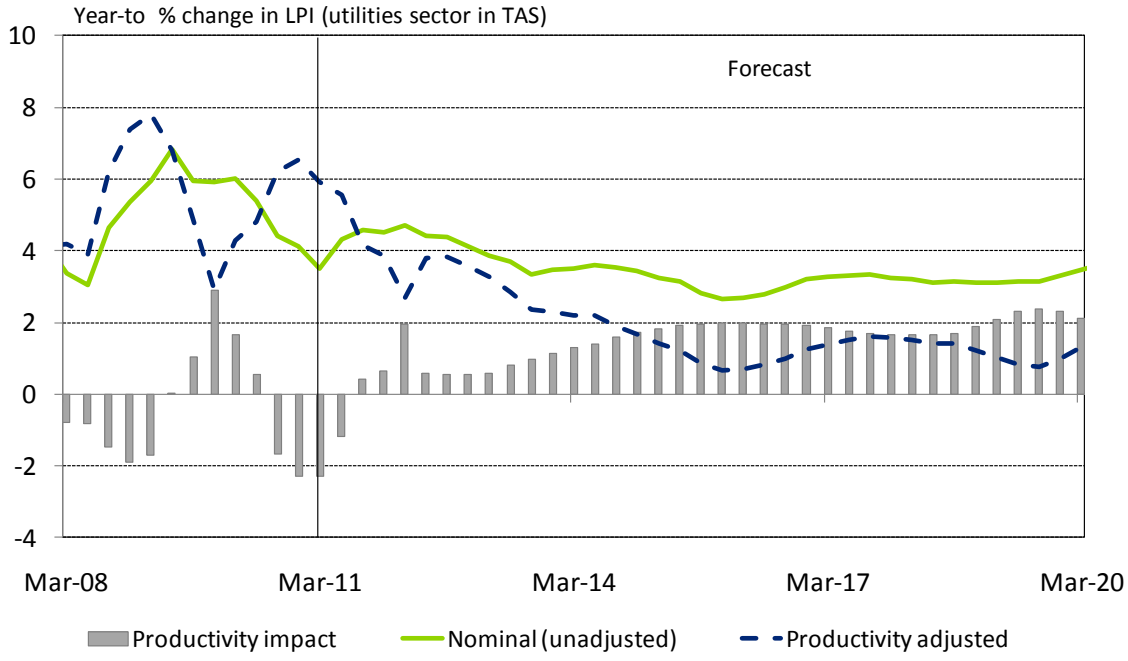
It is true that there is supply side potential – the renewable energy sources noted above, as well as the potential for interstate commerce in power.

That said, it is the modesty of the demand side which is central to the LPI forecasts here.

In the last three quarters of 2010 four enterprise agreements were signed in the Tasmanian Electricity, Gas, Water and Waste Services Division. One of them, signed in the June quarter, will account for a 2.9% average annualised wage increase (AAWI) per employee. The other three, signed in the December quarter, will account for a 4.2% AAWI. Overall, these agreements will affect between 400 and 450 employees, or around 10% of those employed in the division within Tasmania.

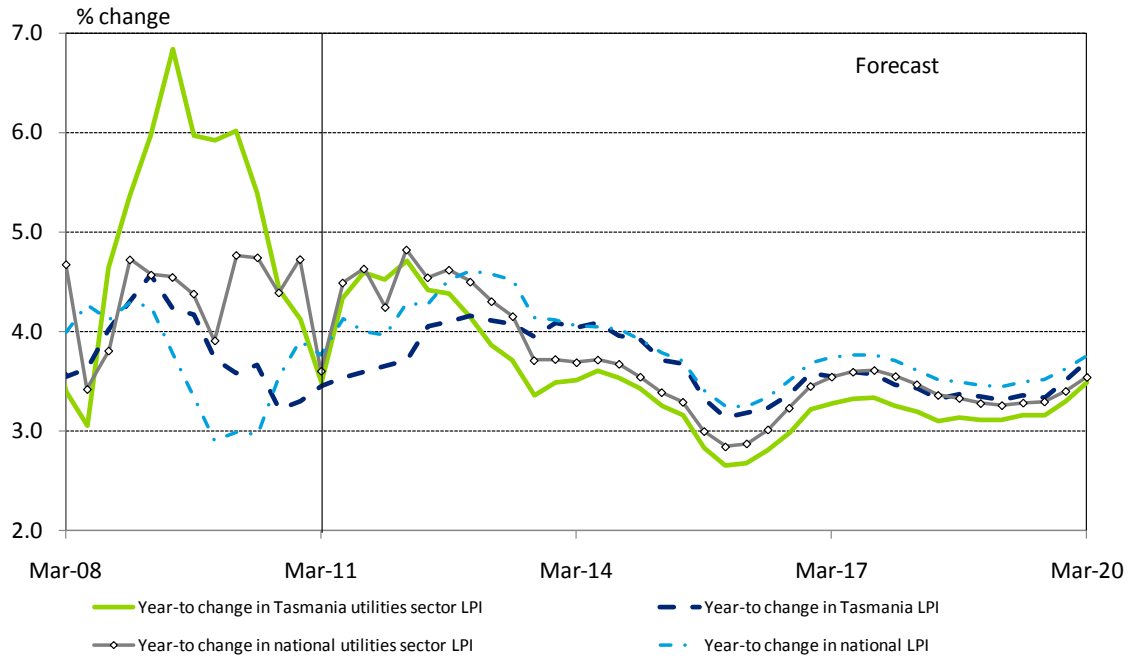
To prepare its own projections of labour cost escalators it has been assumed by Aurora that its next enterprise agreement negotiation will result in wage increases in line with CPI increases only. The current offer is for a 10.6% increase over the next three years; with a 3% increase in the first year followed by a 2.5% increase in the following two years. This agreement remains under negotiation and has been the subject of some industrial action by the Communications, Electrical and Plumbing Union (CEPU).

Chart 10.11: Tasmanian utilities LPI forecasts



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

Chart 10.12: Tasmanian utilities forecast comparison



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

As Chart 10.12 shows, our estimated value for Tasmania's utilities sector LPI has grown consistently ahead of the national equivalent in recent years, surging to near 7% growth in the year to June 2009. Growth rates only eased gradually as the stock of work to be done was worked through at the end of 2009 and into 2010 and as uncertainty over the likely impact of the GFC on household finances became clearer.

