ACCESS ECONOMICS Pty Limited

12 April 2007

Labour Cost Indices for the energy sector

Report by Access Economics Pty Limited for the

Australian Energy Regulator

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SUMMARY OF RESULTS

THE BACKGROUND

Access Economics derives its sectoral wage forecasts from a number of inputs, including its assessment of domestic and international economic conditions as modelled and reported in its quarterly *Business Outlook* publication.

The forecasts in this report have been updated to reflect the latest forecasts in the March quarter 2007 edition of *Business Outlook*, which went to the printer on 30 March 2007.

However, it is worth pausing briefly to remember the relevant economic fundamentals here. In brief, longer term wage outcomes reflect a return to skill, while shorter term outcomes also reflect a return related to scarcity.

Or, in other words, longer term wage outcomes respond to developments in labour productivity and inflation, while shorter term outcomes reflect not merely productivity and inflation, but also the pace of demand and the availability of supply among relevant types of skilled labour.

This report concentrates on expected wage outcomes across several sectors, in particular the mining, utilities and construction sectors which are linked to employment and conditions in the energy production industry. Workers for these sectors have been in demand as the unexpected pace of economic growth in the developing world in the last handful of years has led to a sharp lift in employment in mining and construction and a smaller lift in the utilities.

China has grown at more than 10% a year in each of the past four years, overhauling the US as the largest contributor to global growth in that period, and ensuring that the composition of global growth swung into a particularly commodity-hungry phase.

This lift in demand concentrated in a handful of sectors has been accompanied by solid wage gains in these sectors. ABS statistics indicate that mining wages rose 15.3% from December 2003 to December 2006, utilities wages by 15.8% and construction wages 15.9% - whereas total wages rose by 12.1% over the same period.

However, to extrapolate today's strong demand into an assumption that relative wage gains will continue in these sectors across the next five to ten years is to forget both the cyclical risks and the longer term structural implications of that.

First, it is worth remembering that the pace of increasing demand for their skills is expected to slow over coming years. In part the lift in demand in recent times was a response to the lack of investment in these sectors (and associated low growth in employment of these skills) around the globe in the aftermath of the Asian crisis of 1997-98. The world underinvested in its mining capacity, and in the related infrastructure to get mine output to developing markets.

That means part of the recent jump in demand for relevant skills in mining, construction and the utilities was a catch up. Although growth in the developing world is expected to see continued solid gains in demand for commodities, the implications of that for increased

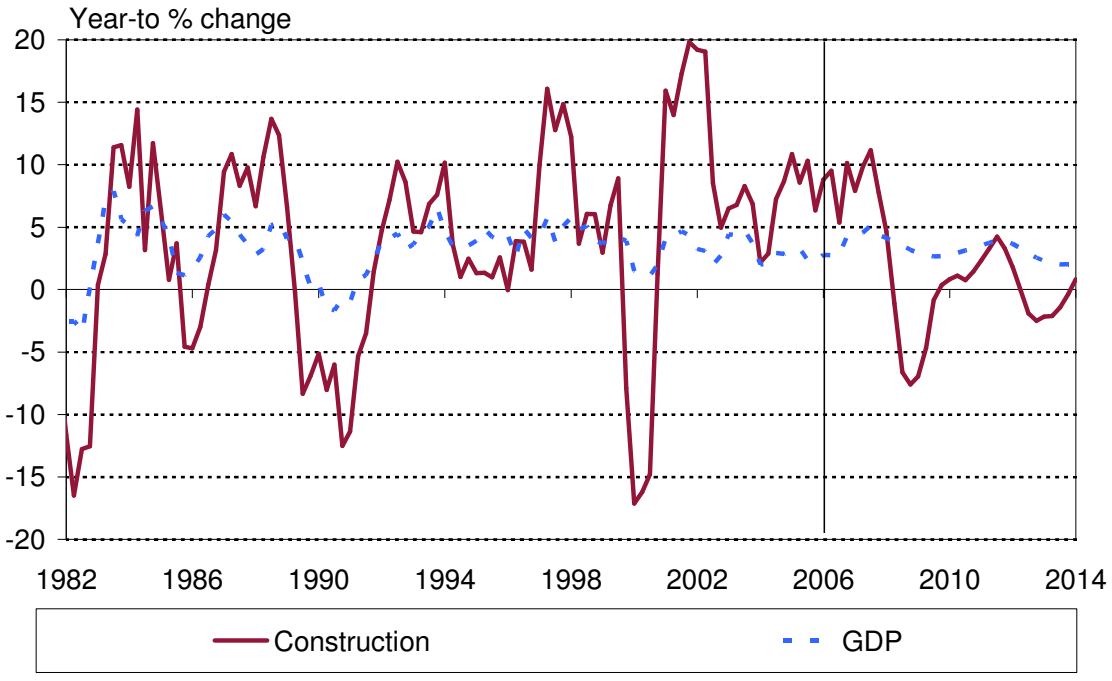
demand for employment of relevant job skills is projected to gradually settle back compared to recent experience.

Second, these discussions all too often neglect the supply side responses in labour markets. To the extent that there has been a jump in demand for workers in these sectors, so too there will increasingly be a supply response over time. Some of that will be obvious – for example Australian universities are working hard to lift the number of mining engineers. In addition, those who have relevant skills but are working in other occupations, or who are retired, or who have been out of the workforce for other reasons may be tempted back by the strength of current demand. And there is the ability of workers to move within Australia to help meet areas with the strongest demand pressures. Outside of such domestic supply side responses, there is also the search for international employees with such skills, both via the skilled stream of permanent migration, as well as temporary migrants through the visa 457 scheme. Finally, there is also the response of employers who, other things equal, have a greater incentive – where possible – to switch their production techniques toward using relatively more machines and relatively fewer people.

The potential impact of these supply side adjustments should not be overstated. Each of them individually is both small and slow. However, in combination, and with the passing of time, their impact becomes more and more significant.

Put differently, there has been a leap in demand for the skills used in mining, construction and the utilities in recent years, but that demand growth is set to slow, and the supply side of the labour market is already adjusting. Ultimately, if there is a leap in demand for a particular skill and a related leap in wages compared to underlying productivity associated with that skill, then more people will eventually move into that line of work. That is why extrapolating current conditions across the next five to ten years would be short-sighted.

REAL OUTPUT GROWTH IN AUSTRALIA'S CONSTRUCTION SECTOR



That said, these forecasts do continue the recent trend of wage growth in the three sectors focussed on here continuing at a relatively faster rate, particularly through to and including 2008-09. The gap closes thereafter, but more so in construction and the utilities as the latter see a larger response to the demand slowdown expected as Australia's engineering construction boom of the moment loses strength (see the chart above, which shows Access Economics' expectation of a sharp slowdown in the construction sector through 2009).

In addition, there are also some important compositional effects at work. Compared with several years ago, measures of current employment and average wages in the mining sector really reflect employment and average wages across a group which now consist of miners plus some construction workers. And, as construction workers have lower wages, on average, than miners, that has artificially held back measures of wage growth in mining.

This also has implications for forecast rates of mining wage growth. If the current surge of mining development eases back, then so too will the extent to which workers who are really in construction show up as being miners. That would then see the unwinding of the earlier effect – and, other things equal, a period of faster wage growth in the mining sector.

THE EMPLOYMENT OUTLOOK

The composite sector – mining, construction and the utilities combined – has grown rapidly in response to a China-dominated lift in demand, which in turn has brought into focus a lack of past investment in infrastructure supply and maintenance.

That has led to a lift in output and employment.

But the combined sectors are starting to move from an 'investment phase' – which tends to be more labour-intensive – to a 'production phase' – which tends to be less labour-intensive.

That will be most obvious in mining, whose employment surge has stalled in recent months, and in the utilities, where employment levels have fallen over the past year.

The exception is construction, where job gains remain rapid. However, as noted above, Access Economics sees the cycle turning sharply against construction in 2009.

Other things equal, that cyclical backdrop is one in which 'the cycle' will start to fade as a driver of excess demand (and hence wage) pressures across the three sectors as a whole.

THE NATIONAL RESULTS

The following two tables set out the resulting national wage forecasts from this analysis.

Sector (annual avg %)	Last 10 yrs	Last 5 yrs	Next 5 yrs	Next 10 yrs
Mining	3.7	3.8	5.5	5.2
Utilities	4.6	4.6	4.8	4.5
Construction	3.9	4.1	4.0	4.2
Composite index	3.9	4.0	5.0	4.8
Total	**3.4**	**3.7**	**4.3**	**4.5**

The first table (above) sets out longer term trends. It shows that average wage growth in the overall economy is expected to edge up, mostly in response to the shift to lower

unemployment rates. At the sectoral level, mining, the utilities and the composite index – a weighted average of the three sectors focussed on here – are expected to continue to outperform, but a slowdown in construction activity is expected to drag it lower than average wage growth in the economy. As noted above, part of the continuing outperformance in mining wage growth will be due to compositional effects, as some construction workers may be currently counted as mining workers (lowering measured wage growth to date), but that effect may unwind in coming years (artificially raising measured wage growth in mining).

Sector (annual avg %)	2006-07	2007-08	2008-09	2009-10	2010-11
Mining	6.3	6.2	5.3	4.8	4.7
Utilities	5.7	5.8	5.1	3.6	3.9
Construction	4.9	6.1	3.7	1.5	4.0
Composite index	5.8	6.1	4.8	3.7	4.4
Total	**4.1**	**4.6**	**4.4**	**4.0**	**4.3**

The second table (above) sets out shorter term trends for national wage growth. Growth in mining eases amid slower gains in demand for workers, and a lift in the supply side availability of workers, with a partial offset operating through the compositional effects noted above. Even so, it outpaces average wage growth in each and every year.

Wage growth in the utilities also eases, for similar demand and supply reasons. Wage growth in construction may be most cyclical, rising to a peak as the current construction cycle has a last hurrah in 2007-08, but then easing notably as the cycle swings against the sector.

Access Economics
12 April 2007

1. BACKGROUND

Access Economics has been commissioned by the Australian Energy Regulator (AER) to review the forecasts of labour cost growth developed for the ACCC in November 2006. AER have requested an expanded report and additional forecasts, which include:

- A forecast of annual labour cost growth from 2006-07 to 2015-16 for the mining, utilities and construction sectors (by State and nationally).
- A forecast of annual labour cost growth from 2006-07 to 2015-16 for a weighted average of those industries. As with the sector specific forecasts, forecasts of productivity growth in the sectors are also provided.
- A forecast of annual overall labour cost growth from 2006-07 to 2015-16 for each State and Territory and for Australia as a whole.

In addition, AER requested additional work to expand on Access Economics' November 2006 initial report of labour costs in the sector. This also addresses comments made by external parties on the initial report. These additional requests include:

- A detailed description of the methodology used to develop the forecasts, and assumptions used in the modelling.
- Discussion on the timing of any likely downturn in the mining and construction sectors, the assumptions and information underpinning that view, and a discussion of contrary views such as those reported in the Synergies report to Powerlink.
- Explicit discussion on the flexibility of wages, addressing the contrary views set out in the Synergies report regarding the stickiness of the labour market and other constraining institutional factors.
- An explanation of how factors specific to the Queensland economy, such as wages catch up, high levels of infrastructure investment and high levels of activity in the mining and construction sectors have been incorporated into the modelling.
- A discussion on the issue of wages growth falling below average wages growth, addressing issues in the Synergies report.
- A response to other key issues raised in the Synergies and NERA reports.

2. FORECASTING WAGE GROWTH

Forecasts of wages growth, whether by sector, State or across the broader economy, can be split into three significant components:

- Underlying inflationary trends;
- Growth in relevant productivity levels; and
- Cyclical factors.

Inflationary trends

Underlying inflation is an important driver of wage growth – workers desire their wage increases to at least keep pace with the increasing cost of living, with 'real wage growth' (the increase in wages after the impact of inflation have been accounted for) often used as a measure of the true level of wage increase. The decline in inflation in Australia from the 6-9% per year range seen in the 1980s to the 2-4% range seen in recent years has been accompanied by similar declines in the measures of wage growth.

Inflation will tend to have a fairly constant impact on wage measures in different regions and industries in Australia, although at times different State (or sometimes even regional) variations can be important. At the State level, relative rates of economic growth can drive State[1] inflation rates at different speeds, but many prices remain set at the national level and this tends to limit the gap – factors such as relative house prices, State and local government taxation remain the key drivers of shorter term differences.

So, while short-term deviations can be significant, over the longer-term they tend to even out.

Consumer prices in the past year have risen faster in the likes of Darwin (5.0%) and Perth (4.4%) than in Hobart (2.5%), with that differential largely a function of differing rates of housing price growth and rental growth. However, the fact that many goods are priced nationally means that over any extended time frame inflation rates will tend to equal out between the population centres in Australia – with short-term differences often reflecting different State and local taxation measures or service charges.

The outlook for inflation in Australia is explained in Appendix 1 this report. However, in broad terms, underlying inflation[2] in Australia picked up as demand began to catch up to the potential level of supply in the economy. This has had impacts on the cost of materials (and eventually on wages). Specific factors, such as petrol prices and bananas, can lift the headline rate of inflation, while leaving the underlying inflation rate relatively unaffected.

The inflation rate tends to move with the economic cycle (lagging it by around 18 months). Broadly speaking, inflation rates are expected to remain within or close to the Reserve Bank's stated 2-3% price band over the economic cycle.

[1] CPI measures (as broadly used in the Australian context) refer to capital city prices only.

[2] The term 'underlying inflation' used to refer to the Treasury's specific measure of underlying inflation. This measure is no longer compiled and so now lacks a consistent meaning between commentators. We generally use the term to mean the broad idea of prices excluding volatile components. Where specific numbers are used, we use the 'private sector goods and services index' from the ABS' CPI publication.

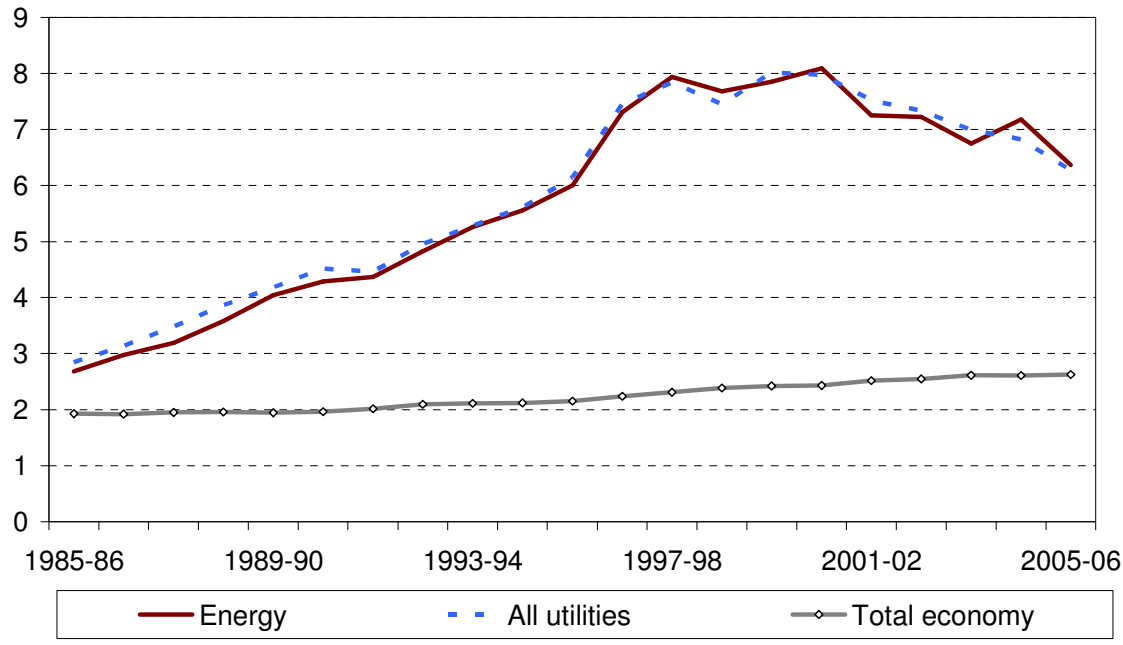
Productivity trends

The second key driver for wage growth is **productivity**. The more value each individual creates in an hour, the greater the return is expected to be.

The utilities sector has seen a very different pattern in its productivity growth rate to the general economy (where productivity growth has been quite steady).

As Chart 2-1 shows, output per hour worked in the utilities sector generally (and in the 'energy sector' – electricity and gas – in particular) nearly trebled between 1985-86 and the end of the 1990s. While it has eased since this time, growth has still been far greater than in the general economy. So, while in 1985-86 the average output per hour worked in the utilities sector was 50% higher than the general rate, that figure is now closer to a 150% gap.

CHART 2-1: OUTPUT PER HOUR WORKED ($ - INFLATION ADJUSTED)

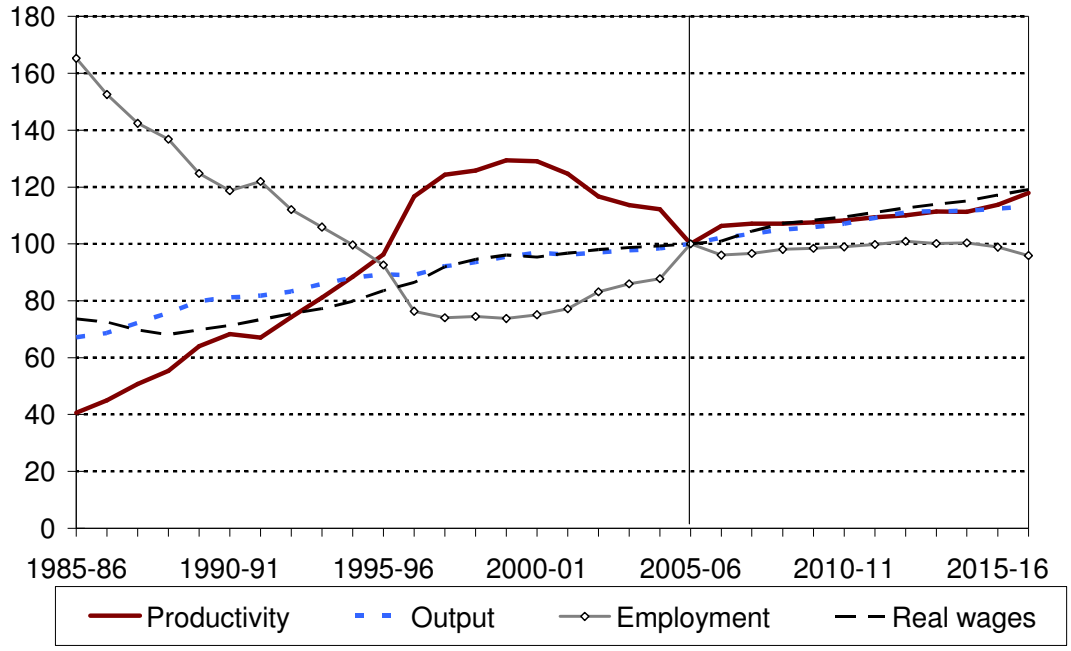


As the chart below shows, the growth in productivity occurred primarily as employment levels fell sharply in the wake of deregulation, and productivity then declined again as employment growth returned.

Throughout the period (and regardless of the concurrent movements in employment levels), the level of output rose in a fairly steady manner. This strong inverse relationship is not particularly surprising, as the output of the sector is far more capital-intensive than others.

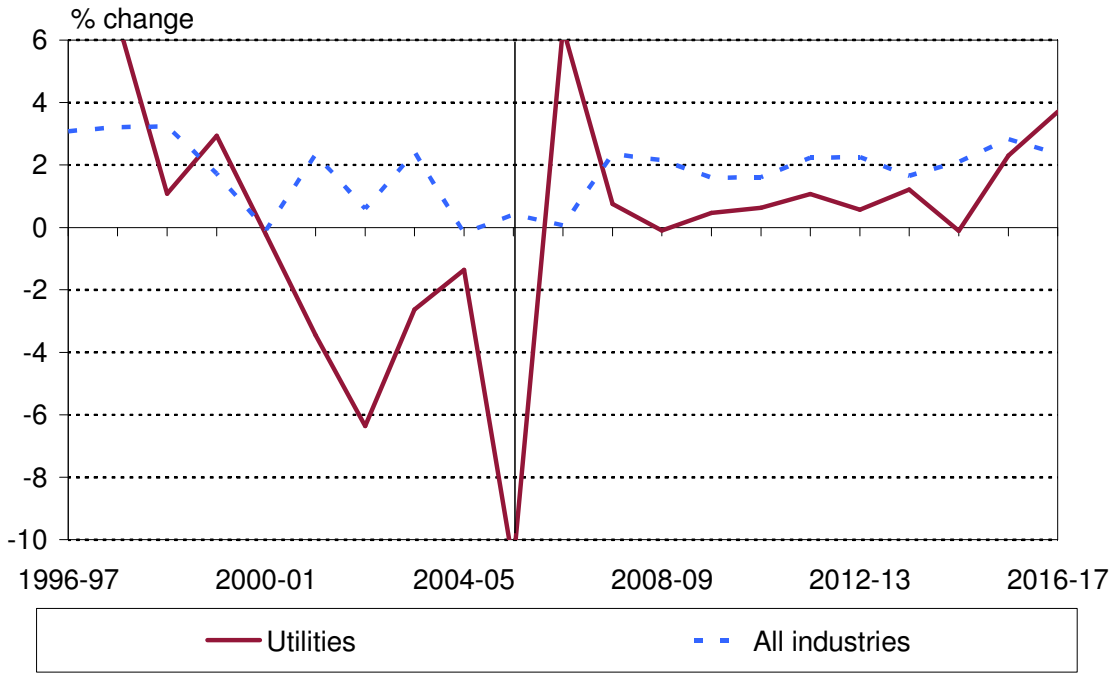
Indeed, much of the underlying demand for electricity and water will tend to rise with population (steadily growing) with an additional component reflecting the increasing use of electricity by each household (whether through more air-conditioners or more 'stand-by' setting on consumer electronics). Even as job levels were cut during the periods of corporatisation and privatisation in the 1990s, output edged up steadily as supply and demand for electricity were largely unaffected.

CHART 2-2: KEY INDICATORS FOR THE UTILITIES SECTOR (INDEX – 2005-06=100)



Our longer term expectations for productivity growth in the utilities sector are that it will return to growth in line with national trends. As we anticipate utilities sector output will lag the broader economy (see the discussion on utilities later), this implies relatively weak employment growth in the sector to maintain productivity growth.

CHART 2-3: PRODUCTIVITY GROWTH TRENDS



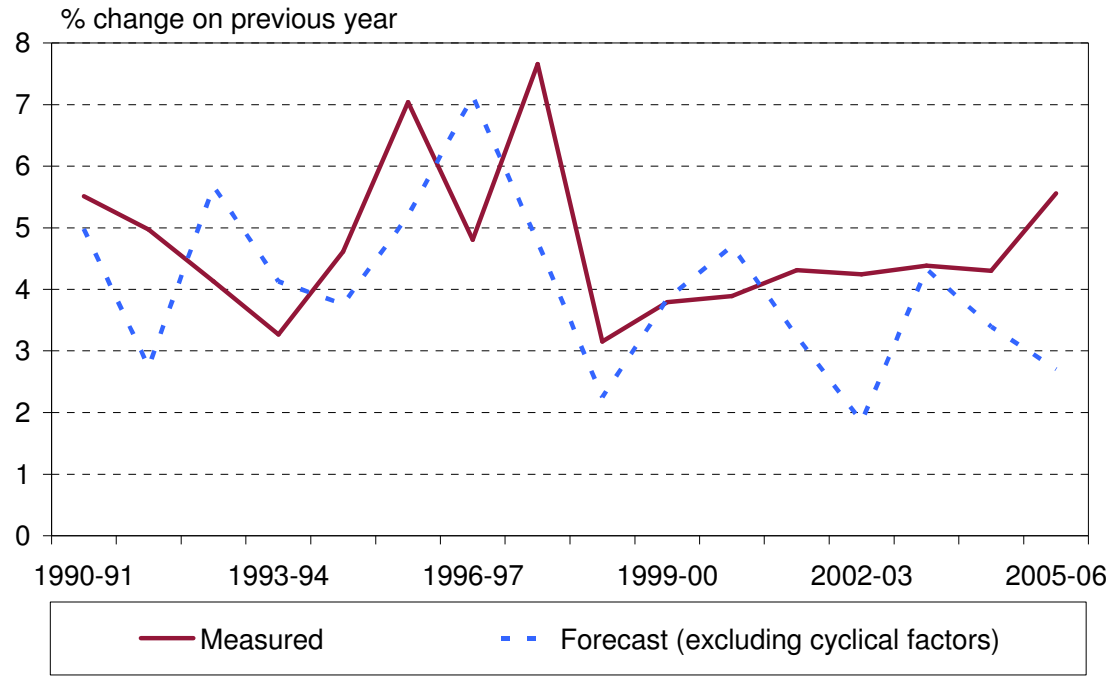
Because of the lag between employment and output growth, there are greater cycles in productivity growth in an individual sector than in the broader economy (where different cycles from different industries will tend to cancel each other out). The recent strength in sector employment is anticipated to ease in the next few years allowing productivity levels to rebound somewhat.

Other cyclical factors

The remaining component of wages growth tends to reflect mismatches between demand and supply in employment, which allow employees greater strength in determining wage growth outcomes (as demand exceeds supply at present).

Chart 2-4 shows an estimate of expected utilities sector real wages growth based on growth in output and productivity (the use of real wages means that changes in inflation do not affect the results). The gap between this measure and the actual growth in wages is an estimate of the 'cyclical component'.

CHART 2-4: ESTIMATE OF CYCLICAL FACTORS IN UTILITIES WAGE GROWTH

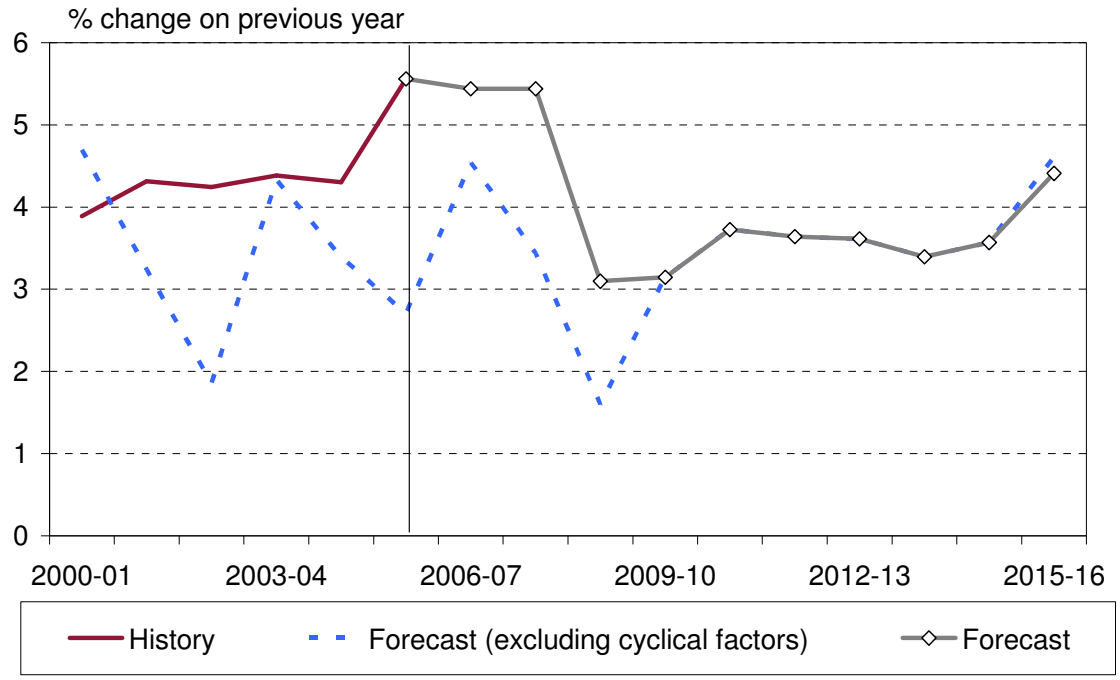


The period until 2001-02 saw the two measures average broadly the same (an average gap of just 0.2% per year). However, the last four years have seen the two measures move in broadly different directions, with falling productivity rates not being reflected in falling wage growth – but precisely the opposite.

