

## Recent wages growth in Australia: trends and causes

May 2018

*Wages growth has decelerated in Australia and across the developed world over the past decade. Since the Global Financial Crisis (GFC, in 2007), cyclical and structural factors have aligned to slow wage growth, locally and internationally. Better understanding of these factors can reduce risks of workplace dissatisfaction and, at a broader level, socio-economic dissatisfaction. In this research note, we outline recent wage trends and the evidence about its causes. This helps to shed light on what is really behind slow wages growth and what might be done in response to it.*

### Key facts about recent wages growth

- Average nominal wages growth decelerated in Australia over the decade from 2007. It fell to historically slow rates in 2016 but looks to have begun to lift from the trough from late 2017.
- Average real wages growth also decelerated in Australia over the decade from 2007, but weak background inflation over the same period means it has stayed positive in every year. That is, average wages have kept growing (weakly) in real terms across the Australian economy.
- Nominal and real wage growth has been slow in all developed economies over the decade since 2007. This shared experience suggests some shared factors are driving these trends.
- In Australia, the key causes of slow wages growth are: weak productivity growth; spare labour capacity; and weak inflation. For advanced economies such as Australia that saw lower average unemployment rates after the GFC in 2007 than in the years before it, the IMF estimates that slower productivity growth accounts for around two-thirds of the deceleration in wages since the GFC. The RBA estimates that slower productivity growth accounts for about one quarter of the wage deceleration in Australia since 2009.
- Other recent theories about slow wages include changes in: casual and self-employment; 'gig' economy; technological displacement; globalisation; migration; workforce participation of low-skill or marginally attached workers; labour mobility and/or security; preferences for non-wage working conditions; unionisation coverage; and wage bargaining processes. Research suggests these factors are not significant drivers of wage growth at a national level, although some factors might be relevant to individual workers, workplaces or industries in the future.
- Real wages (and living standards) are best strengthened through improved productivity across the economy. Stronger inflation and a tighter labour market tend to push up nominal wages. Risks of an inflation blowout and/or higher unemployment can arise if nominal wages are pushed too high or too fast. This in turn can affect interest rates, future growth and equality.

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**Recent wage growth trends in Australia**

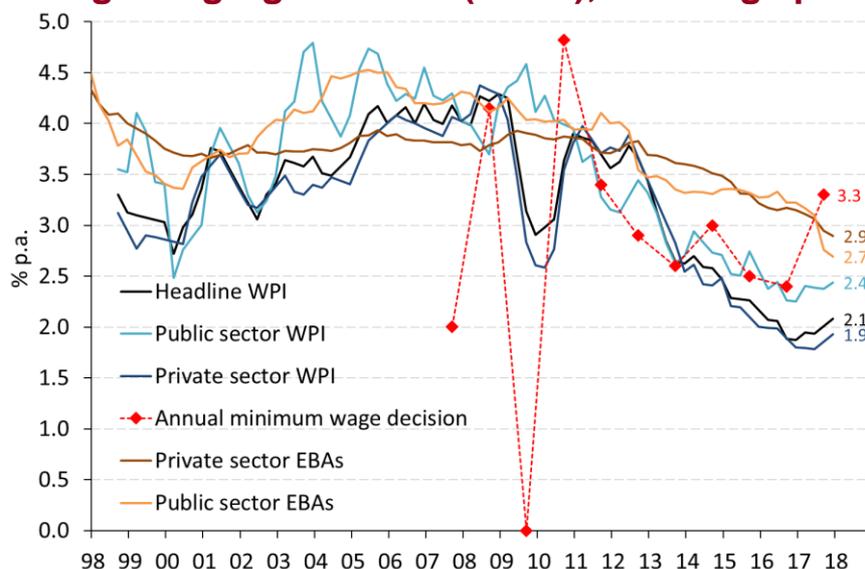
‘Wage rates’ are often discussed interchangeably with ‘incomes’. Wage rates are however, but one of several determinants of income for individuals, households and communities. Other key factors include: work hours; industry; occupation; skill level; experience level; employment status; tax rates; welfare transfers; asset ownership; investment returns; household type; and age.