Looking ahead however, we expect that utilities wages growth in Tasmania will be slower than the national average, giving up some of its recent relative gains. The related easing in the construction sector and some respite in mining sector demand as commodity prices stabilise will lower the pressure on utilities sector wages, allowing different factors (such as productivity impacts) to be reserved.

10.4.3 The mining sector

Tasmania exports copper, iron ore, zinc, lead and coal (as well as producing building construction materials for the domestic market – although mainly within Australia).

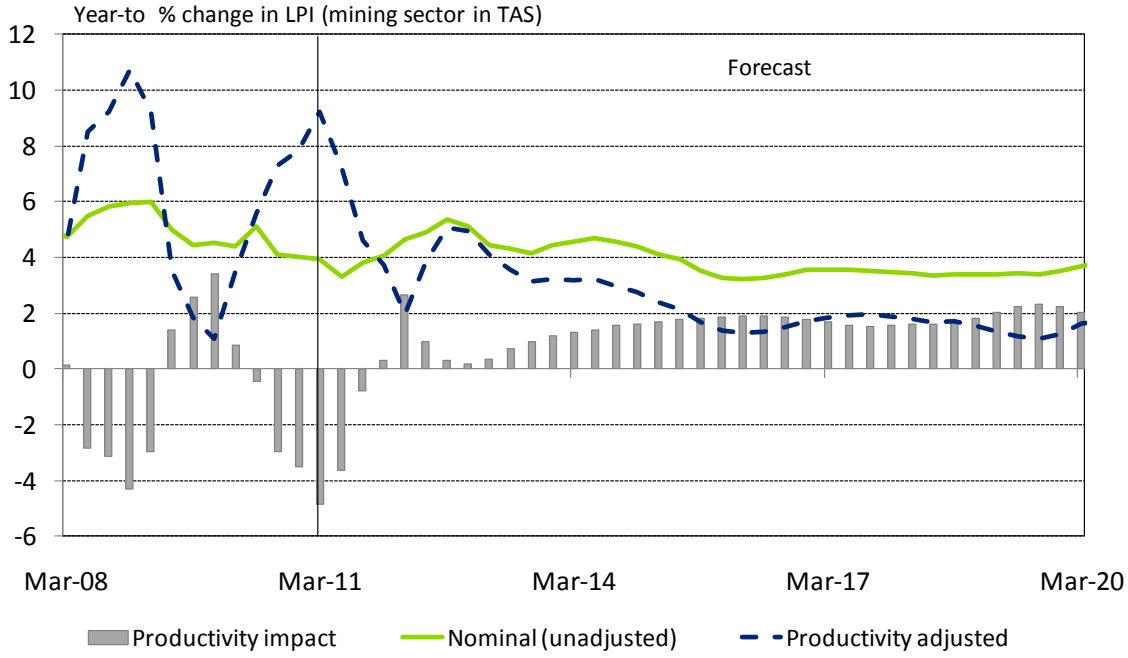
However, its mining sector is relatively small in size.

Tasmania's mining investment has been limited relative to other States such as WA and the Northern Territory. Future projects include the $150 million third stage of the Hellyer base metals project, though few other mining projects are currently in the pipeline.

As was seen in most other States, mining sector productivity has performed relatively poorly in recent years. Chart 10.13 shows that productivity in the mining sector in Tasmania slumped as the GFC hit – but, unlike the other States, Tasmania saw fairly stable output levels from mining by a rise in measured employment in the sector.

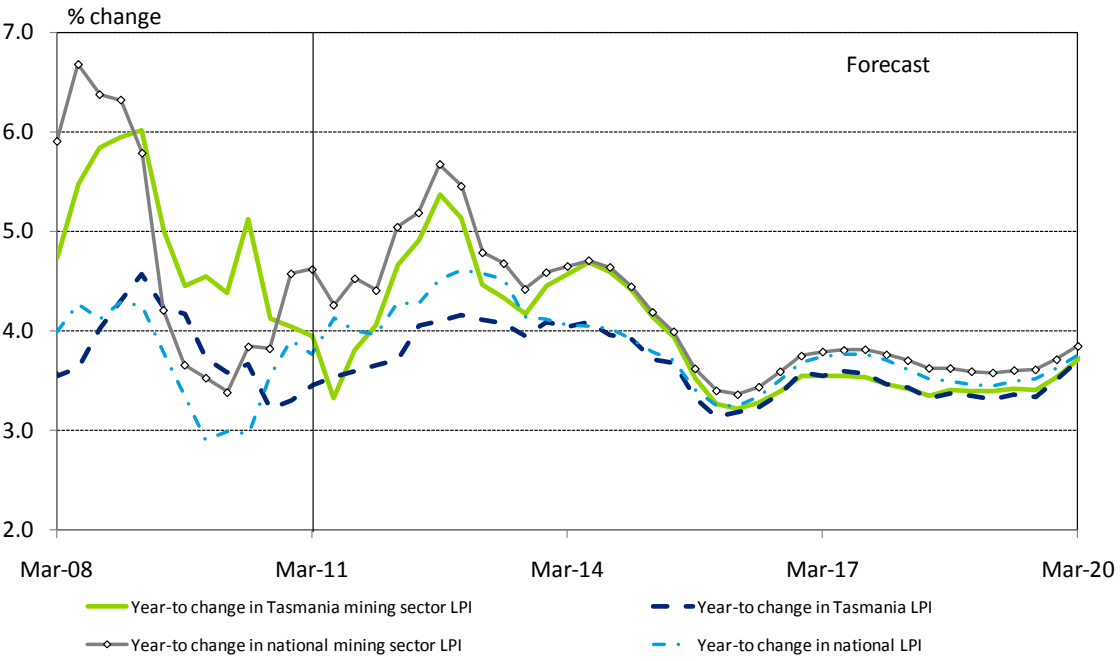
That may be an extreme example of the effects of labour hoarding seen elsewhere in Australia. Labour, particularly skilled labour, had become increasingly scarce through 2007 and 2008, and even though the world had entered uncertain waters, employers were wary of letting any employees go. It also could be a further manifestation of the small sample survey issues that plague Tasmania economic data – mining employment edged down from 2,300 to 2,100 across the second half of 2008, but then surged to 3,600 by the end of 2009.

