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Material and labour cost escalation factors

Report by Access Economics Pty Limited for

Western Power

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EXECUTIVE SUMMARY

In brief, Western Power has seen a rapid lift in unit costs in recent years, as the strength of the Western Australia economy in general and construction activity in the State in particular has combined with a shortage of labour in key trades to see unit costs of labour and materials rise well ahead of overall inflation in the last three years (whether measured by the more well-known CPI or the more indicative non-farm GDP deflator).

The key questions in this project therefore revolve around whether the sharp re-rating in labour and materials costs in recent years is structural or cyclical and, to the extent it is cyclical, the timing of an eventual turn in that cycle.

As a generalisation, costs can be broadly summarised into several categories – raw materials, manufactured goods, labour costs, plant and equipment, and overheads. Each of those key categories is being influenced by the current boom in China, which is having flow on effects in Australia in general (and Western Australia in particular) across the sectors which sell into that boom (such as mining, construction and the utilities):

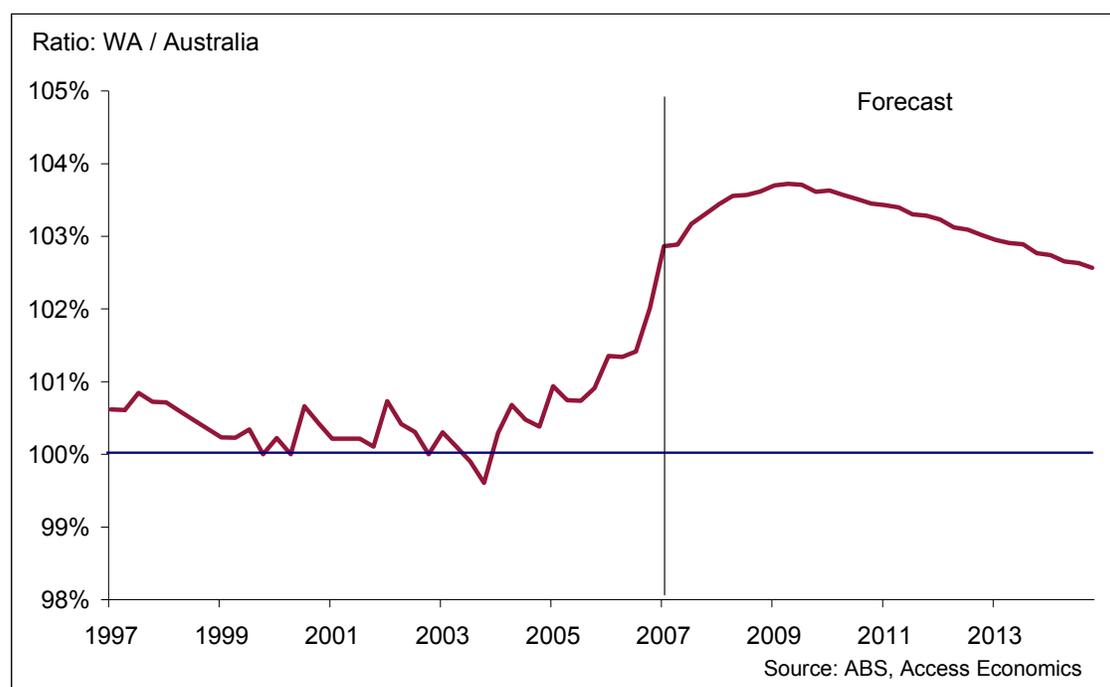
- ❑ Worldwide prices for **raw materials** are being lifted by the striking lift in demand from China (which accounts for 30-40% of world demand in key components such as iron ore). Many industrial inputs have trebled in price on world markets since mid-2003. This demand pressure on raw materials prices has swamped the benefits from the rising \$A, though the latter has provided a handy offset for the pricing of some types of raw materials. The outlook for raw materials is breaking into three parts:
 - **Base metal prices** may be nearing a peak, though their fall-off will be slow, and only partly unwind the gains of recent years.
 - **Energy-related prices** (including aluminium) may retain relatively more of their gains in recent years, in part due to an expectation that carbon taxes/trading will affect prices to end consumers in coming years.
 - **Bulk commodity (coal and iron ore) prices** are still rising sharply, and that will flow through to downstream product prices through the course of 2008-09.
- ❑ On the other hand, **manufactured goods** are seeing prices suppressed by the same cause – China. Higher output in Asia is combining with the usual impact on price of improving technologies to push prices of electrical goods and some other types of materials consistently lower. That said, this effect may not be as notable in the forecast period as it has been in recent years, in part as China itself is starting to see some overheating. Inflation there hit an 11 year high in the year to January (at 7.1%), and the Reserve Bank's assessment is (based on the lower figure to end-December) that *"there are some tentative signs that price pressures [in China] are starting to become more widespread"*.
- ❑ **Land prices** tend to grow faster than most other prices over the longer term because, as Mark Twain once so aptly observed of land, *"They're not making any more of it"*. That scarcity factor combined with a degree of catch up in commercial land markets to the increases seen in residential markets in Western Australia in recent years suggest further price pressures are in store on this front.
- ❑ **Labour costs** have leapt in response to the local construction and engineering sector boom – key trades are seeing shortfalls in available labour, driving labour 'prices' ever higher as a result. Some of that pressure is beginning to ease in the eastern States, but there is no evidence of an easing yet in the West. While these rises are partially offset by rising productivity, they should remain strong, perhaps notably so in 2008-09.

- ❑ Broader measures of **plant and equipment costs** have been suppressed by technological developments in computing. More specific plant and equipment costs still benefit from the China effect – although a swing away in the terms of trade in the short term may add to costs of these goods (which remain highly import-intensive).
- ❑ **Overheads** have been boosted by one-off effects such as the impact the collapse of HIH had on insurance costs. This may be less of a concern in the future, but the experience of recent booms suggests that **margins** built into building contracts can vary significantly, particular around the time the construction cycle turns.

That therefore points to a change in the composition of the price pressures facing Western Power in coming years:

- ❑ In the broad, price pressures will continue for now, mostly because the China boom is also continuing. That said, these price pressures may swing back in composition in 2008-09 to where they began earlier this decade, back to the impact of higher iron ore and coal prices on the cost of a number of material inputs such as sheet metal and fabricated steel.
- ❑ In turn, the strength in iron ore price increases in 2008-09 will combine with other strong fundamentals – including good population growth – to suggest that land prices in Perth and elsewhere in Western Australia may make further ground over coming years.
- ❑ Moreover, some of the areas in which a globalised manufacturing base has been lowering purchasing costs (as was true in the early years of this decade for the likes of electrical cable, electrical and control equipment and lighting) may start to be less of a deflationary force, continuing a trend which began over the last two to three years.
- ❑ That said, other price pressures may soon be passing their peak. Labour markets remain incredibly tight, and wage gains (and hence increases in unit labour costs) are expected to remain notable in 2008-09. That said, the further out these forecasts go, the greater the chance that supply increases will catch up to the strong demand increases of recent years.
- ❑ That may be true for both materials and labour – a slowdown in the price pressures faced by Western Power will not, over the longer term, require a matching slowdown in China's expansion. Rather, it may simply reflect increased supply of minerals on global markets (taking pressure off commodity prices), as well as an increase in the supply of skilled and unskilled workers in the State (as a result of increased migration from other States and the rest of the world, a slowing in retirements, and a pick up in the pace of new entries into relevant sectors).
- ❑ Many of these 'equilibrating factors' can be very slow to operate, meaning that divergences in prices and wages across States (and, for that matter, across sectors and occupations within a State) can persist for long periods. However, they will tend to narrow over time as these supply and demand factors in labour (and materials) markets gradually make their presence felt – as suggested in the chart below. Such delayed supply side responses are a key characteristic of the wider economic environment in Western Australia at the moment.

This report is accompanied by two spreadsheets. The first gives a detailed breakdown of materials, labour and land price growth – both that in history, and that projected in the future. It therefore covers the ground discussed in Chapters 4, 5, 7 and 8.

WESTERN AUSTRALIAN LABOUR PRICE INDEX AS A RATIO TO THE AUSTRALIAN LPI

The second spreadsheet takes the wage information provided by Western Power and summarises that to assess how salary payments by grade have fared in recent years. It therefore covers the ground discussed in Chapter 6.

In brief, the following table summarises the forecast findings of this report:

Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wages								
WA utilities workers	5.1%	5.8%	4.9%	4.5%	4.1%	4.8%	5.2%	4.8%
WA construction workers	5.9%	6.9%	5.1%	3.6%	3.3%	4.4%	4.8%	3.8%
WA blue collar workers	5.0%	6.2%	5.0%	4.4%	4.0%	4.8%	5.1%	4.7%
WA white collar workers	4.6%	5.8%	4.9%	4.4%	4.1%	4.8%	5.2%	4.9%
WA private sector workers	5.3%	7.0%	5.0%	4.3%	4.0%	4.7%	5.2%	4.8%
Materials								
Cement	2.6%	3.0%	4.4%	1.1%	2.1%	8.4%	5.3%	0.7%
Fabricated steel	1.5%	8.0%	12.2%	3.6%	1.5%	6.8%	6.1%	3.5%
Wooden structural components	3.4%	2.6%	5.8%	3.4%	2.3%	6.6%	5.8%	2.6%
Electrical cable and wire	40.7%	-1.0%	8.9%	4.6%	2.0%	6.8%	6.1%	3.3%
Electrical and control equipment	5.7%	5.6%	10.8%	3.1%	1.1%	6.0%	5.3%	2.5%
Lights	-0.1%	5.1%	8.5%	2.3%	0.3%	5.1%	4.4%	1.5%
Nuts, bolts, screws	1.3%	0.2%	5.6%	0.5%	-1.7%	3.2%	2.5%	-0.2%
Sheet metal	0.7%	4.3%	10.7%	1.8%	0.5%	5.6%	4.9%	2.1%
Raw copper	40.5%	0.4%	-6.0%	-9.9%	-8.2%	-6.9%	-7.4%	-8.5%
Raw aluminium	20.2%	-6.2%	-0.3%	-0.2%	-2.9%	-2.7%	-2.8%	-3.1%
Earthworks	5.0%	4.7%	4.8%	2.7%	2.7%	6.1%	5.1%	3.4%
Land								
Perth	8.7%	8.2%	7.7%	5.3%	5.2%	7.6%	7.5%	6.4%
Remainder of WA	8.1%	7.4%	6.9%	4.6%	4.6%	7.0%	6.9%	5.8%

While forecasts of wage price growth for five different labour types are included in this report, the Australian Bureau of Statistics classification of utilities workers in Western Australia most closely resembles the workforce structure of Western Power. For this reason, **Access**

Economics recommends that the forecast of wage growth for Western Australian utilities workers would be the most appropriate for Western Power to apply for future wage expectations of internal and external workers.

For projects using similar materials make up to the four shown in this report, Access Economics recommends that Western Power uses the combined materials forecasts of price growth detailed here. These series should be applied particularly when few other indications of future materials costs exist, or at times when Western Power inventories of materials are low, and a large volume of materials would need to be purchased from the broader market.

**Access Economics
13 March 2008**

1. BACKGROUND

Western Power is required to lodge a proposed access arrangement for the South West Interconnected Network by September 2008 for approval by the Economic Regulatory Authority.

To do so, Western Power requires forecasts of suitable material and labour cost escalators for each year of the access arrangement – 2009-10 through to 2013-14.

Cost growth projections are presented in this report for the following cost components:

- ❑ **Labour**
 - Western Australian utilities workers
 - Western Australian construction workers
 - Western Australian blue collar workers
 - Western Australian white collar workers
 - Western Australian private sector workers
- ❑ **Materials**
 - Cement and concrete products
 - Fabricated steel products
 - Wooden structural components
 - Electrical cable and wire
 - Electrical and control equipment
 - Lights
 - Nuts, bolts and screws
 - Sheet metal
 - Raw copper
 - Raw aluminium
 - Earthworks
- ❑ **Land**
 - Perth
 - Remainder of Western Australia

This report consists of the following sections:

- ❑ A methodology of the construction of the forecasts;
- ❑ Forecast growth in the above components;
- ❑ Background discussion on price and wage trends in the Australian economy;
- ❑ Some technical points regarding construction of price indices.

Microsoft EXCEL spreadsheets containing the financial year estimates of the level and growth rates of the forecast series are included with this report to allow for the projected annual forecasts to be manipulated and analysed as required by Western Power.

1.1 PRICE AND WAGE DEVELOPMENTS IN GENERAL

By way of background, it is worth noting that the Reserve Bank tries to keep consumer price inflation to an average of 2 to 3% a year across the business cycle.

That is an average both across time and across categories. For example, retail prices for imports have grown relatively slowly across the past decade, while prices for services have tended to grow faster.

Note that aiming for average consumer price inflation of 2 to 3% also requires aiming for average inflation in labour costs of the same.

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

The above therefore helps to identify some rules of thumb:

- ❑ Across a long enough period, growth in prices will tend to average somewhere in the Reserve Bank's target range of 2 to 3% a year – perhaps 2.5%.
- ❑ The same is true for labour costs for a unit of output (nominal unit labour costs) – also averaging somewhere close to 2.5%.
- ❑ However, wages for the 'average' worker will tend to grow faster – the sum of both prices and productivity. As the latter has averaged around 1.75% over the past three decades, that might suggest that wages for the 'average' worker will grow by perhaps 4.25% in a typical year.
- ❑ There will be a divergence between wage growth on the one hand and price and productivity growth on the other over the course of a business cycle. When demand is strong relative to the available supply of workers, wage growth will exceed this rule of thumb measure – and vice versa.
- ❑ Moreover, wages for the typical 'specific' worker will tend to grow faster still, as their seniority and experience increases each year. It is harder to identify a general rule of thumb here, as the reward for seniority and experience varies notably across sectors and occupations, as well as across the business cycle. That said, wages for the typical 'specific' worker will tend to grow by perhaps 5.25% in a typical year.

1.2 PRICE AND WAGE DEVELOPMENTS AT THE STATE LEVEL

Many price and wage pressures are being felt more notably in the resource States such as Western Australia, Queensland and the Northern Territory. That said, there are some natural limits to the extent or period to which wages and prices can be notably higher or lower in one State versus another.

For example:

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

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

2. WAGE AND PRICE TRENDS IN AUSTRALIA

2.1 EXPECTED TRENDS IN PRICES IN AUSTRALIA

Australia's 2008 is a year loaded with inflation risk. Underlying inflation is already above 3½% and still rising.

China's continuing rapid growth means demand growth in Australia continues to lift more than our supply capacity is being boosted, while yet another large personal income tax cut is headed our way.

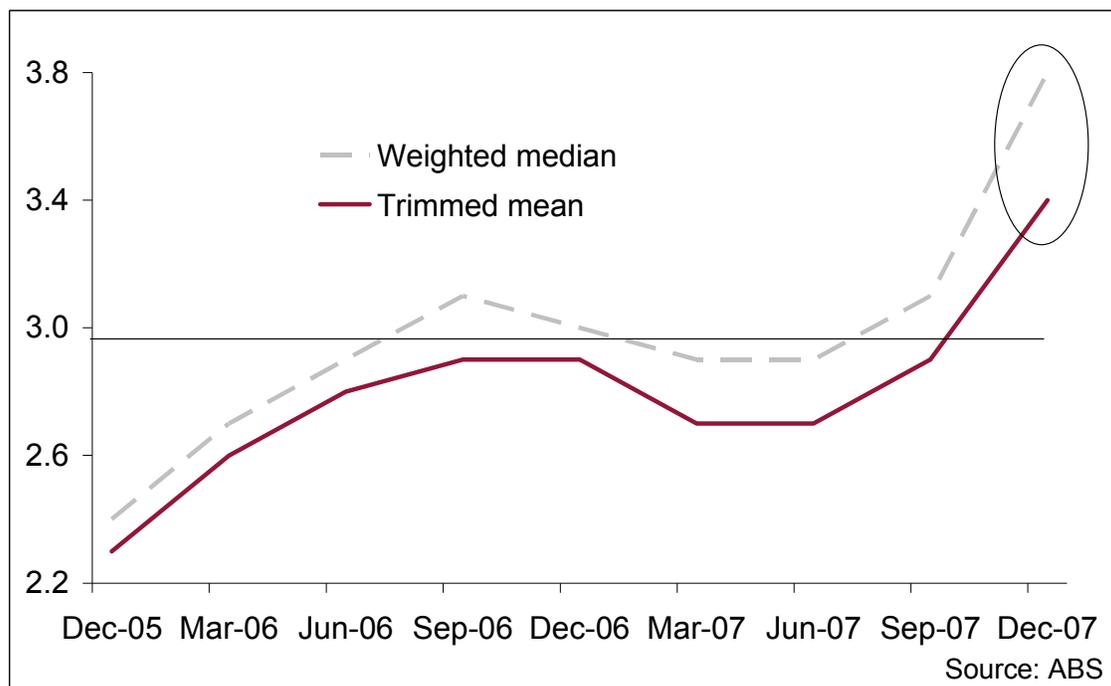
That spells too much demand, and hence it spells rising inflation risks – all the more so as wage growth is finally stirring. Demand growth will eventually ease off, but perhaps not until the construction sector finally runs out of puff through 2009-10. And even then the fall-off in inflation may be tempered by a fall in the \$A at about the same time.

There has been a tug of war in Australia in recent years between deflationary forces (the lift in the \$A, falling global prices for manufactures) and inflationary ones (rising wage growth, falling productivity growth, rising profit margins, surging house prices, rising construction costs, and expensive oil and other commodities).

The net result has left underlying CPI inflation climbing of late.

Indeed, underlying inflation is already above 3½% over the past year, and still rising.

CHART 1: YEAR-TO GROWTH IN THE RESERVE BANK'S MEASURES OF UNDERLYING INFLATION

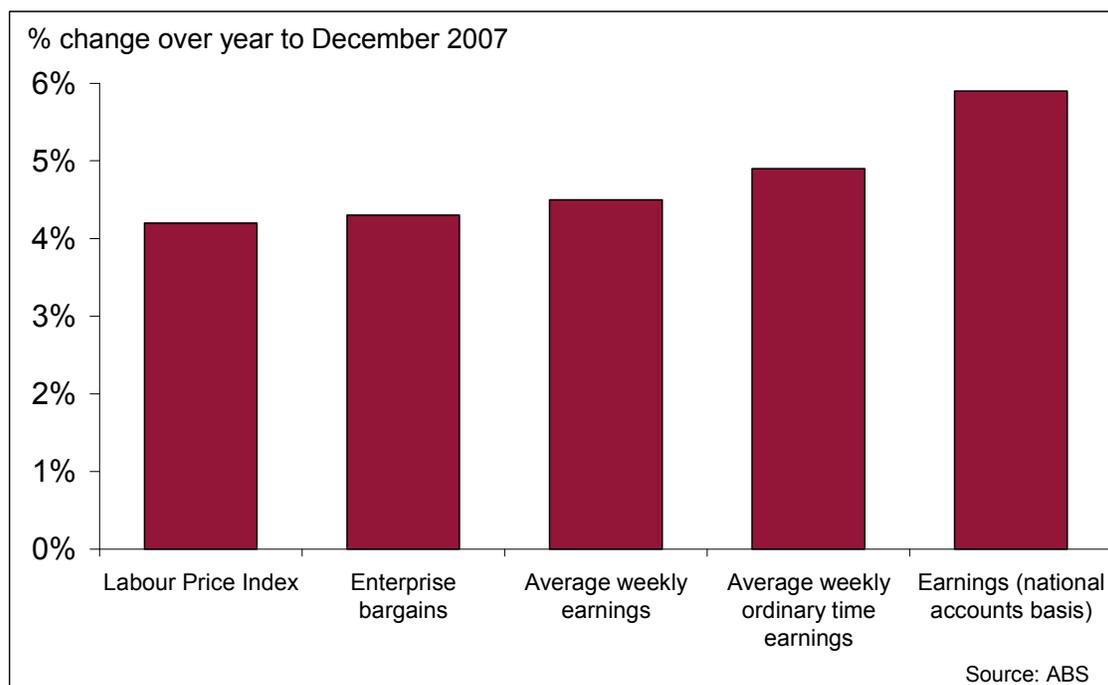


That lift in underlying inflation has mostly occurred because sustained demand growth is spilling over into higher prices – Australia has too much demand chasing too little available supply: the classic recipe for inflation.

To date the considerable strength in demand pressures has not seen Australia pay a high price in matching inflationary trends, mostly because wage growth has been remarkably restrained amid the strong economy, low unemployment and high profits of recent years.

However, although wage growth continues to remain relatively restrained, it is clearly on the rise. Whereas until recently most measures of wage growth were closely clustered around 4% at annual rates, that range has now blown out to extend from 4% to 6%.

CHART 2: MOST MEASURES OF WAGE GROWTH OVER THE PAST YEAR ARE ON THE RISE



And there is further pressure on prices and wages to come, because both China and Canberra are still stoking the inflation outlook.

China's continuing rapid growth means that iron ore and coal prices will jump once more from April 2008. That alone could add about \$25 billion to annual Australian incomes, much of which would add to demand. And Canberra has another tax cut headed our way from July 2008, pumping an extra \$8 billion into the hands of eager shoppers.

Moreover, the Reserve Bank has to respond to the balance of risks, and those remain larger on inflation than they do on Australian output growth – demand is too strong, and the risk of wage gains strengthening amid continued good job gains is too high, because sixteen years of growth (much of it good growth) is starting to pressure prices in many sectors.