This result due in part to the increase in demand for workers in the utilities sector over recent years. Because output levels in the sector are not as reactive to employment changes, an increase in employment does not translate to increase in output – particularly in the short term. Much as the construction of new infrastructure is related to expected future demand for electricity and water rather than demand right at the moment, increasing employment can be required to run new facilities even before their output is fully utilised (or, more accurately, the output of the entire utilities grid).

This means, as can be the case in the mining sector, expected future demands can see employment levels rise, lifting wage rates as the sector tempts workers from other areas, even though output levels are broadly constant.

CHART 2-5: FORECAST OF CYCLICAL FACTORS IN UTILITIES WAGE GROWTH



So, while productivity bounces back, Access Economics would expect that to be reflected in a fall in the gap between underlying and actual wage growth. There will obviously be further cycles in the results around our central forecast, but the current unusual gap should unwind over time.

2.1 ACCESS ECONOMICS' GENERAL FORECASTS

Appendix 1 sets out Access Economics' forecasts for price and wage growth in Australia as a whole. It therefore provides useful context to the discussion here, and is the genesis of the 'total' wage growth numbers described herein.

However, individual sectors can be expected to see their wage cycles differ from the average. In brief, longer term wage outcomes by occupation and by sector reflect a return to skill, while shorter term outcomes also reflect a return related to relative scarcity.

Or, in other words, longer term wage outcomes respond to developments in labour productivity and inflation, while shorter term outcomes reflect not merely productivity and inflation, but also the pace of demand and the availability of supply among relevant types of skilled labour.

That is why the following discussion focuses on Access Economics' views on the likely cycles for the mining, construction and utilities sectors.

THE MINING SECTOR

To understand conditions in Australia's mining sector requires an understanding of what is happening globally.

In brief, half the world is having an industrial revolution. China has grown at more than 10% a year in each of the past four years, overhauling the US as the largest contributor to global growth in that period, and ensuring that the composition of global growth swung into a particularly commodity-hungry phase.

Indeed, the news all around the world is great – profits are up, unemployment is down and inflation is still in check. That makes this the best burst of global growth since the 1960s.

Not only that, but the US slowdown now underway is not cruelling growth in the wider world economy, as the latter is increasingly being generated in developing nations rather than rich nations.

On balance, Access Economics' view is that global output growth may stay above trend in 2007 and into the start of 2008, but tightening capacity, higher interest rates and a modest and tardy recovery in the US will still see overall global gains slow from here.

Mineral prices

So global growth is still great – and looks set to stay great for a while further yet. But it has been great for quite some time now, and the demand surprise for commodities is increasingly being factored into the supply response of miners around the world.

For most commodities, supply is still barely bigger than it was a handful of years ago. But that is increasingly changing. Although prices recovered through February and March, the momentum has come out from many industrial commodity prices.

Some prices are still rising, with the likes of nickel a clear standout. Others are now lower, in some cases notably so, as is true of copper and zinc, while prices for both coking coal and steaming coal are on the slide as well. That leaves overall commodity prices little changed since mid-2006. 2007 may bring falls in the base metals, or to be more exact, further falls. By 2008 and (especially) 2009 and 2010, bulk commodity prices are likely to follow.

Access Economics' view on industrial commodity prices remains as it has been for quite some time now – that global growth is likely to stay strong, but that demand is only ever half a story. We think that the supply (production) of industrial commodities will catch up to fast charging demand and that, over the next three or four years, the risks to commodity prices are therefore heavily weighted to the downside.

That said, this will be a rollercoaster ride on prices. For many commodities, the combination of very low levels of inventories with selling prices well above costs has been a recipe for price volatility. For many minerals there are effectively no inventories to cater for any unexpected jump in demand (or fall in production), while any unexpected drop in demand could see prices head back towards levels rather more consistent with cost-based 'fundamentals'. Reinforcing this volatility risk is the emergence of greater interest by hedge funds.

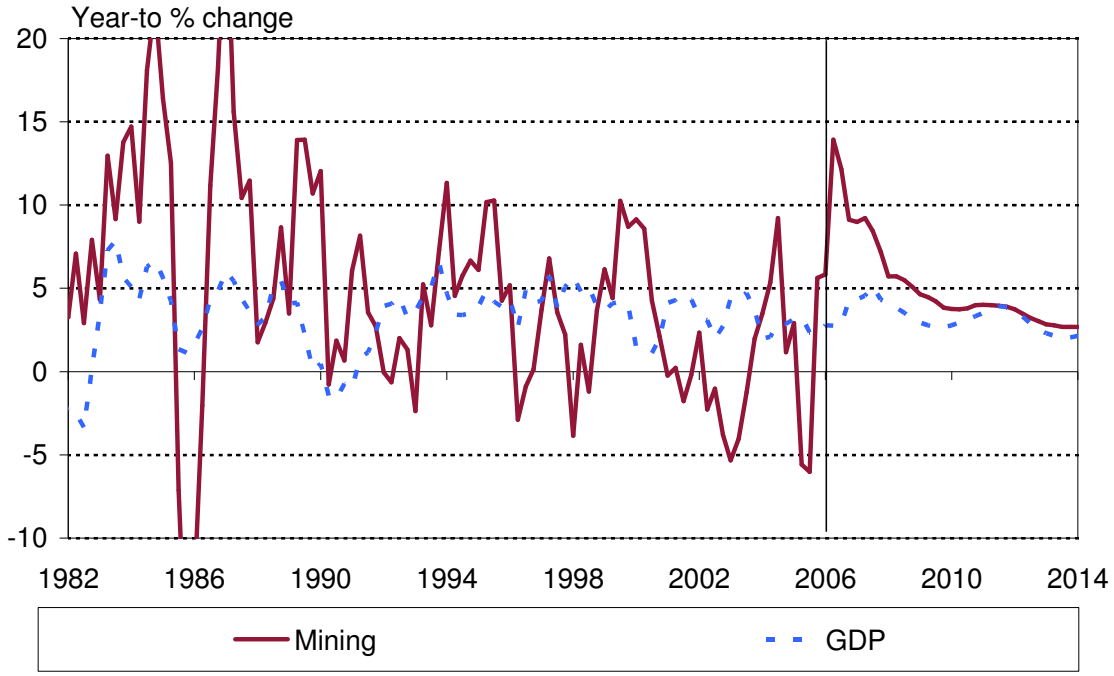
It is worth stressing the consensus view among respondents to Access Economics' *Minerals Monitor* survey. They too see many prices headed down in coming years.

Mining output

So the global boom over the last couple of years has led to a surge in commodity prices.

However, the boom has so far done rather more to lift profits in mining in Australia than actual output (see Chart 2-6). There are a range of reasons for that, including the obvious one that it takes a considerable period of time to get new mine output to market – all the more so when half the world is tripping over each other at the same time to achieve just that.

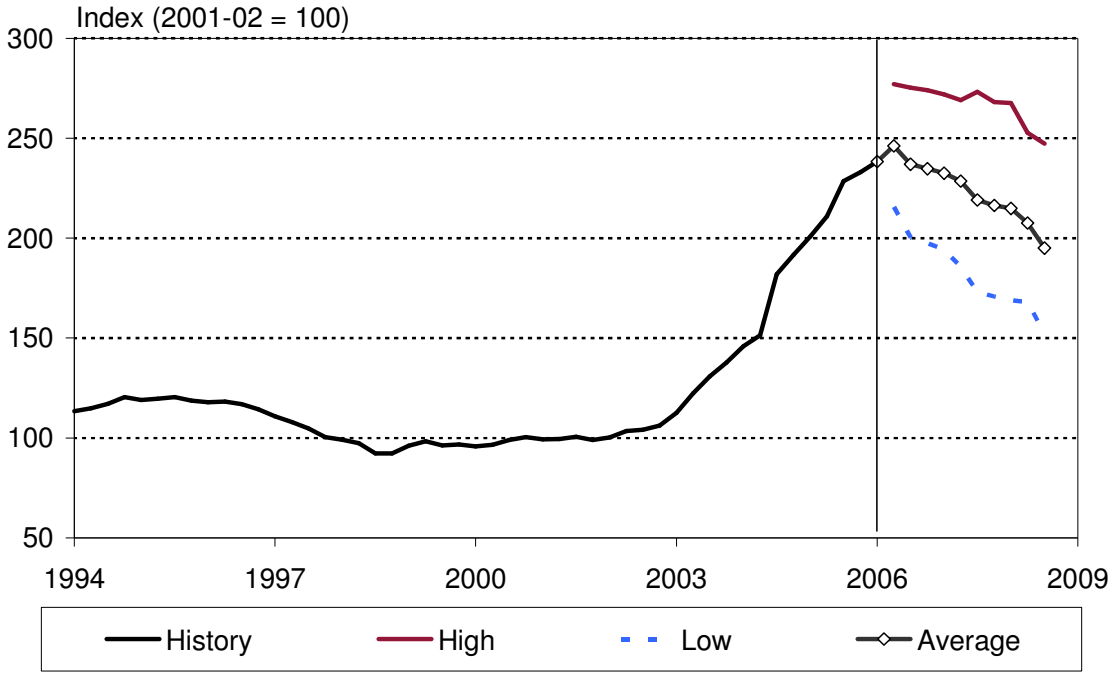
CHART 2-6: MINING SECTOR GROWTH



That hasn't stopped miners lapping up the great prices of recent times. Since 2002, prices for most minerals have doubled – while some have tripled and a handful of them have quadrupled. Indeed, so large have been these price increases that they have transformed the wider Australian economy – driving up profits and sharemarkets, pushing the $A ahead of its usual levels, and showering the Federal Government and some State Governments with money.

However, Access Economics believes that those prices won't be sustained beyond the next couple of years. Some of the base metals are already looking fragile, while the analysts surveyed in Access Economics' *Minerals Monitor* think that the bulk commodities will see prices slide in each of 2008, 2009 and 2010. Chart 2-7 shows the forecast fall of the RBA commodity price index (in $US) over the next two to three years. The index is expected to fall back to levels seen in 2005 by mid-2009, and preliminary indications are that forecasters do not expect the slide to halt after this time.

CHART 2-7: RBA INDEX FORECAST ($US)



However, demand is only ever half of the economic story – as Access Economics has stated for quite some time, supply side factors will determine when the end of this commodity boom occurs. And there is no denying that – even if there has been little change in mining output in recent years – the supply surge is starting.

In fact it has clearly started in the likes of iron ore and LNG, with much to come on both fronts there, while coking coal volumes are also lifting (albeit more slowly). In brief:

- ABARE expects a 50% lift in LNG production across the six years to 2011-12. The fifth train on the North West shelf is adding considerably to domestic production all by itself, and Pluto (potentially coming on stream as soon as 2010) and the giant Gorgon project (potentially onstream as soon as 2011-10) could add much more. Nor would the good news necessarily stop there, with other projects (such as Greater Sunrise) beckoning thereafter.
- Just as dramatic is the lift in iron ore output now underway. Australian production is set to increase by 90 million tonnes (or about one-third) in the three years to 2008-09, followed by yet another 90 million tonnes in the three years to 2011-12. BHP is rushing to market with its Rapid Growth Projects 3 and 4, while Rio is expanding at Morandoo and Tom Price, as well as a new mine at Nummuldy. A little further ahead, and Rio has a lot of extra capacity coming on stream at its Yandicoogina Mine. And then there are the independents such as Fortescue Metals though its hopes have been further delayed by recent cyclone damage.
- The rise in coking coal capacity is also striking – simply not as striking as that in either iron ore or LNG. Output may experience a modest decline in 2006-07, though ABARE expects output to rise by 7% in 2007-08 as recent developments come onstream. Some extra 30 million tonnes (or about 25%) will be added to domestic production capacity between now and 2011-12 via the likes of BHP's Poitrel project, Anglo's Dawson project and Wesfarmers expansion at Curragh North. It also helps prospects for future production that relevant capacity constraints in getting coking coal to market

(such as Dalrymple Bay coal terminal in Queensland) are becoming less of a bottleneck. That said, the longer term outlook for coking coal output is less clear. Chances are that it will continue to rise, but increased output from China itself and from Mongolia may limit the upside for Australian coking coal output.

- Steaming coal production is also on the rise. Although Chinese demand has been less rampant in steaming coal than for some other types of energy, there is good underlying demand growth. Output of steaming coal may increase 6% in 2007-08 on top of recent good gains, aided by several operations in NSW (such as Ulan Longwall, Wambo and Wilpinjong) as well as by Kogan Creek in Queensland.
- Responding to recent brilliant prices, oil production is also rising fast. ABARE estimates a gain of 15% in 2006-07 and a further 4% in 2007-08, although output may peak soon thereafter.

In combination, Access Economics therefore forecasts mining output to lift by a healthy 9.3% in 2006-07, and a gain – healthy again – of 8.9% in 2007-08. Not only that, but we see a few good years following that, as the pipeline of work already commenced promises a long tail of export increases, and the potential pipeline offers some blue sky possibilities.

Or, in other words, **Access Economics sees the mining sector continuing to grow rapidly. But its employment won't**. The latter has risen very rapidly indeed in recent years, with 70% more people employed in mining today than five years ago. However, as mining is forecast to go from an investment (construction) phase to an output phase, and as the latter is rather less labour intensive, Access Economics forecasts employment in mining to grow by just 1.5% in total in the four years to 2010-11.

Or, in other words, the surge in employment demand in mining is slowing. Indeed, it has been little changed in the past six months.

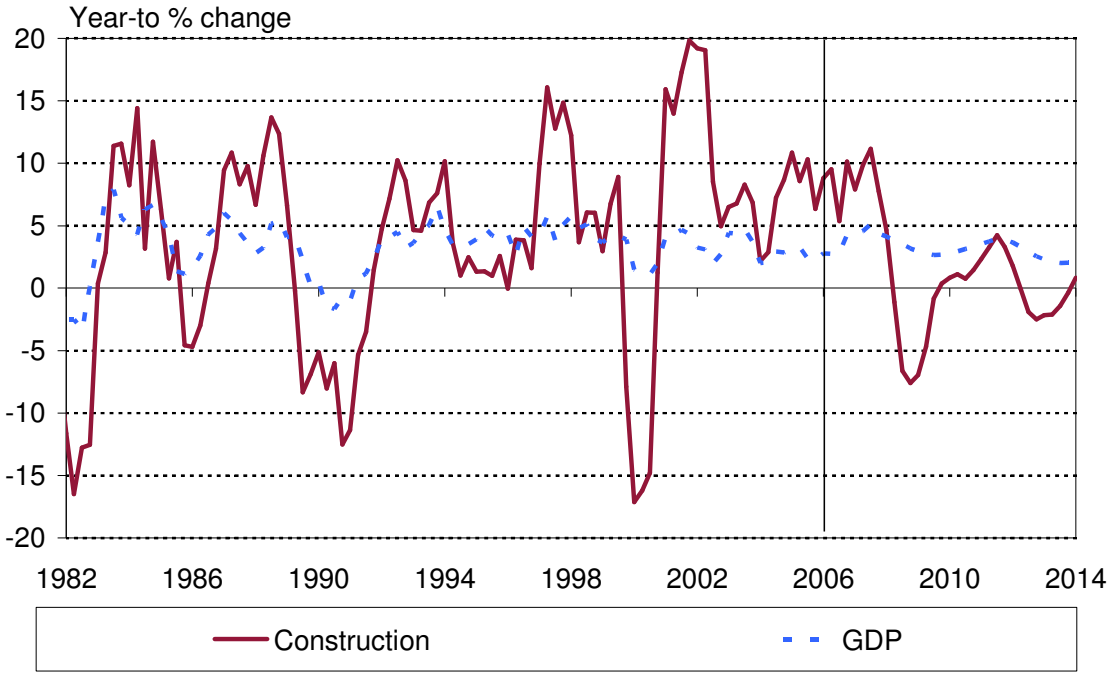
THE CONSTRUCTION SECTOR

Chart 2-8 shows that the overall **construction** sector has seen a sustained burst of growth since the sharp downturn that occurred immediately in the aftermath of the GST's introduction.

The initial burst in construction strength in this cycle came from housing, as the latter jumped strongly at the same time as housing prices did the same. Given the crazy cost of buying an established home, building a new one from scratch or renovating your existing home seemed much more sensible. Similarly, however, housing construction fell away when housing prices did the same. You can see the timing of that in Chart 2-8 as construction growth slowed.

But construction has a second wing – the **commercial** and **engineering** work which has underwritten its continuing strength since the momentum behind housing construction slowed down. This latter component is moving fast for two related reasons. First, half the world is having an industrial revolution, and that has boosted the demand for a bunch of engineering works to help us sell into the China story. Second, that leap in global demand exposed the weakness in infrastructure spending in the past two years – not merely in the ports, roads and railways to help get our resources to market, but also the urban infrastructure in water, electricity and transport, which had fallen into decay in a number of States. That has seen both the public and private sectors rush to make good. Engineering work has been the biggest part of this surge, and is set to remain so for at least another year. Indeed, you can bank on it – the pipeline of engineering work yet to be done is bigger than Christmas, with much of it concentrated in Western Australia and Queensland.

CHART 2-8: CONSTRUCTION SECTOR OUTPUT GROWTH



But the commercial work underway is also impressive, as a rush of office and retail development occurs, and as the States spend up in health as well. That combination should keep construction going for quite some time. Yet we also see the sector at risk to the commodity price cycle. In fact, 2009 could see a double whammy – not merely the next downturn in housing construction, but in engineering too.

As we expect industrial commodity prices to slide through 2008 and 2009, we also expect the incentive to invest in new engineering work to take a knock, with some flow-on effects to commercial construction as well.

And although we also see interest rates easing sharply as a result, that may not be enough to keep the construction sector from its next downswing in 2009-10.

As Chart 2-8 shows, the downturn in the construction sector is sudden, and it is sharp. While the sector bounces back, the longer term outlook is not as impressive as the recent performance of the sector, as longer term ageing of the Australian population will lower underlying demand for all types of construction in the economy.

Again this is projected to have implications for construction. As in mining, the leap in demand in construction in recent years has seen its employment levels lift rapidly – with 38% more people employed in construction today than five years ago. That trend is projected to continue in 2007-08, with another strong gain in employment in the sector.

However, employment in the sector may level off for a time thereafter. Access Economics forecasts employment in construction to grow by just 4.3% in the four years to 2010-11, with employment levels peaking in 2008-09 and then falling slightly.

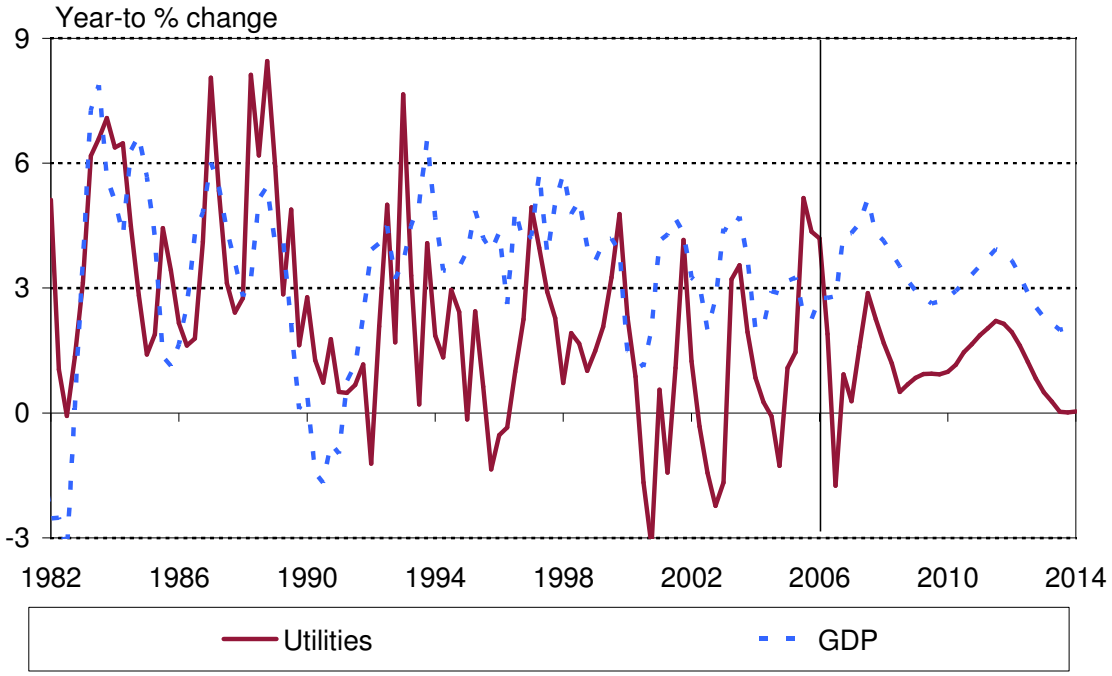
Or, in other words, **the surge in employment demand in construction is about to slow**.

THE UTILITIES SECTOR

The overall **utilities** sector has enjoyed a big boost on the back of the commodities boom. New mines, manufacturing plants, transport systems and ports have sent demand for power and water jumping.

Chart 4 shows that output growth in the sector hit a high in mid-2006, though the drought then ate into that – hopefully a temporary problem. And all this at a time when new housing starts, a key driver for the sector, are still struggling to shake off interest rate impacts.

CHART 2-9: UTILITIES SECTOR GROWTH



With climate change a central topic, the sector's supply side is benefiting from a lift in the number of 'green' alternative energy projects. Wind farms are seemingly being built everywhere, while investment in coal-fired power plants may need to change in response to a fluid regulatory environment.

Water is a big issue too. Solutions differ by State. Queensland is pushing for recycling, while desalination won the day in NSW, with a new plant at Kurnell on the cards, and Victoria is targeting water loss through evaporation by constructing pipelines to replace open channels. With business investment expected to hit a cyclical high in 2007, the sector may take a dip from here before recovering to record moderate growth going forward.

And the composition of new projects may be undergoing a shift. Data from Access Economics' *Investment Monitor* shows (see Chart 2-10) that much of the drive has come through new water supply projects, and much of the strength in work done (Chart 2-11) is due to existing projects ramping up production rather than through new projects.

Access Economics' forecasts are for employment levels to be below those seen in 2005-06 in each of the next five years. Indeed, **employment in the utilities sector has been falling for a year now**.

CHART 2-10: UTILITIES SECTOR PROJECTS UNDER CONSTRUCTION

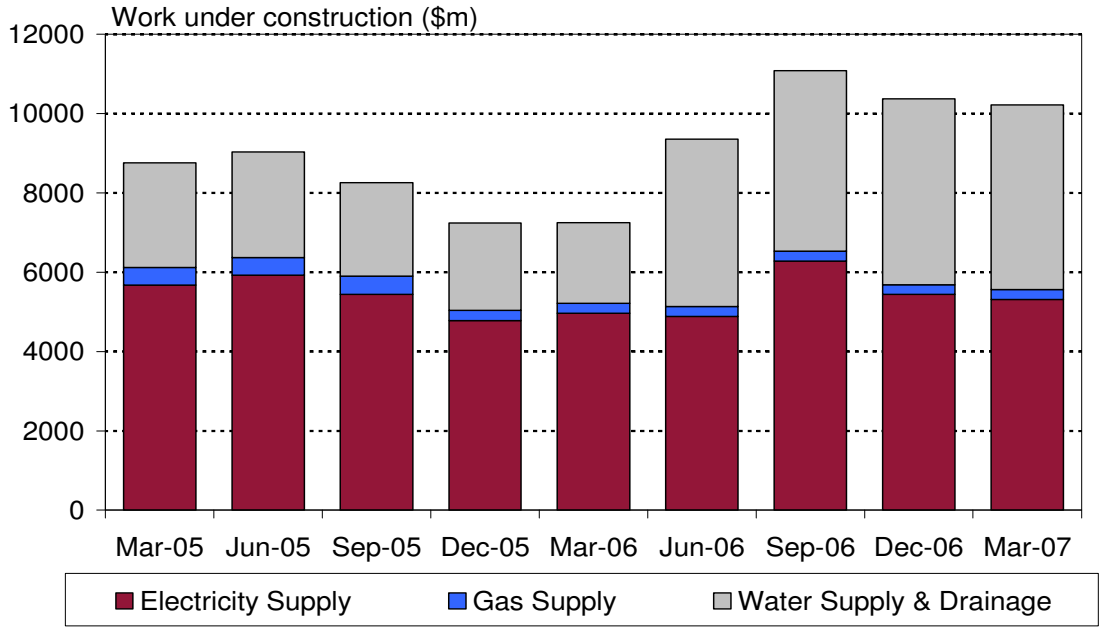
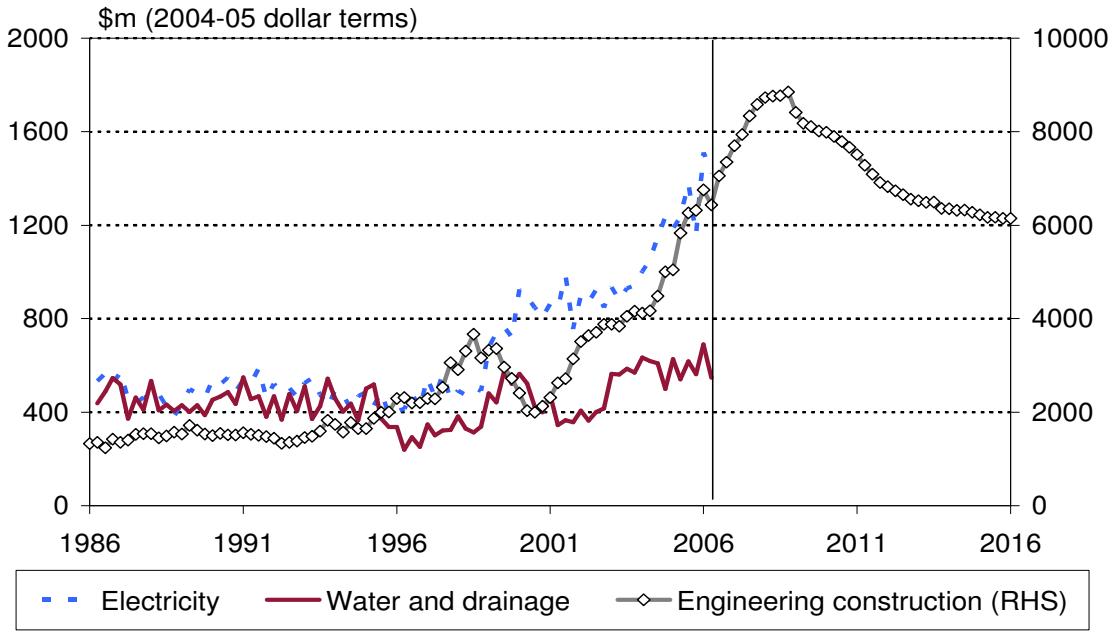


Chart 2-11 shows the ABS' measures of engineering construction done (transformed into real terms) for electricity and water projects, along with Access Economics' forecasts for total engineering construction. This chart illustrates that the run up in electricity investment has been substantial over the past decade. While Access Economics believes that may have further to run, and that water projects may start to increase in value, a decline in the level of engineering construction is expected in a couple of years as the current build up of projects are completed.

CHART 2-11: MEASURES OF ENGINEERING CONSTRUCTION



THE COMPOSITE SECTOR

It is therefore worth a brief overview of sectoral past and prospects.

In brief, the **composite** sector – mining, construction and the utilities combined – has grown rapidly in response to a China-dominated lift in demand, which in turn has brought into focus a lack of past investment in infrastructure supply and maintenance.

That has led to a lift in output and employment. However, the combined sectors are starting to move from an 'investment phase' – which tends to be more labour-intensive – to a 'production phase' – which tends to be less labour-intensive.