Chart 10.13: Tasmanian mining LPI forecasts



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

Chart 10.14: Tasmanian mining forecast comparison



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

As Chart 10.14 suggests, we expect a fairly stable picture for the Tasmanian mining sector. Employment grows slightly less rapidly than output, with longer term implied productivity also growing fairly sedately. By the end of the forecast period, mining only accounts for 1.5% of total employment in Tasmania.

10.4.4 The construction sector

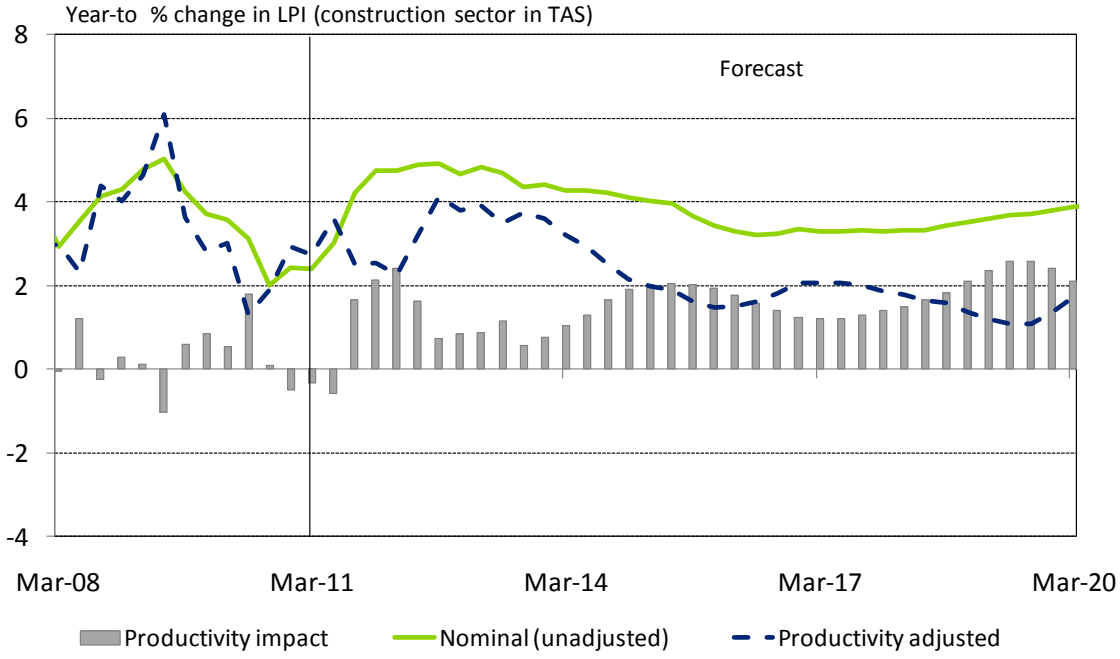
The Tasmanian investment agenda is led by mining and economic infrastructure projects at present. That is a concern, as the modest pipeline for business investment is a key reason why overall economic growth is weak.

Private business investment as a share of the Tasmanian economy is smaller than the Australian average, and is typically driven by a series of individual projects rather than a broad-based investment schedule. Business investment is likely to remain below this average in coming years, particularly as Tasmania will not be a major beneficiary of high commodity prices.

Tasmania's housing construction sector lapped up the lower interest rates and higher grants to first home owners available during the global financial crisis and its immediate aftermath. But now interest rates are higher once again – and could yet go higher still – while subsidies to first time buyers have been wound back.

That has hit the State's housing construction sector pretty hard, and forward indicators of activity remain subdued. Nor does it help that population growth has peaked, although admittedly that peak has been modest and the fall in growth is matchingly modest.

Chart 10.15: Tasmanian construction LPI forecasts



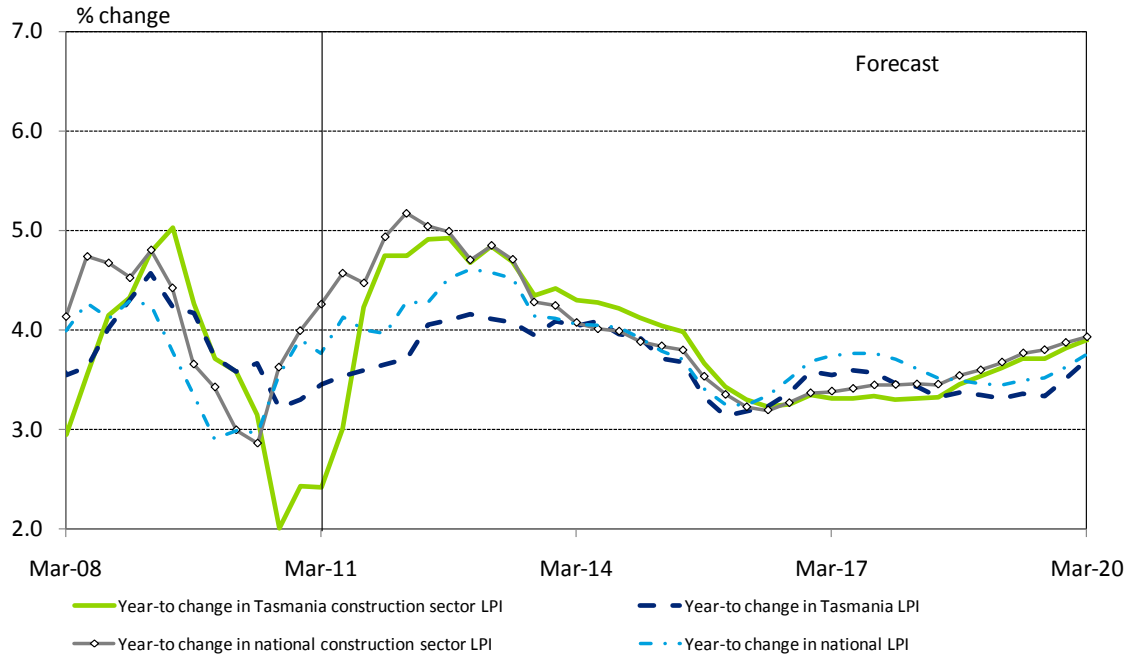
Source: ABS, Deloitte Access Economics estimates, Deloitte Access Economics labour cost model

Engineering activity has never been a large part of the economy, and commencements softened through 2010. Work underway is dominated by transport-related projects, including

the $187 million Brighton-Pontville bypass in the State's south, along with the $79 million Brighton transport hub, a road-rail and freight distribution hub, due to be completed early next year.