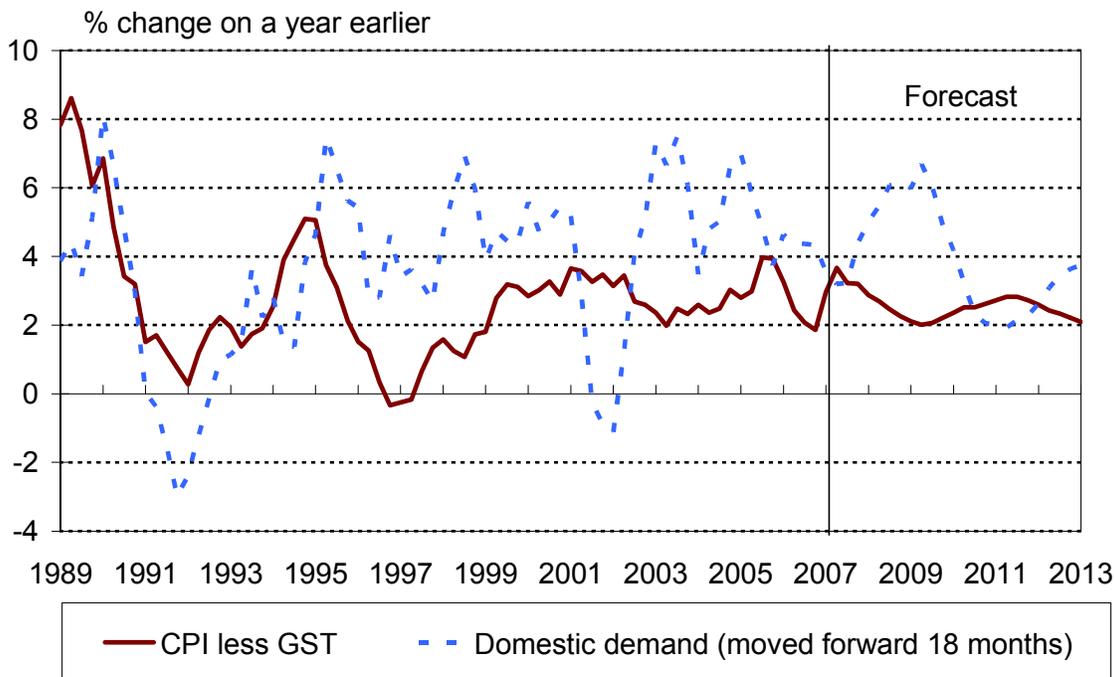
2.2 THE COMPONENTS OF THE INFLATION FORECAST

Inflation forecasts have three main ingredients: (1) forecasts of wage gains (or, to be more exact, wages relative to productivity), (2) forecasts of import prices, and (3) an estimate of

the degree of pressure on prices coming from the spare capacity (or the lack of it) in the economy.

On the latter front, **demand** growth in Australia has been very rapid for a long time, pushed up by a combination of China-driven commodity price gains (which have showered money on the Australian economy and, directly and indirectly, on consumers), while Canberra took its share of that commodity cream and then recycled it back again as tax cuts and higher spending.

CHART 3: THE LAGGED IMPACT OF OUTPUT ON PRICES



Or, in other words, Australian demand has been benefiting from a global boom that has worked particularly in our favour given our strong resource base, while the previous Federal Government added to that demand boom by taking China-driven gains in its revenues and returning them as personal income tax cuts.

Moreover, as Chart 3 shows, demand growth is expected to have a final hurrah over the next year. Again, it is China and Canberra to blame. Due to continuing great Chinese growth, coal and iron ore prices will jump once more from April 2008. That alone could add about \$25 billion to annual Australian incomes, much of which would be spent (that is, add to demand).

And Canberra has another tax cut headed our way from July 2008, with the recent election seeing competition on tax cut promises. Labor's version of these cuts may well cost less than the Coalition's alternative did, but it still pumps an extra \$8 billion into the hands of eager punters, while Labor's spending on its election promises also add a touch extra here as well.

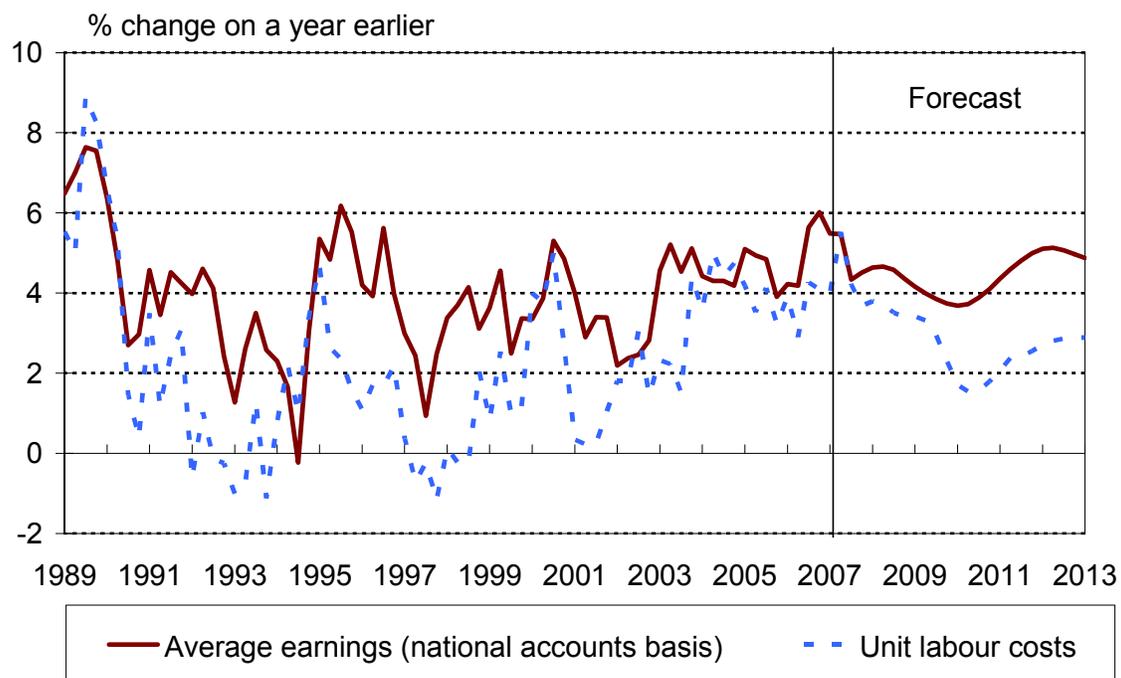
That poses a problem, as it pours a liberal dose of kerosene atop the fires of demand. As Federal Treasury and the Reserve Bank have been keen to point out, demand is now so

strong that it is pushing well past Australia's ability to supply it. It is true that supply capacity itself has also been lifting fast – more workers, more mines, more machines – but our problem is that demand is growing faster still. That has pressured prices, especially those prices which are not constrained by the likes of Chinese import competition.

To date, the relentless upward drive in demand pressures has not seen Australia pay a high price in matching inflationary trends – underlying inflation has been rising, but modestly so, mostly because wages have been remarkably restrained amid the strong economy, low unemployment and high profits of recent years.

But now although wage growth remains relatively restrained, it is clearly on the rise. Whereas until recently most measures of wage growth were closely clustered around 4% at annual rates, that range has blown out to extend from 4% to 6% more recently. Moreover, as productivity growth remains relatively modest, that pick up in wage gains is translating into a pick up in the pace of **unit labour cost** gains (see Chart 4).

CHART 4: WAGES AND LABOUR COSTS



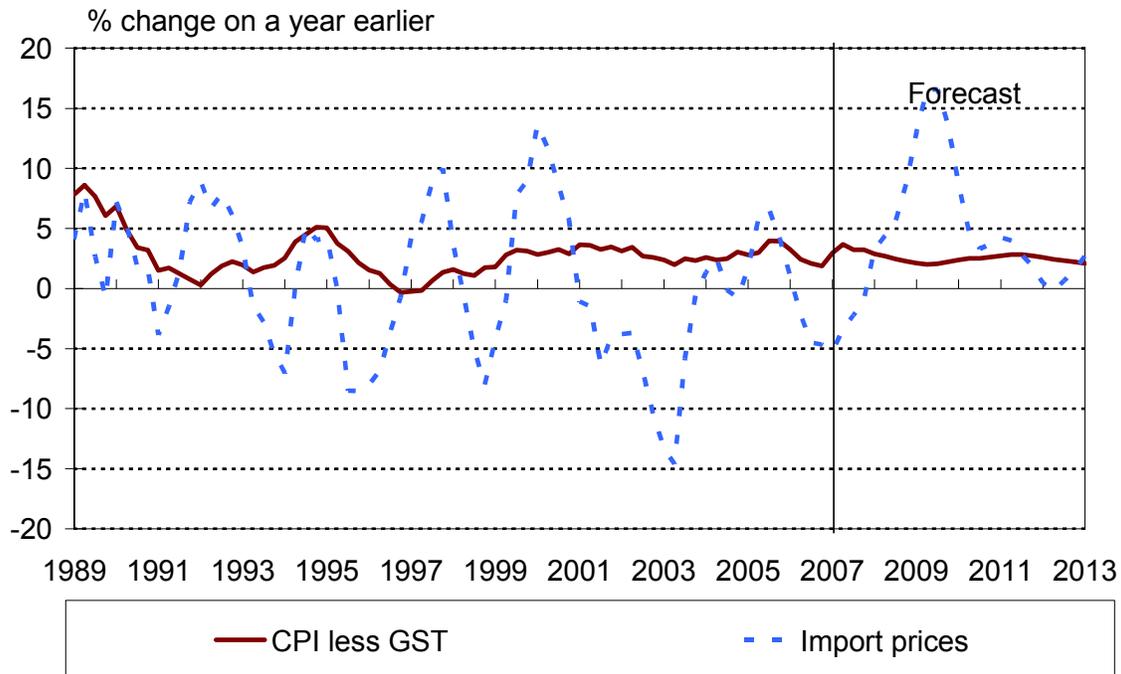
In the past six months, unit labour cost growth has moved back above 4% at annual rates. That is not a comfortable level – and it is one that is clearly starting to place pressures on inflation. It is certainly placing pressures on profits, which in recent months have stalled for the first time in several years. If the next step in that causal chain – labour costs up, profits stalling – leads to retail prices rising, then we'd have a problem.

Access Economics remains hopeful that a lift in productivity growth will neutralise the lift in wage growth now underway. Businesses may be paying more, but they'll get a bigger bang for their buck at the same time as the recent surge in investment in new capital equipment lifts the productivity of Australian workers. Yet it has to be said that inflation risks remain uncomfortably high on both of these two key indicators – demand growth is travelling well above our ability to supply it, threatening continuing spillovers not merely into imports but

also into higher pricing pressures, while growth in labour costs remains uncomfortably high, and will stay that way until productivity gains lift.

The third key building block of inflation comes from **import pricing**. For some years this has been a source of joy for the inflation outlook, as globalisation trends lead to lower cost manufacturing, with rapid advances in technology leading to price falls for some key product categories, and as a rising \$A has further removed the sting from international pricing.

CHART 5: IMPORT PRICES AND INFLATION



The news remains good for now – oil prices may be hitting the highs in \$US prices, but the strength of the \$A means that petrol prices remain below their peaks, while prices for imported goods in general have fallen over the past year.

This remains the last bastion of defence against inflation pressures in Australia. If the import price domino falls, underlying inflation will continue to rise. The good news is that we don't see import pricing as a problem for retail prices in the next year or so. The bad news is that:

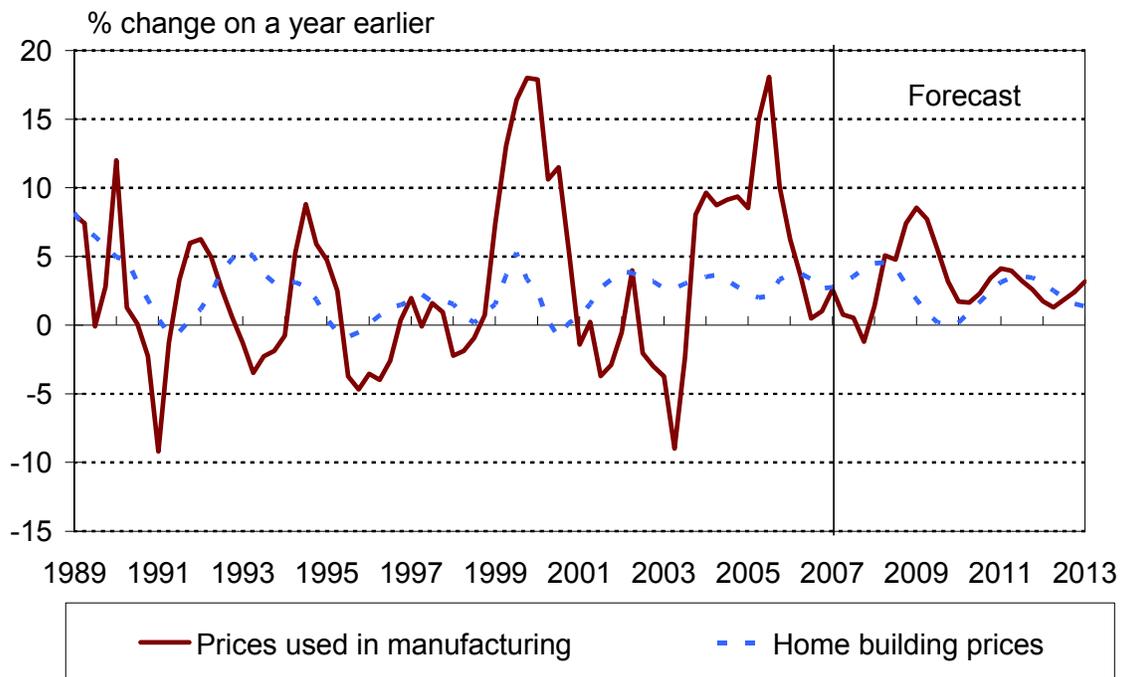
- ❑ China is now slowly starting to export inflation instead of deflation as its continuing economic strength leads to its own domestic inflationary problems; and
- ❑ if and when commodity prices do eventually tumble – perhaps beginning in 2009 – then the \$A would follow suit. That points to the potential for an import price break out across 2009 to 2011.

Upstream prices have been pressured by several factors. The global boom has raised prices for many industrial commodities, including oil, and that has filtered through to local pricing. More recently, the burst of prosperity in the developing world has resulted in a structural lift in food prices, and that too is having effects here. And, closer to home, the global boom has combined with the local construction boom to send construction and related

prices (including developer and commercial property fees) through the roof, while a lack of water and rapid demand growth has added to electricity prices.

Yet, as worrying as that mix has been, the overall pace of growth in upstream producer prices has been relatively moderate, and is not of itself make-or-break for the outlook for inflation.

CHART 6: PRICE ON MATERIALS USED IN MANUFACTURING AND HOME BUILDING PRICES



Inflationary pressures have been rising for a while, and on two counts – rollicking demand growth and rising labour cost pressures – reasons to worry are increasing rather than decreasing. The risks facing Australia's economy are clearly on the rise, with all our eggs in China's basket for 2008. But that doesn't mean that inflationary pressures have peaked. We fear that 2008 will see those pressures remain high, and we fear that the Reserve Bank may think the same.

CHART 7: HEADLINE AND UNDERLYING CPI

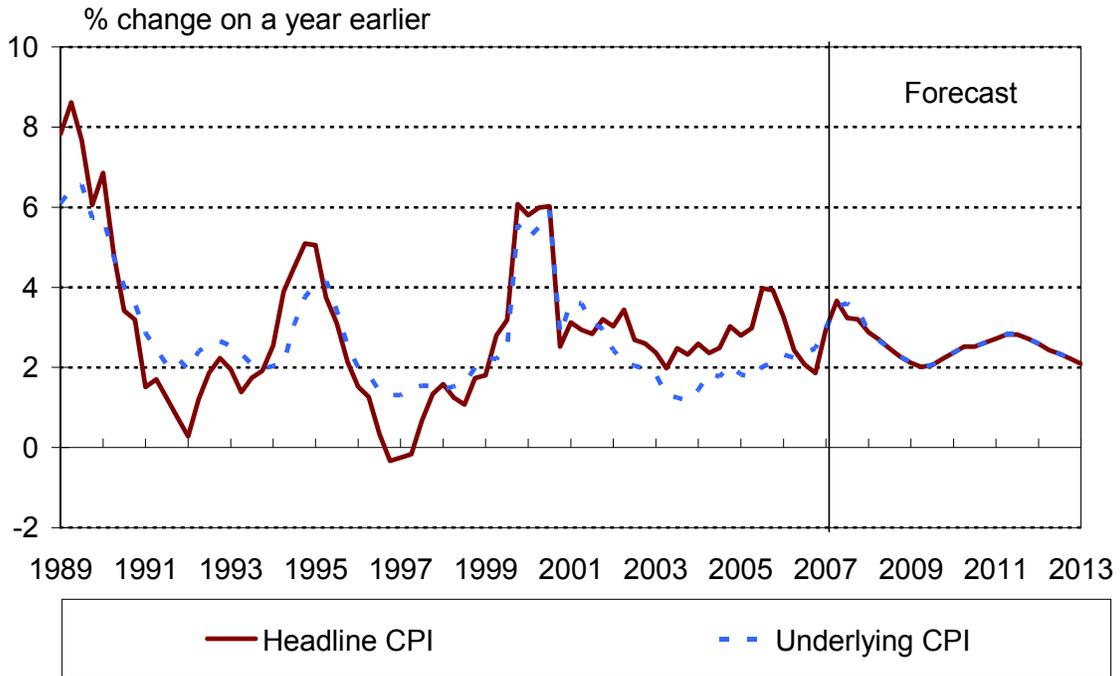
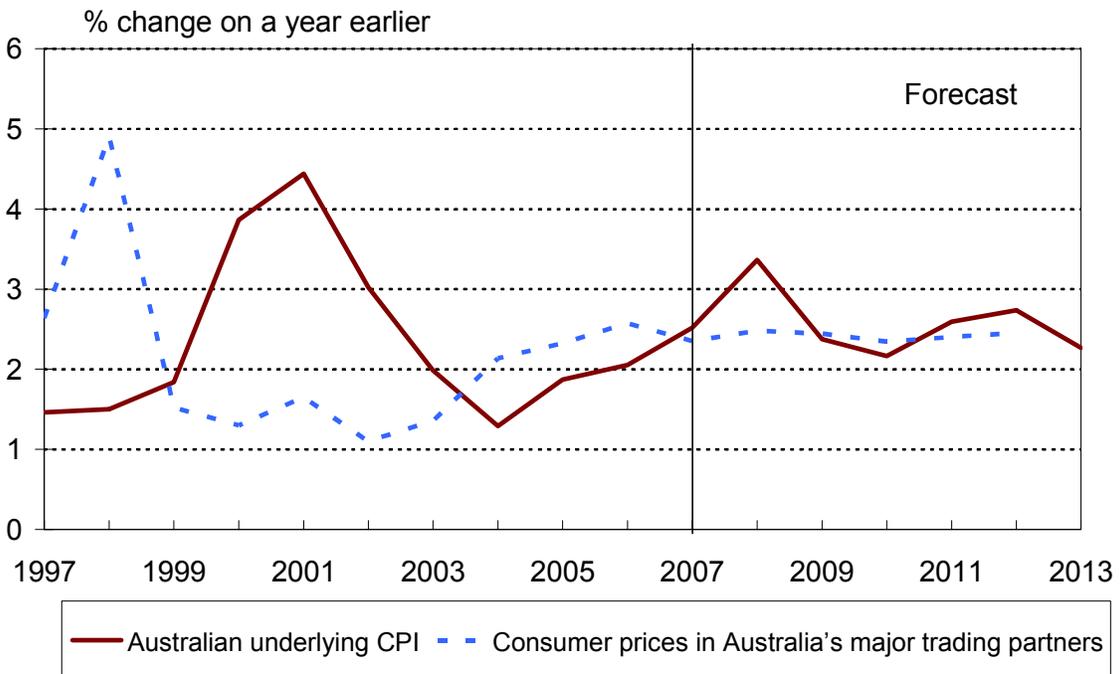


CHART 8: AUSTRALIAN AND FOREIGN CONSUMER PRICE INFLATION



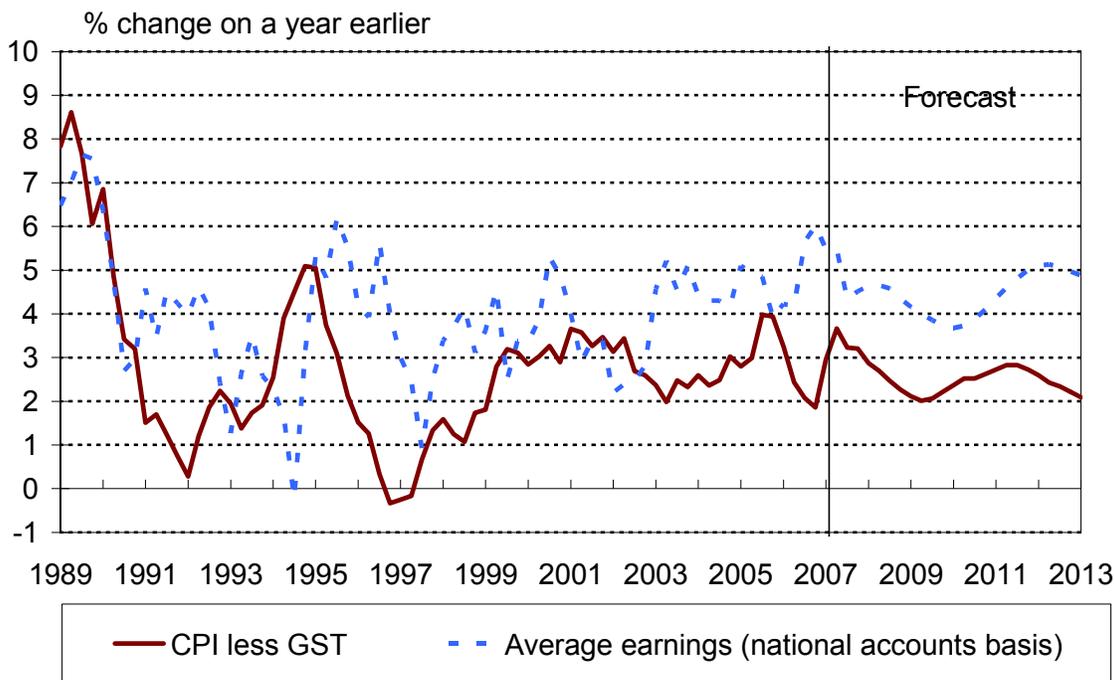
2.3 EXPECTED TRENDS IN WAGES IN AUSTRALIA

Over the longer term, wages respond to developments in labour productivity and inflation.