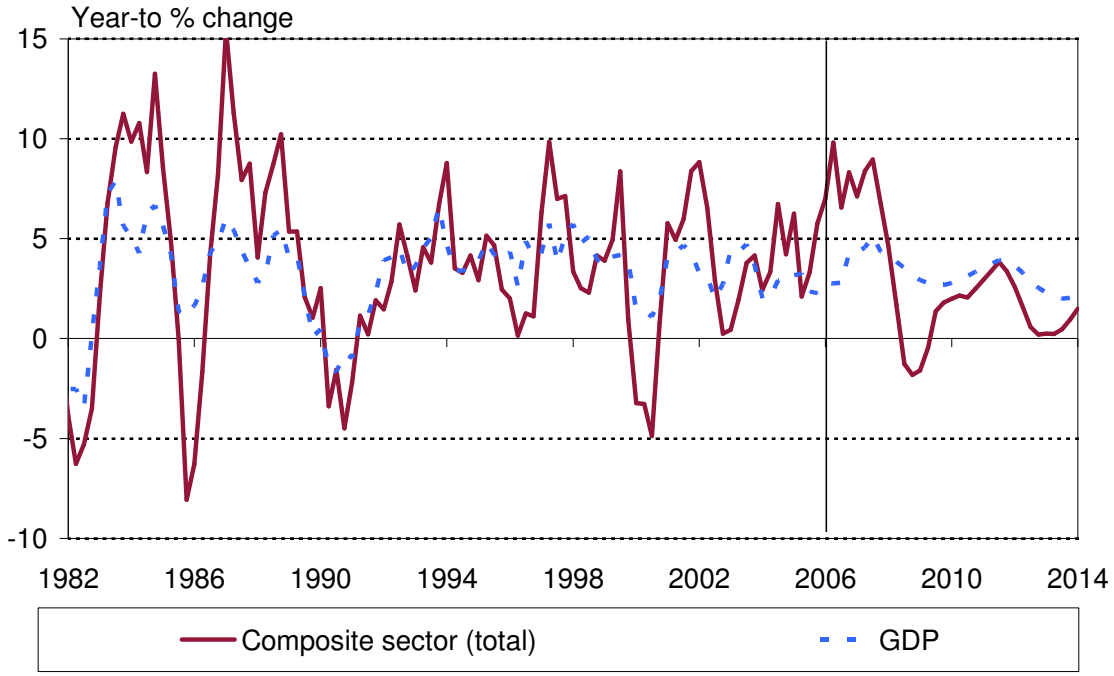
That will be most obvious in mining, whose employment surge has stalled in recent months, and in the utilities, where employment levels have fallen over the past year.

The exception is construction, where job gains remain rapid. However, as discussed above, Access Economics sees the cycle turning sharply against construction in 2009.

Other things equal, **that cyclical backdrop is one in which 'the cycle' will start to fade as a driver of excess demand (and hence wage) pressures across the three sectors as a whole**. Chart 2-12 shows the growth in the three sectors combined, with the slowdown in the medium term apparent.

Note that this 'composite' industry is the sum of the three sectors discussed above – there is no weighting applied to the industries as there is in the estimate of the composite sector wage growth in the rest of this report.

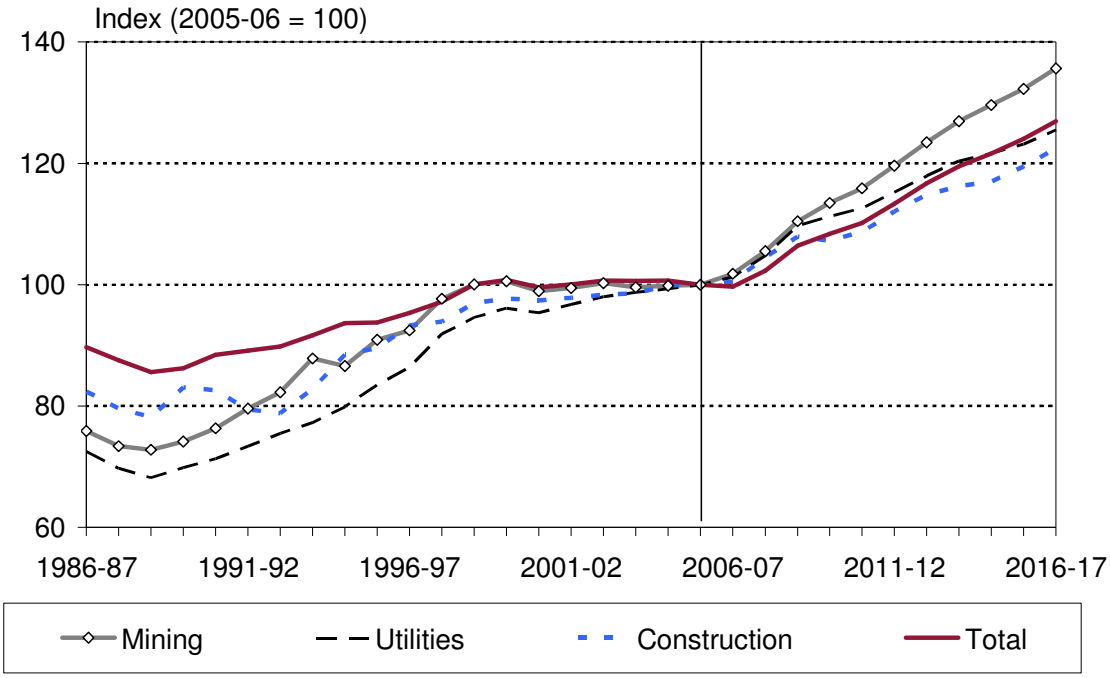
CHART 2-12: COMPOSITE OUTPUT GROWTH



3. NATIONAL RESULTS

Chart 3-1 shows the growth in the nominal LPI for the three sectors of the economy modelled directly in our forecasts, as well as the total LPI forecasts for Australia.

CHART 3-1: WAGE LEVELS (LABOUR PRICE INDEX BY INDUSTRY)



A number of key points are worth noting here.

The standout result of the past decade has been the movement of mining wages in line with overall wage movements – despite the recent surge in mining profits and employment.

Wage growth in mining has been low because of poor productivity performance in the sector – it has seen solid job growth, but it has been the slowest growing sector in terms of output.

Some explanations for this poor productivity performance in mining have been provided by the Reserve Bank of Australia (RBA) in its November 2006 *Statement on Monetary Policy*.

> The reasons for the current slowdown in estimated [nationwide] productivity are difficult to determine. Much of the apparent weakness has been concentrated in the mining sector, where labour productivity is estimated to have declined by around 12 per cent per annum in the past two years, lowering overall productivity growth by around ¼ percentage point per year. Three developments in the mining sector appear to have played a significant role in this outcome.
>
> First, production of oil and gold – which accounts for around one-third of mining industry value added – has declined significantly as some existing fields have been exhausted, with no commensurate reduction in total industry employment.

Second, efforts to boost capacity in the mining sector may have disrupted normal operations, particularly for coal and iron ore producers.

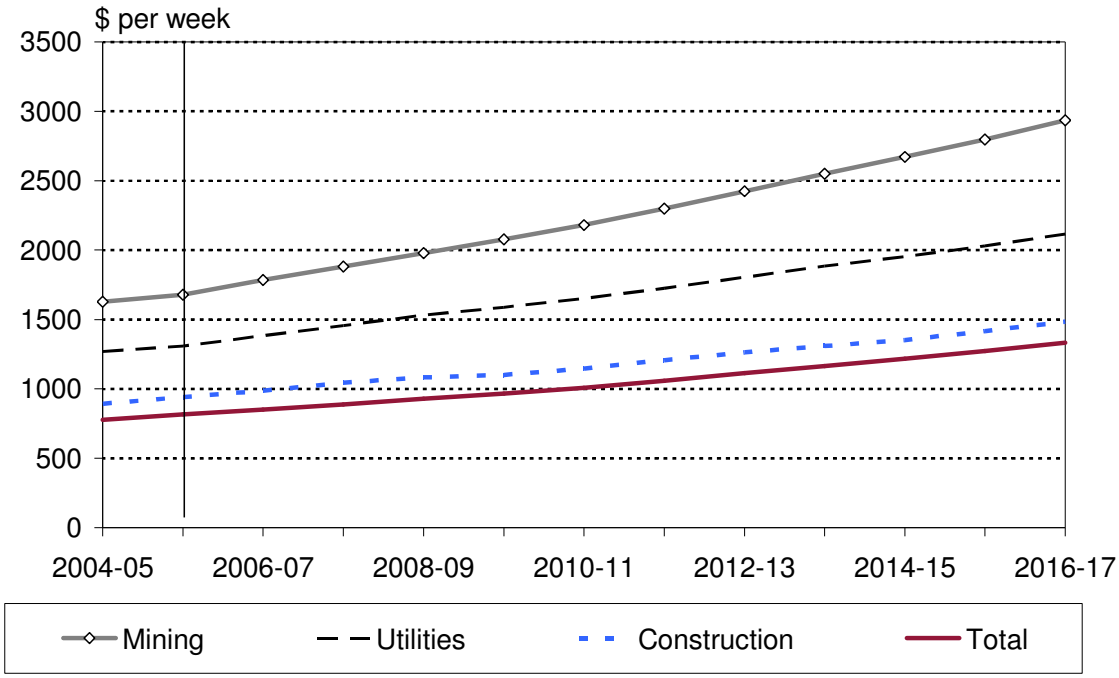
Third, with significant construction of new mining capacity occurring, some employees may be recorded as being in the mining sector rather than in the construction sector, thereby depressing measured productivity in mining.

However, with a large number of mining projects coming on line this year, including the Enfield oil project, mining output and productivity growth are expected to rise in the coming quarters, although the increases in production would have to be very large to offset the apparent decline in mining productivity seen in recent years.

The third of these explanations is particularly important in helping to explain why the hottest sector in the economy has merely had wage outcomes in line with the Australian average – rather than faster than the average. In effect, the third of the explanations above says that, compared with several years ago, the current employment and average wages as measured in the mining sector really reflects employment and average wages across a group which now consist of miners plus some construction workers. And as construction workers have lower wages, on average, than miners, that has artificially held back measures of wage growth in mining.

This also has implications for forecast rates of mining wage growth. If the current surge of mining development eases back, then so too will the extent to which workers who are really in construction show up as being miners. That would then see the unwinding of the earlier effect – and, other things equal, a period of faster wage growth in the mining sector.

CHART 3-2: WAGE LEVELS (AVERAGE WEEKLY EARNINGS BY INDUSTRY)



Hence Chart 3-1 shows mining sector wages growing at well above the national average across the forecast period. And, logically, that is therefore a reversion towards the relative growth patterns of the past.

Chart 3-2 shows the actual wage levels (average weekly earnings) for the industries covered in the report. (In contrast, Chart 3-1 showed these wages as index levels, with 2005-06 set to an index of 100.) All three sectors have wage levels above the average (of the fifteen industries covered in the ABS wage estimates, mining ranks as the highest paid, utilities is the second highest and construction is eighth).

Tables of results for each industry (in nominal and real terms and accounting from the impacts of productivity growth) are included in the specific sections in the next chapter.

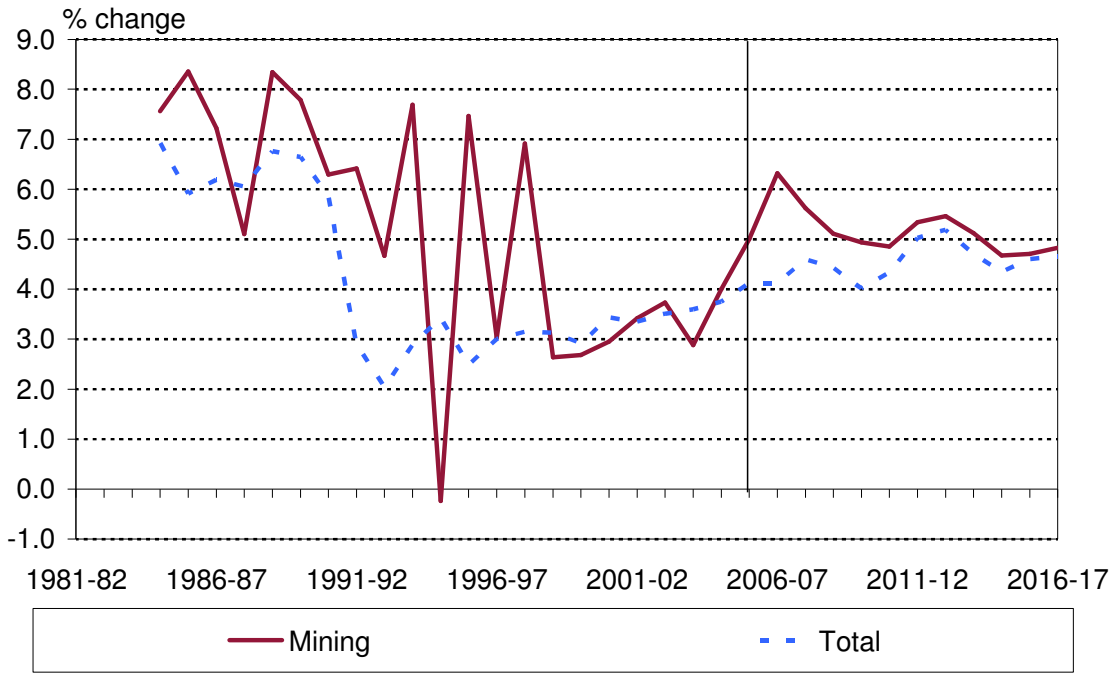
3.1 INDUSTRY-SPECIFIC WAGE OUTLOOKS

Chart 3-1 showed the expected movements in wage rates for each of the component industries. In the short term these three sectors move broadly together, all outpacing the national average, in line with the current strong employment growth in construction, which is affecting wages in all three sectors. However, once the current construction cycle eases, the outlook for the industries diverge. Mining, driven by international factors and by the measurement issues associated with the changing composition of its workforce, continues to see strong growth in relative wages, but wage gains in the more domestic-focussed sectors of utilities and construction ease back, with both sectors affected by the construction cycle.

3.1.1 MINING

After moving at or below the national wage of growth, mining industry wages began to rise sharply in late 2005. The outlook anticipates that the strength in mining output that is already underway will translate into an extended period of above-average growth in mining wages.

CHART 3-3: MINING INDUSTRY WAGE GROWTH FORECASTS



This excess growth is likely to be assisted by compositional changes within the mining workforce. The strong period of investment in the sector has driven up the share of mining workers engaged in construction (which is relatively lower paid than mining) rather than workers engaged in mining exploration (relatively higher paid).

In effect, one of the implications of the RBA analysis noted above is that periods of extensive construction in either the mining sector (which tends to have higher wages) may limit growth rates in wages in the sector as the composition of the industry workforce moves away from higher paid to lower paid workers.

Hence a key driver of the relatively rapid growth in mining wages across the forecast period is the unwinding of this process – with a strong rise in mining production relative to construction in the area.

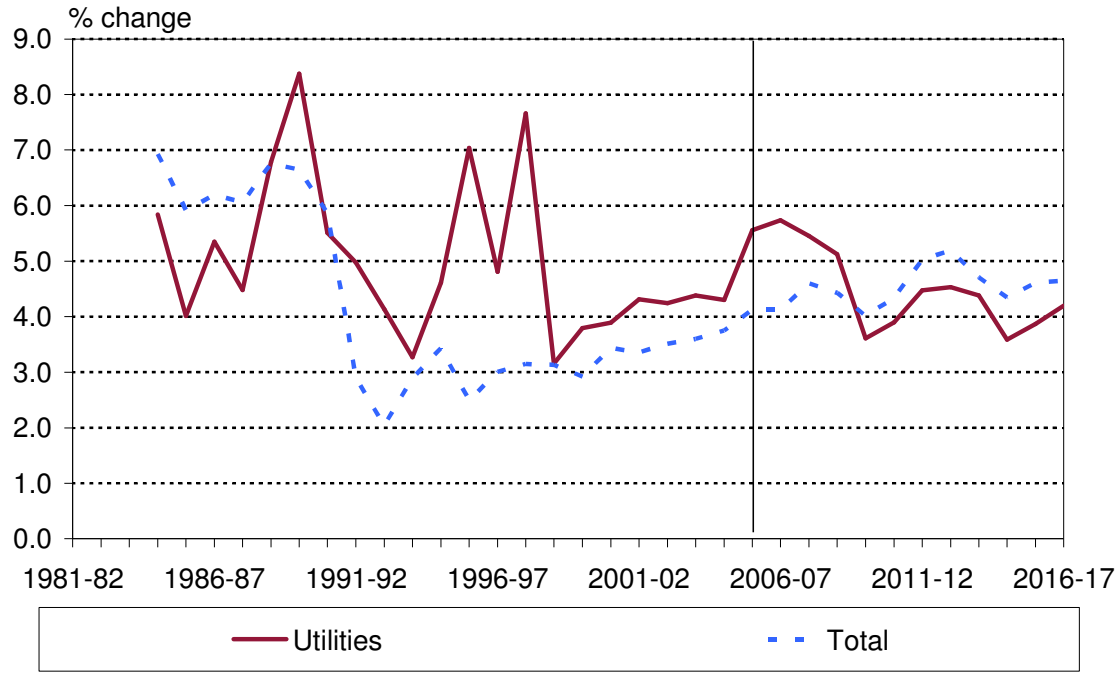
Or, in other words, measured wage gains in mining may have been artificially low in recent years, and that is expected to unwind in coming years.

3.1.2 UTILITIES

Wage growth in utilities and construction are more in line with national trends, although both sectors are notably more affected by the underlying construction cycle than other industries.

Utilities wage growth (see Chart 3-4) has exceeded the national average fairly consistently since the late 1980s, although that was a break from earlier periods when the sector lagged.

CHART 3-4: UTILITIES INDUSTRY WAGE GROWTH FORECASTS



As with mining, compositional effects are crucial. Since the mid-1990s, the share of workers in utilities classified as 'managers' or 'professionals' – the two highest paid occupational groups – leapt from 20% to 30% of the sector's workforce (nationally, the rise has been from 24% to 27%).

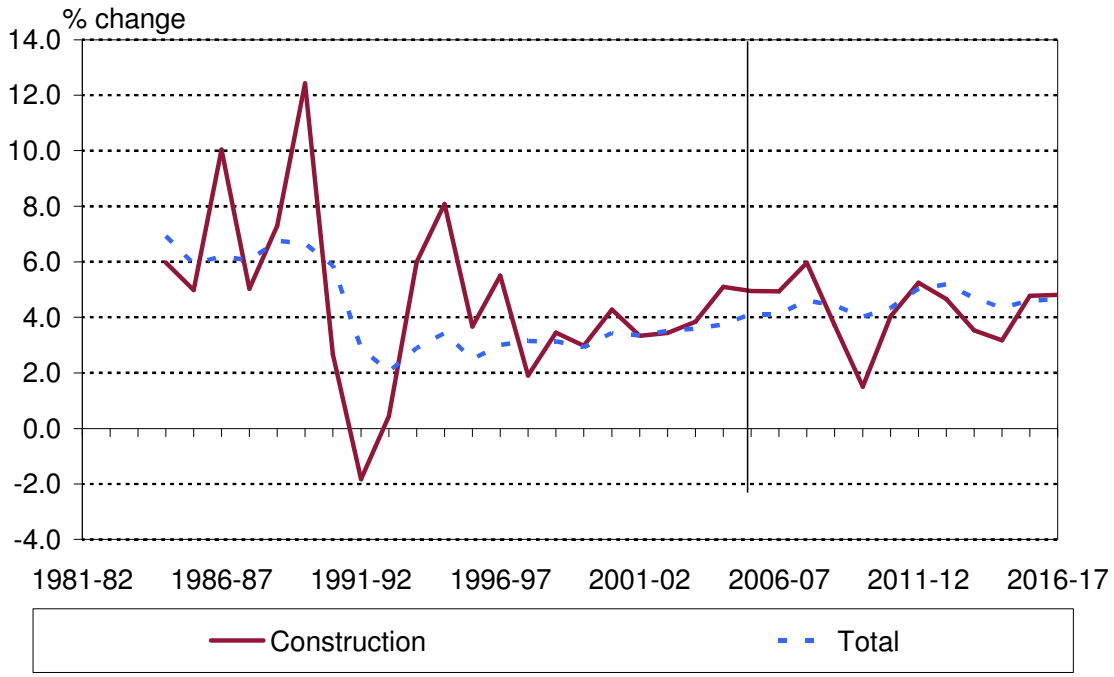
This trend, which occurred as the sector saw considerable technical and structural change, has only so far to run, and the 'boost' that it implies to sectoral wage growth is not anticipated to continue much further.

That said, the short term outlook is still quite strong. Growth in wages in utilities remains above the national average through to (and including) 2008-09, before dipping below the national average once the construction cycle turns. Wage growth in the sector matches the national average across the next decade.

3.1.3 CONSTRUCTION

The highly cyclical nature of the sector means that construction sector wages are the most volatile of all non-farm industries in the economy – a reflection of the lower skill levels in the industry, as well as the mobility of much of the workforce during cyclical swings, and the historical use of subcontract labour on relatively short term jobs.

CHART 3-5: CONSTRUCTION INDUSTRY WAGE GROWTH FORECASTS



That said, the past decade has been extremely positive for construction workers, with a series of overlapping construction booms combining to sustain wage growth in the industry at rates above the national average. Construction has seen a lift in relative wages as demand has been boosted since the late 1990s:

- First by the Olympic-driven construction boom (1998 to 2000).
- Then by the domestic housing construction boom (2001 to 2003).
- And finally by the broader infrastructure construction boom (since 2003).

In the past, periods of strong growth have often been followed by a short, sharp, shakeout in the sector (as is apparent in the results for 1991-92 shown in Chart 3-5, itself a response to the recession of 1991). We would be loathe to forecast that sharp a downturn in our

forecasts – although it could not be ruled out – but would expect the ending of the current construction upswing to be followed by a relative deceleration in wages in 2009-10.

That would still leave construction wages in a strong position compared with historical averages.

Beyond that, construction sector wages are likely to be relatively volatile, and attuned to the underlying housing cycle forecasts in the macroeconomic model.

Two important future phases are worth noting. First, as noted above, Access Economics expects a cyclical downswing in construction through 2009.

Second, further out in time, and commencing from about 2011, the retirement of the baby boomers will generate a period when commercial construction travels more slowly. For example, fewer office blocks will need to be built or refurbished once baby boomer retirement is occurring rapidly. In turn, that implies a period of slower growth for this sector. That is part of the reason why this sector may see the faster-than-average wage growth of the past decade reverse, although over the broader economic cycle the sector is projected to maintain much of the relative improvement it has seen.

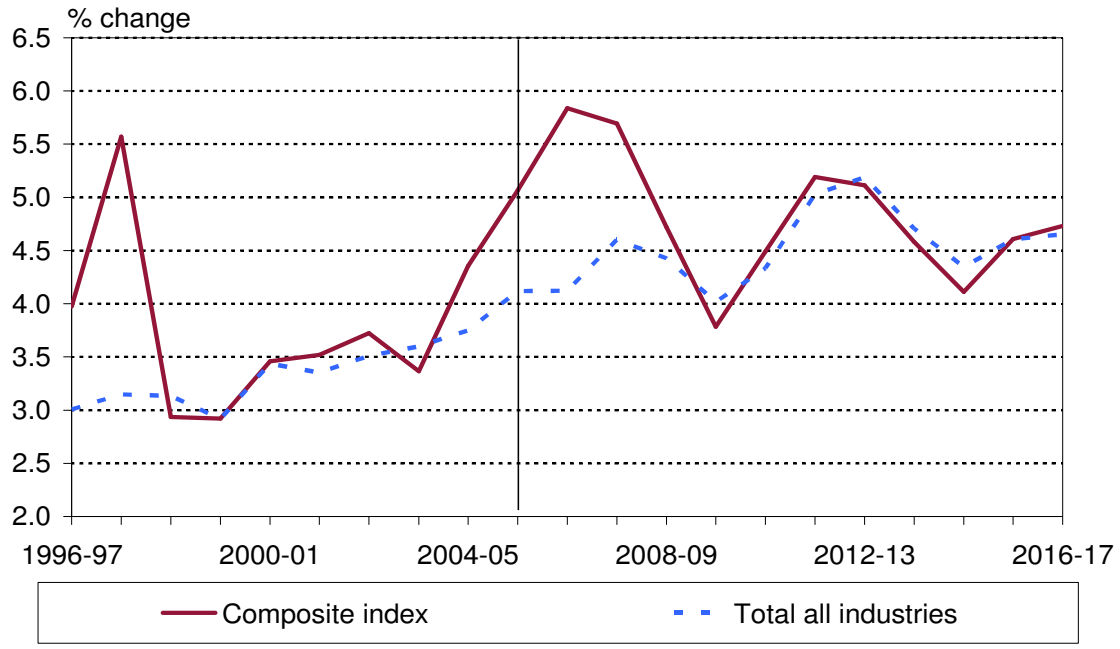
3.2 COMPOSITE INDEX OF ENERGY INDEX WAGES

The initial Access Economics report on labour prices focussed solely on wages in the utilities sector (also often referred to as 'electricity, gas and water') and total nationwide wages.

However, the specific wage rates that the AER wishes to forecast are a slightly broader sector of the Australian economy (while covering less than all of the utilities sector).

Using data supplied by Powerlink, Access Economics has created a composite wage index based on the wage forecasts outlined above.

CHART 3-6: GROWTH IN THE COMPOSITE INDEX (NOMINAL TERMS)



Changes in the relative composition of the relevant workforce could have implications for the average wage rates. Even if all workers received equal wage rises, the average wage across the sector could well rise by more or less depending on the relatively growth in different workforce sectors.

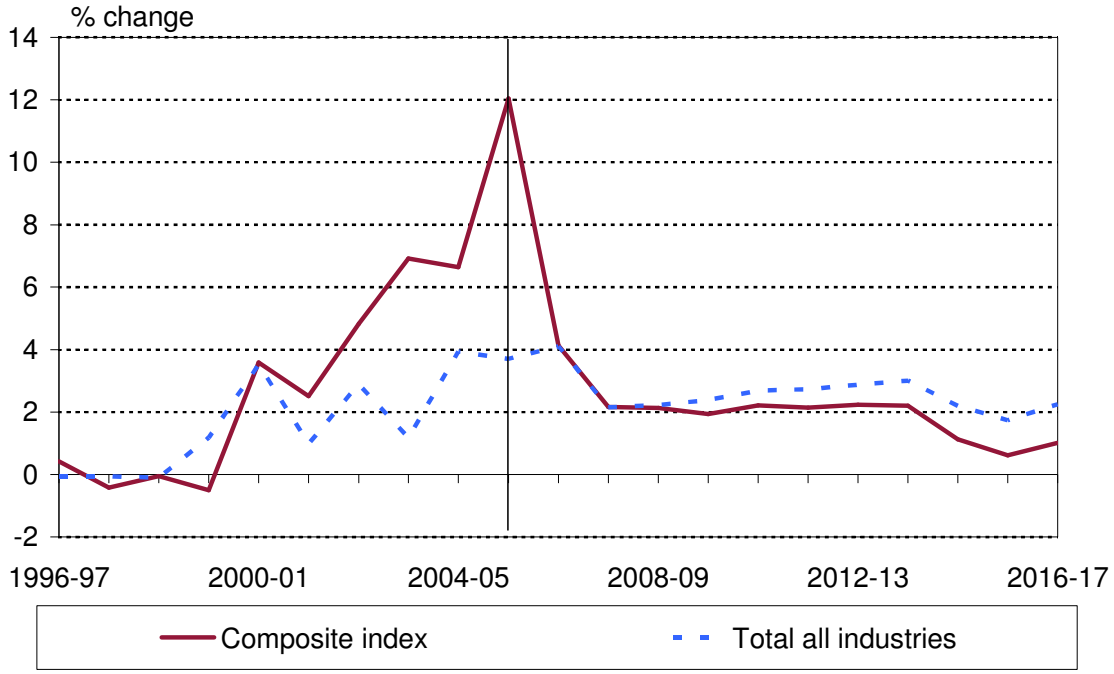
As the chart shows, overall wage growth is in the middle of a period of gradual upward trend – from above 3% a year in the late 1990s towards 4.5% in the next decade as strong demand for labour keeps capacity tight and unemployment low. Similarly, the future has a matching pattern, although that is partly due to supply weakness in labour markets (boomer retirement) rather than demand strength.

The composite index has seen particularly strong increases since 2003-04. That is expected to continue through both this year and next year, before easing in line with the wider construction cycle. Once that latter shakeout has occurred, wage growth is forecast to return to being in line with overall averages, although the extent and timing of any major construction cycles at that time would drive a larger wedge between the two series.

The outlook beyond 2008-09 shows a rapid deceleration in the composite index back towards the national average – where it remains basically for the rest of the forecast period.

That pattern would mirror the results seen from 1999-00 to 2003-04. This is, of course, dependent on the relative importance of each of the three sectoral components – as mining wages remain relatively strong, utilities wages growth close to average and construction wages slightly slower. The current weighting of the components (based on information from Powerlink on its workforce) gives a strong weight to mining, and least to utilities.

CHART 3-7: GROWTH IN THE COMPOSITE INDEX (NOMINAL TERMS – EXCLUDING PRODUCTIVITY)



Factors such as the strength of demand determine wage cycles. However, over time, the key underlying determinant of wage gains is productivity gains.