The $38 million Kingston bypass is underway, while rail capacity is being improved at Rhyndaston at a cost of $24 million. Works in planning include a $500 million proposal for a wind farm at Cattle Hill, with approvals pending, while a $425 million wind farm proposal at Little Musselroe Bay is undergoing feasibility studies. After a long period of uncertainty, it would appear likely that the Gunns pulp mill development will not go ahead, with the land more likely to turn into a tourism venture.

Chart 10.16: Tasmanian construction forecast comparison



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

Commercial approvals are back down to average levels following the stimulus surge seen in 2009-10. Projects underway are led by the $565 million redevelopment of the Royal Hobart hospital, due to be completed in 2016, and construction of 30 child and family centres. Launceston General Hospital is receiving an acute medical unit and upgrades to the surgical services unit at a cost of $40 million, while a new $36 million maximum security block at Risdon Prison is also underway. The $30 million first stage of the redevelopment of the Tasmanian museum and art gallery in Hobart is due to be completed in 2013, while plans are underway for the reconstruction of the Myer store in Hobart.

That rather thin slate of projects and the resultant downturn in construction demand is reflected in the weak growth in construction wages in Tasmania (while LPI figures for this sector of the State are not published by the ABS, there is data on movements in sectoral AWOTE). While not hurt immediately, wage growth in the local sector has slipped sharply in the past year.

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).

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 mean the local construction sector LPI will need growth relatively rapidly to allow businesses to keep hold of their current, skilled, workforce.

As a result it would be somewhat surprising if the relatively slower pace wage growth in Tasmania continued for much longer. The State's construction wages drifted well below those available elsewhere – its latest sectoral AWOTE measure is close to $200 per week below the national equivalent. Combined with some improvement in the construction outlook (and strong rise wage increases in this area nationally) local construction wages may begin to turn in the near future.

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.

10.4.5 Administration services

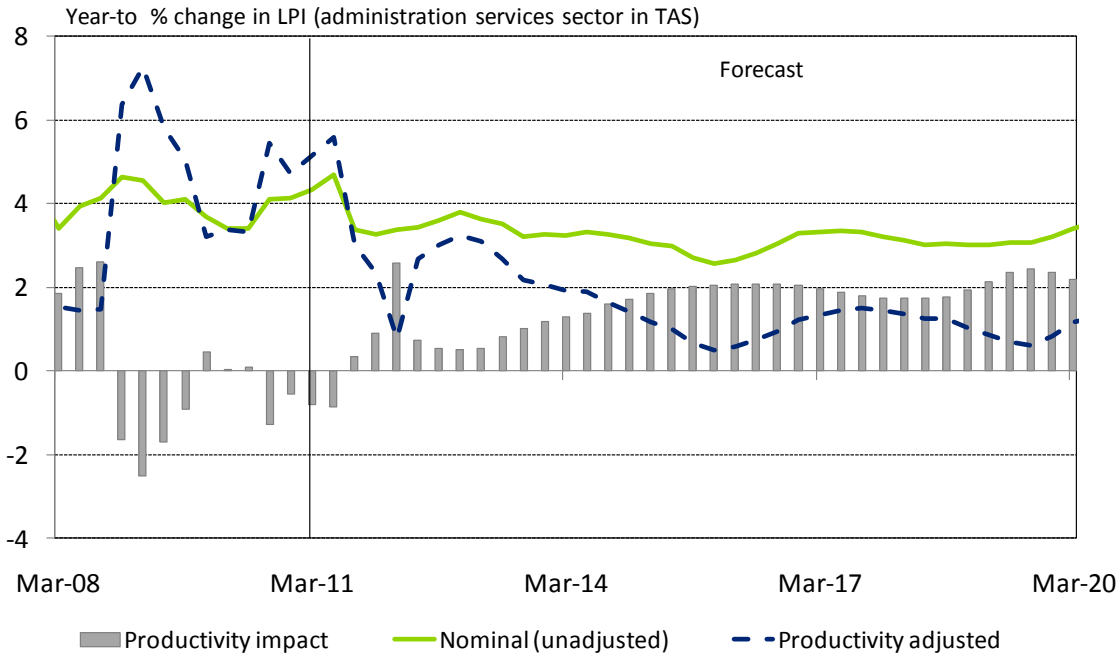
As with the utilities sector, the ABS does not produce either LPI or wage rates data for the administration services sector in Tasmania. This means that estimates for the historical movements in LPI for this particularly sector are undertaken by Deloitte Access Economics.

In addition to the usual complications that this brings, the change to the *Modern Awards* and the National Employment Standards add an additional level of complexity to the results. While some States for which LPI results are available showed a significant change to wage rates in the September quarter 2010 (most notably South Australia, where the LPI jumped 3.4% in the quarter) other showed far less of a response.

However, it has been assumed that the change would have lifted Tasmania's LPI in the sector by 1% in the quarter, roughly in line with the one-off change in the national result.

This would also reflect 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 would have also had a relatively strong impact on Tasmania, where wages tend to be lower. 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'.