In the shorter term, wage outcomes reflect not merely productivity and inflation, but also key cyclical influences such as the pace of demand and the availability of supply among relevant types of skilled labour.

On the **wage** front, the scene has been set for fast earnings growth for some time – Australia’s economy has unemployment at 33 year lows, capacity utilisation at record highs, every business survey in the land is noting skill shortages, and the high profits seen in the corporate world in recent years are dangling before the eyes of Australia’s workers. In the face of those pressures, wage growth in Australia has remained remarkably restrained in recent years. Partly thanks to further labour market deregulation, areas of strength in wages have been relatively safely quarantined by sector, State and occupation. In brief, and given conditions in the Australian economy, it makes sense that wage growth is relatively faster in mining and in construction, not to mention in WA. And it makes sense that wage gains are relatively slower in accommodation, cafes and restaurants, as well as in NSW and Victoria.

CHART 9: WAGES AND INFLATION



But the rich diet of prosperity fed to Australia in recent years has not let up, and 2008 looks set to see another year of strong demand gains wash over the Australian economy. As a result, it is increasingly clear that wage growth is now responding to that. The best measure of wage pressures remains the Labour Price Index, whose growth in the past year is still modest, at 4.2%. That said, it is interesting that private sector wage gains are now also 4.2%, having consistently risen in recent years, and that the private sector’s gains are closing the gap with public sector growth (at 4.3% over the past year). Moreover, the LPI might be

the best measure of wage pressure, but it is not the only measure, and it misses some of the froth in the system at the moment.

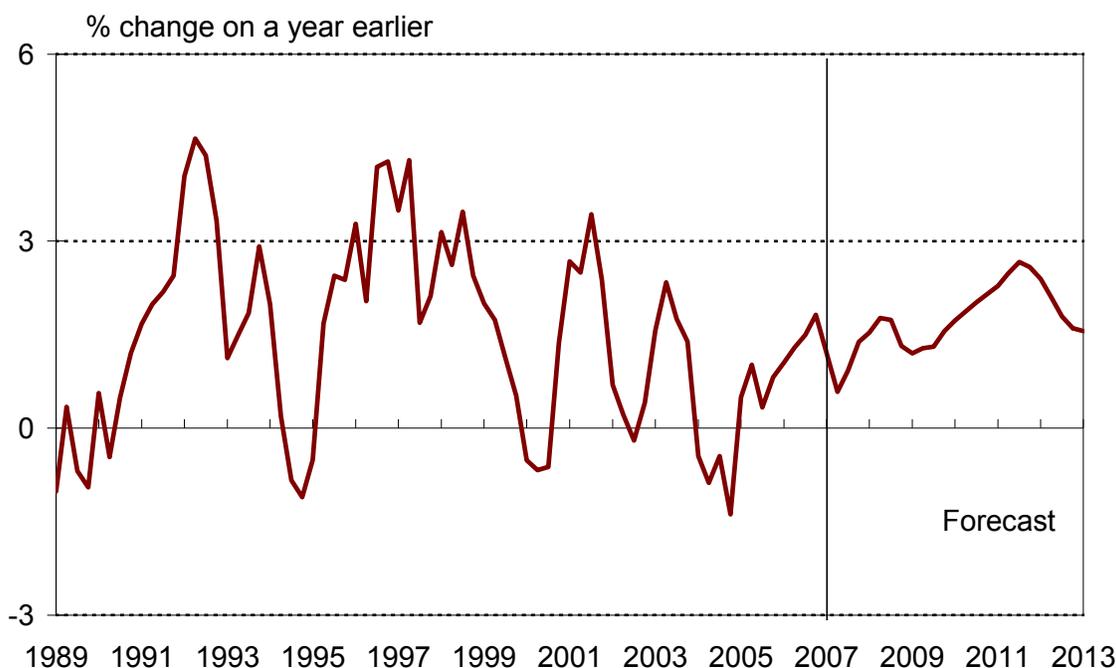
For example, if people are being promoted faster than usual amid the strong job market of recent years, the LPI carefully adjusts away that factor, whereas the other measures don't. It is perhaps therefore interesting that, over the past year, the ordinary time earnings of adults are up by 4.7% and the broad measure used in the national accounts of earnings growth has risen by 5.9%. This latter clutch of measures are more volatile, but their message is increasingly consistent with the thought that, although there is as yet no wage break out in Australia, wage growth is clearly gathering pace.

That said, not all the measures lie above the LPI. Department of Employment enterprise bargaining data show all current agreements advancing at a 4.0% rate – as they have for quite some time – with the private sector slower. But latest data there is both old and on the rise, and our forecasts have pointed to a pick up in wage gains as likely for some time.

Quarter	Private sector			Public sector			Total		Total All current agreements	
	# of agmts	Employees ('000)	Wage rise (% annual)	# of agmts	Employees ('000)	Wage rise (% annual)	# of agmts	Employees ('000)		
Sep-05	1765	102.2	4.3	117	65.6	3.8	1882	167.8	4.0	4.1
Dec-05	2535	117.5	4.2	146	143.5	4.7	2681	261.0	4.5	4.1
Mar-06	2025	152.6	4.0	132	96.8	3.7	2157	249.4	3.8	4.1
Jun-06	2063	91.8	4.1	54	79.1	4.6	2117	170.9	4.4	4.1
Sep-06	1342	133.4	3.2	71	69.6	4.4	1413	203.0	3.7	4.0
Dec-06	1941	209.2	3.7	63	16.1	4.4	2004	225.3	3.8	4.0
Mar-07	1578	82.7	3.5	60	18.8	4.2	1638	101.5	3.7	4.0

Source: Department of Workplace Relations Agreements database

CHART 10: PRODUCTIVITY GROWTH



We think that development is now here. It is not the end of the world. Higher wage growth was always going to be the end result of years of rising prosperity. But it does mean

pressures on the Reserve Bank are on the rise, and that – given we see unemployment remaining low – we also see wage growth as remaining high across the next year or two.

CHART 11: REAL UNIT LABOUR COSTS

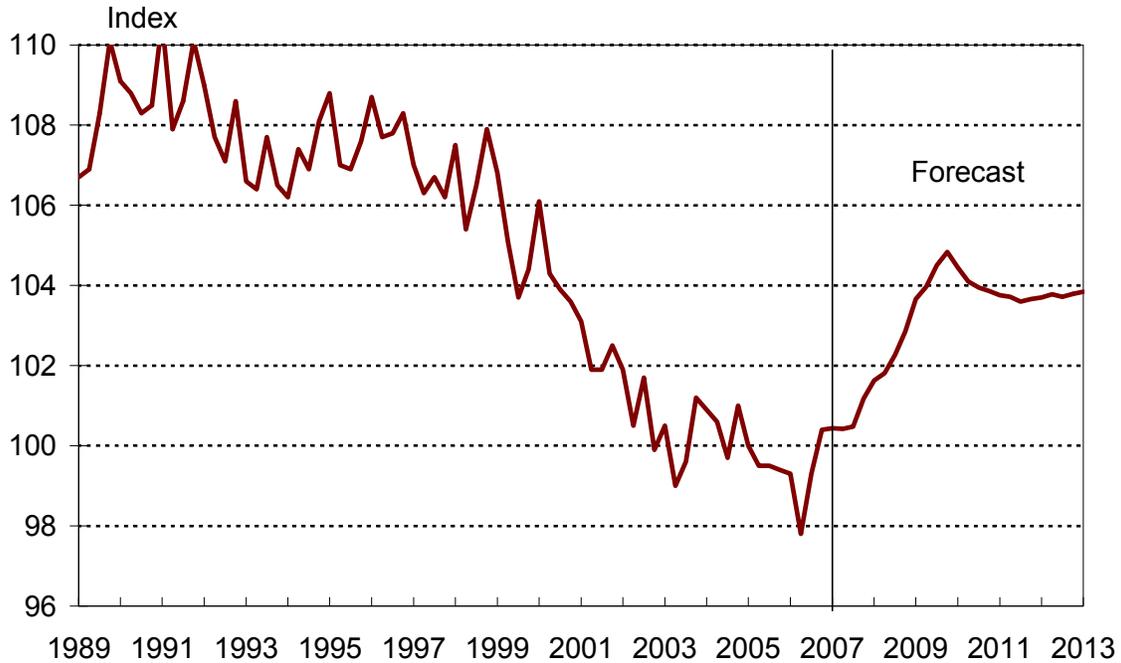


CHART 12: WAGES AND HOUSEHOLD DISPOSABLE INCOME

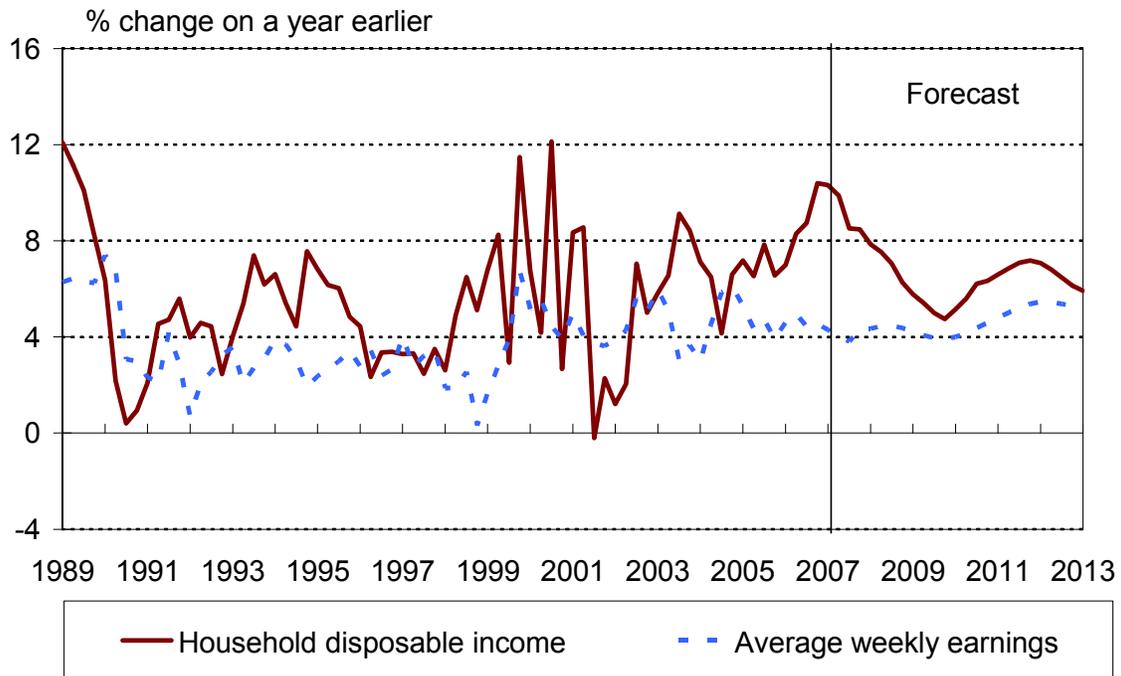
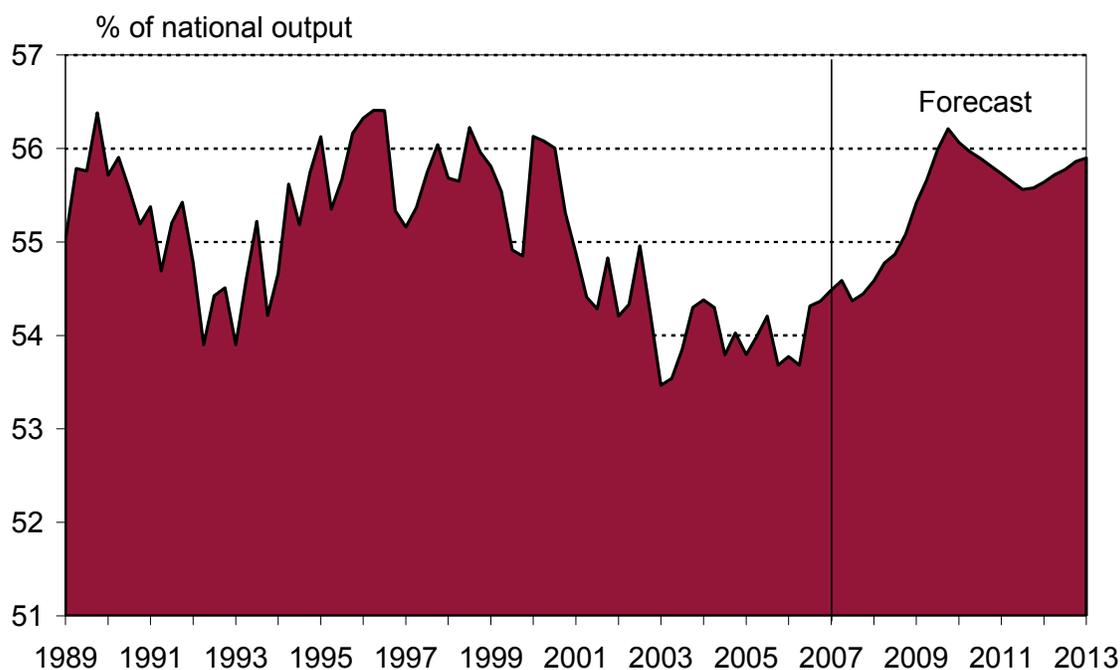


CHART 13: WAGES AS A SHARE OF NATIONAL OUTPUT

In sum, we continue to see a slow burn under wage gains, though today's more flexible job market suggests increases in wage gains will remain more mild than wild. Rather, the next 'unusual' thing to happen may be in profits rather than wages. As and when the commodity price boom eventually sputters, perhaps during 2009-10 and 2010-11, workers may find themselves earning a larger share of the national pie once more.

2.4 EXPECTED TRENDS IN EXCHANGE RATES IN AUSTRALIA

The Australian dollar has ridden high in recent years, pushing 23 year highs (measured on a Trade-Weighted Index basis) amid the twin positives of high commodity prices and high local interest rates.

In turn, both these drivers have been pushed up by the continuing strength of Chinese growth. Rapid growth in China (and the wider developing world) means that industrial commodity demand is continuing to run ahead of the supply of minerals, keeping prices high.

China's never-say-die cycle also has implications for Australian interest rates – and hence the \$A. That is because strong Chinese demand pumps up Australian incomes, and the resultant strength of demand is part of the why the Reserve Bank remains worried about inflation risks.

The current level of commodity prices would usually have resulted in a \$A even higher than its current levels. Access Economics would not be surprised to see the \$A re-test its highs in the short term.

Indeed the \$A has spiked higher on occasion, though it is perhaps instructive that the \$A was, in relative terms, one of the more notable victims of the recent ruckus on global financial markets. That very vulnerability is a reminder that, compared with longer term fundamentals, the \$A remains priced for perfection. It is true that commodity prices may move higher – especially those for Australia's key exports of iron ore and coal. And it is true that interest rates are still rising. So it is true that short term risks to the \$A are mostly to the upside.

But the longer term outlook is less healthy. Just as China's slowdown saw a doubling up of positives for the \$A – higher commodity prices and higher interest rates – chances are that the eventual downswing in the commodity price cycle (if China slows in 2009, or if mine supply grows rapidly through 2009, 2010 and 2011) will see a doubling up in the \$A downswing. Moreover, the fall-off could happen earlier still if the world's appetite for risk – and the \$A is clearly a risk – is permanently tarnished by the recent ructions in credit markets.

The timing of that is uncertain at best. The past few years have seen consistent upward revisions to the outlook for global growth, commodity prices, the \$A and Australian interest rates. As China continues to speed up rather than slow down, and as miners around the world continue to struggle to get new supplies to market, those revisions may continue for a while.

Yet the classic mistake in forecasting is to assume that today's cycle is tomorrow's trend. There are excellent reasons tying together the linked strength in global growth, global mine supply, commodity prices, the \$A and Australian interest rates.

Yet that is not to say that the direction is permanent. We think that the future will hold co-ordinated weakness across this same range of indicators.

Access Economics' forecasts have that weakness starting to become evident from late 2008, and then continuing through 2009 and 2010.

3. THE OUTLOOK FOR WESTERN AUSTRALIA – AND ITS PRICES AND WAGES

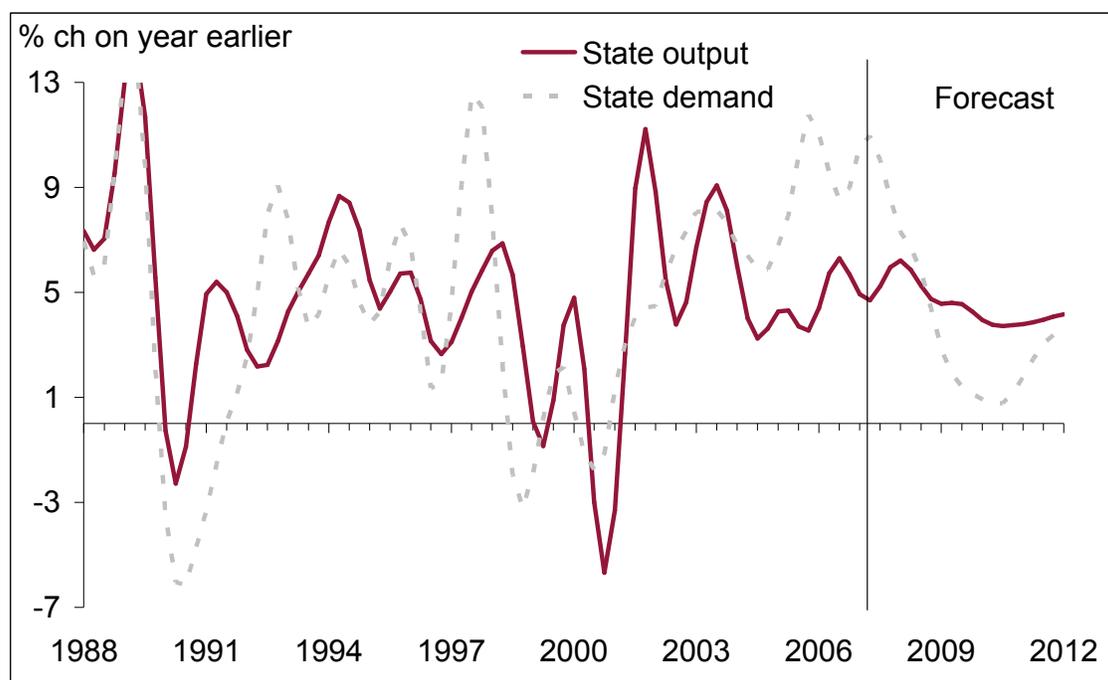
This section discusses the expected outlook for Western Australia's economy. It goes on to focus on recent and expected trends in prices in Western Australia versus those in Australia as a whole.

The State is still growing very rapidly and, although the risk of a correction continues to increase, the short term outlook for output growth remains excellent. Western Australia is locked in a tight race with Queensland to be the fastest growing State in Australia (once again) this financial year.

Western Australia's economy continues to travel incredibly fast, with the State capitalising on the mining boom and outpacing the rest of the nation. While at the national level future output growth is dependant on the tug-of-war between China-driven positives and credit crunch negatives, those positives loom larger in WA than anywhere else.

Western Australia was the fastest growing State in the nation last financial year, and looks like holding onto that title in 2007-08. Moreover, a significant upward revision to iron ore prices (which will reset from April 2008) puts Western Australia in good stead for 2008-09 as well.

CHART 14: RATES OF GROWTH IN REAL WESTERN AUSTRALIAN OUTPUT AND DEMAND



The State is not without problems however, with a long period of strong output growth leading to a lack of supply and the creation of capacity constraints in key areas – Western Australia is in desperate need of additional labour and capital.