Removing this factor from the results illustrates the following key points:

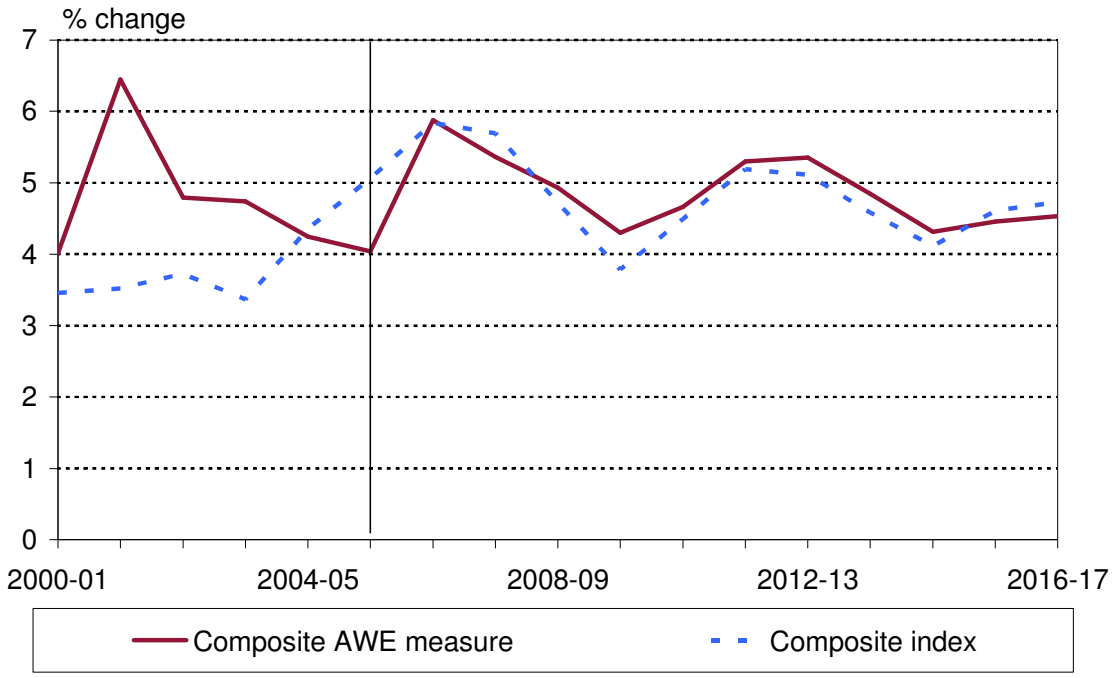
- Overall growth rates excluding productivity will generally reflect the effects of inflation, which is forecast to run at an average of around 2.4% over the course of the forecasts.
- Against that general backdrop, wages have risen faster than productivity in recent years amid the strong economy and a pick up in inflation.
- Growth in the composite index (covering the specific industry sectors of mining, utilities and construction), has been pushed along by the strength of job demand in those sectors relative to the supply of available workers, meaning that it has risen faster than productivity growth in recent years.
- The productivity increases in mining are forecast to be sufficient to offset the acceleration in industry wages. However, as noted earlier, some of the relative increase in mining wages in the forecast period is implicitly compositional, unwinding the impact of increasing construction in the industry over recent years. The latter is expected to unwind, boosting mining sector productivity (and hence suppressing the post-productivity measure of wages growth shown in Chart 3-7).

3.2.1 IMPACT OF CHANGING ENERGY SECTOR WORKFORCE COMPOSITION

As the RBA has noted, one of the possible contributing factors to movements in wages and productivity in the mining sector has been relative changes in the workforce composition.

As a comparative study, Access Economics has estimated what might occur if the weightings used in the composite index were allowed to drift over time – with the change in the weights reflecting broader trends in the national workforce. So, with a construction downturn anticipated in the medium term, the weight given to construction's contribution to the overall index would tend to fall. The actual impact on specific workforces would vary on a case-by-case basis, but the overall trend would be indicative of what might be expected.

CHART 3-8: WAGE GROWTH ALLOWING FOR COMPOSITIONAL CHANGE



The results are shown in Chart 3-8, with the AWE measure allowing the relative movement in workforce shares to be reflected in the proportion of workers receiving the different wage levels seen in different industries. So, as mining wages are relatively high, and mining growth relatively strong in the forecast period, that tends to boost the AWE measure of wages in the longer term. Current trends (which see construction employment as the major beneficiary of current Australian output growth) imply that the weighted level of wage growth is lower than it would be on a comparative-person basis (that is, the wage bill without compositional effects).

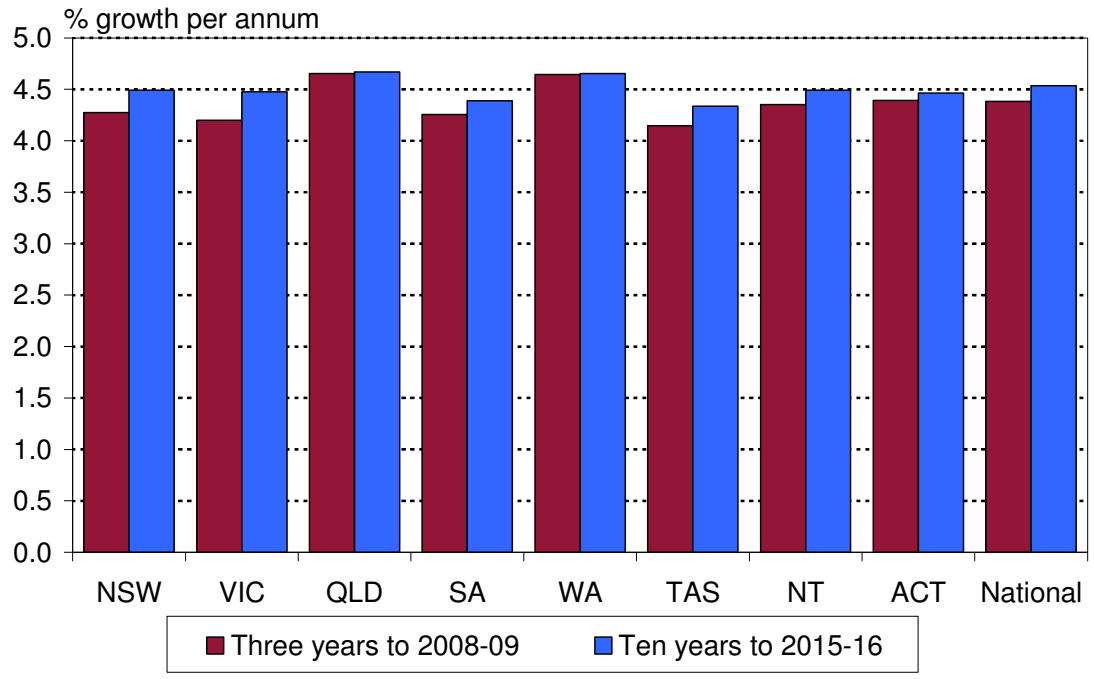
4. STATE RESULTS

Differentials in wage levels between States – which can be significant – may reflect a number of factors, including the relative cost of living.

The growth in wage indexes tends to be broadly similar between States over time. Indeed, arguably the greatest cause of regional deviation may often merely be statistical anomalies in the sampling process used by the ABS.

This implies that wage differentials between States are broadly maintained over the medium term. Over the longer term these relative levels may change, with faster growing States seeing local wage levels increase relative to those in slower growing States, but with the willingness of workers to move (and migrants to go to States with healthier economies) limiting the extent to which permanent differentials develop.

CHART 4-1: WAGE GROWTH BY STATE (ALL INDUSTRIES)



As Chart 4-1 suggests, growth in Queensland and Western Australia will lead the nation in the coming decade, with Tasmania and South Australia lagging. Overall growth rates edge up over time (as implied earlier, for example in Chart 3-6), although the difference in rates between the medium and longer terms is less than 0.25%.

The tables below show nominal LPI growth by State in the three component sectors plus the composite index. Results here show the forecasts for the next three financial years, an average rate of growth across that period, and the average forecast rate of growth from 2005-06 to 2015-16.

Difficulties in State-specific productivity estimation

Unfortunately, the way output data for industries at the State level is released can make estimation of State productivity growth somewhat fraught. While industry output at a national level is a 'value added' measure – at a State level the output level is effectively a measure of compensation of employees plus estimated industry profits. The first component is a broader measure than just wages, and can be affected by factors such as superannuation payouts, workers compensation cases and (crucially for this sector) severance packages.

Given that most State have seen a large drop in employment over this time – and not all during consistent time frames – the 'compensation' figures in some years will be boosted by payments to redundant workers, precisely at the time that the true measure of cost of employment is actually falling. The compensation payouts are effectively 'bringing forward' a proportion of the future wages that would otherwise need to be paid if the employees were retained – the benefits being seen in lower wage costs in later years.

The effect of these impacts are to complicate the estimation of output per worker – in effect future wages are included in the output side (lifting the numerator in the productivity equation) and the lost employees are not included in the employment side (lowering the denominator in the same estimate). These problems also limit the ability to estimate average wages via this method (as, wages per worker is a common alternative measure of workers payments to average weekly earnings at the national level). As noted in the methodological appendix, the problem has been addressed (to an extent) by using a weighted average of basic State estimates of industry productivity estimates and national trends to adjust State LPI growth estimates – with the weighting on national trends greater for the smaller jurisdictions.

4.1 SECTOR-SPECIFIC FORECASTS

TABLE 1: NOMINAL LPI GROWTH BY STATE – MINING

Mining	2006-07	2007-08	2008-09	Next 3 yrs	Next 10 yrs
NSW	4.9	6.2	5.7	5.6	5.2
VIC	5.8	7.1	5.5	6.1	5.3
QLD	7.9	6.2	5.1	6.4	5.3
SA	5.5	6.7	5.5	5.9	5.3
WA	7.5	6.3	5.2	6.3	5.4
TAS	5.9	5.7	5.1	5.6	5.0
NT	6.0	6.2	5.2	5.8	5.2
ACT	5.1	6.7	5.5	5.8	5.3
Australia	**6.8**	**6.3**	**5.3**	**6.1**	**5.3**

TABLE 2: NOMINAL LPI GROWTH BY STATE – UTILITIES

Utilities	2006-07	2007-08	2008-09	Next 3 yrs	Next 10 yrs
NSW	5.7	5.7	5.0	5.5	4.5
VIC	5.2	5.5	5.0	5.2	4.4
QLD	7.4	6.0	5.1	6.2	4.7
SA	5.3	5.6	5.0	5.3	4.4
WA	4.4	6.0	5.3	5.2	4.4
TAS	4.8	5.4	4.7	4.9	4.1
NT	5.3	5.9	5.4	5.5	4.5
ACT	5.5	5.7	5.1	5.4	4.4
Australia	**5.6**	**5.7**	**5.1**	**5.5**	**4.5**

TABLE 3: NOMINAL LPI GROWTH BY STATE – CONSTRUCTION

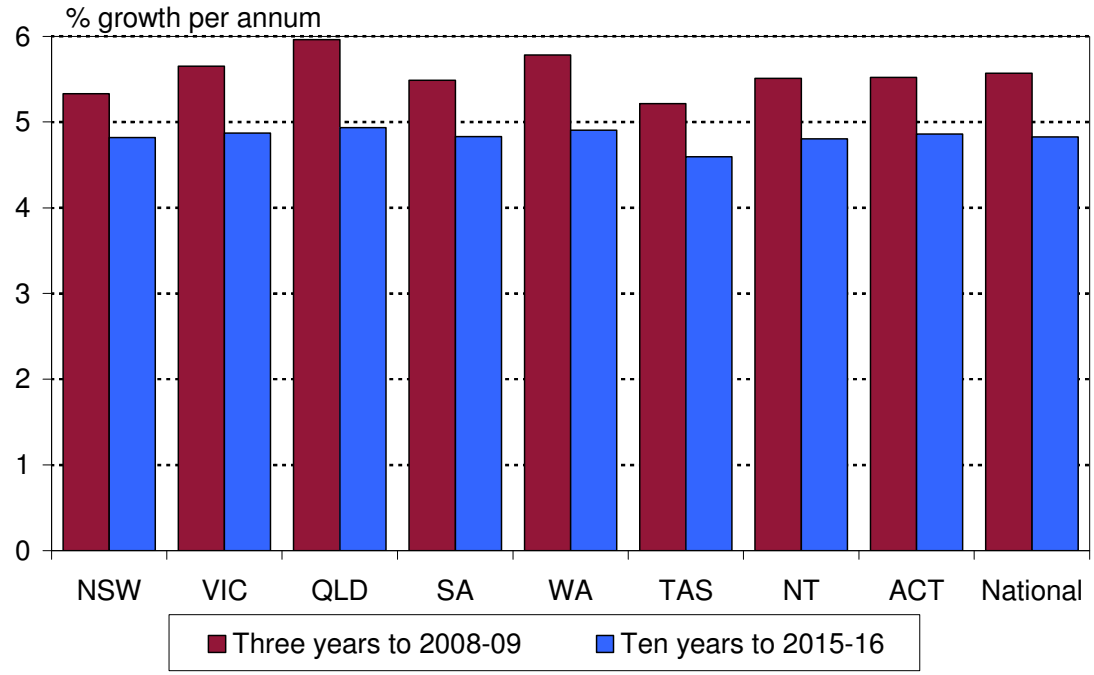
Construction	2006-07	2007-08	2008-09	Next 3 yrs	Next 10 yrs
NSW	4.3	6.1	3.9	4.8	4.1
VIC	4.9	6.0	3.8	4.9	4.2
QLD	5.4	5.8	3.7	5.0	4.2
SA	4.7	6.0	3.7	4.8	4.1
WA	4.6	6.6	3.7	5.0	4.2
TAS	4.7	5.9	3.3	4.6	3.9
NT	4.8	6.1	3.8	4.9	4.2
ACT	5.1	6.3	3.8	5.0	4.2
Australia	**4.8**	**6.1**	**3.8**	**4.9**	**4.1**

4.2 COMPOSITE INDEX

As with the national results, a composite index has been created for the energy sector.

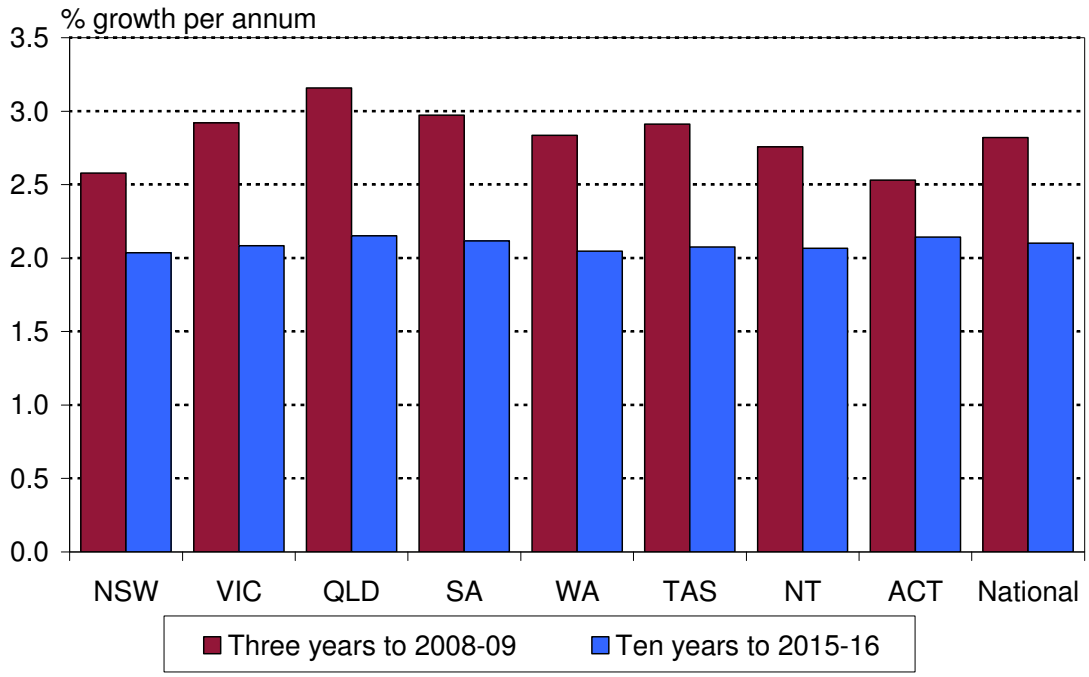
Growth results are shown in Chart 4-2 (below). Shorter term growth rates are strongest in the key mining and infrastructure States (Queensland and Western Australia) and weakest in the economy laggard New South Wales.

CHART 4-2: GROWTH IN THE COMPOSITE WAGE INDEX (NOMINAL)



However, growth rates vary far less over the next decade. Over the longer term, substitution of labour becomes more of a factor. For example, continued interstate migration from slower to faster growing States eventually mitigates the relative demand shortages in Queensland and Western Australia, limiting the scope for continued strong growth in local wages.

CHART 4-3: GROWTH IN THE COMPOSITE WAGE INDEX (NOMINAL – EXCLUDING PRODUCTIVITY)



Excluding the effects of productivity across industries at the State level is fraught with difficulties. Chief among these is the lack of detailed industry-specific output numbers on a value added basis at the State level (industry output numbers for States are on an income basis, adding the wages and profits components only).

Access Economics has limited the variation in relative productivity levels by State – linking relative State growth in productivity to broader measures than the industries under direct analysis here.

Even so, slower growing States such as Tasmania and South Australia will likely exhibit slower productivity growth, lifting their effective wage rises (the actual growth in labour costs felt by businesses) from below the average (see Chart 4-2) to above it (see Chart 4-3). As with the overall wage rates shown above, the rates of growth tend to move closer together over the longer term.

As with the overall growth rates seen in Chart 4-2, the decline in rates of growth after the first three years shows the relatively strong growth expected in wages in mining and the utilities (and, to a lesser extent, construction) across the short term.

TABLE 4: NOMINAL LPI GROWTH BY STATE – COMPOSITE INDEX

Composite index	2006-07	2007-08	2008-09	Next 3 yrs	Next 10 yrs
NSW	4.8	6.1	5.1	5.3	4.8
VIC	5.5	6.5	4.9	5.7	4.9
QLD	7.1	6.1	4.7	6.0	4.9
SA	5.2	6.3	4.9	5.5	4.8
WA	6.2	6.3	4.8	5.8	4.9
TAS	5.4	5.7	4.5	5.2	4.6
NT	5.6	6.1	4.8	5.5	4.8
ACT	5.2	6.4	5.0	5.5	4.9
Australia	**5.8**	**6.1**	**4.8**	**5.6**	**4.8**

TABLE 5: NOMINAL LPI GROWTH BY STATE – ALL INDUSTRIES

All industries	2006-07	2007-08	2008-09	Next 3 yrs	Next 10 yrs
NSW	3.9	4.5	4.4	4.3	4.5
VIC	3.7	4.4	4.4	4.2	4.5
QLD	4.7	4.8	4.5	4.7	4.7
SA	4.1	4.5	4.2	4.3	4.4
WA	4.7	4.7	4.5	4.6	4.7
TAS	4.4	4.2	3.8	4.1	4.3
NT	4.0	4.5	4.6	4.4	4.5
ACT	4.2	4.5	4.4	4.4	4.5
Australia	**4.1**	**4.6**	**4.4**	**4.4**	**4.5**

DATA SOURCES

While modelling results are primarily derived from the *Access Economics Macro Model* and related specific models tailored for the purpose of this report, a number of other data sources have been used.

ABS Catalogue 5206.0, *Australian National Accounts: National Income, Expenditure and Product*, December 2006.

ABS Catalogue 5220.0, *Australian National Accounts: State Accounts*, 2005-06.

ABS Catalogue 6291.0.55.003, *Labour Force, Australia, Detailed, Quarterly*, February 2007.

ABS Catalogue 6302.0, *Average Weekly Earnings (Australia)*, November 2006.

ABS Catalogue 6345.0, *Labour Price Index (Australia)*, December 2006.

Access Economics' *Business Outlook*, March 2007.

Access Economics' *Minerals Monitor*, various issues.

HIA Austral Bricks *Trades Report*, various issues.

APPENDIX 1: BROADER TRENDS IN WAGES, PRICES AND PRODUCTIVITY

This Appendix addresses the Australia-wide price and wage outlook.

In brief, underlying consumer price inflation was on the rise for most of 2006, but it ended the year trending down. It may get no worse during 2007, and may ease during 2008. Demand growth is no longer quite so rapid, and supply growth is starting to boost the productive capacity of the economy, so we suspect that capacity constraints may start to ease from here.

If so, then, with a lag, so too may pressures on underlying inflation. That will be aided by the fall in headline CPI price pressures – bananas are once again cheap and petrol prices at the pump are well off their peaks. Headline inflation could then act as a leading indicator of underlying inflation.

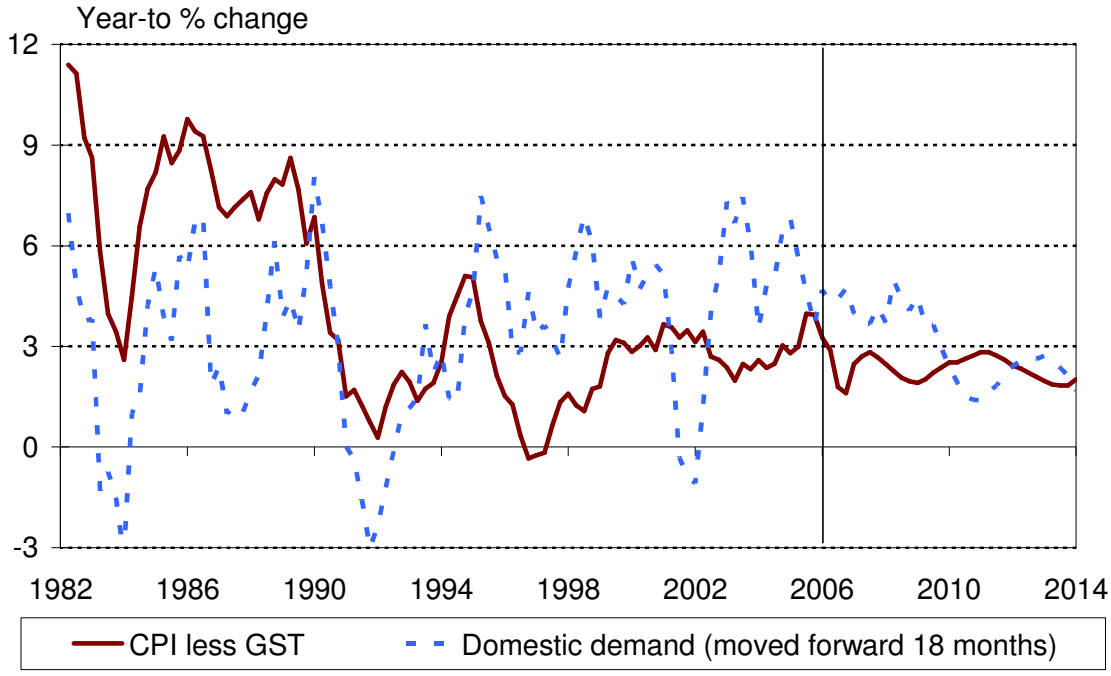
There is lots of good news on the inflation front – new capacity is coming on stream; falling headline rates of inflation are dragging down the expectations of businesses and workers as to future inflation; recent interest rate rises are still working their way through the system (thereby easing demand pressures); flattening commodity prices are reducing the momentum behind cost pressures; and lower oil prices are flowing into transport costs. Yet the other side of the ledger still remains risky too – capacity is tight as drum; more money is flowing out of Canberra than there's water flowing down the Murray (boosting demand side risks); and a bunch of domestic-focused costs (well away from the competitive constraints imposed by China) are rising fast, such as housing rentals, childcare costs and health and education costs.

The headline CPI grew by 3.3% through 2006. It had been faster still, but petrol and banana prices have now returned closer to their normal levels. And underlying inflation, having crept up through most of 2006, stopped accelerating towards the end of the year, although the Reserve Bank's preferred measures of underlying inflation remain very close to 3%.

Where to next? As Chart 4-4 shows, demand growth has been stunningly strong for some time. That has left it increasingly running up against supply constraints. The result – 'too much demand, too little supply' – has been spooking the Reserve Bank. It responded with three interest rate rises during 2006, and they are starting to haul back the pace of domestic demand growth, but capacity utilisation remains near record highs. That gives pricing power to some domestic-focused businesses. For example, recent times have seen landlords able to charge notably higher rents (as renters can't afford to buy a home at today's inflated prices), while a lack of competition from the rest of the world means that tight labour markets and the increasing generosity of government subsidies has translated into higher prices for the likes of childcare and health and education. Indeed, demand pressures help explain why inflation is higher among the non-tradables than tradables, as China constrains the ability of businesses to charge extra where there is an import alternative.

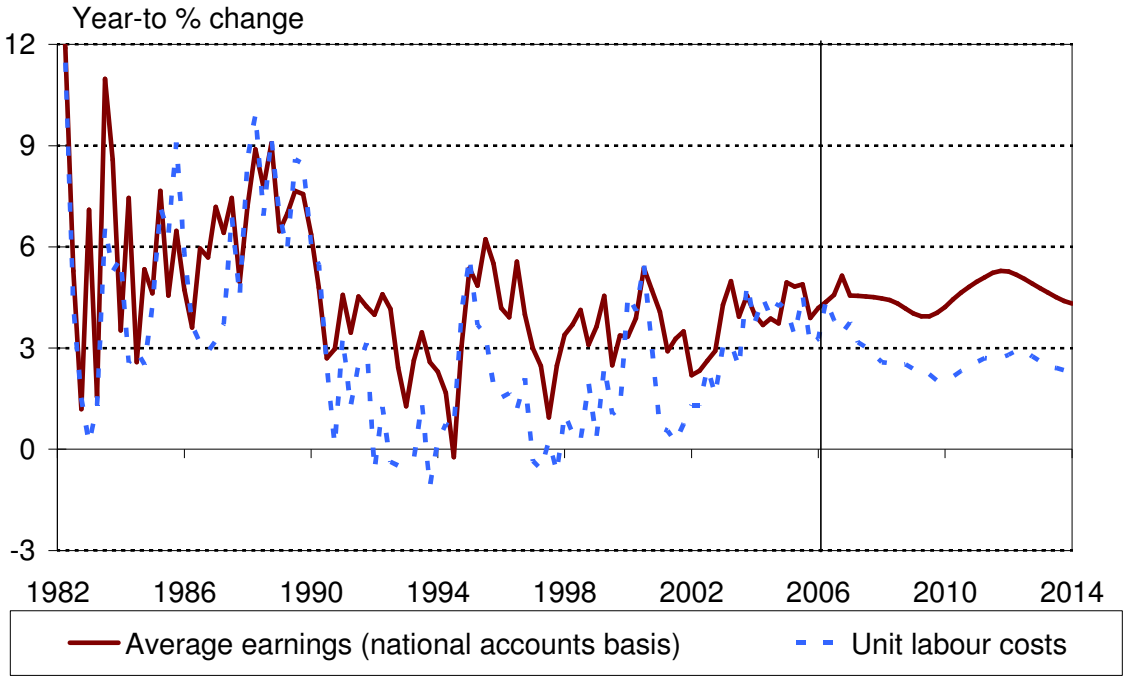
And demand also helps to explain why prices in the past year have risen faster in the likes of Darwin (5.0%) and Perth (4.4%) than in Hobart (2.5%), with that differential largely a function of differing rates of housing price growth and rental growth. (Rents are now rising at the fastest rate since 1992.)

CHART 4-4: THE LAGGED IMPACT OF WAGES ON PRICES



Access Economics forecasts that the recent interest rate rises will continue to see demand growth moderate, and hence they will help hold back price growth through 2007, provided spending and tax cut promises by the Federal Government and Opposition in an election year do not tempt the Reserve Bank into another rate rise. We are certainly hopeful that demand will be less of an inflation risk in 2007 and 2008 than it has been in the last handful of years.