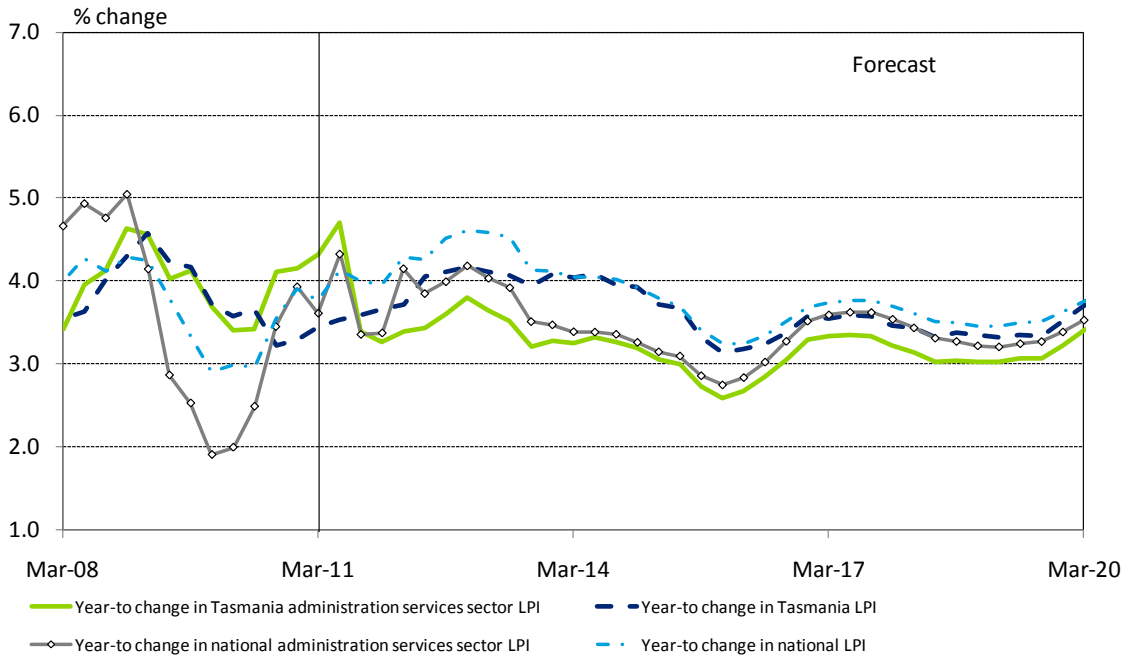
Chart 10.17: Tasmanian administration services LPI forecasts



Source: ABS, Deloitte Access Economics estimates, Deloitte 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. Similarly, Tasmania sectoral wages will tend to lag the national average in line with broader patterns evident in the State. However, as we have noted elsewhere, over the longer term the rates of growth will tend to converge, although wage level (in actual dollar terms) continue to see significant differences between industries and between States.

Chart 10.18: Tasmanian administration services forecast comparison



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

11 Conflicts of interest management

Deloitte recognises that conflicts of interest can have a significant impact on our professional independence and objectivity, and accordingly, has comprehensive policies, guidance and procedures in place aimed at identifying and resolving potential conflicts of interest arising from the acceptance of engagements.

Before accepting any engagement, we evaluate existing client relationships as well as professional and contractual obligations to determine if such relationships pose a real or perceived conflict with the proposed services.

Deloitte has many clients across the industries and States covered by the labour cost forecasts that are central to this report, and we are very sensitive to our obligation to enforce professional standards of confidentiality in each of these engagements.

Specifically we provide professional services to energy distribution and retail companies in Tasmania and Queensland.

In performing this engagement we note that:

- The project team for this work is located in Canberra, separate to the cities in which our energy clients in Tasmania and Queensland are served.
- The project team for this work have not provided any services to our energy clients in Tasmania or Queensland.
- No confidential information Deloitte holds for our clients has provided to the project team, or was needed in the preparation of these forecasts.
- Deloitte has not undertaken any work for our energy clients in Tasmania and Queensland that related to labour cost forecasts included in regulatory proposals.

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 Hobart and try our luck in Brisbane").
- 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.
- 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").

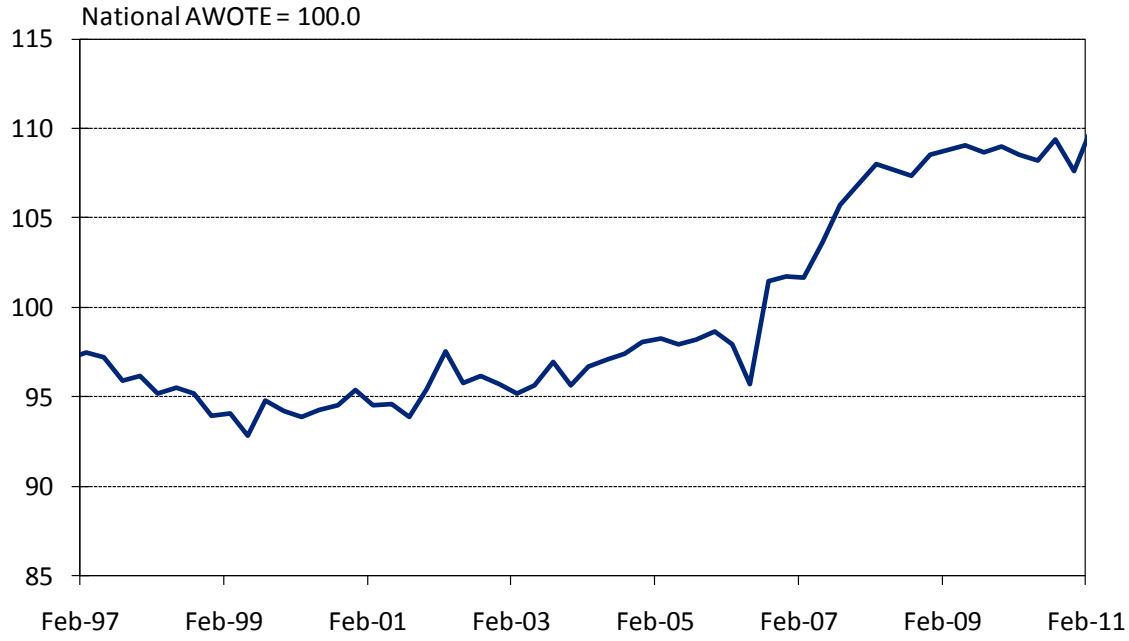
Many of these 'equilibrating factors' can be very slow to operate, meaning that divergences in wages across States (and, for that matter, across sectors and occupations within a State) can persist for long periods.

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

The macroeconomic forecasts presented in this report are based on the June quarter *Business Outlook* publication.

The following are **excerpts** from the full model documentation that cover the creation of the key driver of the detailed wage model. Full documentation for this component of the model has been provided separately to the AER.