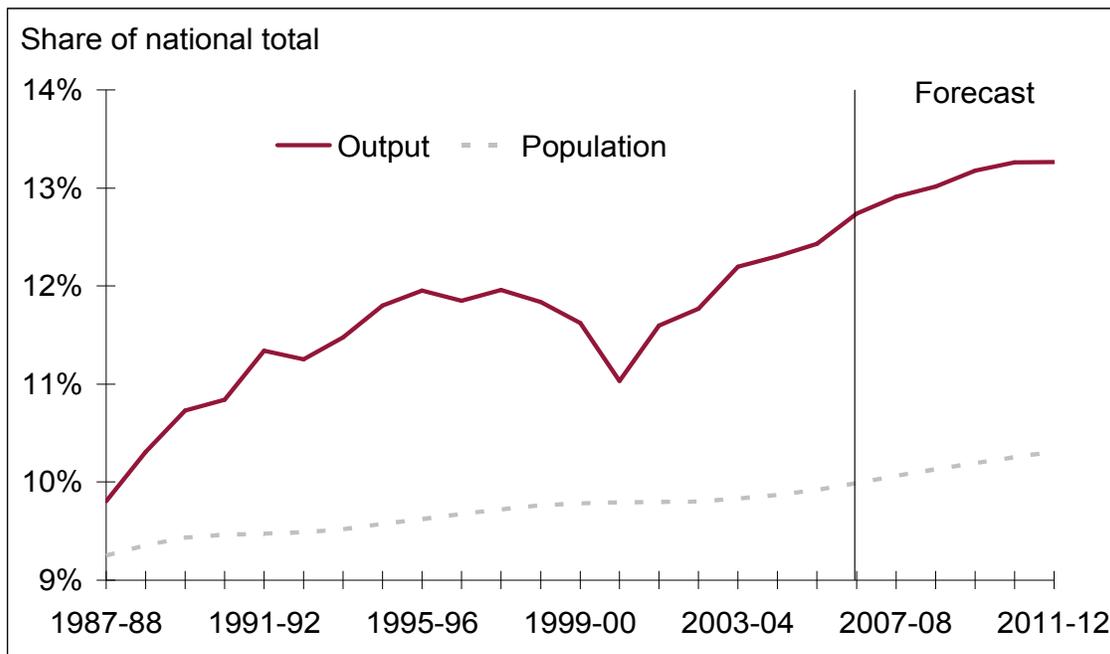
- ❑ That is why population gains are hitting new highs, with Western Australia currently recording the fastest growing population in the nation.
- ❑ And it is why more West Australians work as a share of total population than in any other State, with WA having the highest participation rate in Australia.
- ❑ Even so, unemployment has dipped to 3½%, and employment gains are still strong. Skill shortages leading to record 'imports' of workers under temporary ('457') visas, and wages for workers in WA are growing faster than anywhere else.

However a shortage of labour is only half the problem. The other half is an inadequate capital stock, though conditions are now starting to improve their also.

Capacity constraints are encouraging the private and public sectors to dig deep to boost available capacity. As a share of the State's economy, business investment is higher in WA than anywhere else in Australia, and that gap continues to grow. Importantly, as strong as investment in mining is, the State is now seeing better news on commercial construction as well. That provides a much needed degree of diversification away from mining as the State's major growth engine.

So overall conditions remain excellent – business confidence is riding high, output growth is strong, and prospects are good. Chart 14 and Chart 15 show that Access Economics sees continuing good growth in WA, both on a stand alone basis and as a share of Australia.

CHART 15: WESTERN AUSTRALIA'S SHARES OF AUSTRALIAN OUTPUT AND POPULATION



Housing construction activity in Western Australia is firming. While building approvals and housing finance have dropped from past peaks, rates of construction continue to lift due to the enormous pipeline of housing construction work yet to be done. That pipeline has tripled in size in the past four years.

Rental vacancy rates are rising after dropping below 1% in mid-2007, but superb rates of population growth means that home building is likely to stay strong for some time.

TABLE 1: FORECASTS FOR WESTERN AUSTRALIA

State table 5		Forecasts					
		2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
WESTERN AUSTRALIA							
Gross State product	Constant price (\$m)	127,143	134,162	140,916	147,077	152,614	158,730
	% change	5.7	5.5	5.0	4.4	3.8	4.0
Western Australia as a share of Australian output %		12.7	12.9	13.0	13.2	13.3	13.3
Nominal gross State product	\$m	139,900	148,650	158,752	170,620	176,332	182,845
	% change	16.3	6.3	6.8	7.5	3.3	3.7
Real final demand	Constant price (\$m)	116,114	126,782	133,175	135,038	136,469	140,738
	% change	8.7	9.2	5.0	1.4	1.1	3.1
Private consumption	Constant price (\$m)	55,019	58,347	61,720	64,338	66,922	69,922
	% change	5.3	6.0	5.8	4.2	4.0	4.5
Private housing investment	Constant price (\$m)	8,307	8,895	8,615	8,243	8,490	9,398
	% change	9.8	7.1	-3.1	-4.3	3.0	10.7
Private commercial construction	Constant price (\$m)	15,328	19,402	20,154	18,408	15,649	14,809
	% change	33.8	26.6	3.9	-8.7	-15.0	-5.4
Private equipment investment	Constant price (\$m)	11,524	13,132	14,162	14,289	15,002	15,235
	% change	5.7	13.9	7.8	0.9	5.0	1.6
International exports	Constant price (\$m)	54,868	56,744	58,754	64,223	70,685	78,056
	% change	7.8	3.4	3.5	9.3	10.1	10.4
International imports	Constant price (\$m)	21,433	25,207	26,979	27,706	28,950	31,071
	% change	12.2	17.6	7.0	2.7	4.5	7.3
Industrial production	Constant price (\$m)	48,755	52,731	55,991	58,842	61,111	63,015
	% change	10.7	8.2	6.2	5.1	3.9	3.1
Retail turnover	Constant price (\$m)	23,798	25,612	27,324	28,355	29,214	30,788
	% change	9.4	7.6	6.7	3.8	3.0	5.4
International tourist arrivals	Persons ('000s)	523	545	572	614	653	695
	% change	3.9	4.4	4.9	7.3	6.3	6.5
Total population	Persons ('000s)	2,088	2,134	2,178	2,220	2,263	2,305
	% change	2.2	2.2	2.1	2.0	1.9	1.9
Population aged 15 and over	Persons ('000s)	1,678	1,719	1,758	1,796	1,833	1,869
	% change	2.4	2.4	2.3	2.2	2.1	2.0
Employment ('000s)	Persons ('000s)	1,087	1,125	1,157	1,184	1,204	1,227
	% change	2.7	3.5	2.9	2.3	1.7	1.9
Unemployment	Persons ('000s)	37	39	38	40	45	51
Unemployment rate	%	3.3	3.3	3.2	3.3	3.6	4.0
Consumer Price Index	1989-90 = 100	156.1	160.9	165.7	169.8	174.2	178.9
	% change	3.9	3.1	3.0	2.5	2.6	2.7
Average Weekly Earnings	\$	887.93	954.73	998.88	1,043.48	1,088.05	1,141.53
	% change	9.6	7.5	4.6	4.5	4.3	4.9
Labour Price Index	Level	114.08	120.60	126.10	131.53	137.00	143.75
	% change	4.7	5.7	4.6	4.3	4.2	4.9

Base year for real data is 2005-06

3.1 THE WAGE AND PRICE OUTLOOK IN WESTERN AUSTRALIA

Divergences between prices and wages at the State level tend to be temporary rather than permanent.

For example, if there is a leap in the price of fabricated steel or the wages of electricians in Western Australia compared to what is being paid elsewhere in Australia, then eventually more steel will get imported (from other nations, or other States), and more electricians will cross the Nullarbor to chase the relatively better incomes now available.

Or, in other words, increased demand tends to show up as higher prices for a time, but also tends to encourage more supply to materialise.

That can sometimes happen fast (perhaps especially for some types of materials readily available from elsewhere and relatively cheap to transport), and it can sometimes happen slowly (the electrician's children may be very happy at their school in another State, or they may be unwilling to move away from existing friends and nearby family).

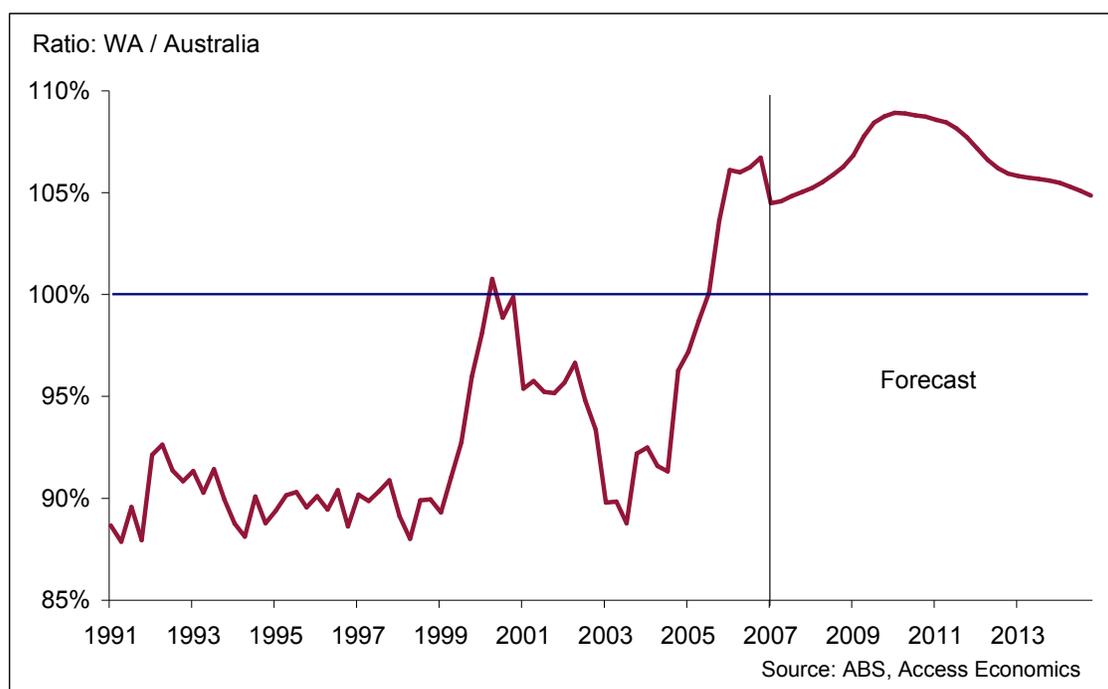
The strength of Western Australia's boom has pushed up wages and price premiums compared with those seen Australia-wide. The following three charts show both history and forecasts for three variables – wages, the CPI, and an 'output deflator' (a widely-defined price measure which picks up the impact of commodity price swings).

In each case the charts compare the Western Australia series with their national counterparts.

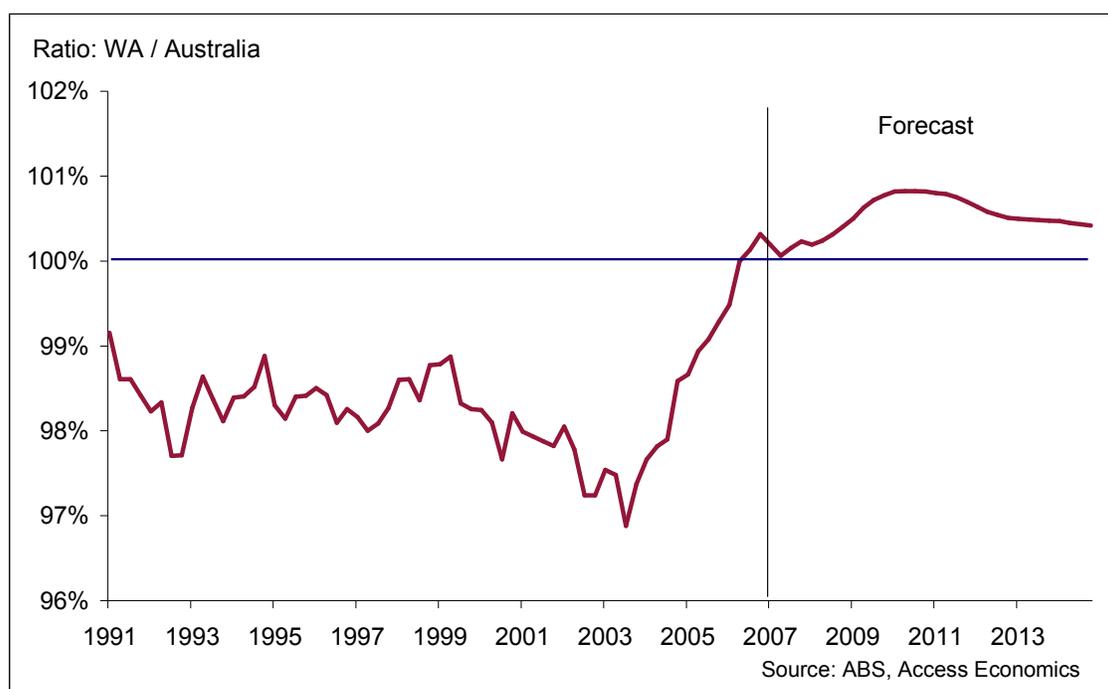
Not surprisingly, the shift in recent years is largest for the output deflator, as the impact of higher iron ore prices boosts the wider Western Australia economy. Also unsurprisingly, that impact is seen climbing for a while, given further gains in iron ore prices from 1 April 2008.

That said, it eventually starts to fall back again, as increases in the supply of industrial commodities mined in Australia and around the world starts to catch up with the strong gains in China-driven demand.

CHART 16: WA OUTPUT DEFLATOR AS A RATIO TO THE AUSTRALIAN OUTPUT DEFLATOR



There is an echo of this in the CPI as well, in part as residential rents start to rise in a delayed response to the strong house price growth of recent years. (Rent forms part of the CPI 'basket'.) Again, however, this effect peaks and then eases with the passing of time.

CHART 17: WESTERN AUSTRALIAN CPI AS A RATIO TO THE AUSTRALIAN CPI

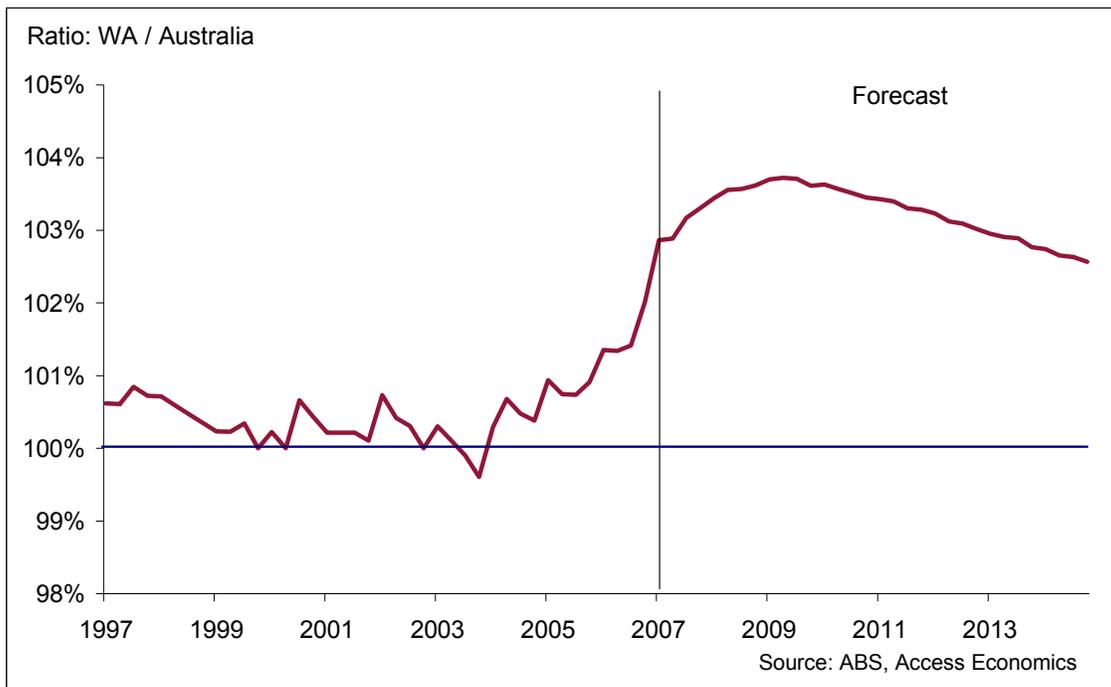
Finally, there is a broadly similar pattern on wages as well. Note that the particularly tight labour market of the last two years has seen wages in Western Australia rise more rapidly than their national counterparts.

The forecasts here have that premium continuing to rise, peaking in early 2010.

However, it is unlikely to be permanent – there are forces which tend to whittle away inter-State wage differentials over time. Either the demand boom which generated the relative gains itself dissipates, or supply ramps up over time. For example:

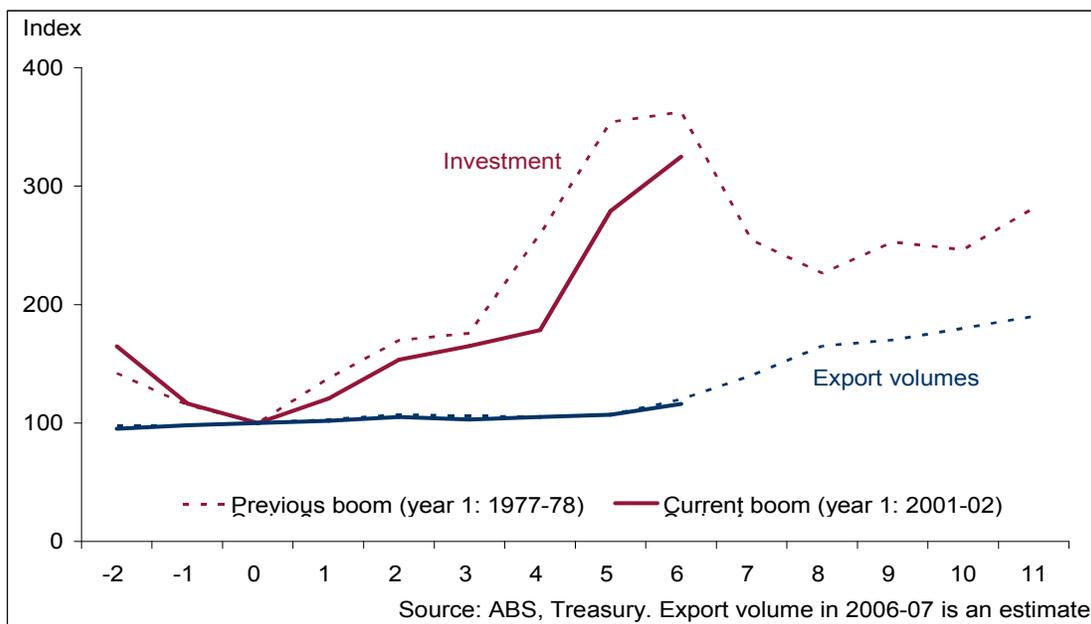
- new residents arrive in Western Australia from overseas or from other States at a faster rate than in other jurisdictions,
- new entrants to the workforce come on stream from school, apprenticeships or universities,
- workers delay their retirement beyond originally planned dates.

CHART 18: WESTERN AUSTRALIAN LABOUR PRICE INDEX AS A RATIO TO THE AUSTRALIAN LPI



Such delayed supply side responses are a key characteristic of the wider economic environment in Western Australia at the moment.

CHART 19: AUSTRALIA'S TWO MINING BOOMS



For example, while the rise in non-rural commodity prices has driven a sharp rise in global and Australian mining and infrastructure investment, Australian export volume growth remains weak. To determine whether the lack of export volume growth is unusually poor, it

is useful to compare Australia's experience in the current commodity price boom (defined as beginning in 2001-02) with that of the previous boom (defined as beginning in 1977-78).

That comparison suggests the current Australian minerals development cycle is consistent with history. Chart 19 shows the level of real mining investment and non-rural commodity export volumes for a period beginning two years before each boom.

Noticeably, a reduction in mining investment precedes each boom, though investment then picks up strongly during the first six years of the boom. The export growth profiles are also similar, showing that export volumes take time to grow, and may not be expected to lift notably until the second half of the decade following the start of the boom.

Whereas other forms of supply adjustment can happen rather faster, higher supply of commodities will eventually push export volumes up and bring prices down, but the history of past mining booms is a reminder that the process can take a decade.

4. MATERIAL COST ESCALATORS

This chapter provides our forecasts for each of the eleven material forecast indices, including technical aspects of each series and the underlying forecasting methodologies used.

Most of the forecasts have been estimated by Access Economics specifically for this project drawing on underlying results from our general macroeconomic modelling.

The results for levels and rates of change for each of the indices are shown. In each case, the results are compared with the GDP deflator, as the latter is the most useful 'broad' price index for the Australian economy.

In the following discussion of the individual series, we identify:

- ❑ The closest match among the price series produced by the Australian Bureau of Statistics, the latest available data, and the underlying components included in the ABS series.
- ❑ The forecasts, as charts of both price levels and financial year average rates of growth in prices, as well as a table of price growth.
- ❑ The drivers of the forecasts (both specifically, in terms of the components used in the forecasting equations, and generally, given that many of the factors affecting the forecasts here interact).