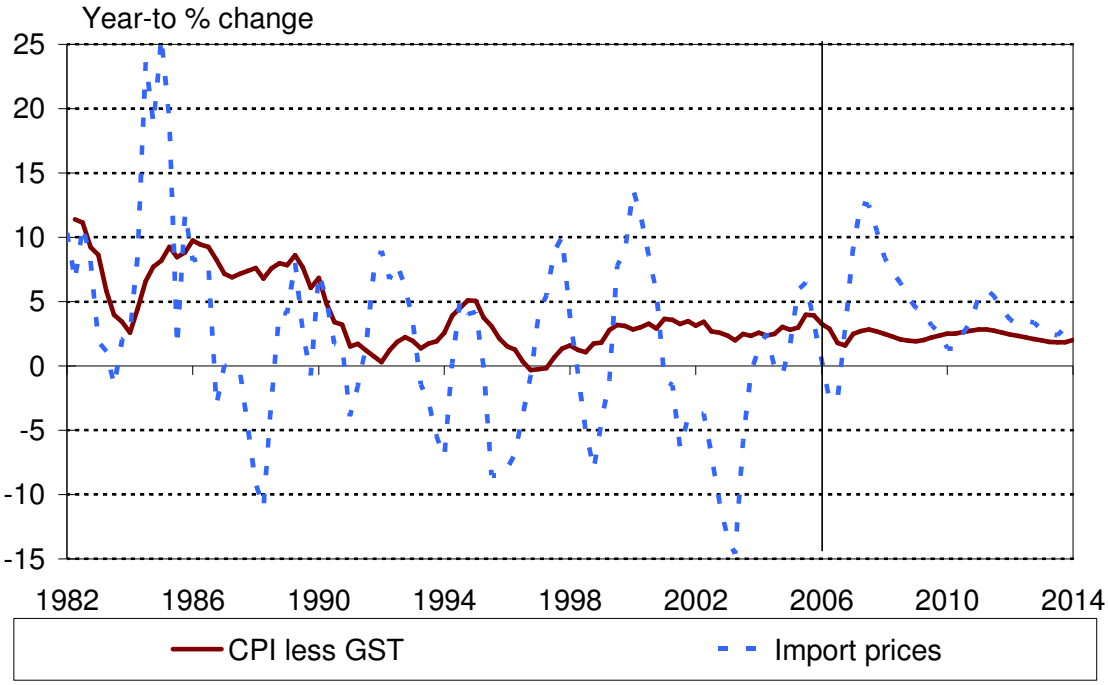
CHART 4-5: WAGES AND LABOUR COSTS



But that won't merely be due to slower demand growth – it will also be due to faster supply growth given the boom in business investment in recent years (now equipping each Australian worker with more machines to work with, as well as the sharp lift in participation that has more workers willing to work than ever before).

The biggest component of prices is labour costs – as shown in Chart 4-5. Gains in the latter have picked up pace. That is not because wage growth has particularly gathered speed, but because productivity gains have fallen away. Productivity reduces costs to business, and hence the slower productivity gains of recent years (seen later in Chart 4-11) have been a problem. Access Economics sees divergent paths for the component parts of labour cost growth from here on. With job markets tight, chances are that wage growth will continue to edge up from here. Yet, as we have done for quite some time, we see productivity gains also leaping on the back of the big spend in business investment in recent years. The good news on the latter should outweigh the bad news of the former, and see unit labour cost growth weakening off over the next year or two. Our view on this is not a consensus one, but the latest data is clearly moving our way. That is why we suspect that labour cost growth may not be quite the bogey man on the inflation front seen by some analysts.

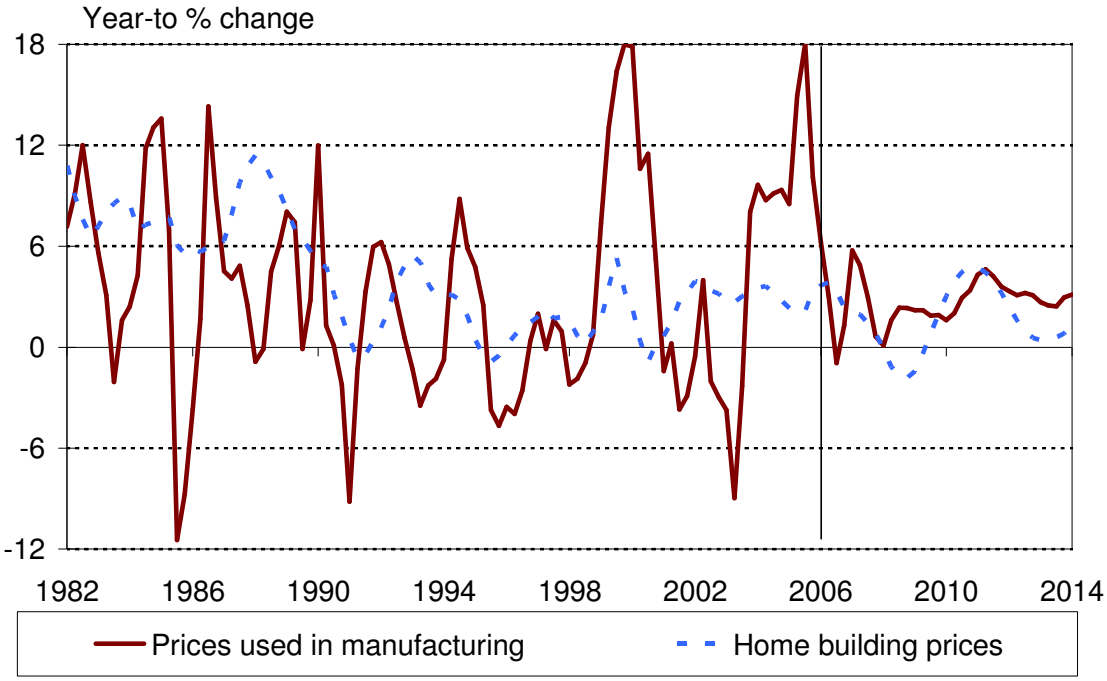
CHART 4-6: IMPORT PRICES AND INFLATION



The third building block of inflation prospects lies with import prices (see Chart 4-6). The latter bounce around with the $A, but also benefit from the steady trend towards lower prices from increased globalisation of manufacturing production. The list of 'automatic' good news on import prices is impressive and pervasive – the likes of clothes, shoes, TVs, computers and appliances all tend to fall in price over time. Indeed, anything and everything that could be made in China (whether or not it is made there yet) tends to be falling in price over time.

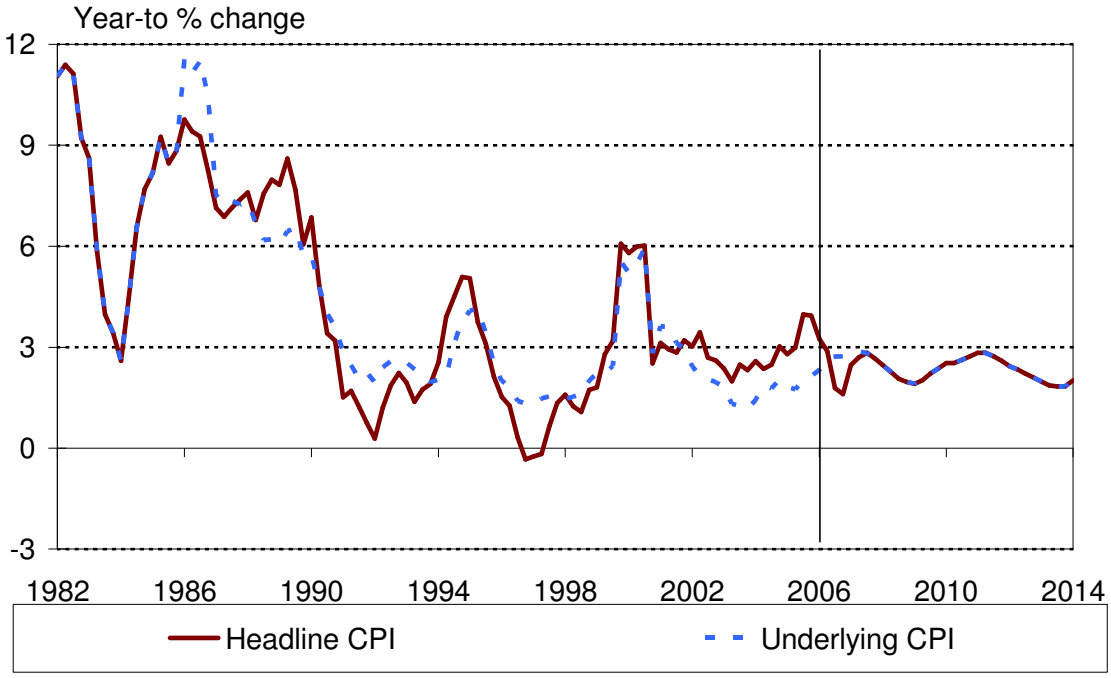
But the volatility in Chart 4-6 doesn't come from the latter component – it comes from the $A. We see the latter slip-sliding away alongside commodity prices in 2008 and 2009, sending import prices spiking then. So while demand risks on the inflation front may have peaked, import price risks may be a problem for consumer price inflation in 2008 and 2009.

CHART 4-7: PRICE OF MATERIALS USED IN MANUFACTURING AND HOME BUILDING



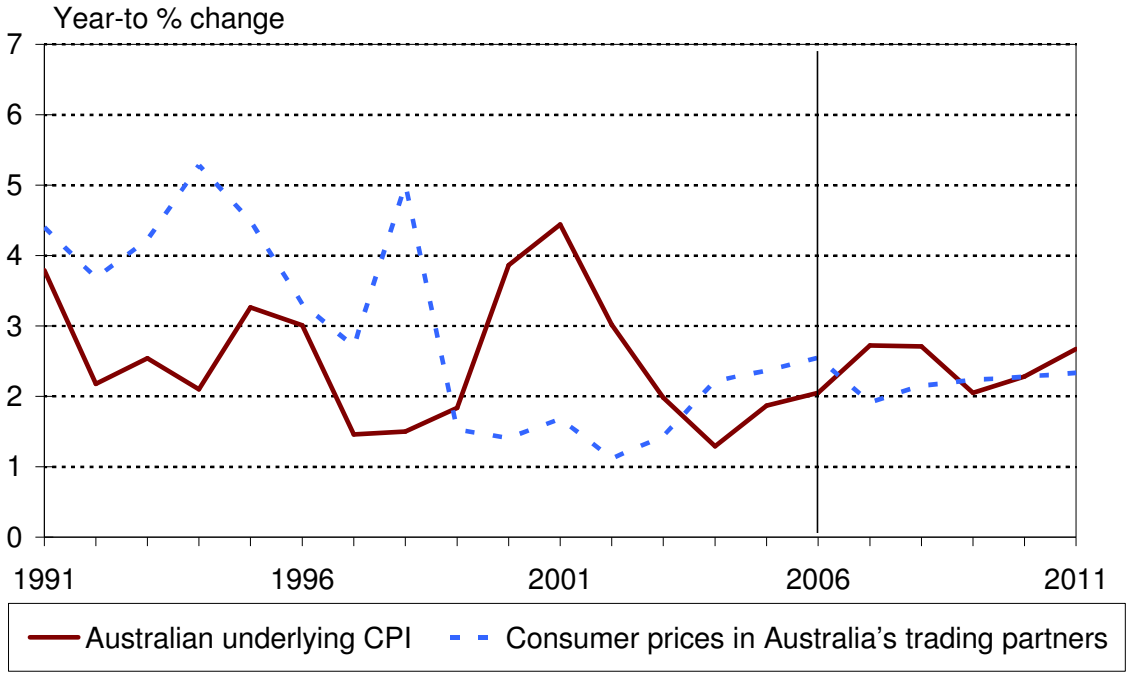
A whole bunch of upstream prices have been threatening to tumble downstream for some time. Final producer prices rose 3.5% during 2006, with the domestic component of that up 4.3%, and the imported component 1.5%. (Excluding fuel prices, the latter is rather higher, at 3¾%). That said, although there are still clearly upstream price pressures in the Australian economy, they are no longer worsening. There are continuing pressures on construction costs, metals prices and a series of drought affects on some farm prices. But elsewhere the producer price risks – like those in the wider economy – may have stopped accelerating in the closing months of 2006. Chart 4-7 suggests that we are not out of the woods yet, but Access Economics is hopeful that upstream price pressures won't get any worse from here.

CHART 4-8: HEADLINE AND UNDERLYING CPI



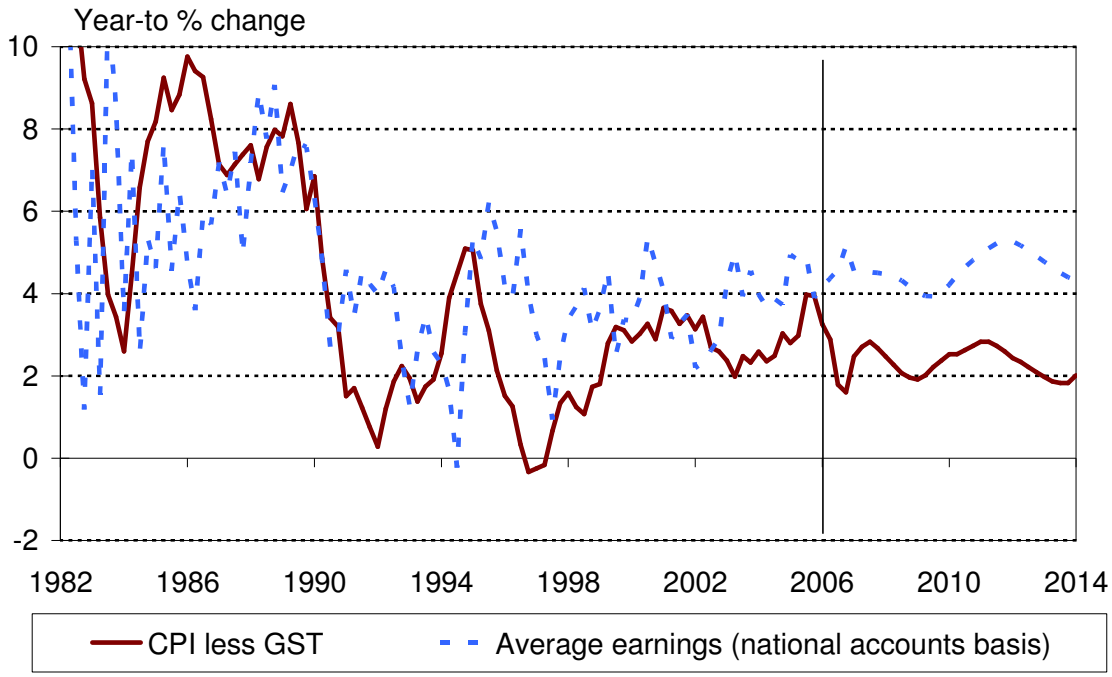
For the past year and a half, we have been less concerned than the Reserve Bank about the risk of an inflation breakout. Underlying inflation was on the rise for most of 2006, but it ended the year trending down, and we are hopeful that underlying inflation may get no worse during 2007, and may turn down during 2008. Demand growth is no longer quite so rapid, and supply growth is starting to boost the productive capacity of the economy.

CHART 4-9: AUSTRALIAN AND FOREIGN CONSUMER PRICE INFLATION



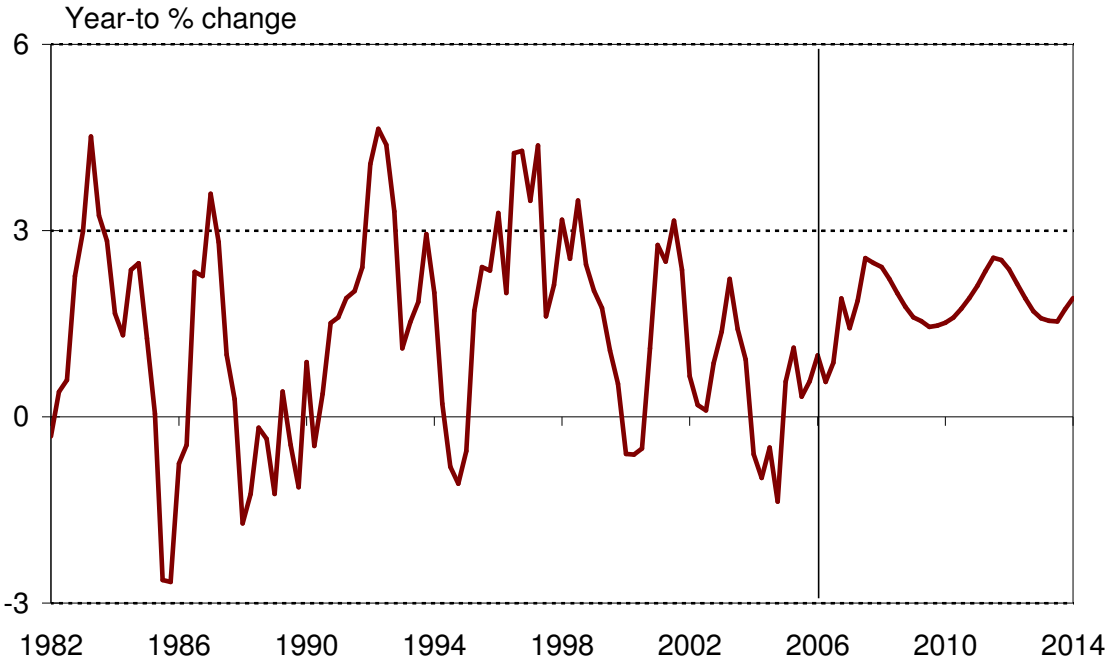
The latter development has been much masked by the drought, but we suspect that capacity constraints may start to ease from here. If so, then, with a lag, so too may pressures on underlying inflation. That will be aided by the fall in headline CPI price pressures – bananas are once again cheap and petrol prices at the pump are well off their peaks. Headline inflation could then act as a leading indicator of underlying inflation. If so, that would add to the potential for good news on the latter, as Chart 4-8 shows. Even so, our underlying inflation may move above that seen in our major trading partners (see Chart 4-9).

CHART 4-10: WAGES AND INFLATION



Although wage growth has clearly edged up, the emphasis is more on 'edged' than on 'up'. Given the unemployment rate is the lowest in 30 years, and profits are riding high, it may have been no surprise had wage growth headed higher through this upswing. Workers have more bargaining power than at any time since the early 1970s. But Australia's wage setting is much more decentralised (and 'deinstitutionalised') than it used to be. Wage growth is faster where it needs to be – up 6.5% in the last year in mining, 6.0% in the utilities and a healthy 5.1% in construction. But gains are low where demand has been patchier, with wages up just 2.0% in the past year in accommodation and cafes, and a bare 2.4% among those working in retail. That sectoral split safely reflects the relative pace of different industries within the economy. The same is true of the geographic split in wage gains – wages are up 4.6% in the past year in Western Australia and 4.5% in Queensland, but are slowing in the likes of Victoria (at 3.5%), SA (3.7%) and NSW (3.8%).

CHART 4-11: PRODUCTIVITY GROWTH



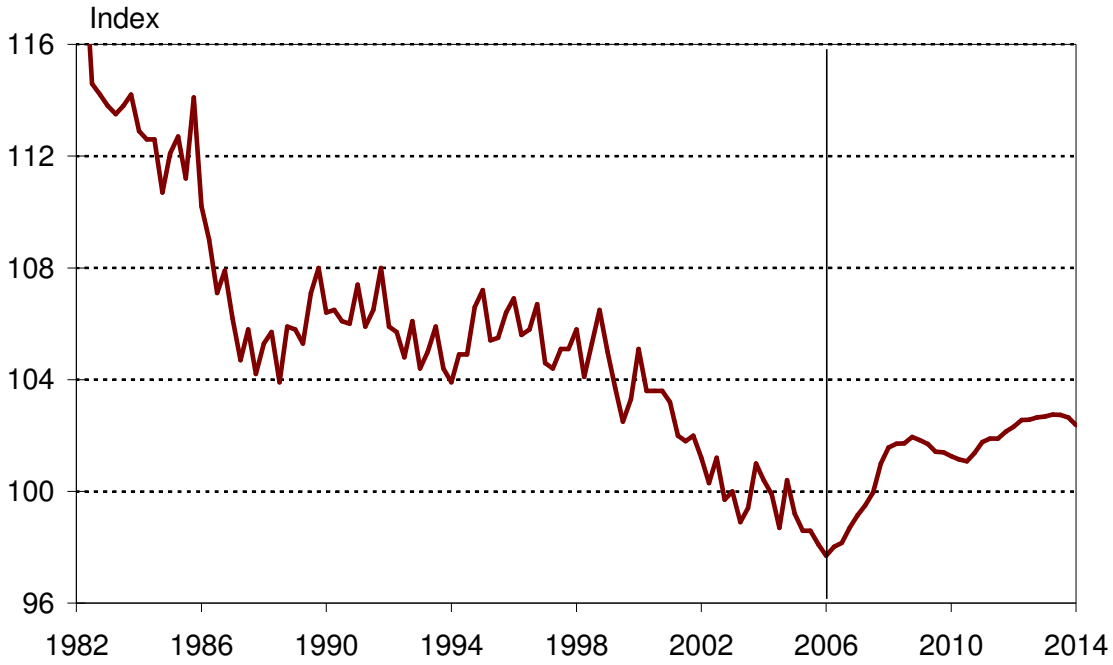
Other measures of wage growth have also been well behaved. Wage gains as measured by the national accounts were 4.2% through 2006, while average weekly earnings rose 4.6% and the ordinary time earnings of adults rose by 3.2%. Similarly, the enterprise bargaining data kept by the Department of Employment show that all current agreements are advancing at a 4.0% annual rate – as they have for quite some time now – with the private sector slower.

Quarter	Private sector			Public sector			Total			Total
	# of agmts	Employees ('000)	Wage rise (% annual)	# of agmts	Employees ('000)	Wage rise (% annual)	# of agmts	Employees ('000)	Wage rise (% annual)	All current agreements
Jun-05	1221	161.9	3.8	92	58.3	4.3	1313	220.2	4.0	4.0
Sep-05	1766	102.6	4.3	117	65.6	3.8	1883	168.2	4.0	4.1
Dec-05	2535	117.4	4.2	145	143.4	4.7	2680	260.8	4.5	4.1
Mar-06	2025	152.5	4.0	132	96.8	3.7	2157	249.3	3.8	4.1
Jun-06	2065	91.9	4.0	54	79.1	4.6	2119	171.0	4.4	4.1
Sep-06	1343	133.1	3.2	71	69.6	4.4	1414	202.7	3.7	4.0
Dec-06	1954	210.9	3.7	63	16.1	4.4	2017	227.0	3.8	4.0

Source: Department of Workplace Relations Agreements database

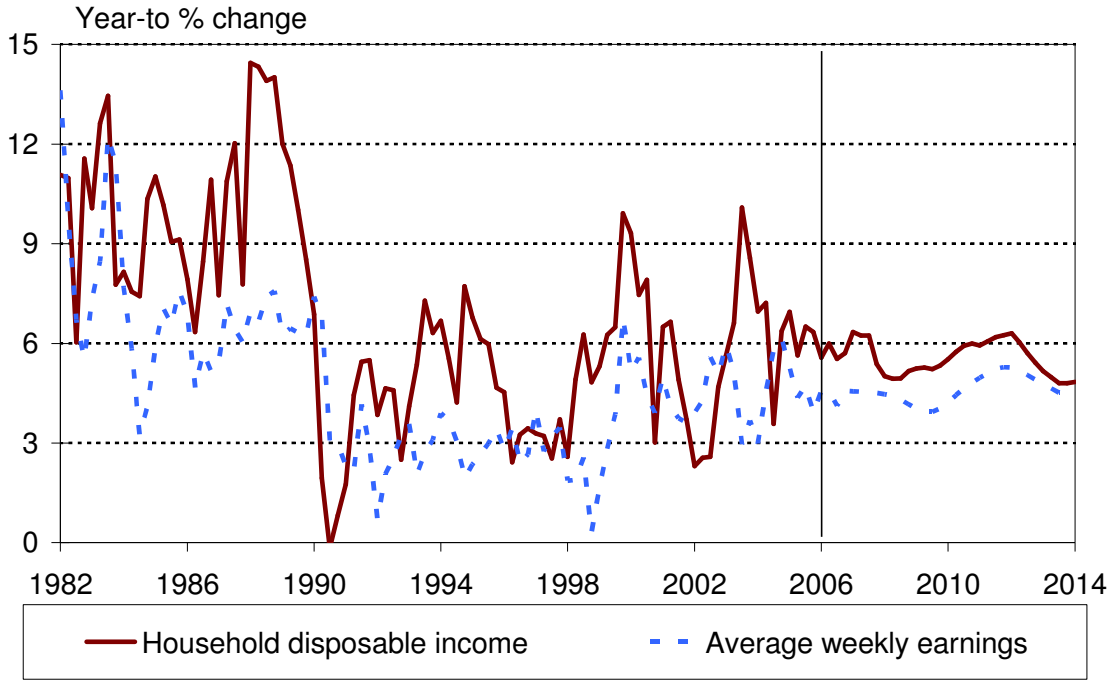
Or, in other words, Australia's wage gains have remained appropriate through the biggest boom we've ever seen. Given that the economy still has a fair head of momentum and that job growth remains magnificent, Access Economics does expect wage gains to continue to lift from here. But, as we have said for quite some time now, today's more flexible labour market suggests that increases in wage gains will remain rather more mild than wild.

CHART 4-12: REAL UNIT LABOUR COSTS



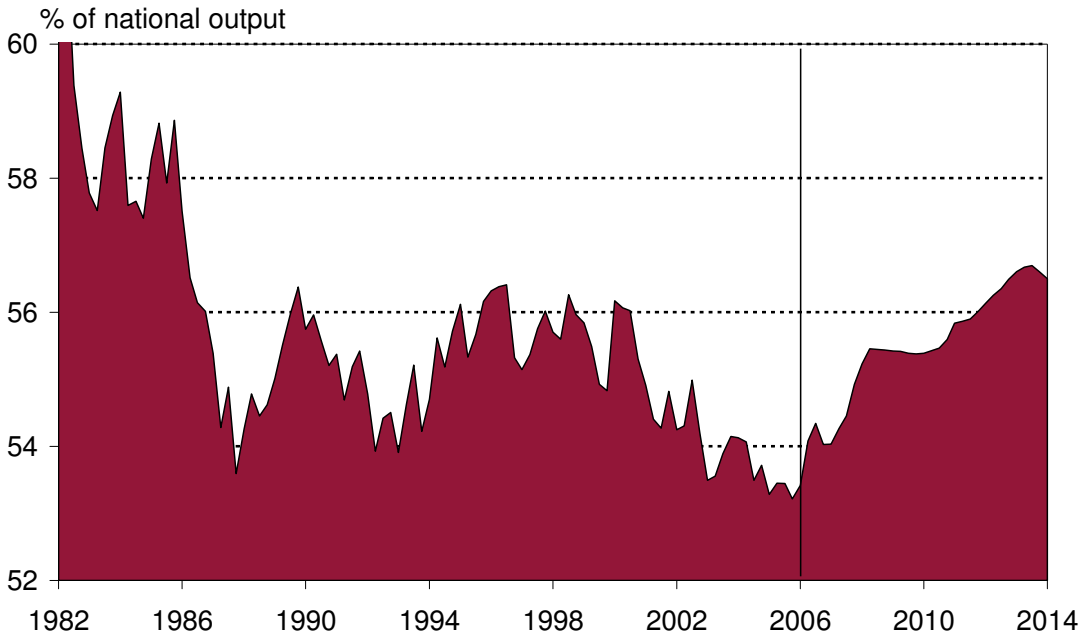
Arguably the bigger question mark lies over profits rather than wages. The sharp lift in commodity prices over the last three and a bit years has, other things equal, boosted profits rather than wages. Chart 4-14 shows that. So too does the fact that Australian company profits before income tax usually peak at about 6% of national income in a business cycle. Today they are 12% of national income. Indeed, the whole world is awash in profits. Pretty much wherever you look, profits have been on the rise for several years. That has fired up sharemarkets, encouraged businesses to invest in new plant and equipment and reinforced a global cycle that is now clearly the best burst of growth the world has seen since the 1960s.

CHART 4-13: WAGES AND HOUSEHOLD DISPOSABLE INCOME



Yet we doubt the sustainability of the surge in profits here and overseas. Profits are growing fast as the world is growing fast, but it remains to be seen whether profits will remain quite so robust even if global growth continues on its merry way. After all, globalisation was meant to be the enemy of profit margins, as it shifts production to the lowest cost location and promotes competition across borders. Globalisation was meant to keep prices low and, by boosting global productivity, increase the spending power of the wage earners of the world. In practice, the benefits of the frenetic pace of globalisation in the last handful of years have gone to profits rather than wages. Yet if competition starts to eat away at some of those perfect profits, then sharemarkets – here and overseas – may look a little less flash in coming years. We doubt that is a risk for 2007, but it is worth watching out for in 2008 and 2009.

CHART 4-14: WAGES AS A SHARE OF NATIONAL OUTPUT



APPENDIX 2: ENGINEERING CONSTRUCTION OUTLOOK

This Appendix addresses the Australia-wide engineering construction outlook, and goes on to comment regarding the State-by-State position.