Macroeconomic forecasting

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

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

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

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

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

The redesigned model adds to the sectoral structure of the previous version, which included a business sector, a housing services sector and government sector, by netting out farm output

from the business sector. Given the variable nature of farm output, this change allows us to account for volatile changes that could not be captured when farm output was combined with non-farm output.

In the new model, business sector factors of production (capital and labour) produce non-farm business sector output, which is non-farm GDP less the service flow from housing and the value of government services. The level of business sector output is the sum of potential output and the output gap.

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

Fluctuations in the output gap are driven by a number of cyclical factors, including fluctuations in interest rates, foreign GDP and the terms of trade.

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

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

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

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

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

Finally, model parameters are estimated using quarterly data extending from September 1974 to the most recent quarter for which data are available. Quarterly data are used as annual data is too aggregated to allow analysis of turning points and interest rate movements. Monthly data is not feasible because most key ABS collections are produced on a quarterly basis – notably the national accounts, the balance of payments, CPI and international investment data. Another advantage of quarterly data over annual data is that both calendar and financial year totals can be calculated.

Domestic production

Domestic production is divided into farm and non-farm. Non-farm production is further divided into household, general government and business sector production.

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

In keeping with the previous version of the model the **household sector** produces housing rental services. This is the household sector's only output. The service flow is modelled as a fixed proportion of the housing capital stock.

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

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

To capture the impact of cyclical fluctuations on the economy business sector output is divided into potential output and an output gap. **Potential business sector output** is the level of output that would exist if there were no temporary or cyclical influences. In constructing potential business sector output, considerable attention is paid to population characteristics which influence labour force participation, the growth rate of residual total factor productivity and the expected rate of capital deepening.

The **business sector output gap** is the gap between actual and potential business sector output. Negative output gaps imply the economy is operating below its potential, while positive gaps imply the economy is operating above its potential. Fluctuations in the output gap are driven by a number of cyclical factors including fluctuations in interest rates, foreign GDP and the terms of trade. Output gaps play an important role in determining the level of price and wage inflation.

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

Labour market

The size of the **labour force** is forecast using exogenous assumptions about age specific **population growth** and **labour force participation**.

There are two measures of employment in the model. There is the potential employment that underlies the estimate of potential output and actual employment. The output gap to a large extent reflects the gap between the actual and potential employment.

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

Actual employment is the actual labour force less the level of unemployed workers implied by the actual rate of unemployment.

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

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

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

Prices and wages

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

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

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

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

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

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

A positive output gap also has a direct and indirect effect on real interest rates via the monetary policy reaction function, with the typical reaction to a widening output gap and higher price inflation being higher nominal interest rates. Higher interest rates dampen

domestic demand which narrows the output gap and relieves upward pressure on price and wage inflation. Over time this mechanism forces the output gap back to zero, interest rates to a neutral position and inflation to return to the RBA target level.

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

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

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

Wage forecasting

The wage forecasting methodology adopted in this report involves estimation of the deviations between industry – and State-specific wage measures and the broadest measures of wages in the Australian economy. In other words, the AEM model has provided an overall picture for how the 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 Deloitte Access Economics Macroeconomic model. This measure serves as an anchor to overall wage rates in every part of the economy, in part because it provides a measure of the wage rises that other employees are receiving, making it a common starting point for negotiations.

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

- **Business cycle factors**. Deviations in industry (or State) performance from the national average. Faster growing industries and States will tend to see faster growth in wages

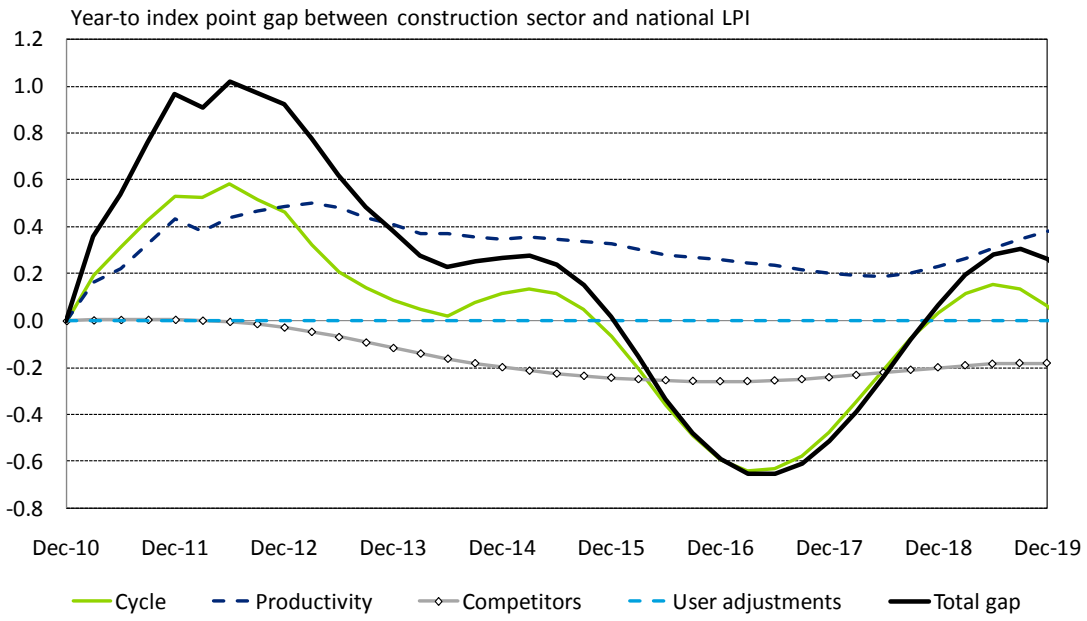
and vice versa. In this model, the key factor is how fast the industry (or State) is growing relative both to the national average, as well as to historical averages. So, while manufacturing growth in the future may be below the national average, if the gap is relatively less that has been seen in recent years, this is view as an out-performance by the sector and would see some upward pressure on wages. In this model the methodology is forward-looking, with forecast growth across the next six months (as well as the past twelve) used to determine the current performance of an industry.