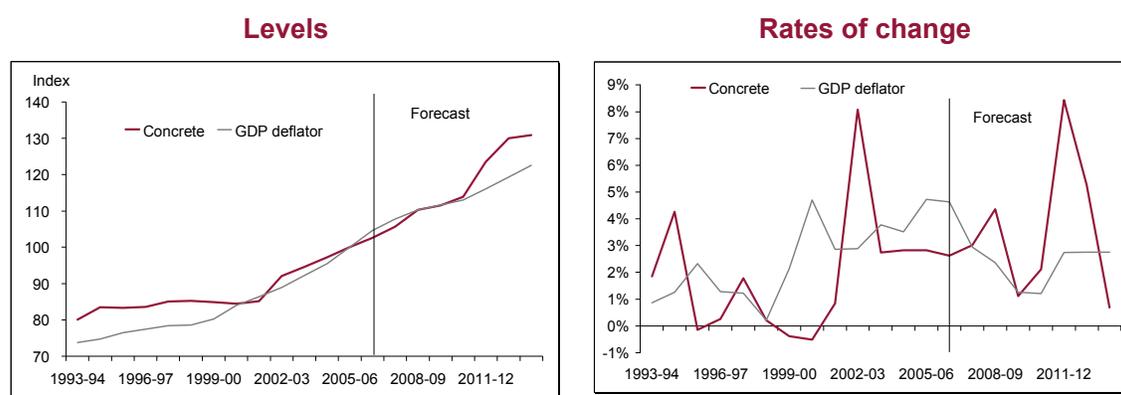
4.1 CONCRETE

Indicative series	ANZSIC category 263 – Cement and concrete products
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

Access Economics' estimates for the price of concrete use the ANZSIC (Australian and New Zealand Standard Industry Classification) group 263 as the basis for the forecasts.

This ABS category is wider than just concrete products, in that it includes cement and lime manufacturing, plaster product manufacturing, concrete slurry manufacturing and concrete pipes and box culverts manufacturing.

CHART 20: CONCRETE PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Concrete	2.6%	3.0%	4.4%	1.1%	2.1%	8.4%	5.3%	0.7%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

The price of concrete has risen relatively slowly over time. However, as activity in the construction sector has surged since 2002, so too have prices for concrete, with 2002-03 marking a clear turning point.

The key determinant of when price inflation in concrete may slow (or even reverse) is expectations as to the next turn of the construction cycle. The timing of that is open to question, and much is dependent on developments in China. That said, Access Economics expects a turn in the construction cycle to start to be evident in 2009, and to become more fully apparent in 2010 as engineering construction eases back from its peaks at that time.

In that latter year the forecast is that the price of concrete (and many of the other products forecast here) will tend to lose some of the premium that has been placed on them over the past couple of years.

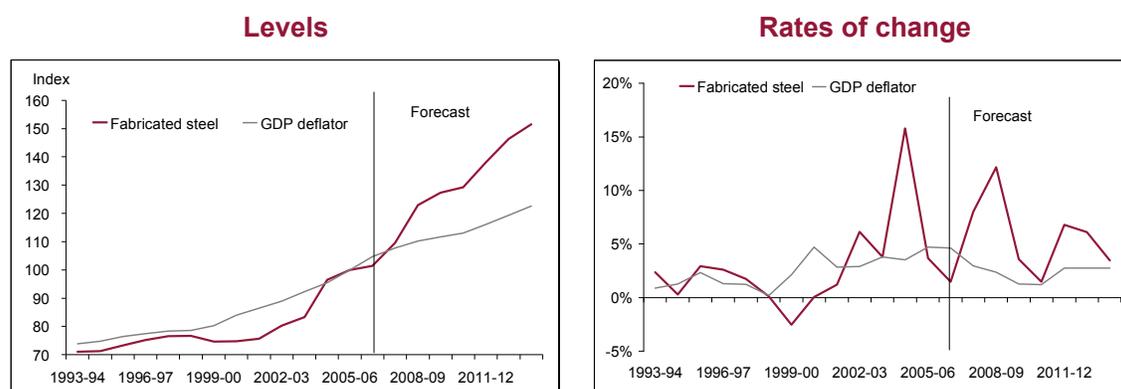
A further ramp up is expected due to a recovery in construction in 2011-12, with the effect on prices likely to be similar to that seen in 2002-03.

4.2 FABRICATED STEEL

Indicative series	ANZSIC category 2741 – Structural steel fabricating
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

This series uses ANZSIC series category 2741 as basis for the forecasts. Items in this category are primarily fabricated structural steel products such as ready made parts for structures.

CHART 21: FABRICATED STEEL PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Fabricated steel	1.5%	8.0%	12.2%	3.6%	1.5%	6.8%	6.1%	3.5%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

There has been a considerable upward shift in steel prices around the world amid the strength of local and global demand, as well as the lift in input costs due to the even larger upward shift in iron ore and coal prices and in scrap metal prices.

That trend is expected to continue for at least another year, with iron ore contract prices to rise by some 65% for the contract reset from April 2008, with prices expected to stay at those elevated levels for the reset in April 2009.

The view on coking coal prices is, if anything, stronger.

However, the expectation is that the contract iron ore price then falls notably thereafter, in part because global mine supply (and Chinese excess capacity in steel) is rising fast.

While contract iron ore prices tend to have significant impacts for steel prices in general, so too does the performance of the construction sector. The lingering strength of demand gains in the construction sector – aided by the large pipeline of engineering and commercial work yet to be done – means that pricing for fabricated steel is expected to continue firming even after iron ore prices begin to fade.

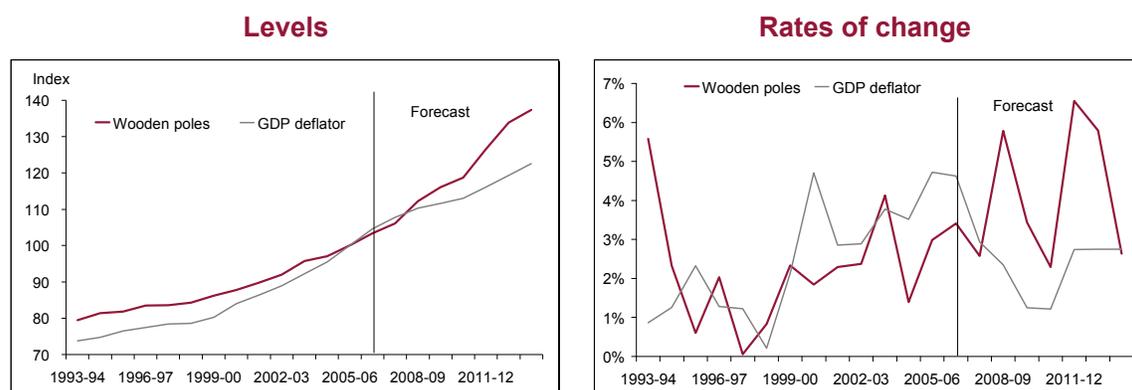
The other reason why fabricated steel prices are not expected to follow iron ore on the way down is that Access Economics expects the \$A to fall against the \$US when commodity prices fall. The currency therefore provides something of a buffer on domestic pricing.

4.3 WOODEN POLES

Indicative series	ANZSIC category 2323 – Wooden structural components
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

This series uses ANZSIC series category 2323 as basis for the forecasts. Items in this category are primarily structural wooden manufactures such as frames, trusses and structural fittings.

CHART 22: WOODEN POLES PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wooden poles	3.4%	2.6%	5.8%	3.4%	2.3%	6.6%	5.8%	2.6%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

The price of structural wood has been quite steady over the past decade, and has generally grown in line with prices in the broader economy over that time. Notable exceptions include times of housing construction booms which tend to increase demand for wooden structural components. While wood used for power lines would be less manufactured than that used as frames and trusses in construction, the underlying drivers of the cost of production would be similar.

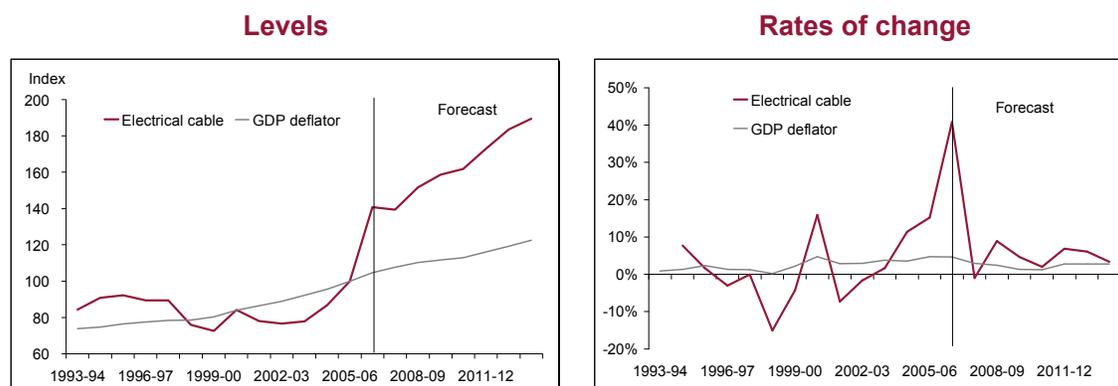
Access Economics expects two peaks in wooden pole price growth over the forecast period, both of which are likely to be driven by housing construction. The current housing construction cycle is expected to reach its pinnacle during 2009, before falling away through 2010. That is reflected in the chart above, with growth dipping back following a sharp lift in 2008-09. An additional driver here (and a reason why price increases are expected to be concentrated in 2008-09 rather than more evenly spread across 2008-09 and 2009-10) is that prices are also rising for a key substitute – poles made of steel.

A second period of strong growth in 2011-12 is also driven by the housing construction cycle, with an expected ramp up in construction likely to lead to a jump in the demand for wood and place upward pressure on prices. Prices for wooden poles are expected to grow in excess of growth in the GDP deflator over the forecast period, in part as rising global prosperity may run ahead of plantation supply, while non-plantation supply may be increasingly constrained by environmental concerns.

4.4 ELECTRICAL CABLE

Indicative series	ANZSIC category 2852 – Electric cable and wire
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

CHART 23: ELECTRICAL CABLE PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Electrical cable	40.7%	-1.0%	8.9%	4.6%	2.0%	6.8%	6.1%	3.3%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

This series shows a large leap in prices through 2006-07, which reflects the ever higher price of copper, as well as a delayed response to the strength seen in the construction sector in recent years. That said, both copper (from 2003-04) and construction (from 2002-03) showed strength before this series did. In part that is due to a lift in production capacity in Asia (which helped keep local prices in check for a time), as well as the rise of the \$A.

Consistent with the view of both Access Economics and many brokers, these forecasts assume that copper prices peak in mid-2008, before beginning to subside from recent record highs. Access Economics views copper as one of the most overvalued minerals. As such, copper prices are forecast to fall by more than a fifth on their late 2007 levels by mid-2010.

It is worth noting that even a fall of that magnitude would still leave copper prices in \$US at more than two and a half times their average for the decade to end-2003.

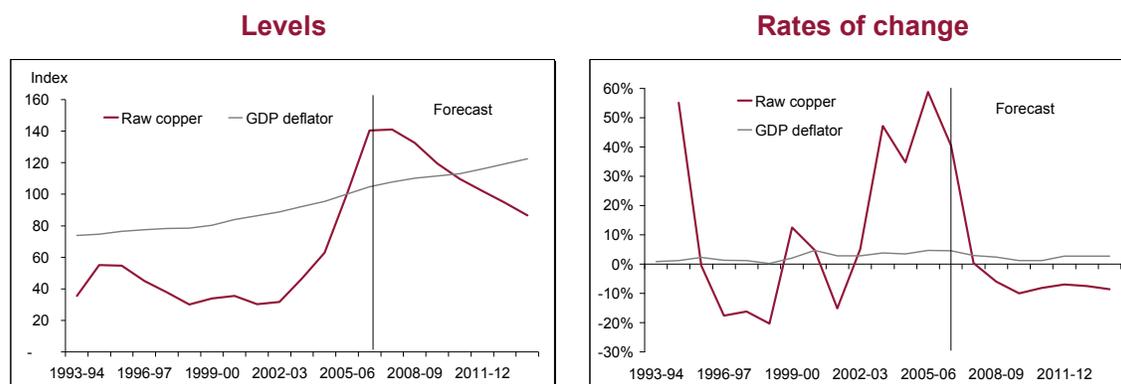
However, even an eventual copper price fall may not stop further price rises in this category, in part as Access Economics sees the \$A falling from current highs over the next few years.

With aluminium prices expected to stay relatively constant over the next few years, the price of copper as well as exchange rate movements are driving most of the expected variability in the price of electrical cable shown above.

4.5 RAW COPPER

Indicative series	Spot prices in \$A
Source	Datastream
Latest quarterly data	December 2007

CHART 24: RAW COPPER PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Raw copper	40.5%	0.4%	-6.0%	-9.9%	-8.2%	-6.9%	-7.4%	-8.5%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

As discussed above, copper prices have been rising for some time now, reflecting their role as an industrial input with a number of uses.

It is true that there are also an increasing number of alternatives to copper for many uses – optic fibre is but one of many examples – but the sheer strength of demand growth for the metal has underpinned a notable lift in raw copper prices to the point where they are now some three times their levels at the turn of last decade.

It is unlikely that copper prices will stay as high as they are at the moment. High prices are dampening demand growth by encouraging the use of substitutes, while economic slowdown in the US has already had an impact on volatility in spot copper prices (although absolute levels remain high).

In addition there is increased global supply capacity in copper expected to come onstream in coming years.

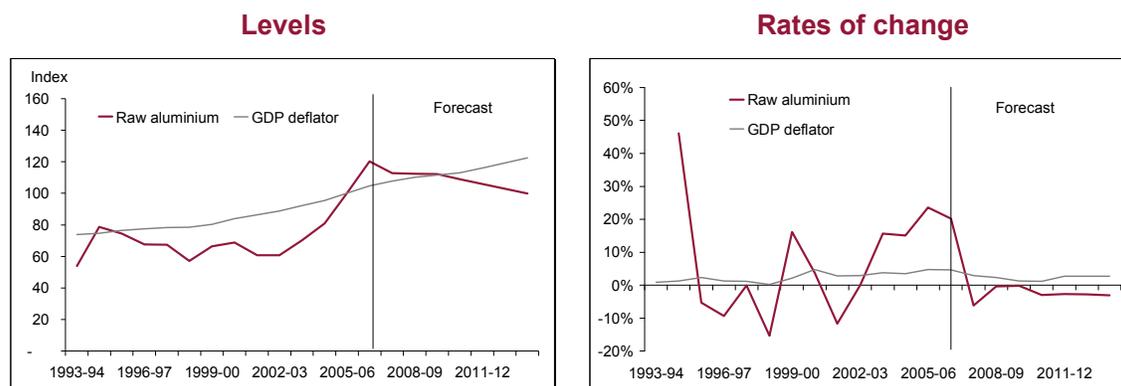
These forecasts therefore have copper prices easing from their 2007-08 peaks. The pace of their decline is seen as measured, in part thanks to Access Economics' expectations of falls in the \$A in 2009 and 2010.

By 2013-14 raw copper prices are still expected to be more than double where they were across the decade to 2002-03.

4.6 RAW ALUMINIUM

Indicative series	Spot prices in \$A
Source	Datastream
Latest quarterly data	December 2007

CHART 25: RAW ALUMINIUM PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Raw aluminium	20.2%	-6.2%	-0.3%	-0.2%	-2.9%	-2.7%	-2.8%	-3.1%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

Raw aluminium prices have also lifted a lot in recent years, alongside prices for most industrial commodities.

A point of differentiation for the future is that aluminium, often referred to as 'solidified electricity', looks likely to see its prices remain more elevated over the longer term.

In the next few years that will be because energy prices are expected to remain high, but thereafter it may be due to a combination of earlier 'sweetheart' deals on long term electricity prices being re-negotiated, and the extent to which carbon taxes/carbon trading raise prices to the consumers of aluminium.

It is therefore useful to compare the longer term price trajectories for copper and aluminium. As the above two sets of charts show, the proportional fall-off in raw aluminium prices between now and 2013-14 is rather less than the matching projected fall in raw copper prices.

That said, there is still a fall. As with copper, it is due to demand substitution (using materials other than aluminium) and supply increase (from a number of nations).

Moreover, although the ownership of aluminium suppliers has become more concentrated over the year, the impact of that may be to delay the downward pressure on aluminium prices rather than to derail it.

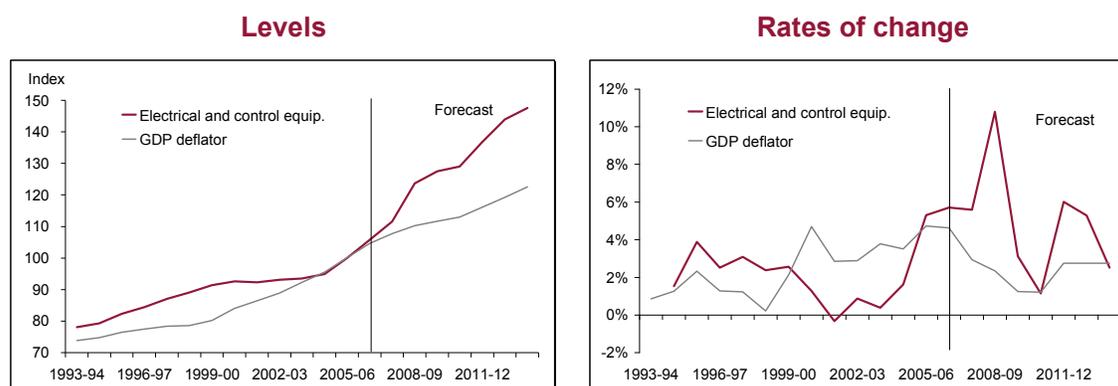
That said, it should be noted that Access Economics' views here differ with those of futures markets. The latter see aluminium prices rising further over time.

4.7 ELECTRICAL AND CONTROL EQUIPMENT

Indicative series	ANZSIC category 2859 – Electrical equipment
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

This series uses ANZSIC series category 2859 as basis for the forecasts. This class of units includes generators, electricity transmission and distribution equipment, switchgear and transformers as well as components and supplies.

CHART 26: ELECTRICAL EQUIPMENT PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Electrical equipment	5.7%	5.6%	10.8%	3.1%	1.1%	6.0%	5.3%	2.5%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

This series shows a strong increase in price growth from 2004-05, consistent with a lift in construction demand and minerals prices during that time. Prior to this increase, the price of electrical and control equipment was showing very low rates of growth.

Growth over the forecast period shows that prices are expected to continue trending upwards through 2008-09, before gradually easing back to rates of growth more consistent with price growth in the economy as a whole. While raw copper prices are expected to begin falling away through 2008-09, the prices of other inputs such as steel (which is partly influenced by iron ore prices) and oil are expected to remain high.

In combination with continuing tightness in global construction markets, that is likely to underpin further strong growth in the price of electrical equipment over the next 18 months.

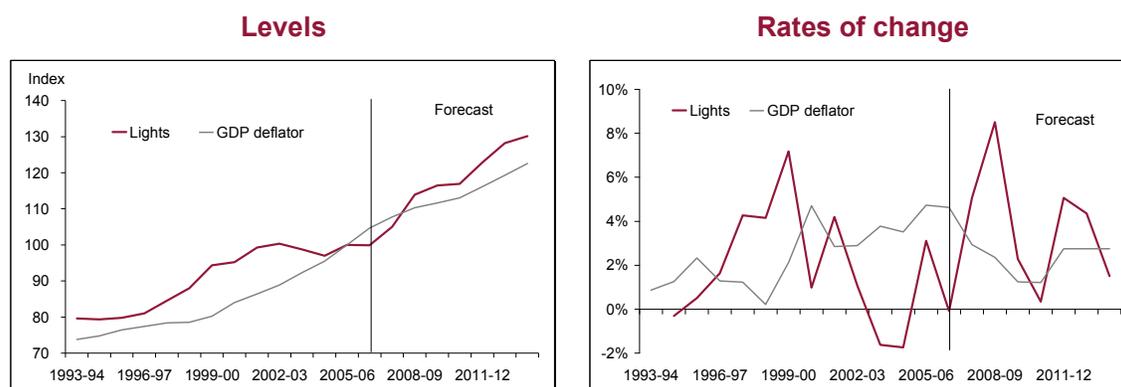
An eventual slowdown in Chinese growth will lower the demand for many minerals and lower the production cost of electrical and control equipment. While the timing of such a slowdown is unclear, these forecasts assume that China begins to slow in the latter stages of 2009 and into 2010. As such, price growth for electrical and control equipment is expected to be rather more moderate in 2009-10, and then for the remainder of the forecast period.

4.8 LIGHTS

Indicative series	ANZSIC category 2854 – Electric lights and signs
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

This series uses ANZSIC series category 2854 as basis for the forecasts. This class of units includes electric light bulbs and tubes, electrical elements, infrared and ultraviolet lamps, spotlights and neon signs.

CHART 27: LIGHTS PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Lights	-0.1%	5.1%	8.5%	2.3%	0.3%	5.1%	4.4%	1.5%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

The price of lights has been growing far less quickly than a number of other series shown here. Indeed, growth in the price of lights has been below price growth in the broader economy since 2001-02.

Chart 27 shows that, in history, growth in the price of lights has usually jumped sharply during construction booms. That was evident in 1999-00 in the lead up to the Sydney Olympics and again in 2001-02 during the east coast housing construction boom in Australia.