It thereby gives context to a key demand driver in relevant job markets.

In brief, and as the chart below neatly shows, business investment spending in Australia has never been a larger share of the economic pie. Access Economics forecasts it to climb higher – to new record – in 2007-08, but then to decline from 2009 in response to falling industrial commodity prices.

Even so, that will leave it well above historic norms.

And the exact same is true of engineering construction. The latter has been a separately recorded part of the national accounts since 1976. It has never been higher than it is today as a share of national output. Indeed, it has never been close to its current ratio across the period for which we have recorded data.

It too is likely to get better before it gets worse. That said, and even more so than is true of business investment as a whole, Access Economics expects future engineering construction spending to be closely tied to the prospects for industrial commodity prices. As discussed elsewhere in this report, we therefore expect it to peak in 2009 and then decline as a share of national output.

Just when it appeared that it couldn't get any better – that the strongest business investment cycle Australia has ever recorded was finally losing steam – there is hope that it has one final burst of activity ahead.

The basic formula behind the lift in business investment spending as a share of the Australian economy in recent years – the jump seen in Chart 4-15 – remains intact. And simple. Strong demand *plus* constrained supply *plus* stunning profits *equals* a massive lift in capex.

After all, if you are making good money, then the temptation to expand what you are already doing is considerable. That is why a sharp lift in profits has induced a matchingly sharp lift in capital spending by Australia's businesses. Moreover, capacity is still stretched very tight, meaning that the overall incentive to add to capacity remains excellent.

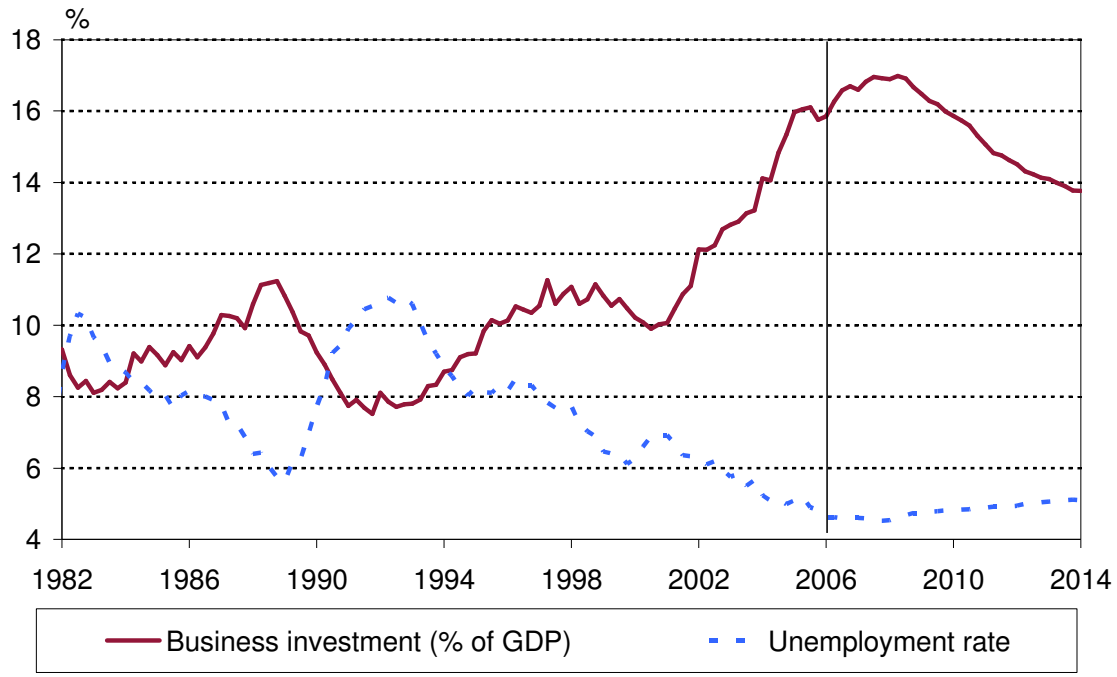
Recent months had suggested this capex surge was finally petering out. There were three main reasons for that. *First*, as Chart 4-15 shows, investment has already leapt mightily. And it is rapidly boosting the capital stock with which Australian workers are working. Given that business investment is already high, then the case for it to increase even further is correspondingly weaker.

Second, the profit driver is patchier than it was. Early on in this cycle even the manufacturers saw their profits double. Now their profits have stalled, and hence so too have their investment plans.

Third, costs have rocketed. Not costs in general – consumer price inflation remains moderate. And not even the cost of capital, although interest rates have risen (and have had

an effect on plans in some sectors). But the cost of building has gone through the roof, leaving several large projects languishing on the drawing boards.

CHART 4-15: BUSINESS INVESTMENT AND THE UNEMPLOYMENT RATE



So that combination of (1) an already mature investment boom, (2) moderating profit growth and (3) rising construction costs seemed to be sapping some strength from the investment boom. After the sparkling gains of recent years, overall business investment is up by just 2.1% over the past year in real terms – with construction up 10.3% but machinery and equipment down by 3.8%.

Access Economics has expected the investment boom to level out, so the reports of recent months were no surprise. But we are starting to think that this capex cycle has one last kick left in it.

There are hints of that in both Access Economics' own *Investment Monitor* (which is reporting surges in planned work in resources in both WA and Queensland) and in the capex survey run by the Bureau of Stats. The latter points to a last sprint in coming months, and raises the tantalising hope of a further solid gain in 2007-08. That may yet prove to be a chimera for all the reasons laid out above. And the ABS survey only has a 'first' estimate of capex spending in 2007-08, and such 'first' estimates are notoriously unreliable. So we can't say we're completely convinced.

But it is undeniable that the pipeline of work yet to be done (especially engineering work) is formidable. So for the purposes of these forecasts we have been convinced enough to pencil in one last hurrah for this cycle. Chart 4-15 shows a further gain in 2007-08 rather than a flat profile for that year. That means we think business investment will grow faster than the wider economy in 2007-08, rather than in line with it.

Our story beyond 2008 remains the same as it has been for quite some time now. You will see that the forecast line in Chart 4-15 edges higher for a while, before beginning a gentle, graceful but ultimately significant decline.

Why? For the same reason that manufacturing sector investment is already weakening off in response to flat profits, we think resource sector investment will do the same when commodity prices meet their Waterloo. That is important, as the investment boom is growing ever more closely focused on resources and the infrastructure requirements to support it such as ports, power stations and railways. That is why capex is now largely firing on only two cylinders – the boom States of WA and Queensland. Investment in the rest of the nation is growing, but much more modestly.

However, Access Economics thinks today's industrial commodity prices have little chance of staying this elevated. And most commodity analysts agree, with the consensus view among those we poll for our *Minerals Monitor* suggesting that commodity prices will start to fade in 2007, and then lose ground more significantly in 2008 and 2009.

If that happens then, with a short lag, the business investment party will be over once and for all. Falling commodity prices will weaken corporate profitability, and thereby cut away the underpinnings of much of the current investment boom. Access Economics therefore sees this boom as still flying in 2007-08, but heading back down towards earth in both 2008-09 and 2009-10.

Engineering includes heavy industry (mining and manufacturing), energy (power and gas), water storage and drainage and transport (roads, rail, ports and aircraft). The following table draws from our *Investment Monitor*.

	Definite ($m)	% change on Dec 2005	In planning ($m)	% change on Dec 2005	Total ($m)	% change on Dec 2005
Manufacturing	6,331	-22.3%	45,687	8.1%	**52,018**	3.2%
Transport	46,144	25.6%	99,208	22.8%	**145,352**	23.7%
Communication	6,912	0.3%	3,249	-72.4%	**10,161**	-45.6%
Mining	28,590	37.5%	97,087	22.1%	**125,677**	25.3%
Power and water	13,122	59.3%	42,907	10.1%	**56,029**	18.7%
Rural and forestry	403	-36.5%	1,792	-0.9%	**2,195**	-10.2%
Total	**101,502**	**24.6%**	**289,930**	**13.7%**	**391,432**	**16.3%**

Source: Access Economics' Investment Monitor, December 2006 quarter update.

Any last hurrah for business investment before it peters out will be mainly thanks to engineering construction. The table above shows the magnificent gains in both work currently underway and in the pipeline compared to a year ago. The largest gains and the biggest bucks are concentrated in the mining, energy and transport sectors, where elevated commodity prices have encouraged a boom in investment to (1) mine minerals and (2) get them to market. Those three sectors account for seven-eighths of definite work and five-sixths of work in planning. That is impressive, but also a reminder of the potential longer term vulnerability of this engineering cycle. If commodity prices do weaken, then bust will follow boom sure as night follows day. But that is not on the immediate horizon.

Indeed, perhaps the most encouraging data shown above is the strength of the investment pipeline, which is still incredibly solid more than three years after commodity prices took off – a picture mirrored in very healthy ABS estimates of work yet to be done. But it isn't all beer and skittles on the engineering front. Investment in manufacturing continues to ease off as

the sector struggles to compete with imports, while the drought hit the farm and forestry industries hard.

Growth in **mining** work underway has been boosted by new projects such as the $91 million Trident gold project being developed by Avoca Resources. Yet most new projects are dwarfed by the size of the larger projects currently underway. BHP Billiton's massive Ravensthorpe nickel project ($2.8 billion) is due for completion in early 2008, and its Rapid Growth iron ore project in the Pilbara (at $1.9 billion) may make it to market at much the same time. Not surprisingly, the sheer size and number of resource projects underway is driving strong competition for workers and materials, so the cost of many projects has jumped and delays are more frequent. The Ravensthorpe project, for example, has suffered a number of cost blowouts, with the estimated cost now around a $1 billion higher than initially anticipated. Likewise, the cost of Newmont's expansion of the Boddington gold mine is suffering from large increases in the price of labour and steel. Yet despite these cost increases, the pipeline of future mining projects keeps growing. Zinifex will develop a zinc, gold and lead project near Mt Isa ($500 million), Anglo Coal has indicated it will develop a $600 million coal project south of Moranbah over the next few years, while plans for a number of other mining-related investment projects such as refineries and smelters are also in the works.

Oil and gas investment is being driven by the lift in energy consumption in emerging economies such as China an India. Such projects are notoriously expensive due to their specialised equipment and the sheer size of their operations – but the returns are similarly impressive. The North West Shelf LNG projects are still dominating proceedings in the sector, with a number of massive projects underway and in planning. Elsewhere, development of the Blacktip gas field is underway in the Joseph Bonaparte Gulf ($650 million), and Woodside's $1 billion development of the Vincent oilfield in the Carnarvon Basin is progressing well. And the value of projects in planning is stunning, with LNG giants such as the Gorgon project ($15 billion), and Woodside's $10 billion Browse Basin and $6 billion Pluto project all in various stages of planning. On the downside, ExxonMobil and partners have (again) shelved plans for an ambitious gas pipeline from PNG.

Australia is also now better equipped to get product to market. After years of neglect, our **ports** were ill-equipped to deal with the increase in exports following the commodity boom. Now State Governments have picked up the ball again and private sector players are also investing, capacity constraints are easing. The Port Waratah Coal Services have begun an expansion of the Kooragang Island coal terminal at the Newcastle, with further work already planned, while upgrades are also underway at many other sites, including Dampier, Port Hedland, Abbot Point and Fremantle.

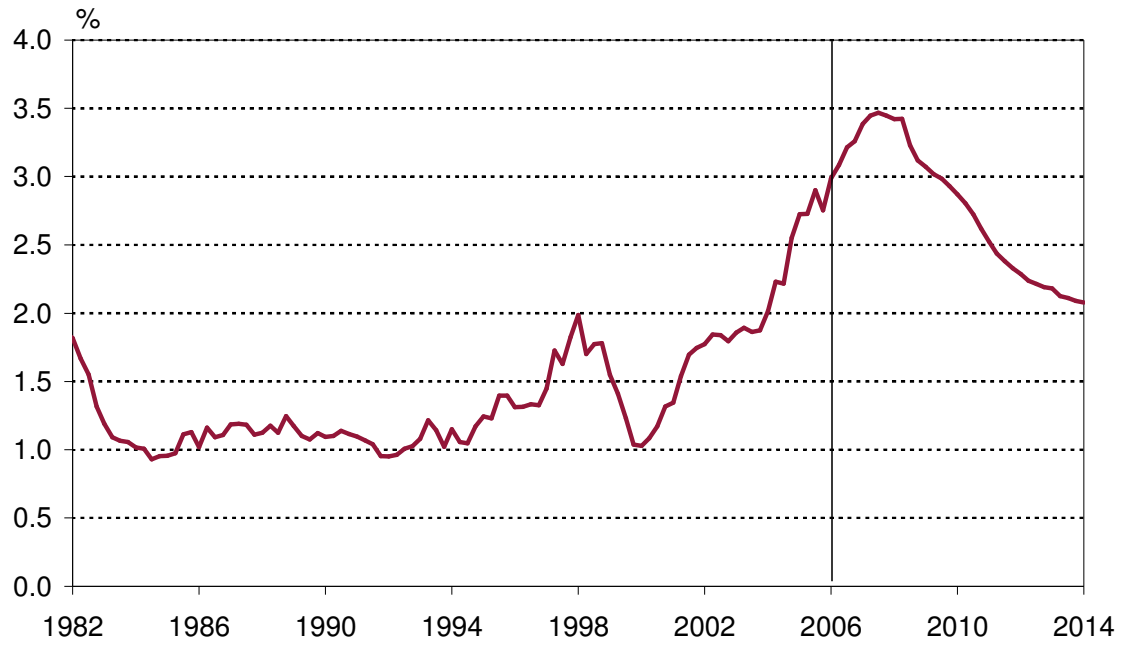
Other **transport** infrastructure is dominated by investment in **roads**, though railway construction has also been solid lately, particularly in resource-rich States where rail is used as a link between mines and ports. The value of road work commenced lifted strongly in late 2006, led mainly by strong gains in WA, Queensland and the NT. In Brisbane, construction of the $2 billion North South Bypass Tunnel has kicked off, while the $1.9 billion duplication of the Gateway Bridge is set to start soon. Elsewhere, the Lane Cove Tunnel is finally open. Meanwhile, Transport SA says it will add an extra 160 buses to Adelaide's bus fleet. In **rail**, the troubled New MetroRail project is limping along in Perth as cost disputes continue between the contractor and the State Government, and construction of NSW's $2.3 billion Parramatta to Chatswood rail link is continuing.

Manufacturers have been suffering amid a high $A. The car sector is no exception, with Holden announcing it will cut 600 jobs from the Elizabeth car assembly plant near Adelaide. Investment has understandably been faltering, with the pipeline dwindling. The construction

of a $300 million strand lumber plant at Albany in WA has just got underway, while Toyota is bucking the trend in the auto sector by expanding its assembly operations at Altona. Otherwise, manufacturing investment is centred downstream of mining-related areas such as metal refining. Alcan's Nabalco alumina refinery expansion is leading the way ($2.5 billion), and is set to be completed later this year, while Wesfarmers is also expanding its ammonium nitrate production facility at Kwinana.

Investment in **energy** is booming as power-hungry mining operations proliferate. A bunch of projects are underway, including the $1.1 billion CS Energy coal-fired plant at Kogan Creek due for completion ASAP, as well as the $400 million NewGen power plant at Collie in WA. A number of 'green' projects are also under construction. Babcock and Brown are spending $400 million on a 160MW wind farm at Mount Gambier and Acciona Energy is building 128 wind turbines at Waubra in Victoria. Also on the agenda is a $460 million, 116-turbine wind farm between Geelong and Colac, pencilled in for a late 2007 start. 'Clean coal' is extremely popular with politicians, who recognise the current importance of coal to Australia's economy. Environment minister Malcolm Turnbull has announced a $100 million funding lift for clean brown coal technologies in Victoria's Latrobe Valley, with hopes the project could help reduce greenhouse gas emissions by 30%.

CHART 4-16: ENGINEERING INVESTMENT AS A SHARE OF OUTPUT



As with renewable energy, investment in **water**-related projects is receiving a boost as climate change concerns sink in. Desalination is the preferred option in NSW and WA, with governments in both States committing funds to develop new plants. In Victoria, the long-term Wimmera-Mallee pipeline project is underway. The $500 million project will cut water loss through evaporation by converting open channels to pipelines. Meanwhile, the SunWater pipeline project to support mining projects in the Bowen Basin is drawing to a close, as is the upgrade of the Illawarra sewerage treatment plants being undertaken by Sydney Water.

Engineering construction investment is not slowed by interest rates – it is more closely tied to global demand and prices. With the latter still superb, there is further growth ahead as Chart 4-16 suggests. Even so, 2007-08 is likely to be a last hurrah. Engineering construction is forecast to grow by 13.1% in 2006-07 and 18.8% in 2007-08, before easing back to 4.4% growth in 2008-09.

New South Wales

The last year has seen a notable fall off in the pace business investment spending in NSW, as businesses reassess the profitability of Premier State investments. Engineering construction activity is plugging away, but NSW continues to lose out to the boom States. Transport and energy projects are a key focus and, with Premier Iemma winning the battle of the bores, water desalination plants will be firmly on the agenda. The long term Parramatta to Chatswood rail link is ongoing, though the project has been troubled by cost blowouts, with stage 1 now expected to cost $2.2 billion. Meanwhile the Lane Cove Tunnel opened relatively quietly, with few politicians wanting to be associated with tollroads in Sydney after the CrossCity Tunnel debacle. Other transport projects include the Hume Highway upgrade and bypass at Albury-Wodonga, various Pacific Highway upgrades and projects associated with the *Rail Clearways* plan to simplify Sydney's rail network. In mining, Excel Coal is completing a $280 million expansion of the Wambo mine west of Singleton, while Roche Mining's extension of the Ulan coal mine is pencilled in for completion by end-2007. Projects in the pipeline include the development of the Bulga underground coal mine near Singleton, while a $330 million upgrade of a blast furnace at the Port Kembla Steelworks will be undertaken later this year. Plans have been approved for the $220 million Capital Hill Wind Farm, a 63-turbine wind farm near Lake George. But, all up, the State continues to notably underperform on this front.

Victoria

Engineering construction is solid – but it is falling as a share of the national pie as activity surges in WA and Queensland. Unlike those States, where huge resource projects dominate the agenda, engineering work in Victoria tends to be centred on transport projects such as new roads. An exception is the $1.1 billion development of the Thylacine and Geographe gas field in the Otway Basin. But the latter's construction is almost complete and, with few major projects in the pipeline, there may be somewhat of a void after that project wraps up. Road works underway include the massive EastLink project linking Mitcham and Frankston, well ahead of schedule thanks to dry weather, and the $380 million Geelong bypass project due for completion in 2009. The Pakenham bypass is also ongoing and should be completed by end-2007. In other sectors, the Wimmera Mallee pipeline project is underway. This decade long $500 million project aims to convert 900km of open water channels to pipelines so as to cut water loss through evaporation. Elsewhere, Toyota is expanding its car assembly operations at Altona in a $400 million project, while Acciona Energy is spending $330 million on a 128-turbine wind farm at Waubra. Although dwarfed by those in the 'sun belt' States, the pipeline in Victoria is solid, thanks mainly to a few large projects such as the $700 million Protavia pulp mill at Heywood, set to begin later this year, and the Hazelwood power station, a $360 million pilot project for clean coal geosequestration technology. Elsewhere, Alcoa is looking to upgrade an aluminium smelter at Portland, while plans to dredge Port Phillip Bay are still on the table, with the State Government setting up an independent panel to hold public hearings on an environmental report.

Queensland

Queensland construction is going great guns, driven mainly by resources, though transport projects to ease congestion in the south-east have also boosted investment dollars. Work underway includes the Dawson Project, a massive $1.2 billion open cut steaming coal deposit at Moura, south-west of Gladstone, and the Lake Lindsay coal project in the Bowen Basin. Meanwhile, CS Energy is upgrading the coal-fired power plant at Kogan Creek, and RG Tanna coal terminal at Gladstone is getting a $700 million upgrade. Stage 2 of the Yabulu nickel refinery upgrade is almost complete, as is development of the Poitrel coal mine near Moranbah. South east Queensland remains a very popular retirement destination for empty-nesters, though younger families are continuing to make the shift too. Infrastructure development has not kept pace with fears of congestion, prompting the State and Federal Governments to announce measures to increase accessibility and transport networks. The Feds' new Auslink Two is expected to include additional funding for roads projects in the area, while the State Government's proposed public transport corridors will develop new road and rail projects over coming years. In other sectors, water has taken centre stage as some of south east Queensland's dams head towards empty. With few other options, Premier Beattie favours recycling, with a frantic race against time to get pipelines in place before Brisbane potentially runs dry in 2008. Plans also include a desalination plant at the Gold Coast.

South Australia

While construction has been strong, it has not been as strong as States with more raw materials. South Australia will be a large beneficiary if uranium mining ever gets off the ground – Olympic Dam has more uranium underground than anywhere else on the planet. Until then the State will have to make do with other resources. Oxiana is developing a gold and copper mine at Prominent Hill, while Havilah Resources is conducting feasibility tests on the Kalkaroo gold and copper prospect. Wind farms are under construction at Mount Gambier and the Barunga Range, while TrustPower has announced it will begin building 42 turbines at Snowtown later this year at a cost of $200 million. Also in planning is an AGL plan to spend $260 million constructing 45 turbines at Hallett. Meanwhile, construction of stages 2 and 3 of the Port River Expressway is ongoing, as is the $44 million redevelopment of Bakewell Bridge at Mile End, while a $140 million upgrade of the Christies Beach Waste Water Treatment plant will allow it to cope with the water demands of a growing population.

Western Australia

Western Australia's construction levels have been spectacular ever since commodity prices spiked and the resource boom took off. Investment in the State is magnificent, and it won't slow down just yet. The pipeline is bursting at the seams with large-scale, resource-related projects aimed at getting as much raw materials onto world markets while prices remain sky high. Given the sheer number of projects taking place in WA, it is hardly surprising that supply pressures are hampering efforts to complete projects on time and within budget. A lack of labour and materials have seen costs leap dramatically, causing cost blowouts on key projects. For example, the cost of BHP Billiton's Ravensthorpe nickel project, due for completion in early 2008, has been revised upward by more than $700 million since construction began, while Newmont's Boddington gold mine development is now slated to cost some $2 billion – more than double initial estimates. Other projects underway include the massive North West Shelf LNG development. A fifth train is under construction at a cost of nearly $2.5 billion, while a sixth train is also planned, which would further expand the giant project. Also included in the North West Shelf development is the $1.6 billion Angel gas field, while other gas projects underway include the smaller (but still huge) Blacktip gas field in the

Joseph Bonaparte Gulf. Oil projects include Woodside's $1 billion Vincent oil field project off the Carnarvon Basin, and the Stybarrow offshore oilfield near Exmouth costing just over $800 million. Major projects onshore include the $1.3 billion Hope Downs iron ore project, and stage 3 of the underground expansion of the Argyle diamond mine being undertaken by Rio Tinto. Plans in the pipeline include a $1.1 billion upgrade of the Cape Lambert Port, which has received development approval, and a number of LNG projects including the giant Gorgon, Browse Basin, Pluto and Scarborough developments. These projects are in various planning stages and together account for some $36 billion in potential future capital expenditure for the West.

Tasmania

Commencements have been encouraging of late. The Bass Highway upgrade is progressing well, with the project at the mid-point of the $111 million construction process. Meanwhile, the $35 million Meander Dam project in the north of the State is also underway, as is the upgrade of Sisters Hills Road, which is being funded through the *Better Roads Fund*. Other projects include the construction of a four-lane highway linking Devonport and Burnie, and an upgrade of security measures at Hobart Airport. Projects in planning include a $175 million Hydro Tasmania wind farm at Little Musselroe Bay, stage 3 of the $150 million Hellyer base metals re-treatment plant, and a waste-water treatment system at Cradle Mountain. But the big question remans the same as it has been for some time now. The $1.4 billion Gunns pulp mill project is still not assured of proceeding, though it has been given another chance, and will be assessed by the Tasmanian Parliament in coming months after normal environment approval processes were dumped.

Northern Territory

Despite the resources boom, engineering construction commencements have been atrocious over the past year. With few big projects in the pipeline, major engineering works could dry up sooner than expected. The only major project underway is Alcan's $2.5 billion alumina refinery expansion at Gove, while smaller projects include an upgrade to Darwin Airport. Future work includes a $130 million Bonaparte gas pipeline from Wadeye to the Amadeus basin and early plans to develop a $500 million zinc metal plant near McArthur River.

Australian Capital Territory

Activity has been strong, albeit dominated by a few large projects rather than a solid pipeline of ongoing activity. The massive Gungahlin Drive extension project is mid-way through construction, with the first stage now open to traffic. The entire $116 million project is expected to be completed by the middle of 2008. Meanwhile, plans for a dedicated busway between West Belconnen and Civic are firming – a decision is expected within the next year, while the upgrade to the Canberra Airport continues.

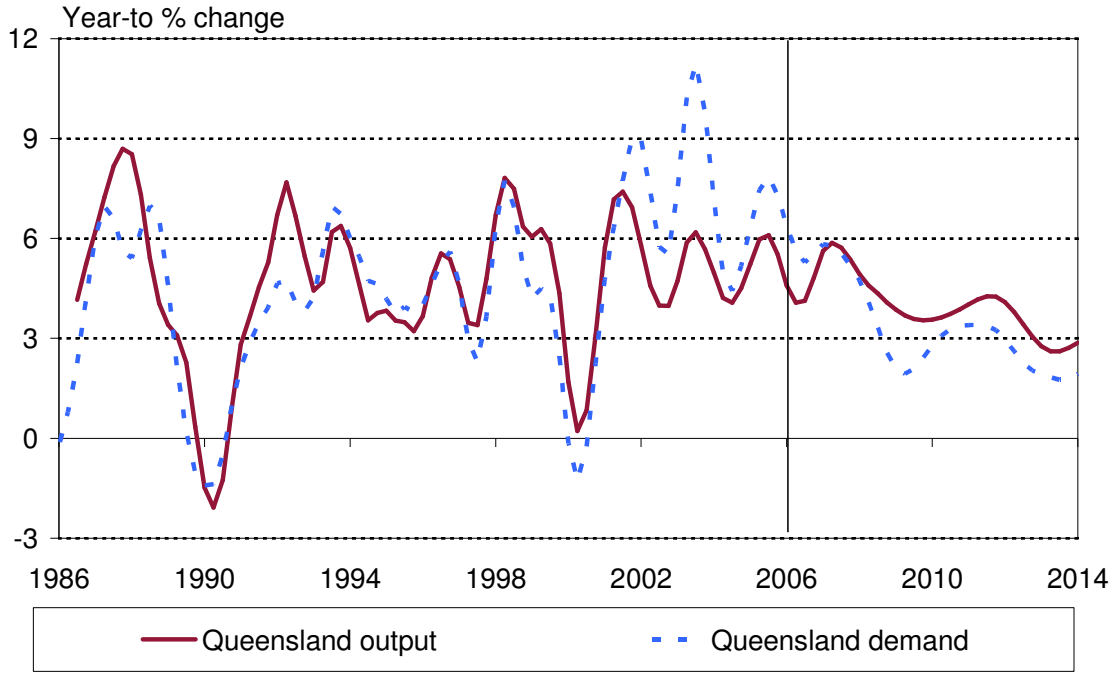
APPENDIX 3: THE QUEENSLAND OUTLOOK

While Queensland's growth is impressive, the gap between it and the rest of the country is not as large as it has been. That doesn't mean the State isn't caught up in the commodity boom – it is. It has superb reserves of coal (particularly high quality coking coal, where Queensland is the world's largest exporter) and a range of base metals.

And, as we noted above, there are many billions of dollars being spent to boost the mineral production out of central Queensland in coming years.

Moreover, the associated surge in business investment spreads far beyond mining itself – it also encompasses the support services to mining (such as expansion to the Dalrymple Bay coal terminal) and the less-direct-but-still-linked lift in commercial construction seen throughout the State.