- **Productivity factors**. The model assumes that industries with faster growth in productivity will see faster growth in wages – workers across an industry being rewarded for increasing the average amount of output per employee faster than the national average. As these factors take some time to become evident (and due to the inherent volatility in productivity measures at the State and industry level) an average productivity trend across the past two years is used.
- **Competition (relative wage) factors**. Depending on the nature of the industry, workers will have skills that are relatively more or less transferable to other sectors where wages may be rising faster than in their own. Indeed, many workers will be performing effectively the same task (or same occupation – effectively their job description) across different industries (as their industry classification is determined by what their employer produces, rather than what they do). This will tend to limit the ability of wage rates to diverge. As wage rates in (say) mining rise higher, companies in (say) the construction sector will be forced to pay higher wages to keep their staff. Similar 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 as all the low-paid workers left the industry all together – shifting the average wage towards the higher level.

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



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

The user-defined adjustments that are required have been explicitly shown in the charts that decompose the movements in industry LPI. The chart above (analysing the national construction 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 construction sector chart above, this indicates the following:

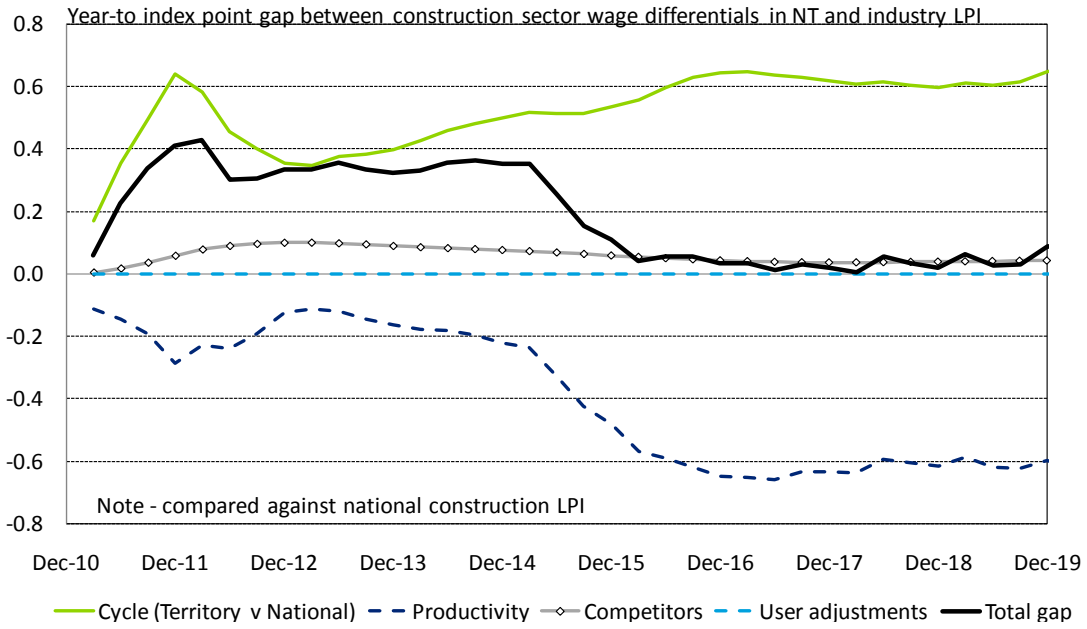
- The recent strength in the construction sector will keep upward pressure on the wages in the sector (represented here by the **Cycle** line). By the end of 2012 growth rates will begin to move in line with the overall economy and the cyclical pressure will diminish (and reverse further out); but
-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

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

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

- Grow relative fast as Northern Territory's growth will be well ahead of national averages through the forecast period;
- See a strong offset due to relatively weaker productivity growth, particularly in the latest years; and
- Will initially be boosted as the Northern Territory's 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, Deloitte Access Economics estimates, Deloitte Access Economics labour cost model

Labour prices versus labour costs

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

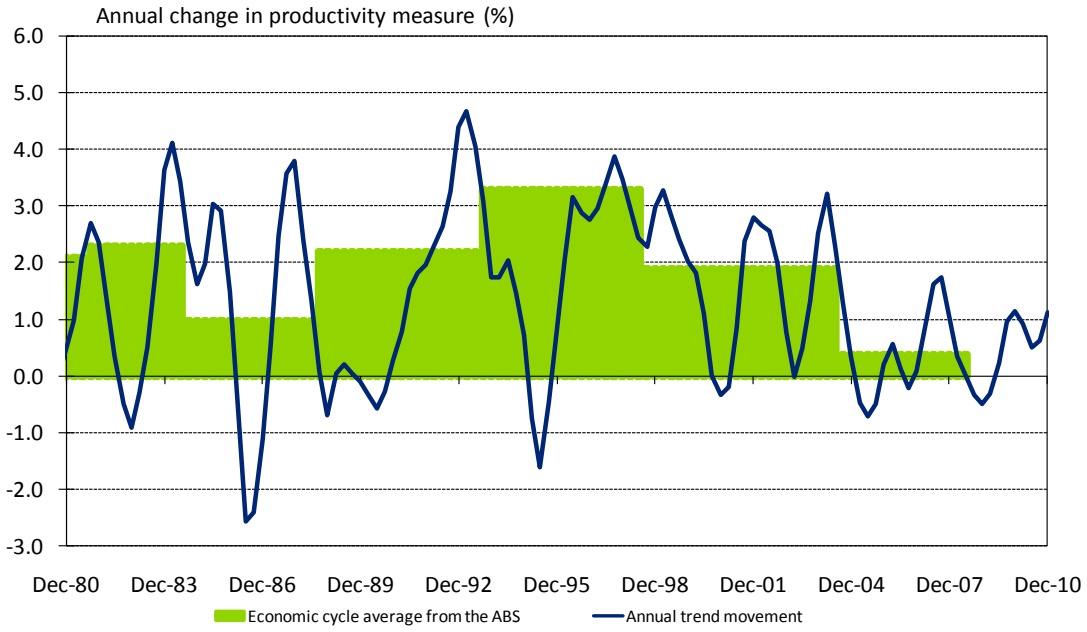
However, labour costs will rise at a different rate due to the effects of labour productivity growth. Effectively, labour productivity measure the number of units of output an individual employee can produce in a given time period. The more units of output each worker can produce, the fewer workers are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

The measure adopted for increases in labour costs is the growth in productivity-adjusted labour prices. Because so many factors can influence productivity (for example, during times of rapid expansion in employment, productivity may fall as new workers are often less productive that those who have been working in an industry for longer, but productivity may also rise as 'economies of scale' become available, and workers who may has been underemployed in their workplace increase their effective level of output) it is often best

measured over an entire economic cycle. The chart below shows annual growth in a simple productivity measure against the ABS' cyclical average measure (the last published cycle ends in 2007-08, so the last few years have no official cyclical productivity growth measure).