Notably, these forecasts show a sharp increase in the price of lights in 2008-09. That is consistent with an expected pick up in housing construction through the coming financial year as well as continuing strength in non-residential construction, thereby increasing the demand for lights.

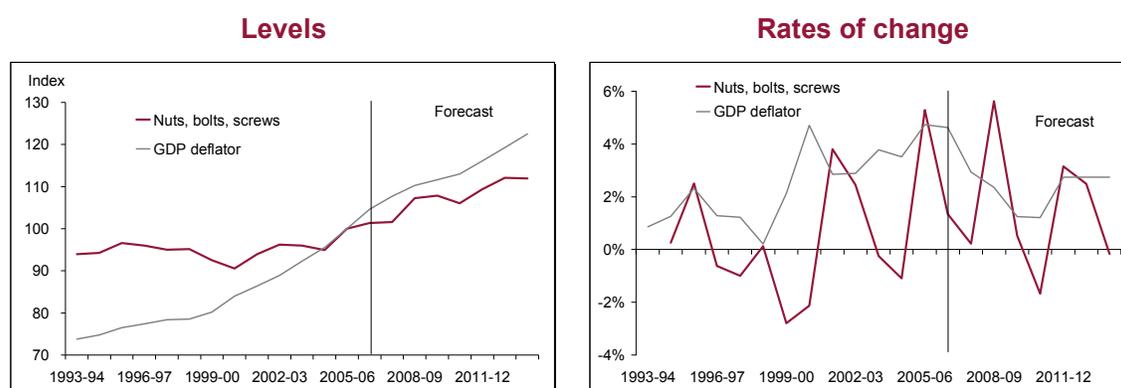
Following that peak, price growth is expected to return to longer term trend rates of growth, generally in line with growth in the GDP deflator.

4.9 NUTS, BOLTS AND SCREWS

Indicative series	ANZSIC category 2763 – Nuts, bolts and screws
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

This series uses ANZSIC series category 2763 as basis for the forecasts. This class of units includes metal nuts and bolts, machine screws, turnbuckles, pins and rivets.

CHART 28: NUTS, BOLTS AND SCREWS PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Nuts, bolts and screws	1.3%	0.2%	5.6%	0.5%	-1.7%	3.2%	2.5%	-0.2%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

Chart 28 shows that price growth for nuts, bolts and screws tends to be low but quite volatile. Growth has generally remained below that for the broader economy, and is expected to remain so over the majority of the forecast period.

The prices of metals and labour influence the production costs of nuts, bolts and screws, while the construction cycle also has a notable impact on demand. Price growth has fallen back following a spike in 2005-06, though it is expected to firm again in 2008-09 in line with a lift in housing construction, as well as due to a minor effect from higher steel prices.

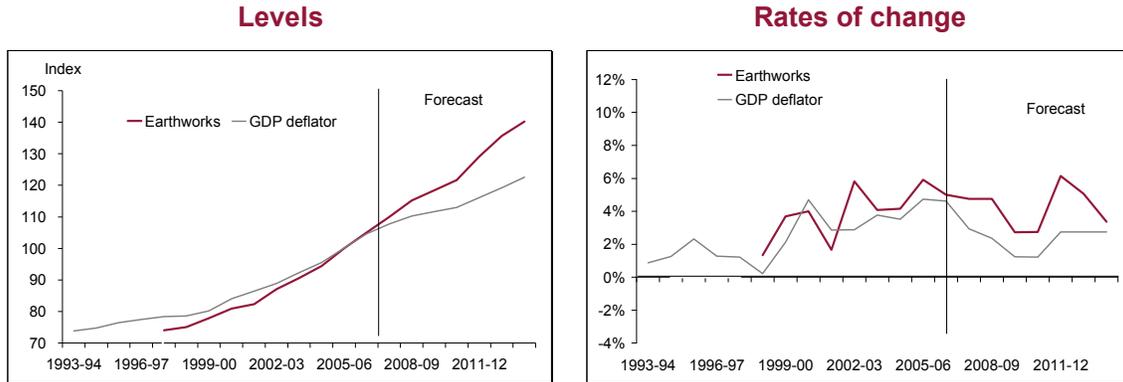
As with other forecasted series outlined previously, the chart above shows that price growth is expected to lift once again in 2011-12 with construction activity again expected to increase during that period.

In general, however, growth in the prices of nuts, bolts and screws are expected to remain relatively modest over the forecast period.

4.10 EARTHWORKS

Indicative series	ANZSIC category 4121 – Road and bridge building
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 15)
Latest quarterly data	December 2007

CHART 29: EARTHWORKS PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Earthworks	5.0%	4.7%	4.8%	2.7%	2.7%	6.1%	5.1%	3.4%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

The price of earthworks has moved more steadily than some of the other series forecast here. Moreover, as the above chart shows, the price of earthworks has tended to move more in line with overall rates of price increase in the economy (that is, the GDP deflator, not the Consumer Price Index).

The series used here is a much broader series than for many of the materials prices considered above. This series covers all components of earthworks engaged in the construction or general repair of roads, bridges, aerodrome runways or parking lots, or in organising or managing their construction.

(Note that the quarrying of earth, soil or filling or other construction materials carried out in conjunction with road or bridge construction by the same company is included in this series.)

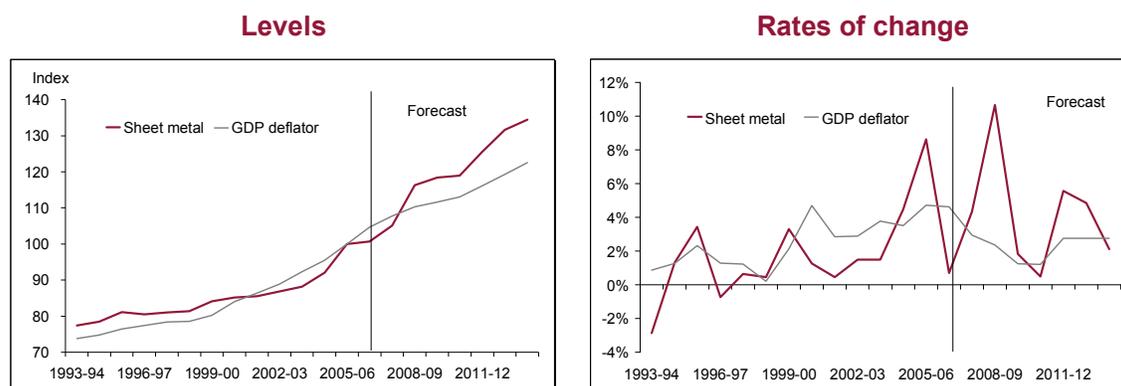
Being a broader index, fluctuations in component prices have a lesser impact on the overall index, resulting in fairly smooth price growth. The series also rises relatively rapidly in general across the historical and forecast periods, due to the inclusion of (productivity adjusted) labour costs in the total cost of non-house building construction. Or, in other words, the relative shift upwards in labour costs – even after allowance for productivity – is seen as adding to pressures on pricing in this category over the next couple of years.

4.11 SHEET METAL

Indicative series	ANZSIC category 275 – Sheet metal products
Source	Producer Price Indexes, Australia (ABS Catalogue 6427.0, Table 10)
Latest quarterly data	December 2007

Access Economics' estimates for the price of sheet metal use the ANZSIC group 275 as the basis for the forecasts. This ABS category is broader than just sheet metal, as it also includes the manufacturing of metal containers, conduit tubing, guttering, cylinders and metal piping.

CHART 30: SHEET METAL PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Sheet metal	0.7%	4.3%	10.7%	1.8%	0.5%	5.6%	4.9%	2.1%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

The leap in pricing in sheet metal came later than the price increases in most of the other series considered here. It was not until 2005-06 that sheet metal prices jumped – but when they did, they rose by almost 9% – double the annual growth rate of sheet metal prices in any year for close to two decades.

The drivers of the price forecasts for this category are the same as those for other metal products, although the strength of the price rise in recent years suggests a relatively high premium to the strength of the construction cycle, and therefore the turning of the cycle may have a slightly greater impact on these prices than in other metal categories.

That said, the next move is likely to be up – all input components (iron ore, coal, labour) are rising in price relatively rapidly at the moment, suggesting 2008-09 will see a spike in price increases in this category.

Price gains may ease back thereafter, though a falling \$A may reduce the scope for sheet metal prices to fall too much, and 2011-12 may see a rising construction cycle again underpin further price increases at that point.

5. LAND COST ESCALATORS

Western Power has asked Access Economics to provide forecasts of land prices for Western Australia. Access Economics has split the forecasts into two distinct regional categories – Perth and the remainder of Western Australia.

As something that does not increase in supply, the production of land does not benefit from productivity growth. Hence whereas the cost of buildings tends to rise with the cost of construction (wages less productivity, or CPI), the cost of land might tend to rise with wages (that is, with overall incomes, or national GDP growth).

That is, because land is fixed in quantity, rising incomes in a growing economy tend to keep the value of land at a constant share of the nominal value of the economy.

Access Economics' view is that land prices move with nominal output over the longer term

The construction cost of **buildings** – the cost of bricks and bricklayers (materials and labour) – tends over time to increase broadly in line with other prices. That is because materials prices are broadly affected by the same factors that underpin consumer prices (the CPI), while the more rapid growth in labour wages is partly offset by improving productivity per worker.

However, **land** is relatively fixed in quantity, so the rising incomes in a growing economy tend to keep the value of land at a constant share of the nominal value of the economy.

Land prices might therefore be expected to grow with the nominal economy – as has generally been true over time.

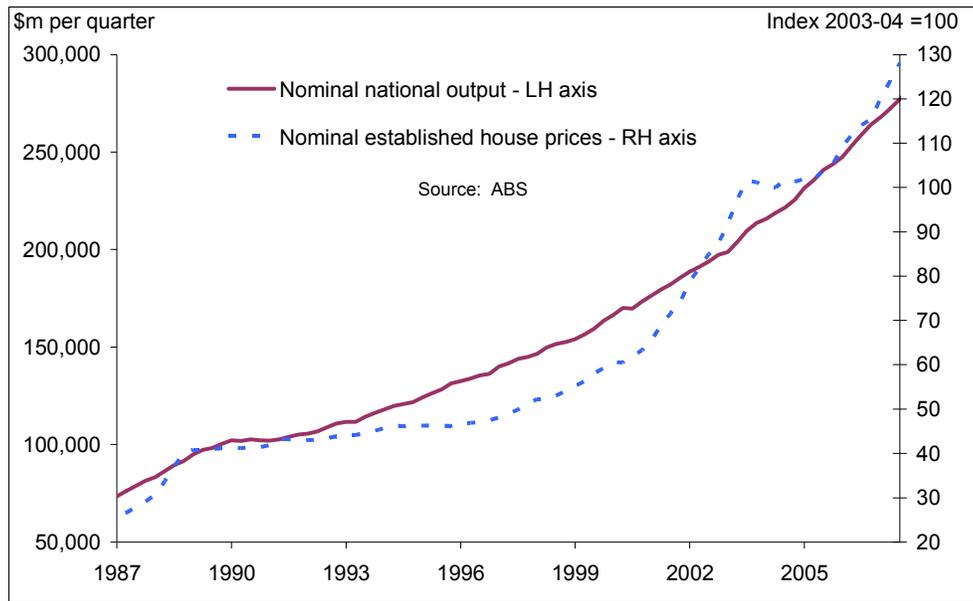
As house prices include a component of land as well as the value of the building, there is a scarcity effect. This effect echoes the famous words of Mark Twain:

“Buy land – they’re not making any more of it”

As something that does not increase in supply (in broad terms), the production of land does not readily benefit from productivity growth.

Hence whereas the cost of buildings tends to rise with the cost of construction (wages less productivity, or CPI), the cost of land might tend to rise with wages (that is, with overall incomes, or nominal output growth).

Chart 31 shows the key aggregate link of the nominal level of Australian GDP and established house and land prices for the eight capitals.

CHART 31: NOMINAL GDP AND ESTABLISHED HOUSE PRICES

Both series have moved in a similar direction by a similar amount over the past two decades.

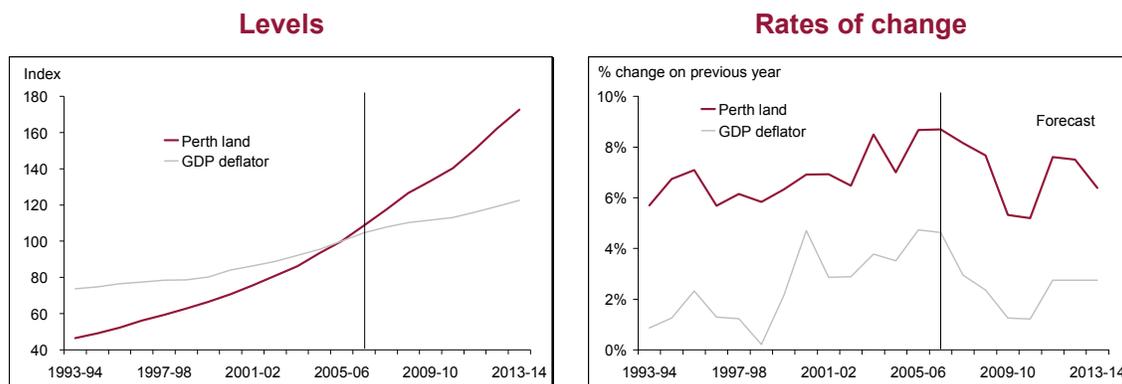
That suggests that, over the long-run, nominal output growth provides a handy yardstick for the expected price increases for land.

To forecast land prices, Access Economics used forecasts of average overall income growth (growth in national GDP per capita) and forecasts of population growth in Western Australian regions. Both of these inputs were sourced from in-house Access Economics models, with the former drawn from the Access Economics Macro (AEM) model, and the latter drawn from the Access Economics Demographic (AE-DEM) model.

As noted above, the price of land tends to rise in line with the overall income growth of the region. As such, land price growth for Perth and the remainder of WA was calculated as the product of GDP per capita and the population of each region over the forecast period. The results are shown below.

As there is little available historical data relating to land prices in Western Australia, historical data shown in the following charts is an estimate using the same methodology outlined above.

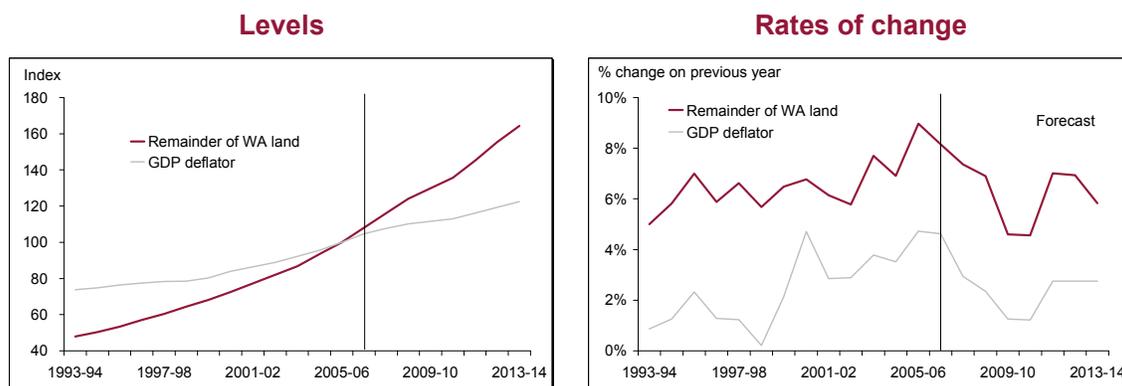
CHART 32: PERTH LAND PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Perth land	8.7%	8.2%	7.7%	5.3%	5.2%	7.6%	7.5%	6.4%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

A comparison of Chart 32 and Chart 33 shows that land prices are expected to grow faster in Perth compared to the remainder of WA over the forecast period. This is driven by a difference in forecast population growth rates between the two regions. Population growth is expected to be faster Perth than in the rest of Western Australia over the forecast period, as has been the case for most of the past decade.

CHART 33: REMAINDER OF WESTERN AUSTRALIA LAND PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Remainder of WA land	8.1%	7.4%	6.9%	4.6%	4.6%	7.0%	6.9%	5.8%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

6. ANALYSIS OF WESTERN POWER WAGE DATA

Western Power provided Access Economics with salary information for different types of workers employed by the company such as commissioning officers, construction managers, engineers and linespersons.

The data includes monthly wages and salaries information for a sample of employees between July 2004 and January 2008. These employees are subject to conditions negotiated with Western Power (via a certified agreement for example).

Access Economics typically forecasts wages at the market level, rather than for individual firms. Data at the market level is taken from a wide range of firms, with employees entering and exiting the workforce. The resultant average across an entire market provides for a more accurate view of wages in a particular sector or region because it removes the distorting effects that conditions within an individual firm can have on wages. In turn, this leads to more accurate forecasts (with analysis based on an industry average rather than on a small sample of employees within an individual firm).

It is perhaps handy here to review the 'rules of thumb' identified in Section 1.1 above:

- ❑ Across a long enough period, growth in prices will tend to average somewhere in the Reserve Bank's target range of 2 to 3% a year – perhaps 2.5%.
- ❑ Ditto for labour costs for a unit of output (nominal unit labour costs) – also averaging somewhere close to 2.5%.
- ❑ However, wages for the 'average' worker will tend to grow faster – the sum of both prices and productivity. As the latter has averaged around 1.75% over the past three decades, that might suggest that wages for the 'average' worker will grow by perhaps 4.25% in a typical year.
- ❑ There will be a divergence between wage growth on the one hand and price and productivity growth on the other over the course of a business cycle. When demand is strong relative to the available supply of workers, wage growth will exceed this rule of thumb measure – and vice versa.
- ❑ Moreover, wages for the typical 'specific' worker will tend to grow faster still, as their seniority and experience increases each year. It is harder to identify a general rule of thumb here, as the reward for seniority and experience varies notably across sectors and occupations, as well as across the business cycle. That said, wages for the typical 'specific' worker will tend to grow by perhaps 5.25% in a typical year.

The data provided by Western Power fits into this latter category, but we analysed it by salary grade rather than by individual – meaning that, were Western Power to be an average organisation, and Western Australia to be experiencing average economic times, the rules of thumb above would point to expected wage increases of around 4.25% a year.

In practice, Table 2 shows that, in general, wage growth was very similar across Western Power salary levels across the three and a half year period between July 2004 and January 2008, at about 4.6% a year.

That the Western Power results are higher is no surprise. Labour costs have leapt in response to the local construction and engineering sector boom – key trades are seeing shortfalls in available labour, driving wages ever higher as a result. Some of that pressure is

beginning to ease in the eastern States, but there is no evidence of an easing yet in Western Australia.

TABLE 2: GROWTH IN WESTERN POWER SALARY LEVELS, JULY 2004 – DECEMBER 2007

Salary level	Ave. annual growth rate range
SI02 Salary Level 2 Steps 01 - 05	3.8% - 4.6%
SI03 Salary Level 3 Steps 01 – 03	4.3% - 4.6%
SI04 Grad Eng/Scientist L4 S3	4.6%
SI04 Salary Level 4 Steps 01 – 03	4.5% - 4.6%
SI05 Comp Ops Ave Pay Level 5 S3	4.6%
SI05 Comp Ops Ave Pay Pt Level 5 S1	4.6%
SI05 Salary Level 5 Steps 01 – 03	4.6%
SI06 Salary Level 6 Steps 01 – 03	4.6%
SI07 Salary Level 7 Steps 01 – 04	4.6%
SI08 Salary Level 8 Step 01 – 03	4.5% - 4.6%
SI09 Salary Level 9 Step 01 – 03	4.5% - 4.6%
SI10 Salary Level 10 Step 03	4.6%

Note: Salary levels containing sufficient data used. It is expected that the small variations in growth rates are due to anomalies arising from using large datasets.

That said, this same data are also consistent with faster rates of growth for individuals than for salary bands. For example, numbers of those on salary appear to have doubled across the period examined. While it is difficult to obtain estimates of wage growth for the typical specific worker, the data provided is consistent with the latter going up faster. (Moreover, that is consistent with wage measures nationally. As the Reserve Bank of Australia has noted, the pace of promotion growth has pushed wider measures of wage growth above that seen in the narrower measures (which deliberately exclude the likes of promotion effects).

Or, in other words, the difficulty in using the data to forecast occupational or finer level wages is that comparisons of this data over time are complicated by two factors. First, there is the changing composition of the workforce in each occupation over time and, second, there is the natural trend for workers to be promoted over time within the same broader occupation.

The first problem leads to sharp rises and falls in average salaries in an occupation as either new workers are taken on at a higher or lower salary than the existing average, or as workers leave employment. In these cases, the change in average salary in the occupation is caused by a change in the structure of the workforce rather than by changes in salaries for individuals. The second problem tends to inflate measured growth in salary levels as it ignores the natural addition of newer, lower paid workers and the loss of more experienced, higher paid workers. Put more simply, an individual worker would expect their salary to rise by more than the rate of average wage growth across their working lifetime as they gain more experience and advance through and organisation, and as a result, an individual's salary change over time is not the same as the rate of wage increase in the economy.

6.1 HISTORICAL ANALYSIS

Access Economics has examined the historical wage data provided by Western Power. The results for growth in salary by pay band (noted above) show very similar rates of increase in

salaries over the past three years. The examination of this data at other levels, such as resource or individual, illustrates some of the issues noted with the data.