CHART 4-17: QUEENSLAND OUTPUT AND DEMAND



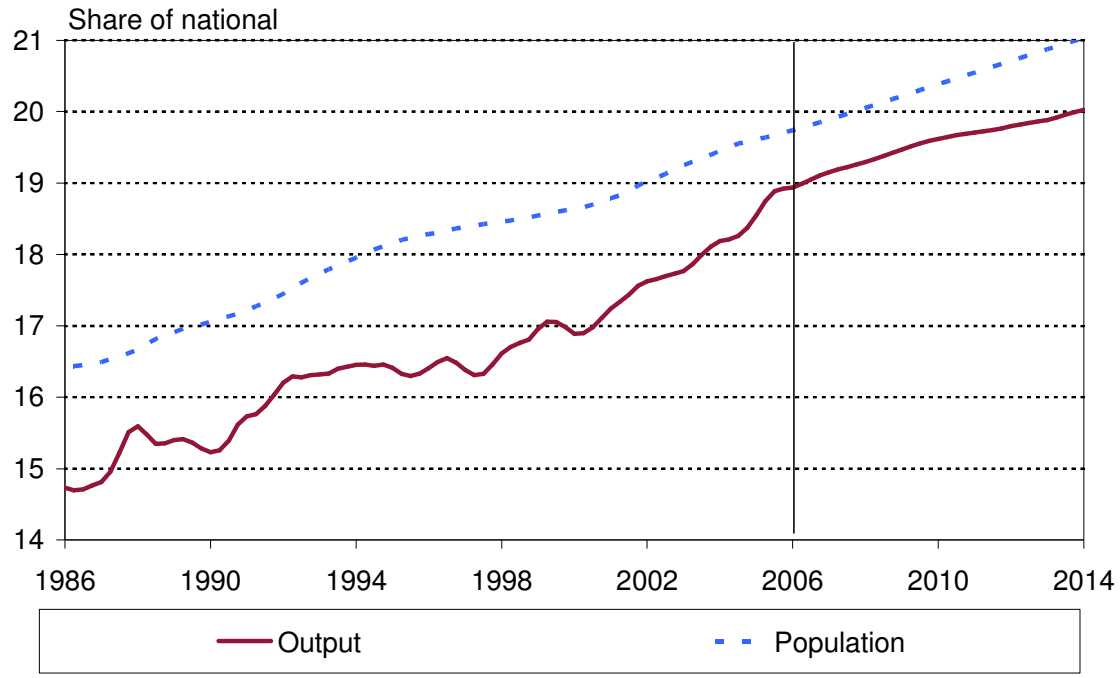
However, as we have often stressed, commodities are merely one of Queensland's excellent array of underlying strengths. For example, it has superb tourist attractions as well as a lifestyle which continues to attract not only retirees but many younger Australians too (thereby keeping population growth comfortably above the national average).

Moreover, the State has showed the ability to switch growth drivers relatively readily in times past. In today's environment of high commodity prices and interest rates, the resultant high $A is crimping the tourism sector and high interest rates are slowing housing construction and limiting the gains in housing prices. But when commodity prices fall down the track – taking the $A and interest rates back down with them – Queensland will indeed see a slowing in today's investment boom in resources, but will also see a solid offset from a lift in tourism and in housing construction and the wealth impact from a renewed lift in housing prices.

Queensland not merely has the ability to ride the business cycle and the differing growth drivers that implies, but the investment spend by businesses clearly shows that they too see further good gains in the State's economy over time. Queensland accounts for roughly one-fifth of Australia's population, employment and retail spending. But it accounts for a quarter of all housing starts and commercial construction, and an impressive one-third of the national total of engineering construction commencements. That ranking says business is betting on a bright future for the Sunshine State, and as Chart 4-18 shows, Access Economics is in full agreement with that assessment.

Queensland's housing sector relies on population inflow – but that has turned slightly against the State of late, with 25,000 fewer people a year moving in compared to recent peaks. Part of that is a decline in overall interstate movement, but part of it is a rerun of NSW in 2003 – too few options pricing too many out of the market. Affordability is now the worst outside NSW, vacancy rates are still falling and rental growth outpaces the national average. New construction may be coming – and without it longer term demand may be put at risk.

CHART 4-18: QUEENSLAND'S SHARE OF NATIONAL TOTALS



In addition to the strong outlook for engineering construction noted in Appendix 2, the non-residential construction outlook is very strong, and could stay supercharged for some time yet. Health and aged care approvals are particularly solid – a trend likely to continue in the long term as the State attracts increasing numbers of retirees. Big investment dollars are now being seen in office construction as the vacancy rate in Brisbane CBD falls to below 2% and rents soar to above those in Sydney CBD. Growth in demand for office space at the Gold Coast and in Brisbane is the strongest in the country, leaving landlords grinning from ear to ear. Work in progress includes a $360 million, 7-storey office tower on George Street in Brisbane, as well as the 'Tribune Building' at South Bank, due for completion later in 2007. Meanwhile, GPT plans to develop Stage 2 of the Riverside Centre. If it gets the green light, the $800 million project will construct two of Brisbane's largest office towers. In other spending, redevelopment of the Brisbane Mater Hospital is ongoing, as is the construction of a 150-bed female correctional facility at Townsville. Elsewhere, a $25 million sports stadium

is being constructed at Robina on the Gold Coast. This new home for the Gold Coast Titans will be ready for the 2008 rugby league season.

The excess growth seen in Queensland in recent years obvious has flow-on impacts to wage growth. Recent years have seen the local LPI rising faster than the national average, and lagging only behind Western Australia (where the sort of impacts that Queensland is seeing from demand are even greater) and the Australian Capital Territory (boosted by the fact that skilled wages are growing relatively quickly and Canberra is a very white-collar and skilled employment based economy).

However, as Chart 4-18 suggests, the gap between Queensland and national growth is closing at present (so the slope of the output share line is decreasing, although the State will still outpace the national average). More importantly still, the forecast increase in the State's output share is broadly in line with its increase in population share – so much of the excess output growth will be driven by factors such as extra consumption expenditure growth due simply to relatively more people living in the State, rather than due to continued strong growth in infrastructure investment and other factors – not that they will cease.

It is important to remember that, fundamentally, the Queensland labour market is part of the total Australian labour market – it does not exist outside of it. In the short term (as we have witnessed), factors such as wages catch-up, skills shortages and construction surges can change relative wage rates. However, over the medium and longer term, fundamental factors such as the relative cost of living will assert themselves. The strong performance of the resource-favoured Queensland and Western Australian economy are likely to have some impact of moving these longer term relativities to lift relative wages in these States, but the effects are unlikely to be sufficient to reverse the national trends which tend to see higher costs and wages in New South Wales (ultimately through the effects of Sydney prices) than in Queensland.

APPENDIX 4: RESPONSES TO COMMENTS REGARDING THE FIRST SET OF FORECASTS

AER has asked Access Economics to respond to a number of comments made by Synergies and NERA regarding our forecasts provided in November 2006. The following sets out comments that have not already been addressed in the main document, followed by Access' response in a boxed highlight.

Synergies economic consulting

Synergies quoted BIS Shrapnel as stating that the impact of growth in demand for minerals and related commodities will increase the demand for labour.

Economics says prices are set by both demand and supply: not demand alone.

That has two important implications for the matters considered in this report.

First, the commodities boom seen over the last couple of years has seen demand rising faster than supply, requiring large price increases among industrial commodities to rein demand back in. As Access Economics has often stressed, we think that this commodity price boom will end due to miners around the world raising supply, rather than China's demand growth falling dramatically.

To the best of our knowledge, Access Economics runs the only regular survey of the views of commodity price forecasters in the world. The consensus view of those forecasters is that the commodity boom will substantially unwind between now and mid-2009. We commend our *Minerals Monitor* publication to readers of this report who would like a deeper understanding of the dynamics here.

Or, in other words, **commodity prices are determined by supply as well as demand, and the consensus view among forecasters – not just Access Economics – is that they have peaked.**

Second, the commodities boom has boosted demand for mining and construction workers, a development which can be seen clearly in Western Australia. However, as noted above, the employment surge in these sectors is already slowing. It will slow further as a fall in commodity prices through 2008 and 2009 reduces the pipeline of engineering construction work in Australia. That reduced demand growth for workers in these sectors will be occurring at much the same time as the supply side of the labour market is turning out more engineers and others well suited to the current boom.

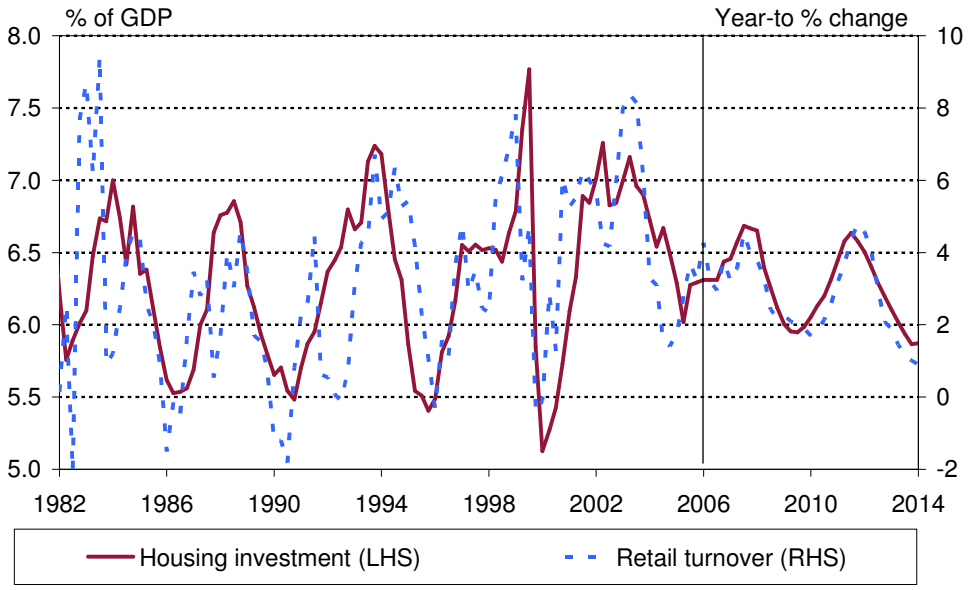
Or, in other words, **easing demand growth for workers in mining and the utilities (as already evident) and in construction (expected to be evident from 2009-10) is expected to see pressure taken off wages in all three sectors** – but particularly in construction and the utilities. The utilities and construction wages indices continue to rise solidly over the forecast period, even though competition for utilities sector workers from the mining sector eases.

Synergies are concerned that the use of models with a pattern of regular downturns programmed into them have performed poorly when it comes to predicting the labour market.

Access Economics does not use a model with regular downturns automatically programmed into it. But we assume that the real question being asked here is (or should be) the reasoning behind the construction cycle in Access Economics' outlook.

It is worth noting that housing construction is Australia's most volatile sector, and that retail spending is the largest single component of demand, and that cycles in them can therefore dominate the macro outlook.

History shows that these two sectors move together, as the chart below shows.



These cycles have, in history, averaged just over four years in length. As the above chart shows, the strength of recent swings means that Access Economics projects a milder than usual housing construction and retail cycle between here and mid-2008, followed by a milder than usual downswing.

The latter hits at roughly the same time as we expect fading commodity prices to prompts an easing in commercial construction – especially its engineering component.

The latter cycle was discussed at length in the preceding Appendix.

"Both common sense and economic theory would suggest that a shift of 33% in the wage adjustment process for a relatively skilled workforce over a 12 month period is too rapid an adjustment to reflect the realities of a segmented labour market"

> Access Economics notes that growth in wages in the utilities sector has, on numerous occasions risen and fallen by far more than 33% in a 12 month period.
>
> For example, 2005-06 saw a rise in the growth rate of 30% in utilities wages. 1996-97 saw a fall of 60%, followed by a rise in the growth rate of 60% in 1997-98.

"However, the Access Economics report (page 3, summary of results) suggests the opposite result with wages growth in the utilities sector wages falling behind the rate of growth in all industries for the period 2009-10 to 2015-16 (at least)."

> As noted above, the share of workers in utilities classified as 'managers' or 'professionals' – the two highest paid occupational groups – has leapt from 20% to 30% of the sector's workforce since the mid-1990s. Nationally, the rise has been from 24% to 27%.
>
> This trend, which occurred as the sector saw considerable technical and structural change, has only so far to run, and the 'boost' that it implies to sectoral wage growth is not anticipated to continue much further.
>
> That said, the short term outlook is still quite strong. Growth in wages in utilities remains above the national average through to (and including) 2008-09, before dipping below the national average once the construction cycle turns. Wage growth in the sector matches the national average across the next decade.

Synergies also challenges the view that there will be a macroeconomic slowdown in the region where Powerlink primarily competes for labour.

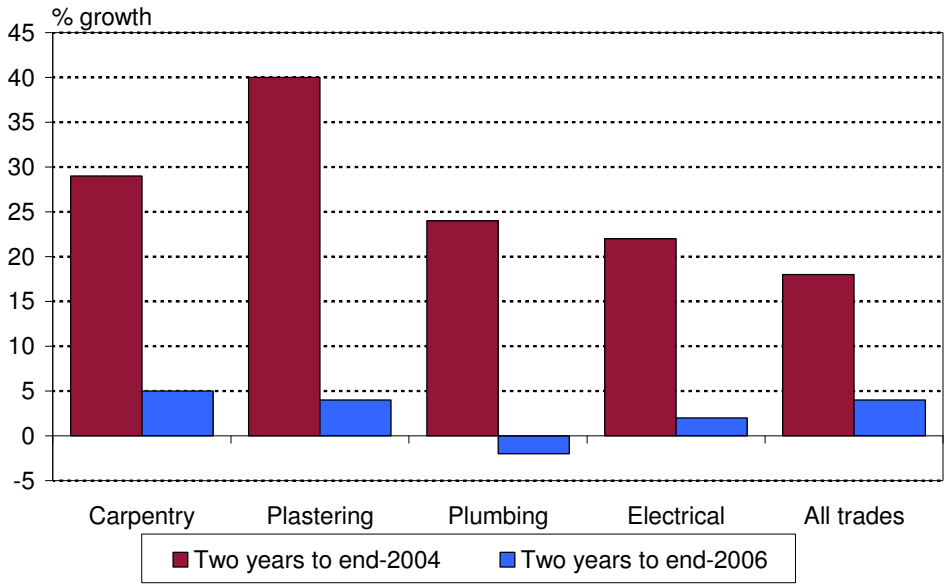
> Appendix 3 above discusses the Queensland outlook. In brief, we agree that the Queensland economy will continue to carve out a larger share of the Australian economy.
>
> However, that doesn't mean that wage growth in Queensland will be permanently and notably above the national average. Suffice here to say that – as we have noted with respect to most of these comments – to focus just on demand in discussing the price of labour is to forget the supply side.
>
> That would be a mistake. To the extent that there has been a jump in demand for workers in these sectors and in Queensland, so too there will increasingly be a supply response over time.
>
> Some of that will be obvious – for example Australian universities are working hard to lift the number of mining engineers. In addition, those who have relevant skills but are working in other occupations, or who are retired, or who have been out of the workforce for other reasons may be tempted back by the strength of current demand. And there is the ability of workers to move within Australia to

help meet areas with the strongest demand pressures. Outside of such domestic supply side responses, there is also the search for international employees with such skills, both via the skilled stream of permanent migration, as well as temporary migrants through the visa 457 scheme. Finally, there is also the response of employers who, other things equal, have a greater incentive – where possible – to switch their production techniques toward using relatively more machines and relatively fewer people.

Synergies also contends that there is an element of 'stickiness' in wages in this sector, not just in terms of levels, but in terms of rates of growth as well.

Access Economics notes that growth in sectoral wages can ebb and flow rapidly, particularly during and following periods of excess demand for particular types of labour.

The most obvious example in recent years has been in the skilled trades related to the house building sector. The chart below shows growth in the Housing Industry Association (HIA) trade subcontractor index in the two years to end-2004 and two years to end-2006. Not only have the rates of growth dropped significantly, in some cases wage levels (in nominal terms) have declined.



NERA

NERA notes Access Economics' forecasts changed between 17 July 2006 and 17 November 2006 (they have again changed in the recent round of forecasts), and that we were more optimistic in the later forecasts.

There are two types of possible changes – to overall wage growth, and to relative wage growth in the sectors considered here.

And there are three types of potential drivers of those changes. One is a change in expected inflation. Another is a change in expected productivity growth (which would ultimately drive a permanent change in wages). The third is a change in the expected growth in the demand and supply of labour (which would drive a shorter term change).

It is true that Access Economics became more optimistic regarding the wage outlook during this time, as further information became available, and that we were one of the more optimistic forecasters regarding wages to begin with.

The productivity-driven reason for this optimism was clearly stated in the text of our September *Business Outlook* (released in October 2006):

Most concerns focus on the potential for labour costs to leap amid low unemployment and high profits, sending up inflation as a result. But, as WP Chart 2 shows, wage gains continue to be modest. In part that reflects today's deregulated job market (in which big wage gains in one sector don't leap the fence to other sectors). And in part it reflects the importance of labour costs rather than wage growth to inflation. WP Chart 2 shows both. The gap between them is due to gains in productivity – there is no need for selling prices to go up if the cost of a wage rise is covered by improved productivity. This latter gap is about to become rather important, as the investment in new plant and equipment and commercial and engineering construction already underway will soon show up as rather rapid productivity growth.

Or, in other words, investment boosts the speed limits of the economy (and so lowers the risks for inflation), and the channel through which this will show up is via subdued growth in labour costs. Hence labour cost growth may already have peaked for this cycle. The latter dichotomy explains Access Economics' view that wage gains will lift further, but also that we don't think gains in nominal unit labour costs will. If true, that would be good news.

As stated in Appendix One, Access continues to remain optimistic about labour productivity. Other things equal, that boosts expectations of wage growth.

Across the forecast period to 2010-11 our forecast of LPI has fallen from 4.3% in our September *Business Outlook*, to 4.2% in our March 2007 *Business Outlook*.

A full discussion of changes in our forecasts over time is in Appendix 6.

APPENDIX 5: METHODOLOGIES

The Access Economics Macro Model

While the Access Economics Macro (AEM) Model does not forecast labour costs by industry, it forms the basis for the forecasts provided to AER. Variables such as the Australian and State LPI, CPI and GSP are used as a basis to begin the labour price forecasts.

The following discusses changes to the model structure over the last couple of months, and discusses briefly how wages and prices are forecast.

Various forecasting challenges – including significant changes to current and future population characteristics – have led to changes in the structure of the AEM.

This restructure has been finalised since the first labour price forecasts were presented to AER.

The production function

The model now has a more fully spelled out supply side in its labour market, and the latter (in combination with an endogenous role for capital deepening and an exogenous role for total factor productivity growth) acts as a long term anchor for output.

The most significant change to the model has involved a complete redesign of its business sector production function. In previous versions of the AEM model, imports were treated as an intermediate good, which were then combined with business sector factors of production (capital and labour) to produce gross national expenditure (not including government services and the service flow from housing) plus exports.

Producers had the choice of producing goods for the domestic market (gross national expenditure) or the foreign market (exports). The trade off between gross national expenditure and exports was determined by the relative price of exports.

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 in farm output that could not be captured when farm output was combined with non-farm output.

In the new model, the 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. (The farm sector plays its own, separate, exogenous role in the path of overall GDP.)

Imports are effectively intermediate goods in the new model. They are combined with domestically produced traded goods to produce gross national expenditure on traded goods.

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 was 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 were 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.

Wages and prices

In the current version of the AEM model, the wage and price inflation are governed by seven equations:

- business sector output gap
- real exchange rate
- import prices (including oil prices)
- monetary policy reaction function
- average quarterly wages
- 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, with the long run real wage tied to CPI 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.

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. Wages in turn respond to changes in underlying CPI. 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 important 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 in turn 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, with the long run real wage tied to labour productivity growth.

Labour price forecasts – Sectoral

Estimates of sectoral labour indexes are calculated in real (inflation adjusted) terms, and transformed into nominal estimates by adding back in the change in the GDP deflator, an estimate of overall price growth in the economy, rather than the change in household specific prices measured by the CPI. This implies that we are treating wages as a cost to businesses, rather than as an income to households. While wages are obviously both, this treatment allows a more accurate reflection of the productivity and underlying price factors that drive wage growth.

Trends in real wage growth are modelled to account for three factors:

- Industry growth trends;
- Industry productivity trends; and
- Judgemental adjustments.

An analysis of how each industry's real LPI[3] has moved in the past against the first two factors has been undertaken. These trends are then extended into the forecast period, with judgemental adjustments added to account for some of the 'confounding' factors that might

[3] To allow a longer run of data than the eight years of the LPI data produced by the ABS, we have spliced earlier earnings figures to extent the data to a 22-year series.

otherwise bias the forecasts - in particular the impact of structural change in the industry workforce (such as is noted for the utilities sector).

This analysis is undertaken for four industries; mining, utilities, construction and 'the rest' of the economy. The results are then scaled to ensure that overall modelled wages trends are matched by the industry estimates (that is, we ensure that the four LPI estimates, when weighted by our forecasts of industry employment, equal the national estimate).

Labour price forecasts – State

State-level forecasts are modelled as offsets from the national results – with additional adjustments made to ensure the results are consistent with the overall national total.

State growth in nominal LPI for each industry is modelled by considering:

- Industry growth in LPI; plus
- A component for excess overall State LPI growth; plus
- A component for excess industry productivity growth in the State.

The relative importance of each component varies according to the size of the State (and, therefore, our relative level of confidence that the productivity estimate is not affected by the small-sample volatility in the State results). So, in the case of New South Wales, the productivity estimate used to adjust wages in the State mining industry is split roughly equally between the basic State estimate and the national total, while in the case of Tasmania the national result makes up the majority of the estimate.

In determining the real and productivity-adjusted estimates of LPI levels and growth in the State context, the same inflation rate (the national GDP deflator) is used for all States, while State- (and industry-) specific productivity estimates are used. As with the base LPI estimates, a weighted average of base national and State productivity estimates are used, with the smaller States moving more in line with national trends to limit the effects of measurement volatility.

Nominal LPI measures adjusted for productivity are also estimated by a two-step process, the first of which provides an initial estimate, with the results for each State normalised to ensure State results are consistent with the overall national total.

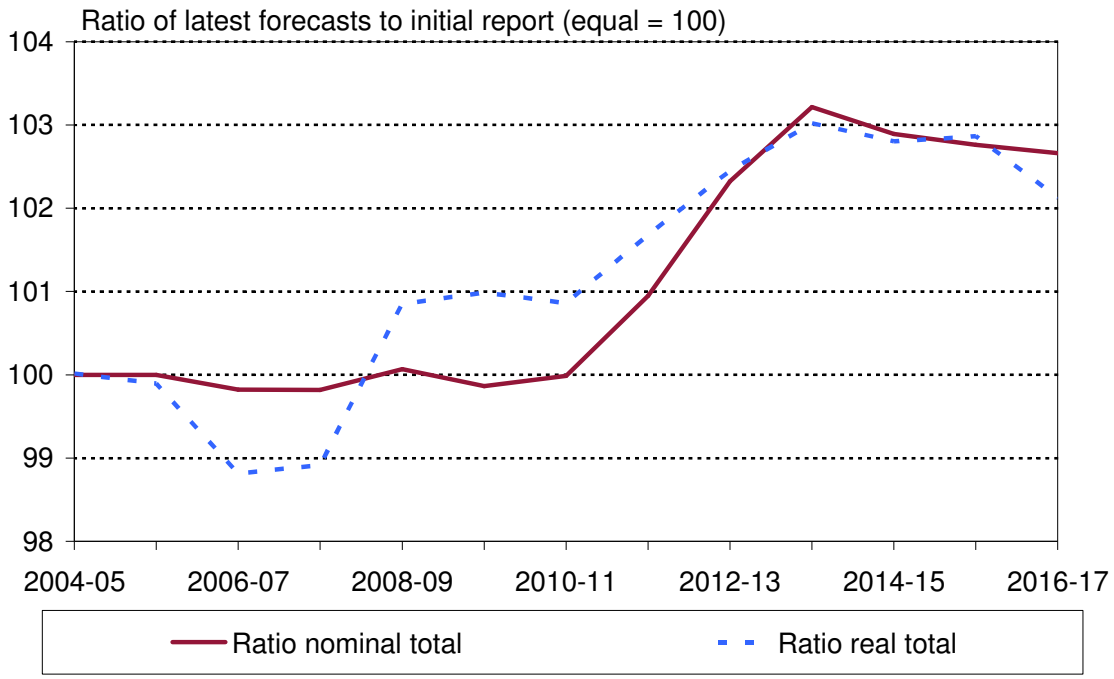
APPENDIX 6: COMPARISONS WITH THE INITIAL REPORT

This section of the report compares some of the results of the initial forecast model with the results in this report. Not all the results can be compared to those in the original report, as the scope of the report has expanded significantly (with the addition of the modelling of two additional industries since the initial report[4]).

Chart 4-19 compares real and nominal labour price index forecasts for the total economy in the initial report and now. This chart points to the changes since the initial report:

- Wage growth in the 2006-07 financial year (the first forecast period) has so far fallen very slightly below initial expectations;
- Nominal growth in wages is, however, effectively unchanged over the first five years of the forecasts – the gap representing forecast 'noise' rather than any real difference from the earlier numbers.
- Actual inflation has been slightly higher than earlier forecast (which drives the real ratio line further down than the nominal ratio line), although we have lowered forecasts for 2008-09. However, over the entire forecast period total inflation is broadly unchanged.

CHART 4-19: RATIO OF TOTAL WAGE INDEX FORECASTS



- The main difference in the forecasts lies in the period from June 2011 to June 2014, where wages are anticipated to rise around 3 percentage points (or one percentage point a year) more than in our initial forecasts. This change reflects the implementation of our new macroeconomic model, which has a more detailed flowthrough of the impact

[4] Effectively Access Economics has also modelled a third additional industry as well, the 'rest of the economy' which covers the remaining non-farm sectors of the Australian economy. This allows us to ensure that the overall implications of wages growth by industry match the overall growth rates.

of capital investment on productivity levels in the economy – the process known as 'capital deepening'. In brief, and as the chart below shows, there has been a very substantial lift in the rate at which business is investing in the future. The resultant creation of extra capital stock – more mines, deeper ports, new computers, refurbished factories and the like – gives workers more 'machines' to work with.

- That process, known as 'capital deepening', raises productivity growth. As our reworked macro model gives greater weight to the endogenous determination of the latter, it also shows higher productivity growth than the earlier forecasts.