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

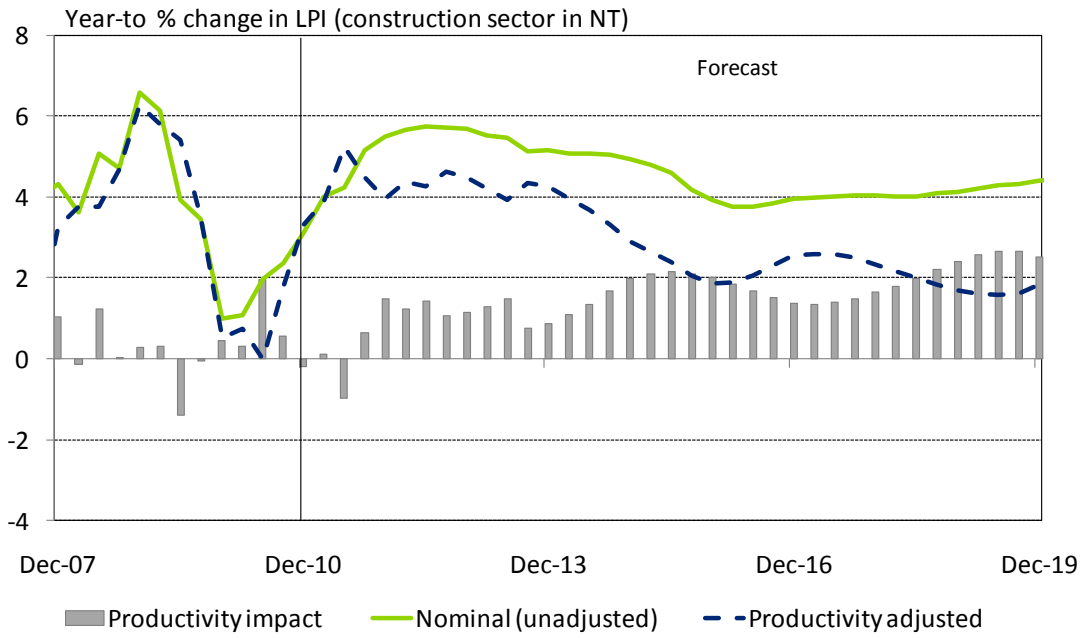
Chart C.3: Growth in productivity – annual methodology vs economic cycle methodology



Source: ABS

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

Chart C.4: Sample measure of forecast productivity effects



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

In the example above, the cyclical impact of productivity becomes more clear. Across the latter part of the forecast (from 2012 to 2018), the nominal (or unadjusted) LPI rises by 4.0% per year, while the rate of increase adjusted for productivity improvements is just 2.0% per year – the gap implying productivity improvements of 2.0% per year.

Appendix D: Different measures of wage growth

The Australian Bureau of Statistics published an article in the October 2005 issue of Australian Labour Market Statistics (catalogue 6105.0) which discussed the comparative features and relative merits of the measures they produce.[11] 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

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

provides a large number of variables important in the analysis of weekly earnings, including: managerial/non-managerial status; state; sector; level of government; industry; occupation; employer size; sex; full-time/part-time status; adult/junior status; and type of employee (e.g. permanent/fixed-term contract or casual). The EEH survey therefore supplements AWE survey data by providing detailed information on the composition and distribution of employee earnings and hours.

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

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

Changes in the price of labour

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

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

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

Compensation of employees

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

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

The average non-farm compensation per employee estimate is the key series, as it is a more stable estimate. This is because employee earnings in the agricultural sector can fluctuate due to seasonal effects.

Summary of the surveys and their key series

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

Drawbacks to using the LPI measure

While Deloitte Access Economics would view the LPI as the best measure for use in the context of this report, 'best measure' is not the same as 'perfect measure', and there are also drawbacks to using the 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 Deloitte Access Economics does that. The resultant series are rather less volatile than the matching ABS AWOTE series. (Note that, not surprisingly, the ABS is reducing over time the range of sectoral level AWE data which it is willing to release. This phase will eliminate one of the remaining arguments in favour of using AWOTE or AWE over the 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).

EBAs and contract rates

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

The latter focuses on:

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

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

Accordingly, Deloitte Access Economics notes developments in DEEWR's Trends in Federal Enterprise Bargaining reports at 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 D.1: National wage surveys

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

Further issues

The ABS is currently reviewing its production of AWE and AWOTE measures at the industry by State level (that is, the AWOTE for the utilities sector in Queensland). This information was communicated to subscribers at the time of the ABS' release of December quarter 2010 data.

One of the reasons for this change is the high standard error of the estimates for these series. In the case of the AWE/AWOTE publication, sample selection is stratified across States and across industries, but not both. That means that as the businesses in the sample change from quarter to quarter (and about 8% of the 5,000 do each time) there is no guarantee that the State by industry samples can be readily compared.

This problem obviously leads to questionable comparability of detailed AWE/AWOTE results from quarter to quarter as the changes may be driven by changes in the sample, rather than changes in wages.

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

Appendix E: LPI sectoral history at the State level

As discussed previously, 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 ordinary time earnings (AWOTE) 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) AWOTE. 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 2010 (ten quarters of data on a consistent basis).

For the AWOTE data only estimates for the past eight quarters (since May 2009[12]) have been calculated by the ABS.

Table E.1: Wage data series availability

	Utilities	Mining	Construction	Administration services
Queensland	AWE	LPI	LPI	LPI
Tasmania	Imputed only	AWOTE	AWOTE	Imputed only

Source: ABS

As the table shows, we have some data for all the utilities series and competitor industries. However, the overall AWOTE 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 AWOTE growth from State AWOTE averages and applied a consistent ratio to the known State LPIs.

In other words, if the Queensland utilities sector AWOTE measure is rising faster than the overall Queensland AWOTE 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 AWOTE data has been far more volatile than LPI in recent years, we limit the deviations that this might imply.[13]

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

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

Limitation of our work

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