CHART 34: WESTERN POWER LAND MANAGEMENT OFFICER SALARIES, INDEX

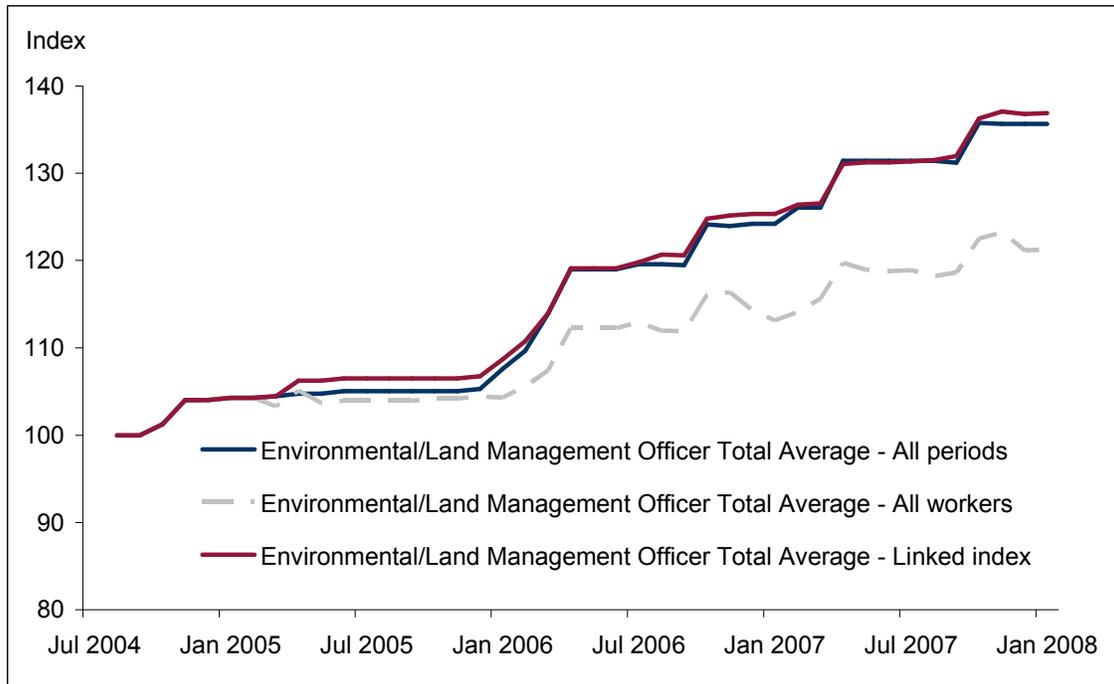


Chart 34 shows three measures of salary level for land management officers at Western Power (land management officer here is defined as the resource type in the data supplied by Western Power).

The “all periods” line includes only land management officers employed by Western Power in all months from July 2004 until January 2008. The “all workers” line shows the average salary of all land management officers employed by Western Power in each month from July 2004 until January 2008, while the “linked index” line increases the salary index in each month by the average increase in wages of all land management officers employed in the previous and current months.

All lines show very strong growth in salary (well above the 4.6% per annum increase in each of the pay bands, as shown in Table 2). This is because each of the three measures is affected by compositional change over time. For example:

- ❑ The first measure sees wages increase as people are promoted to higher classifications (that is, the final salary measure is effectively showing the wage rate for a group of persons with three years more experience than the initial salary measure).
- ❑ The second measure is also affected by the arrival of new land management officers of lesser experience than the existing land management officer workforce, which lowers the average salary.
- ❑ The third measure is very similar to the first, suggesting that the progression in wages over time of those who joined Western Power after July 2004 is very similar to that of the initial land management officer workforce. However, both the first and the third lines see additional increases in salary (above the 5% mentioned previously) due to

promotions of individual workers rather than increases in the rate of salary paid for the same work.

Section 7 provides forecast labour cost escalators based on ABS Labour Price Index data.

In addition, data provided to Western Power to complement this report breaks down the construction, mining and utilities forecasts into occupational classifications defined by the ABS. **These forecasts give Western Power an indication of the expected wage growth in relevant occupations. The forecasts can be used to provide an expectation of the future growth in Western Power salaries relative to the market.**

7. LABOUR COST ESCALATORS

This chapter provides Access Economics' forecasts for each of the five labour forecast indices, including technical aspects of each series as well as the underlying forecasting methodologies used.

The results for levels and rates of change for each of the indices are shown. In each case, the results are compared with the national labour price index to compare the indices with a price index for the broader Australian economy.

Sectors such as construction and mining are relevant to the labour cost pressures facing Western Power, in part as many current or potential employees and contractors have the option to work in such sectors, meaning that wage competition from one – or the lack of it – can affect wages in the others.

Short term wage trends in both construction and the utilities sectors are projected to move broadly together, outpacing both the national and State average.

That outlook is in line with the current strong employment growth in construction in Western Australia, which is affecting wages in both sectors.

However, once the current construction cycle eases, the outlook for wage gains across a number of industries diverges.

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 may ease back, with both sectors affected by the construction cycle.

While forecasts of wage price growth for five different labour types follow, the Australian Bureau of Statistics classification of utilities workers in Western Australia most closely resembles the workforce structure of Western Power.

For this reason, Access Economics recommends that the forecast of wage growth for Western Australian utilities workers would be the most appropriate for Western Power to apply for future wage expectations of internal and external workers.

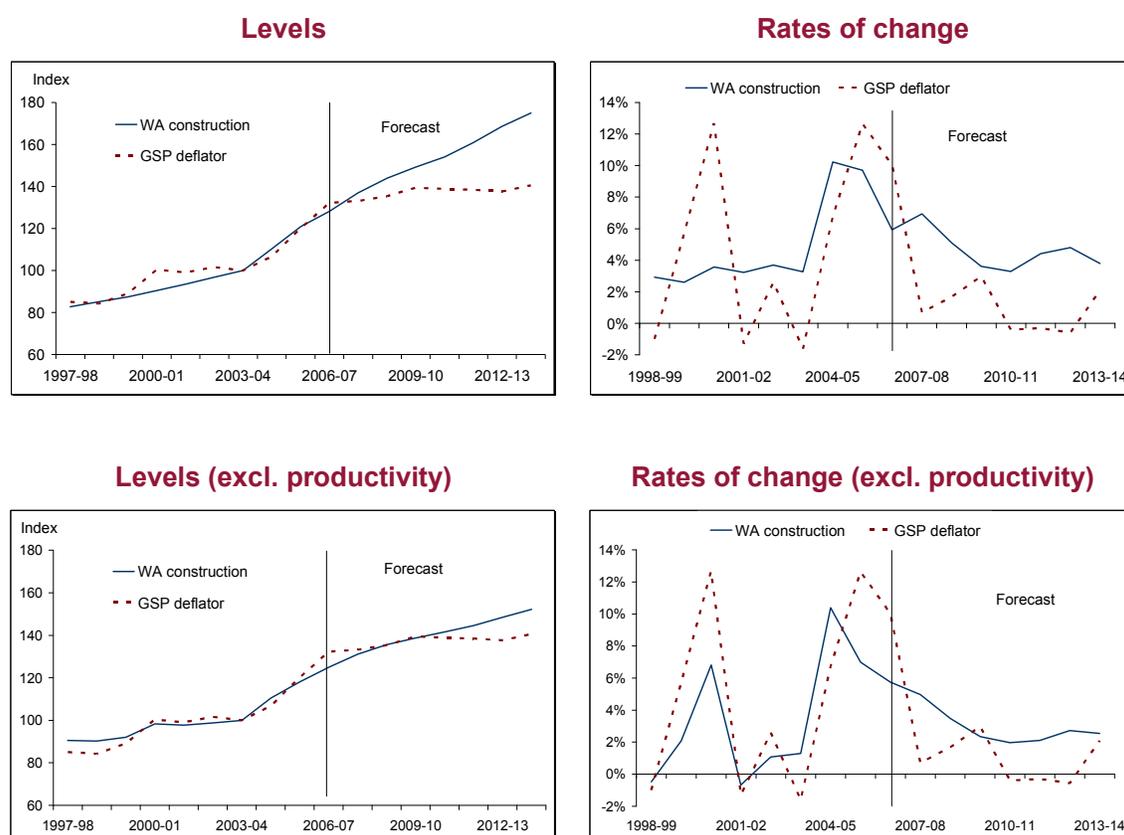
7.1 WESTERN AUSTRALIAN CONSTRUCTION WORKERS

The highly cyclical nature of the sector means that construction wages are the most volatile of all non-farm industries in the economy.

In part that is a reflection of the take-up of less skilled employees when the industry booms, but it also reflects the mobility of much of the workforce during cyclical swings, as well as the historical use of subcontract labour on relatively short term jobs.

That said, the past decade has been extremely positive for construction workers, especially in Western Australia, with a series of overlapping construction booms combining to sustain wage growth in the industry at rates above the national average across all industries.

CHART 35: WESTERN AUSTRALIAN CONSTRUCTION WORKERS – LABOUR PRICE FORECASTS



Nationally, construction saw 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), with the latter having Western Australia at its epicentre.

In the past, periods of strong growth in the construction sector have often been followed by a short and sharp shakeout in the sector. Access Economics would be loathe to forecast such a sharp downturn in our forecasts – although it could not be ruled out – but would expect the eventual end of the current construction upswing to be followed by a relative deceleration in wage growth in 2010.

Note this does not mean that wages in construction in WA would fall in that year. Rather, it means that 2010 may mark the start of a period of three years or so in which wage growth across the economy as a whole would be faster than either wage growth in construction nationally, and perhaps especially so for construction wages in Western Australia.

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 partly attuned to the underlying housing cycle forecasts in Access Economics' macroeconomic model.

The charts above show two types of measures of wages. The top panel is effectively average construction sector wages, shown both as an index level and as a rate of growth.

The lower panel is more informative for business planning. It picks up the top panel, but adjusts it in line with expected productivity gains over time in the sector.

Two important future phases are worth noting:

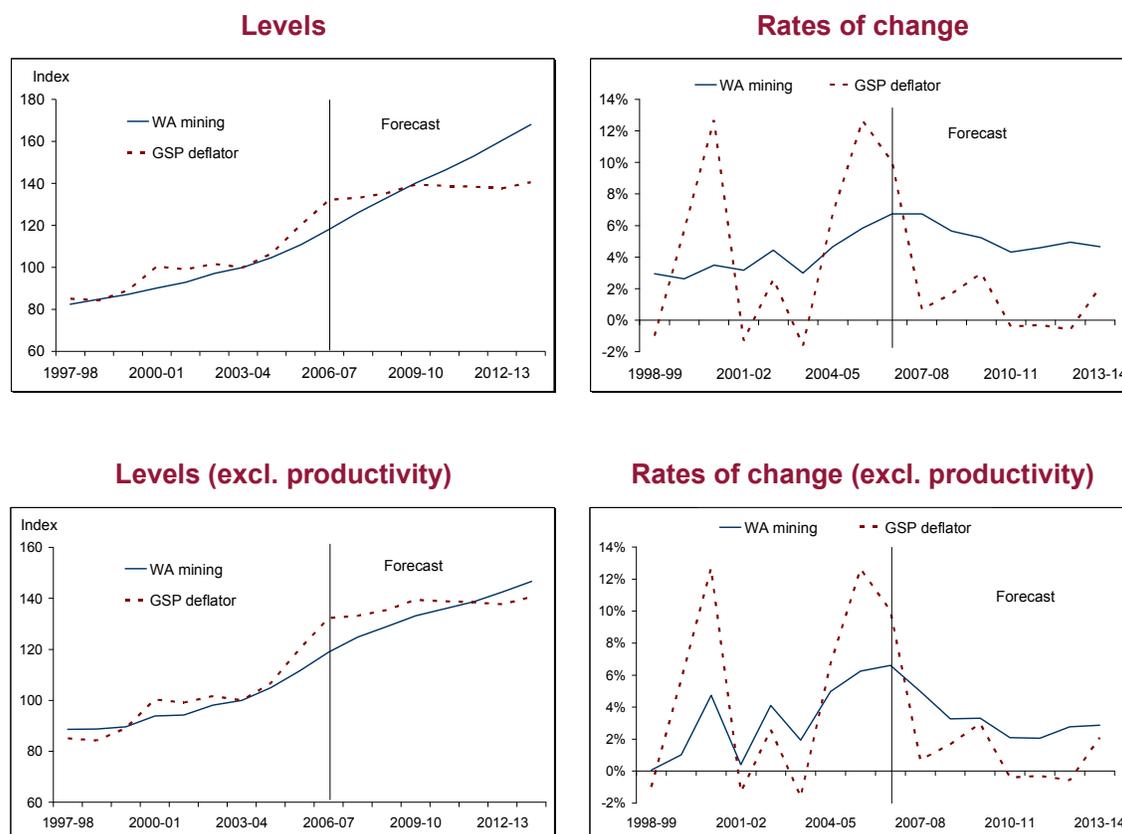
- ❑ First, as noted above, Access Economics expects a cyclical downswing in construction beginning in 2010.
- ❑ Second, further out in time, and commencing from about 2012-13, the retirement of the baby boomers will generate a period when commercial construction travels more slowly. For example, fewer 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 eventually 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.

Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wage growth	5.9%	6.9%	5.1%	3.6%	3.3%	4.4%	4.8%	3.8%
Wage growth excl. productivity	5.4%	5.5%	3.2%	2.2%	1.6%	2.1%	2.6%	2.2%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

7.2 WESTERN AUSTRALIAN MINING WORKERS

After moving at or below the national wage of growth, mining industry wages began to rise sharply in late 2005. The outlook here 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 36: WESTERN AUSTRALIAN MINING WORKERS – LABOUR PRICE 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 (who are relatively higher paid):

- ❑ In effect, periods of extensive construction in the mining sector (which tends to have higher wages) may limit growth rates in 'average' 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.

Once again the charts above show two types of measures of wages. The top panel is effectively average mining sector wages, shown both as an index level and as a rate of growth. The lower panel is more informative for business planning. It picks up the top panel, but adjusts it in line with expected productivity gains over time in the sector.

Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wage growth	6.7%	6.7%	5.6%	5.2%	4.3%	4.6%	4.9%	4.7%
Wage growth excl. productivity	6.6%	5.0%	3.3%	3.3%	2.1%	2.0%	2.8%	2.9%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

7.3 WESTERN AUSTRALIAN UTILITIES WORKERS

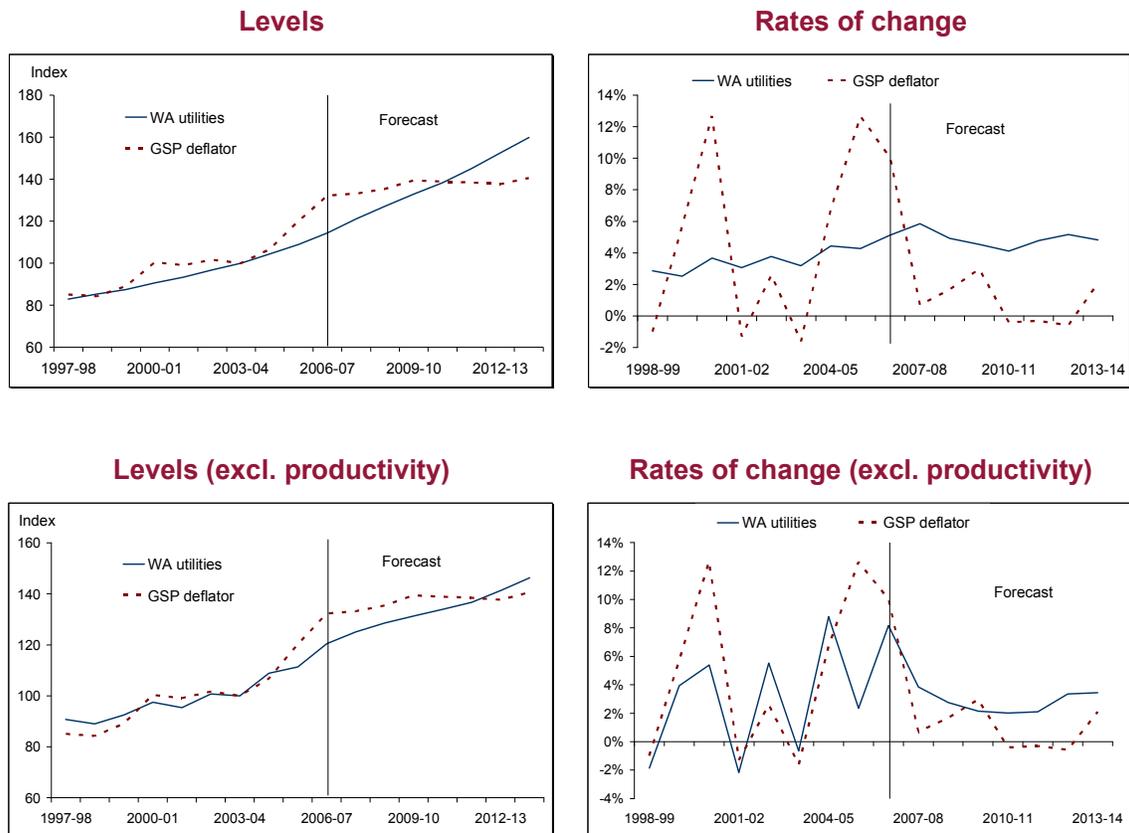
Access Economics recommends that the following forecast of wage price growth be used by Western Power as the most appropriate forecast of future wage expectations for internal and external workers.

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 has exceeded the national average fairly consistently since the late 1980s, although that was a break from earlier periods when the sector lagged.

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 average sectoral wage growth is not anticipated to continue much further.

CHART 37: WESTERN AUSTRALIAN UTILITIES WORKERS – LABOUR PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wage growth	5.1%	5.8%	4.9%	4.5%	4.1%	4.8%	5.2%	4.8%
Wage growth excl. productivity	5.3%	4.4%	2.9%	2.9%	2.2%	2.4%	3.0%	3.2%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

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.

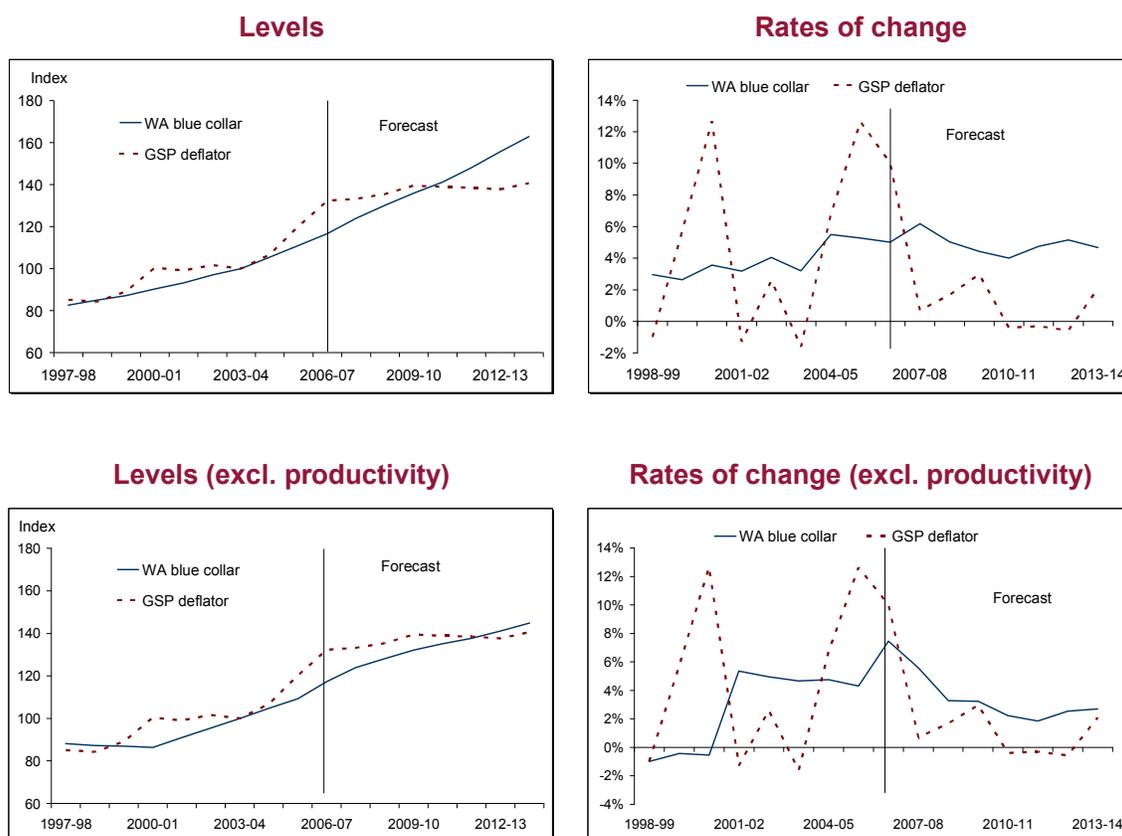
Wage growth in the sector matches the national average across the next decade.

7.4 WESTERN AUSTRALIAN BLUE COLLAR WORKERS

In times past blue collar wage growth has tended to lag a little behind white collar wage growth (reflecting an increased relative return to skilled labour), and there has been an even more marked disparity in the pace of white and blue collar job gains.

However, the China boom has been a very ‘blue collar boom’, and wage gains among blue collar workers in Western Australia have consistently outpaced the matching white collar gains over the five years to 2006-07.