CHART 4-20: THE LIFT IN BUSINESS INVESTMENT

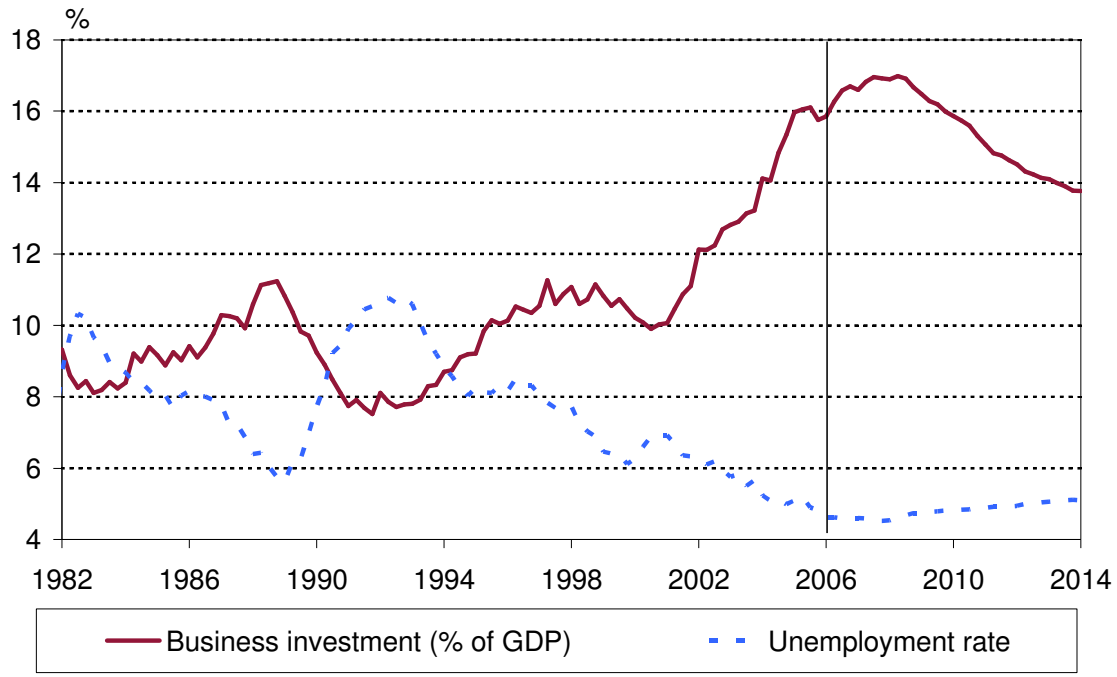
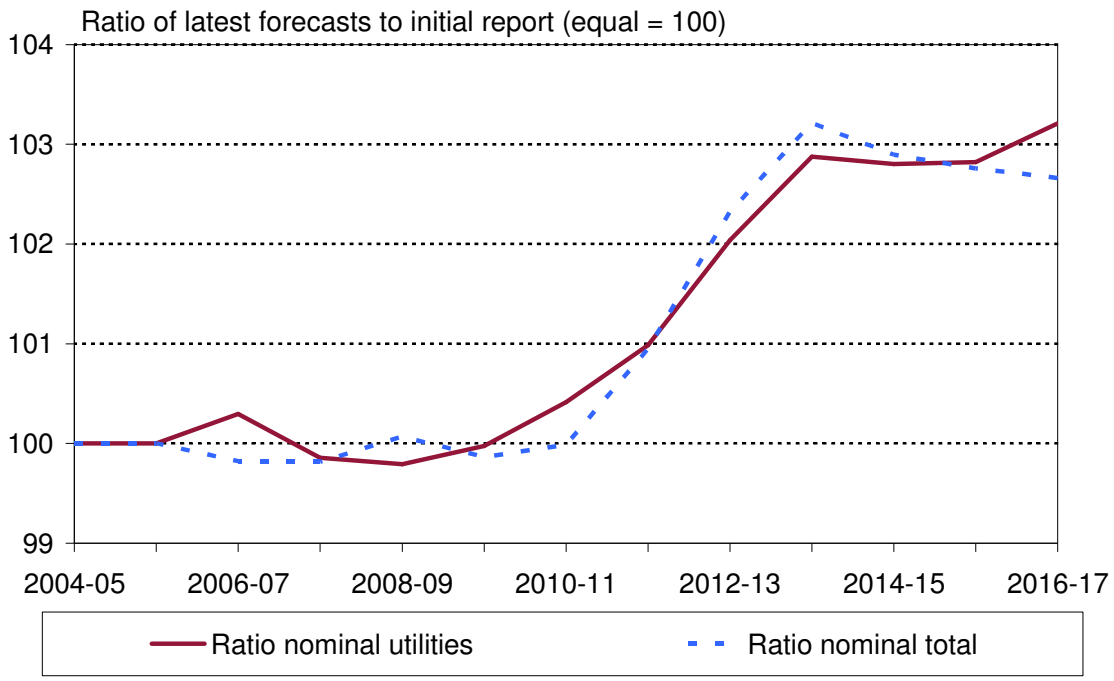


Chart 4-21 shows a similar comparison of wage forecasts in the utilities sector and overall between the two reports. The trends in the utilities sector broadly match the national changes, rising more sharply in 2011-12 to 2013-14, but with a couple of additional differences:

- Industry wage growth in the second half of 2006 (and our new wage forecasts) combine to lift the initial growth rates; and
- In relative terms, nominal wages in the utilities sector rise more sharply slightly earlier and remain stronger in the last few years of the forecast period (previously, this was a weaker point in the relevant economy cycle).
- Again, this pattern matches the expected greater lift in productivity over the longer term arising from capital deepening.

CHART 4-21: RATIO OF FORECASTS IN NOMINAL TERMS



APPENDIX 7: DETAILED TABLES

The following tables show nominal and real (inflation-adjusted) wage growth, as well as nominal and real LPI growth excluding productivity measures, by State in the format similar to that used in the State results chapter. The output file (supplied in Microsoft EXCEL format) provided additional annual rates of growth as well as index level results for the same data set.

Note that the underlying inflation rate used here is the GDP deflator (rather than the CPI). The GDP deflator is a broader measure of inflationary trends in the economy (rather than the CPI, which is based around the typical expenditure of households located in the State and Territory capitals). It is also – appropriately – a producer price series, rather than a consumer price series.

As noted above, but worth stressing again here, sectoral wage and productivity data at the State and Territory level is particularly problematic, and is more likely than the equivalent national level data to be affected by sampling variability.

Nominal LPI forecasts

Composite index	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	4.8	6.1	5.1	3.9	4.5	5.3	5.2	4.6	4.1	4.6	5.3	4.8
VIC	5.5	6.5	4.9	3.8	4.5	5.2	5.1	4.6	4.1	4.6	5.7	4.9
QLD	7.1	6.1	4.7	3.7	4.4	5.1	5.0	4.5	4.1	4.6	6.0	4.9
SA	5.2	6.3	4.9	3.8	4.4	5.2	5.2	4.6	4.1	4.6	5.5	4.8
WA	6.2	6.3	4.8	3.7	4.4	5.2	5.1	4.6	4.1	4.6	5.8	4.9
TAS	5.4	5.7	4.5	3.6	4.2	5.0	4.9	4.3	3.9	4.4	5.2	4.6
NT	5.6	6.1	4.8	3.7	4.4	5.2	5.0	4.6	4.1	4.5	5.5	4.8
ACT	5.2	6.4	5.0	3.8	4.5	5.2	5.1	4.6	4.1	4.6	5.5	4.9
Australia	**5.8**	**6.1**	**4.8**	**3.7**	**4.4**	**5.1**	**5.1**	**4.5**	**4.1**	**4.6**	**5.6**	**4.8**

Mining	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	4.9	6.2	5.7	5.2	4.9	5.5	5.7	5.2	4.6	4.7	5.6	5.2
VIC	5.8	7.1	5.5	5.0	4.8	5.3	5.4	5.1	4.6	4.7	6.1	5.3
QLD	7.9	6.2	5.1	4.8	4.7	5.2	5.3	5.0	4.6	4.6	6.4	5.3
SA	5.5	6.7	5.5	5.0	4.8	5.4	5.6	5.1	4.6	4.7	5.9	5.3
WA	7.5	6.3	5.2	4.9	4.7	5.3	5.4	5.1	4.6	4.7	6.3	5.4
TAS	5.9	5.7	5.1	4.8	4.6	5.1	5.3	4.9	4.4	4.5	5.6	5.0
NT	6.0	6.2	5.2	4.8	4.7	5.3	5.3	5.0	4.6	4.6	5.8	5.2
ACT	5.1	6.7	5.5	5.0	4.9	5.5	5.5	5.2	4.7	4.7	5.8	5.3
Australia	**6.8**	**6.3**	**5.3**	**4.9**	**4.8**	**5.3**	**5.4**	**5.1**	**4.6**	**4.7**	**6.1**	**5.3**

Utilities	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	5.7	5.7	5.0	3.6	3.9	4.5	4.5	4.4	3.6	3.9	5.5	4.5
VIC	5.2	5.5	5.0	3.5	3.8	4.4	4.5	4.3	3.6	3.8	5.2	4.4
QLD	7.4	6.0	5.1	3.6	3.9	4.5	4.5	4.3	3.6	3.8	6.2	4.7
SA	5.3	5.6	5.0	3.5	3.8	4.4	4.5	4.3	3.5	3.8	5.3	4.4
WA	4.4	6.0	5.3	3.7	3.9	4.5	4.6	4.4	3.6	3.9	5.2	4.4
TAS	4.8	5.4	4.7	3.3	3.6	4.2	4.2	4.1	3.3	3.6	4.9	4.1
NT	5.3	5.9	5.4	3.8	4.0	4.6	4.6	4.4	3.6	3.8	5.5	4.5
ACT	5.5	5.7	5.1	3.5	3.8	4.4	4.5	4.3	3.5	3.8	5.4	4.4
Australia	**5.6**	**5.7**	**5.1**	**3.6**	**3.9**	**4.4**	**4.5**	**4.3**	**3.6**	**3.9**	**5.5**	**4.5**

Construction	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	4.3	6.1	3.9	1.6	4.1	5.2	4.6	3.5	3.1	4.7	4.8	4.1
VIC	4.9	6.0	3.8	1.5	4.1	5.3	4.7	3.5	3.2	4.8	4.9	4.2
QLD	5.4	5.8	3.7	1.5	4.1	5.3	4.7	3.5	3.2	4.9	5.0	4.2
SA	4.7	6.0	3.7	1.4	4.0	5.2	4.6	3.5	3.1	4.8	4.8	4.1
WA	4.6	6.6	3.7	1.5	4.0	5.3	4.7	3.6	3.3	4.9	5.0	4.2
TAS	4.7	5.9	3.3	1.3	3.8	5.0	4.4	3.3	3.0	4.6	4.6	3.9
NT	4.8	6.1	3.8	1.6	4.1	5.3	4.7	3.6	3.2	4.7	4.9	4.2
ACT	5.1	6.3	3.8	1.5	4.0	5.2	4.7	3.6	3.2	4.8	5.0	4.2
Australia	**4.8**	**6.1**	**3.8**	**1.5**	**4.1**	**5.2**	**4.7**	**3.5**	**3.2**	**4.8**	**4.9**	**4.1**

All industries	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	3.9	4.5	4.4	4.0	4.3	5.0	5.2	4.7	4.3	4.6	4.3	4.5
VIC	3.7	4.4	4.4	4.0	4.4	5.0	5.2	4.7	4.3	4.6	4.2	4.5
QLD	4.7	4.8	4.5	4.1	4.4	5.1	5.3	4.8	4.4	4.7	4.7	4.7
SA	4.1	4.5	4.2	3.8	4.1	4.8	5.1	4.6	4.2	4.5	4.3	4.4
WA	4.7	4.7	4.5	4.1	4.4	5.1	5.2	4.8	4.4	4.6	4.6	4.7
TAS	4.4	4.2	3.8	3.9	4.1	4.8	4.9	4.5	4.1	4.4	4.1	4.3
NT	4.0	4.5	4.6	4.1	4.4	5.2	5.1	4.5	4.2	4.4	4.4	4.5
ACT	4.2	4.5	4.4	3.9	4.2	4.9	5.1	4.6	4.3	4.5	4.4	4.5
Australia	**4.1**	**4.6**	**4.4**	**4.0**	**4.3**	**5.0**	**5.2**	**4.7**	**4.3**	**4.6**	**4.4**	**4.5**

Real LPI forecasts

Composite index	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	0.4	4.1	4.6	1.7	1.8	3.1	3.0	2.3	1.5	1.9	3.0	2.5
VIC	1.0	4.5	4.5	1.6	1.8	3.0	2.9	2.3	1.5	1.9	3.3	2.5
QLD	2.5	4.1	4.3	1.5	1.7	3.0	2.8	2.2	1.5	2.0	3.6	2.6
SA	0.7	4.3	4.5	1.6	1.7	3.0	2.9	2.3	1.5	2.0	3.2	2.5
WA	1.7	4.4	4.4	1.6	1.7	3.0	2.8	2.3	1.6	2.0	3.5	2.5
TAS	0.9	3.7	4.1	1.4	1.5	2.8	2.7	2.1	1.3	1.8	2.9	2.2
NT	1.1	4.2	4.4	1.6	1.7	3.0	2.8	2.3	1.5	1.9	3.2	2.4
ACT	0.7	4.4	4.6	1.6	1.8	3.1	2.9	2.3	1.6	2.0	3.2	2.5
Australia	**1.3**	**4.1**	**4.4**	**1.6**	**1.7**	**3.0**	**2.8**	**2.3**	**1.5**	**1.9**	**3.3**	**2.5**

Mining	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	0.4	4.2	5.3	3.0	2.2	3.3	3.4	2.9	2.1	2.0	3.3	2.9
VIC	1.3	5.1	5.1	2.8	2.1	3.2	3.2	2.8	2.1	2.0	3.8	3.0
QLD	3.3	4.2	4.7	2.6	2.0	3.1	3.1	2.7	2.1	2.0	4.1	3.0
SA	1.0	4.7	5.1	2.8	2.1	3.2	3.3	2.8	2.1	2.1	3.6	2.9
WA	2.9	4.3	4.8	2.6	2.0	3.1	3.1	2.8	2.1	2.0	4.0	3.0
TAS	1.4	3.7	4.7	2.6	1.9	3.0	3.1	2.6	1.9	1.9	3.3	2.7
NT	1.5	4.2	4.8	2.6	2.0	3.1	3.0	2.7	2.0	1.9	3.5	2.8
ACT	0.6	4.7	5.1	2.8	2.2	3.3	3.3	2.9	2.1	2.1	3.5	2.9
Australia	**2.2**	**4.3**	**4.9**	**2.7**	**2.1**	**3.2**	**3.2**	**2.8**	**2.1**	**2.0**	**3.8**	**2.9**

Utilities	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	1.2	3.7	4.6	1.4	1.2	2.3	2.3	2.1	1.1	1.3	3.2	2.1
VIC	0.7	3.5	4.6	1.3	1.2	2.3	2.2	2.0	1.0	1.2	2.9	2.0
QLD	2.8	4.0	4.7	1.4	1.2	2.3	2.3	2.0	1.0	1.2	3.8	2.3
SA	0.8	3.6	4.6	1.3	1.1	2.3	2.2	2.0	1.0	1.2	3.0	2.0
WA	0.0	4.1	4.8	1.5	1.3	2.4	2.4	2.1	1.1	1.3	2.9	2.1
TAS	0.3	3.4	4.2	1.1	0.9	2.0	2.0	1.8	0.8	1.0	2.6	1.8
NT	0.8	3.9	5.0	1.6	1.3	2.5	2.4	2.2	1.1	1.2	3.2	2.2
ACT	1.0	3.7	4.7	1.4	1.1	2.3	2.3	2.0	1.0	1.2	3.1	2.1
Australia	**1.1**	**3.7**	**4.7**	**1.4**	**1.2**	**2.3**	**2.3**	**2.1**	**1.1**	**1.2**	**3.2**	**2.1**

Construction	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	-0.1	4.2	3.4	-0.6	1.4	3.1	2.4	1.2	0.6	2.0	2.5	1.7
VIC	0.4	4.0	3.3	-0.7	1.4	3.1	2.4	1.3	0.7	2.2	2.6	1.8
QLD	1.0	3.8	3.3	-0.7	1.4	3.1	2.5	1.3	0.7	2.2	2.7	1.8
SA	0.2	4.0	3.3	-0.7	1.3	3.1	2.4	1.2	0.6	2.2	2.5	1.7
WA	0.2	4.6	3.3	-0.7	1.3	3.1	2.5	1.3	0.7	2.2	2.7	1.8
TAS	0.2	3.9	2.9	-0.9	1.1	2.9	2.2	1.0	0.5	2.0	2.3	1.6
NT	0.3	4.1	3.4	-0.6	1.4	3.1	2.4	1.3	0.7	2.1	2.6	1.8
ACT	0.6	4.3	3.4	-0.6	1.3	3.1	2.5	1.3	0.7	2.1	2.7	1.9
Australia	**0.3**	**4.1**	**3.3**	**-0.6**	**1.4**	**3.1**	**2.4**	**1.2**	**0.6**	**2.1**	**2.6**	**1.8**

All industries	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	-0.5	2.5	4.0	1.8	1.6	2.9	3.0	2.4	1.8	2.0	2.0	2.1
VIC	-0.7	2.5	4.0	1.8	1.7	2.8	3.0	2.4	1.8	2.0	1.9	2.1
QLD	0.2	2.8	4.1	1.9	1.7	2.9	3.0	2.5	1.9	2.0	2.4	2.3
SA	-0.4	2.5	3.8	1.7	1.4	2.7	2.8	2.3	1.7	1.8	2.0	2.0
WA	0.2	2.8	4.1	1.9	1.7	3.0	2.9	2.5	1.8	2.0	2.4	2.3
TAS	-0.1	2.3	3.4	1.8	1.5	2.7	2.7	2.3	1.6	1.8	1.9	2.0
NT	-0.5	2.6	4.1	1.9	1.7	3.0	2.9	2.2	1.6	1.8	2.1	2.1
ACT	-0.2	2.6	4.0	1.7	1.5	2.7	2.9	2.3	1.7	1.9	2.1	2.1
Australia	**-0.3**	**2.6**	**4.0**	**1.8**	**1.6**	**2.9**	**3.0**	**2.4**	**1.8**	**2.0**	**2.1**	**2.2**

Nominal LPI forecasts excluding productivity growth

Composite index	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	3.5	2.0	2.3	2.1	2.3	2.2	2.3	2.1	1.0	0.5	2.6	2.0
VIC	4.0	2.5	2.2	1.9	2.2	2.1	2.2	2.1	1.0	0.5	2.9	2.1
QLD	5.7	1.8	2.0	1.8	2.2	2.1	2.2	2.1	1.0	0.6	3.2	2.2
SA	4.1	2.6	2.3	2.0	2.3	2.2	2.2	2.1	1.1	0.4	3.0	2.1
WA	4.4	2.1	2.0	1.9	2.2	2.1	2.2	2.1	1.0	0.5	2.8	2.0
TAS	3.7	2.3	2.7	1.9	2.2	2.1	2.2	2.2	1.0	0.4	2.9	2.1
NT	3.9	2.3	2.2	2.0	2.3	2.1	2.4	1.8	1.0	0.8	2.8	2.1
ACT	3.3	2.1	2.2	2.2	2.5	2.4	2.3	2.4	1.3	0.7	2.5	2.1
Australia	**4.4**	**2.0**	**2.1**	**1.9**	**2.2**	**2.2**	**2.3**	**2.2**	**1.1**	**0.6**	**2.8**	**2.1**

Mining	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	13.8	2.1	-0.8	-0.2	0.8	0.5	0.1	0.9	0.6	-0.1	4.8	1.7
VIC	-7.5	-5.6	-0.2	0.5	1.5	1.3	1.5	1.5	0.6	0.1	-4.4	-0.7
QLD	-7.5	2.1	3.1	2.4	2.7	2.6	2.6	2.0	0.8	0.3	-0.9	1.1
SA	10.7	-2.0	-0.3	0.3	1.1	0.8	0.3	0.9	0.4	-0.6	2.6	1.1
WA	8.1	1.4	2.5	2.1	2.2	2.1	2.3	1.7	0.6	0.0	4.0	2.3
TAS	4.9	4.0	0.0	0.1	0.9	0.8	0.6	1.1	0.2	-0.5	3.0	1.2
NT	6.1	1.8	2.9	2.7	2.5	2.1	3.1	1.5	0.7	0.8	3.6	2.4
ACT	21.4	-4.1	-1.4	0.0	-0.4	-0.6	0.4	0.2	-0.5	-1.1	4.7	1.2
Australia	**4.5**	**1.2**	**1.4**	**1.4**	**1.9**	**1.7**	**1.7**	**1.6**	**0.6**	**0.0**	**2.4**	**1.6**

Utilities	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	0.6	1.7	4.1	2.5	2.5	2.5	3.1	2.7	2.4	1.1	2.1	2.3
VIC	5.2	6.8	4.8	3.2	3.3	3.3	3.6	3.4	2.8	1.5	5.6	3.8
QLD	-9.7	3.3	3.6	1.9	2.3	2.4	2.7	2.7	2.3	1.2	-1.2	1.2
SA	4.5	6.5	4.9	3.3	3.4	3.4	3.4	3.3	3.0	1.5	5.3	3.7
WA	13.9	2.9	3.2	2.1	2.5	2.6	2.6	2.7	2.4	1.1	6.6	3.6
TAS	9.0	5.6	5.6	3.1	3.5	3.7	3.6	3.7	3.3	1.8	6.7	4.3
NT	5.6	3.4	1.4	1.1	1.8	1.9	2.3	1.8	2.1	1.2	3.5	2.3
ACT	3.9	6.1	4.3	3.2	3.6	3.7	3.6	3.5	3.3	1.8	4.8	3.7
Australia	**2.4**	**4.2**	**4.1**	**2.6**	**2.7**	**2.8**	**3.1**	**2.9**	**2.5**	**1.3**	**3.6**	**2.9**

Construction	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	8.4	2.0	1.7	2.3	2.6	3.0	3.3	3.4	1.9	2.1	4.0	3.1
VIC	3.9	1.5	2.4	2.9	2.8	2.7	2.8	3.0	1.2	1.2	2.6	2.4
QLD	0.9	5.5	3.0	3.1	2.6	2.5	2.8	3.1	1.0	0.7	3.1	2.5
SA	6.7	3.0	2.9	3.0	3.0	2.9	3.0	3.1	1.3	0.9	4.2	3.0
WA	7.6	0.5	3.2	3.3	3.2	2.6	2.5	2.4	0.6	0.6	3.7	2.6
TAS	4.2	1.3	3.3	2.4	2.7	2.6	2.8	2.9	0.9	1.0	2.9	2.4
NT	5.3	2.0	2.1	2.0	2.7	2.5	2.8	1.9	0.5	1.6	3.1	2.3
ACT	2.4	0.1	1.8	2.0	2.7	2.5	2.6	2.2	0.4	1.2	1.4	1.8
Australia	**5.2**	**2.5**	**2.4**	**2.8**	**2.7**	**2.7**	**3.0**	**3.1**	**1.3**	**1.4**	**3.4**	**2.7**

All industries	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	4.0	2.0	2.1	2.3	2.7	2.7	2.9	3.0	2.2	1.7	2.7	2.6
VIC	3.6	2.3	2.2	2.3	2.7	2.6	2.8	3.0	2.1	1.7	2.7	2.5
QLD	4.7	1.9	2.3	2.5	2.8	2.9	3.0	3.1	2.3	1.9	3.0	2.7
SA	4.6	2.8	2.4	2.4	2.6	2.6	2.7	2.8	2.1	1.2	3.3	2.6
WA	3.5	1.9	2.3	2.4	2.7	2.8	2.9	3.0	2.1	1.6	2.6	2.5
TAS	3.7	3.5	3.9	2.6	3.1	3.1	3.1	3.6	2.4	1.6	3.7	3.1
NT	3.2	2.6	2.5	2.8	3.0	2.9	3.4	1.9	2.0	2.4	2.8	2.7
ACT	2.9	1.5	2.3	2.9	3.2	3.1	3.0	3.6	2.6	2.0	2.2	2.7
Australia	**4.0**	**2.2**	**2.2**	**2.4**	**2.7**	**2.7**	**2.9**	**3.0**	**2.2**	**1.7**	**2.8**	**2.6**

Real LPI forecasts excluding productivity growth

Composite index	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	-0.9	0.1	1.8	-0.1	-0.3	0.1	0.1	-0.1	-1.4	-2.0	0.3	-0.3
VIC	-0.4	0.6	1.8	-0.2	-0.4	0.0	0.0	-0.1	-1.4	-2.0	0.7	-0.2
QLD	1.2	-0.1	1.5	-0.3	-0.5	0.0	0.0	-0.1	-1.4	-1.9	0.9	-0.2
SA	-0.4	0.6	1.9	-0.1	-0.3	0.1	0.1	-0.1	-1.4	-2.1	0.7	-0.2
WA	-0.1	0.2	1.6	-0.3	-0.5	0.0	0.0	-0.1	-1.4	-2.0	0.6	-0.3
TAS	-0.7	0.4	2.3	-0.3	-0.4	0.1	0.0	0.0	-1.5	-2.1	0.7	-0.2
NT	-0.6	0.4	1.7	-0.1	-0.3	0.1	0.2	-0.5	-1.5	-1.7	0.5	-0.2
ACT	-1.1	0.2	1.8	0.1	-0.1	0.3	0.1	0.2	-1.2	-1.8	0.3	-0.2
Australia	**-0.1**	**0.1**	**1.7**	**-0.2**	**-0.4**	**0.1**	**0.1**	**0.0**	**-1.3**	**-1.9**	**0.6**	**-0.2**

Mining	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	9.0	0.2	-1.2	-2.3	-1.8	-1.5	-2.0	-1.3	-1.9	-2.6	2.6	-0.6
VIC	-11.4	-7.3	-0.6	-1.6	-1.2	-0.7	-0.6	-0.7	-1.9	-2.4	-6.5	-2.9
QLD	-11.5	0.2	2.7	0.3	0.0	0.5	0.5	-0.2	-1.7	-2.2	-3.1	-1.2
SA	5.9	-3.9	-0.7	-1.8	-1.5	-1.2	-1.9	-1.3	-2.1	-3.1	0.4	-1.2
WA	3.5	-0.5	2.1	-0.1	-0.4	0.0	0.1	-0.5	-1.9	-2.5	1.7	0.0
TAS	0.4	2.1	-0.4	-2.1	-1.7	-1.3	-1.5	-1.2	-2.2	-3.0	0.7	-1.1
NT	1.6	-0.1	2.5	0.5	-0.2	0.1	0.9	-0.7	-1.8	-1.8	1.3	0.1
ACT	16.2	-5.9	-1.8	-2.1	-3.0	-2.6	-1.8	-2.0	-2.9	-3.6	2.4	-1.1
Australia	**0.0**	**-0.7**	**1.0**	**-0.8**	**-0.8**	**-0.4**	**-0.5**	**-0.7**	**-1.8**	**-2.5**	**0.1**	**-0.7**

Utilities	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	-3.7	-0.2	3.7	0.3	-0.2	0.4	0.9	0.4	-0.1	-1.4	-0.1	0.0
VIC	0.7	4.8	4.4	1.0	0.6	1.2	1.4	1.1	0.3	-1.0	3.3	1.4
QLD	-13.6	1.4	3.1	-0.2	-0.3	0.3	0.5	0.4	-0.2	-1.3	-3.3	-1.1
SA	0.1	4.5	4.5	1.1	0.8	1.3	1.2	1.0	0.5	-1.0	3.0	1.4
WA	9.1	1.0	2.8	-0.1	-0.1	0.6	0.4	0.5	-0.1	-1.4	4.2	1.2
TAS	4.3	3.6	5.1	0.9	0.8	1.5	1.4	1.4	0.8	-0.7	4.4	1.9
NT	1.1	1.5	0.9	-1.0	-0.8	-0.2	0.1	-0.4	-0.4	-1.3	1.2	0.0
ACT	-0.5	4.1	3.9	1.0	0.9	1.6	1.3	1.2	0.8	-0.7	2.5	1.3
Australia	**-2.0**	**2.3**	**3.7**	**0.4**	**0.1**	**0.7**	**0.9**	**0.6**	**0.0**	**-1.3**	**1.3**	**0.5**

Construction	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	3.8	0.1	1.3	0.2	0.0	0.9	1.1	1.2	-0.6	-0.4	1.7	0.7
VIC	-0.5	-0.4	2.0	0.7	0.1	0.6	0.7	0.7	-1.3	-1.3	0.3	0.1
QLD	-3.4	3.5	2.6	0.9	-0.1	0.4	0.6	0.8	-1.4	-1.8	0.8	0.2
SA	2.2	1.1	2.4	0.8	0.3	0.8	0.8	0.9	-1.1	-1.6	1.9	0.6
WA	3.0	-1.3	2.8	1.1	0.5	0.5	0.3	0.2	-1.9	-1.9	1.5	0.3
TAS	-0.2	-0.6	2.9	0.3	0.0	0.5	0.6	0.7	-1.6	-1.6	0.7	0.1
NT	0.8	0.1	1.7	-0.1	0.1	0.4	0.6	-0.3	-2.0	-1.0	0.8	0.0
ACT	-1.9	-1.8	1.4	-0.1	0.1	0.4	0.4	0.0	-2.1	-1.4	-0.8	-0.5
Australia	**0.7**	**0.6**	**2.0**	**0.6**	**0.1**	**0.6**	**0.8**	**0.8**	**-1.2**	**-1.2**	**1.1**	**0.4**

All industries	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Next 3 yrs	Next 10 yrs
NSW	-0.4	0.1	1.6	0.2	0.0	0.6	0.7	0.7	-0.3	-0.8	0.4	0.2
VIC	-0.8	0.4	1.8	0.2	0.0	0.5	0.6	0.8	-0.3	-0.8	0.4	0.2
QLD	0.3	0.0	1.8	0.3	0.1	0.8	0.8	0.9	-0.3	-0.6	0.7	0.4
SA	0.1	0.9	2.0	0.3	0.0	0.5	0.5	0.5	-0.4	-1.4	1.0	0.3
WA	-0.9	0.0	1.9	0.3	0.0	0.7	0.7	0.7	-0.4	-0.9	0.4	0.2
TAS	-0.7	1.5	3.5	0.4	0.4	1.0	0.9	1.4	-0.1	-0.9	1.4	0.7
NT	-1.2	0.7	2.1	0.7	0.3	0.8	1.2	-0.3	-0.5	-0.1	0.5	0.4
ACT	-1.4	-0.4	1.8	0.7	0.5	1.0	0.8	1.3	0.1	-0.6	0.0	0.4
Australia	**-0.4**	**0.3**	**1.8**	**0.2**	**0.0**	**0.6**	**0.7**	**0.7**	**-0.3**	**-0.8**	**0.6**	**0.3**