CHART 38: WESTERN AUSTRALIAN BLUE COLLAR WORKERS – LABOUR PRICE FORECASTS



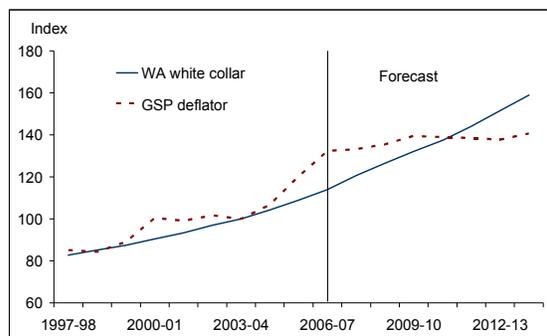
Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wage growth	5.0%	6.2%	5.0%	4.4%	4.0%	4.8%	5.1%	4.7%
Wage growth excl. productivity	7.5%	5.6%	3.3%	3.2%	2.2%	1.9%	2.5%	2.7%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

These forecasts have that outperformance continuing in 2007-08 and 2008-09. By 2009-10 the wage gains in blue and white collar may be the same. Thereafter the usual pattern of white collar wage outperformance may re-establish, though modestly so compared to the relative blue collar gains in the seven years to 2008-09.

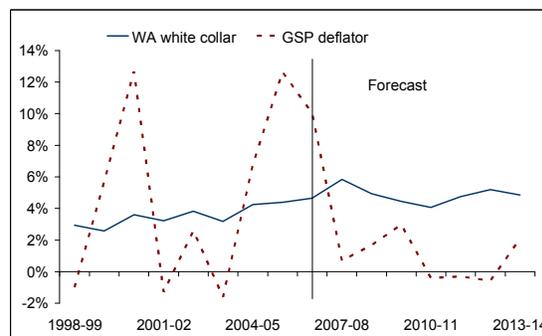
7.5 WESTERN AUSTRALIAN WHITE COLLAR WORKERS

CHART 39: WESTERN AUSTRALIAN WHITE COLLAR WORKERS – LABOUR PRICE FORECASTS

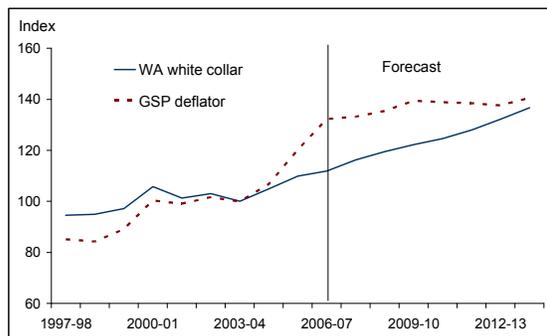
Levels



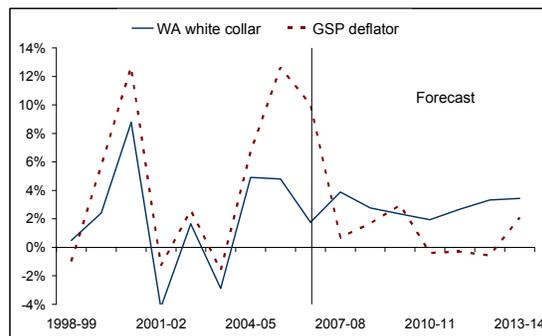
Rates of change



Levels (excl. productivity)



Rates of change (excl. productivity)



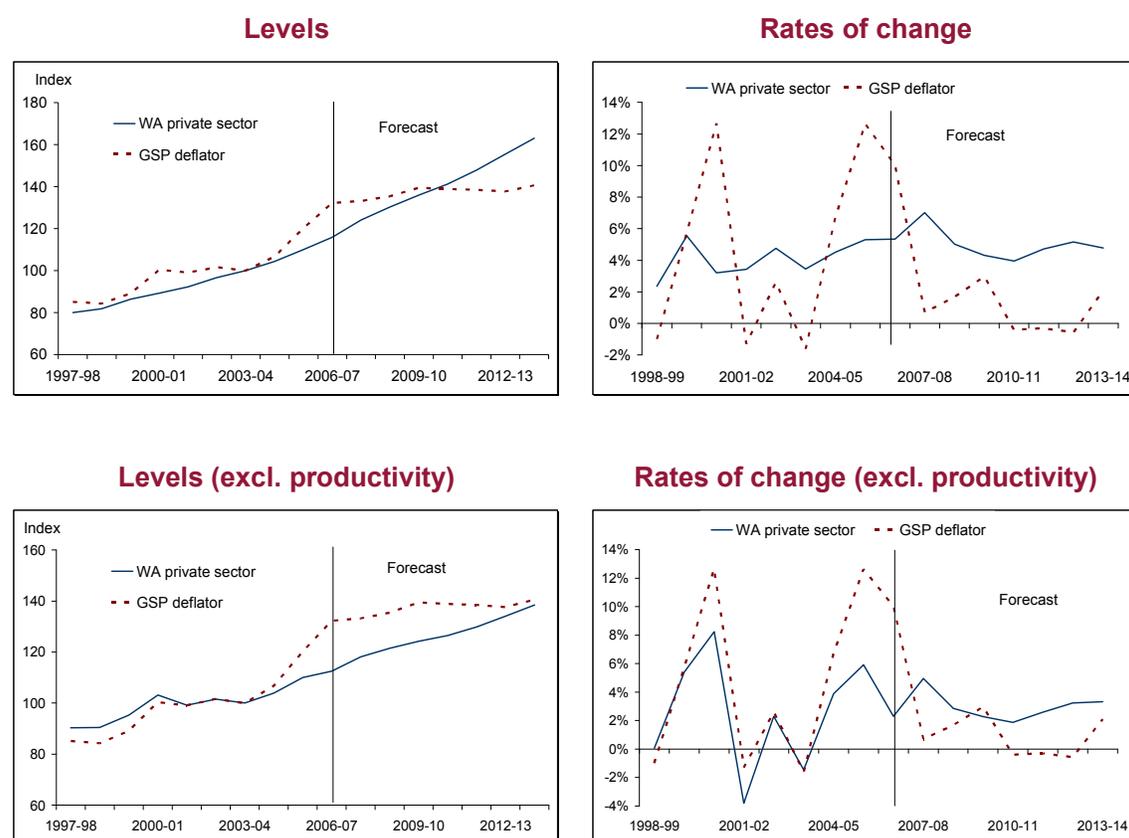
Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wage growth	4.6%	5.8%	4.9%	4.4%	4.1%	4.8%	5.2%	4.9%
Wage growth excl. productivity	1.6%	3.8%	2.8%	2.4%	2.0%	2.6%	3.3%	3.4%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

7.6 WESTERN AUSTRALIAN PRIVATE SECTOR WORKERS

Private sector wage growth has outpaced its public sector counterpart since the Asian crisis of the late 1990s saw the Western Australia economy slow at that time. That is the usual pattern, with private sector wage growth doing better amid economic upswings, and the public sector doing better among downswings.

These forecasts see continuing outperformance in 2007-08, but private and public sector wage growth may be more closely matched thereafter. In the short term that is because the public sector has to compete with the private sector for workers. Over the longer term it occurs as some of the heat is lost from the current boom.

CHART 40: WESTERN AUSTRALIAN PRIVATE SECTOR WORKERS – LABOUR PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wage growth	5.3%	7.0%	5.0%	4.3%	4.0%	4.7%	5.2%	4.8%
Wage growth excl. productivity	2.3%	5.0%	2.8%	2.3%	1.9%	2.6%	3.2%	3.3%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

8. COMBINED MATERIAL ESCALATORS

Western Power has asked Access Economics to produce a set of combined material escalators for four different project types:

- transmission operating
- transmission capital
- distribution operating
- distribution capital

To allow the creation of these combined escalators, Western Power has developed weights based on the cost of undertaking these projects. The weights reflect the relative value of different material inputs in the overall materials cost of the projects. The weights are used in combination with the escalators outlined in Chapter 4 above to create a combined material escalator forecast for each of the four project types.

For projects using similar materials component make up to that shown below, Access Economics recommends that Western Power uses the combined materials forecasts of price growth in materials detailed below. These series should be applied particularly when few other indications of future materials costs exist, or at times when Western Power inventories of materials are low, and a large volume of materials would need to be purchased from the broader market.

8.1 TRANSMISSION OPERATING

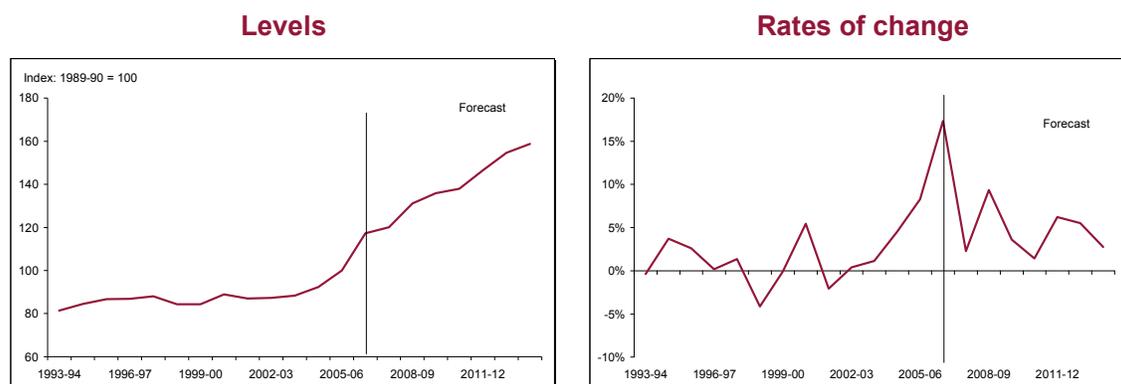
Western Power has provided Access Economics with information regarding the makeup of material costs by type of material in transmission OPEX spending. Table 3 shows that the majority of materials cost in Western Power's transmission OPEX functions is made up of electrical and control equipment and electrical cable. These weights were used in combination with the forecast series in chapter 4 to create estimates of historical and future combined material escalation factors for transmission OPEX spending.

TABLE 3: TRANSMISSION OPERATING MATERIAL WEIGHTS

Material	Weight
Fabricated steel	1%
Wooden poles	8%
Electrical cable	36%
Electrical and control equip.	44%
Nuts, bolts, screws	11%
Total	100%

Chart 41 shows that transmission OPEX material costs have ramped up considerably over the past few years though are forecast to dip back in 2007-08 due to an expected reduction in the prices of copper and other metals. That should lead to more moderate rates of growth going forward, with price growth returning to longer term trend rates.

CHART 41: TRANSMISSION OPERATING COMBINED MATERIAL PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Transmission operating	17.3%	2.3%	9.3%	3.6%	1.4%	6.2%	5.5%	2.7%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

8.2 TRANSMISSION CAPITAL

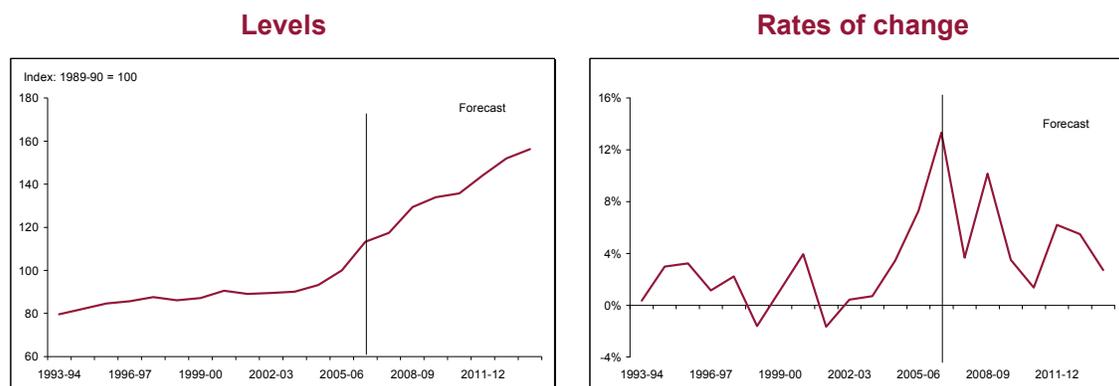
Table 4 shows the makeup of material costs by type of material in transmission CAPEX spending undertaken by Western Power. The table shows that, similarly to transmission OPEX, the majority of materials cost in Western Power’s transmission CAPEX functions is made up of electrical and control equipment and electrical cable. These weights were used in combination with the forecast series in Chapter 4 above to create estimates of historical and future combined material escalation factors for transmission OPEX spending.

TABLE 4: TRANSMISSION CAPITAL MATERIAL WEIGHTS

Material	Weight
Wooden poles	2%
Electrical cable	24%
Electrical and control equip.	72%
Nuts, bolts, screws	2%
Total	100%

Chart 42 shows that the historical and future transmission CAPEX cost estimates follow a similar pattern to transmission OPEX. Recent years have seen a sharp increase in costs, led mainly by the ramp up in copper prices (as a major input into electrical cable and equipment). These estimates suggest costs increased by 13.3% in 2006-07, though price growth is forecast to follow a downward trend over the forecast period.

CHART 42: TRANSMISSION CAPITAL COMBINED MATERIAL PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Transmission capital	13.3%	3.7%	10.2%	3.5%	1.4%	6.2%	5.5%	2.7%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

8.3 DISTRIBUTION OPERATING

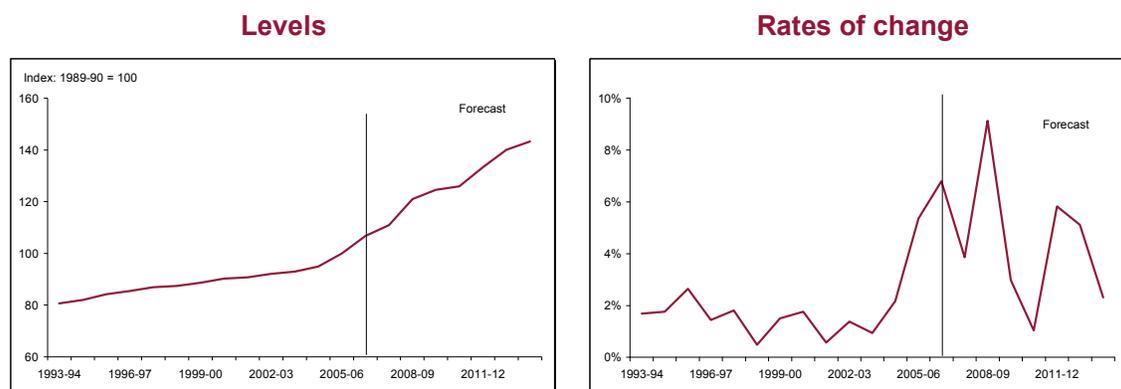
Western Power’s distribution functions require a broader range of materials than the transmission functions, though the latter is still dominated by electrical and control equipment. Table 5 shows that almost half of the materials cost in Western Power’s distribution OPEX functions is made up of spending on electrical and control equipment.

TABLE 5: DISTRIBUTION OPERATING MATERIAL WEIGHTS

Material	Weight
Fabricated steel	4%
Wooden poles	14%
Electrical cable	8%
Electrical and control equip.	46%
Lights	8%
Nuts, bolts, screws	20%
Total	100%

Chart 43 shows that, like the transmission cost escalators, the combined material escalation factors for distribution OPEX spending have lifted notably in recent years due to high metal prices. That is expected to be true again in 2008-09. Going forward, prices may moderate due to softer copper prices, though also tend to follow the construction cycle due to the share of wooden poles, nuts, bolts and screws, lights and fabricated steel in the materials makeup.

CHART 43: DISTRIBUTION OPERATING COMBINED MATERIAL PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Distribution operating	6.8%	3.9%	9.1%	3.0%	1.0%	5.8%	5.1%	2.3%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

8.4 DISTRIBUTION CAPITAL

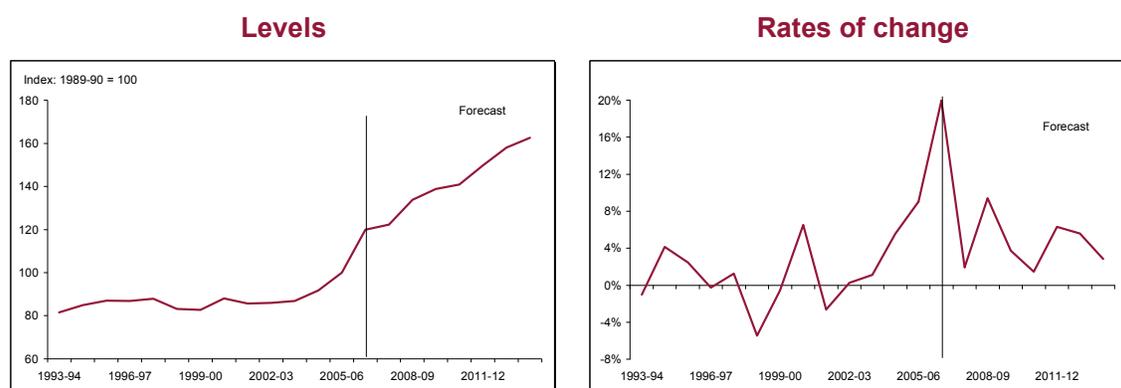
Table 6 shows the makeup of material costs by type of material in distribution CAPEX spending undertaken by Western Power. Again, electrical cable and electrical and control equipment form the majority of materials spending.

TABLE 6: DISTRIBUTION CAPITAL MATERIAL WEIGHTS

Material	Weight
Fabricated steel	3%
Wooden poles	5%
Electrical cable	44%
Electrical and control equipment	37%
Lights	2%
Nuts, bolts, screws	9%
Total	100%

The pattern of the combined material cost escalators for distribution CAPEX spending shown in Chart 44 is similar to that seen in the other combined material cost escalators shown previously. This is due to the similar makeup of materials (notably electrical cable) in all four combined escalators. Historical estimates show a dramatic increase in materials costs for distribution CAPEX spending in recent years. Those costs are expected to remain elevated in future years, though more moderate rates of growth are forecast through to 2013-14.

CHART 44: DISTRIBUTION CAPITAL COMBINED MATERIAL PRICE FORECASTS



Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Distribution capital	20.0%	1.9%	9.4%	3.7%	1.5%	6.3%	5.6%	2.8%
GDP deflator	4.6%	2.9%	2.4%	1.3%	1.2%	2.7%	2.7%	2.7%

APPENDIX A: REAL PRICE FORECASTS

Table 7 presents the cost escalators shown in this report in real terms. That is, price growth (measured using forecasts of the underlying consumer price index) has been removed.

TABLE 7: FORECAST COST ESCALATORS LESS UNDERLYING CPI

Year-to % change	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Wages								
WA utilities workers	2.9%	2.9%	2.1%	2.4%	1.7%	2.0%	2.6%	2.8%
WA construction workers	3.7%	4.0%	2.3%	1.5%	0.9%	1.7%	2.3%	1.8%
WA blue collar workers	2.7%	3.2%	2.2%	2.3%	1.6%	2.0%	2.6%	2.6%
WA white collar workers	2.4%	2.9%	2.1%	2.3%	1.7%	2.0%	2.7%	2.8%
WA private sector workers	3.1%	4.1%	2.2%	2.2%	1.5%	2.0%	2.6%	2.7%
Materials								
Cement	0.4%	0.1%	1.5%	-1.0%	-0.3%	5.7%	2.7%	-1.3%
Fabricated steel	-0.8%	5.0%	9.4%	1.5%	-0.9%	4.0%	3.6%	1.4%
Wooden structural components	1.1%	-0.4%	3.0%	1.3%	-0.1%	3.8%	3.3%	0.6%
Electrical cable and wire	38.5%	-4.0%	6.1%	2.5%	-0.4%	4.1%	3.6%	1.3%
Electrical and control equipment	3.4%	2.6%	8.0%	1.0%	-1.3%	3.3%	2.8%	0.5%
Lights	-2.4%	2.1%	5.7%	0.2%	-2.1%	2.3%	1.8%	-0.5%
Nuts, bolts, screws	-0.9%	-2.7%	2.8%	-1.6%	-4.1%	0.4%	0.0%	-2.2%
Sheet metal	-1.6%	1.4%	7.9%	-0.3%	-1.9%	2.8%	2.3%	0.1%
Raw copper	38.3%	-2.6%	-8.8%	-12.1%	-10.6%	-9.7%	-10.0%	-10.6%
Raw aluminium	17.9%	-9.1%	-3.2%	-2.3%	-5.3%	-5.5%	-5.3%	-5.1%
Earthworks	2.7%	1.8%	2.0%	0.6%	0.3%	3.4%	2.5%	1.3%
Combined materials								
Transmission operating	15.1%	-0.7%	6.5%	1.5%	-1.0%	3.5%	3.0%	0.7%
Transmission capital	11.1%	0.7%	7.3%	1.4%	-1.0%	3.5%	3.0%	0.7%
Distribution operating	4.5%	0.9%	6.3%	0.9%	-1.4%	3.1%	2.6%	0.3%
Distribution capital	17.7%	-1.0%	6.6%	1.6%	-0.9%	3.6%	3.1%	0.8%
Land								
Perth	6.4%	5.2%	4.9%	3.2%	2.8%	4.9%	5.0%	4.3%
Remainder of WA	5.9%	4.4%	4.1%	2.5%	2.1%	4.3%	4.4%	3.8%