In the context of this research note, ‘wages’ refers to rates of pay (per hour, week or year) for full-time ordinary work hours, excluding bonuses and overtime, so as to abstract from work hours. In Australia, the ABS Wages Price Index (WPI) is the timeliest indicator of changes in wages across the economy. Other useful indicators include Average Weekly Ordinary Time Earnings (AWOTE), the minimum wage and Enterprise Bargaining Agreements (EBAs).

The latest WPI data indicate that average wage growth across all sectors and industries hit a recent low of 1.9% p.a. in Q3 and Q4 of 2016. It has since accelerated to 2.1% p.a., as of Q4 of 2017. In the private sector, WPI slowed to a record low of 1.8% p.a. in Q2 of 2017, accelerating to 1.9% p.a. in Q4 of 2017. Wage growth has been stronger in the public sector than the private sector over most of the past 20 years (and stronger for employees using EBAs than for others) and has continued to grow more strongly in recent years (chart 1). 2016 and 2017 marked the slowest wage growth in the current WPI data series, which dates back only to 1998. Even at these slow growth rates however, average wages did not fall at any time; only their *growth rate* fell.

These WPI data suggest that at a national aggregate level, Australia’s average wage growth hit its lowest point in the current inflation cycle during 2016 and 2017 and is now accelerating again, for a range of reasons (explored below). For workers at the lowest end of the pay scale, the Fair Work Commission’s annual minimum wage decision has granted annual pay rises that were larger than the average wage rise for all private sector workers in each of the five years to 2017.

**Chart 1: Wage Price Indexes (WPI), national minimum wage and Enterprise Bargaining Agreements (EBAs), % change p.a.**



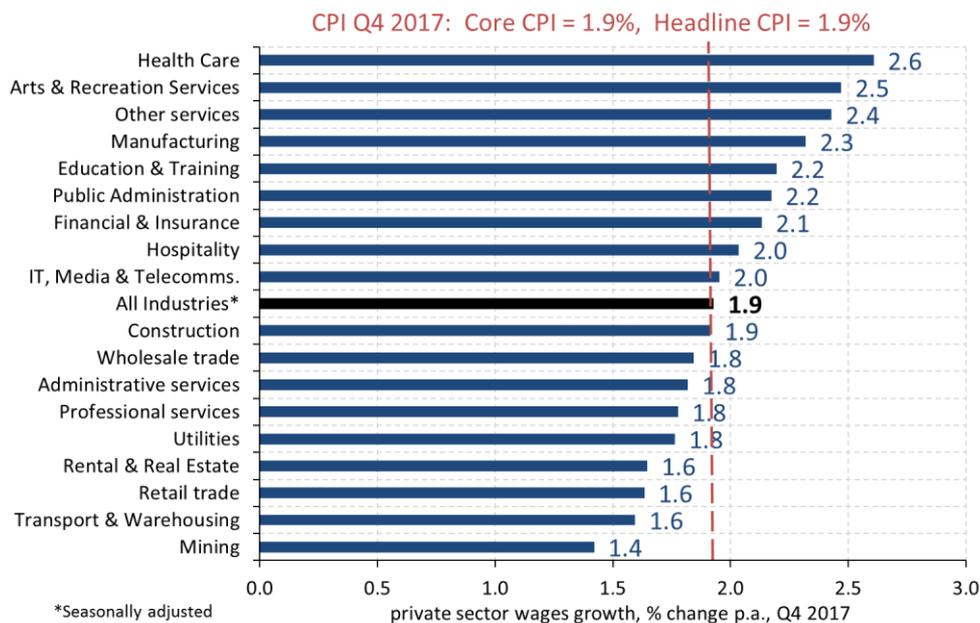
Sources: ABS Wage Price Index; FWC, Annual Wage Review; Dep. JSB, Trends in Enterprise Bargaining.

Reflecting the importance of labour demand as a driver of wages (see below), growth rates tend to move in line with the strength of labour demand and activity across industries and geographies. Across industries for example, private sector wage growth was strongest in Q4 2017 in healthcare (+2.6% p.a.), followed by arts & recreation (2.5% p.a.) and other personal services (2.4% p.a.) (chart 2). Not coincidentally, these industries had the largest and fastest-growing workforces in 2017, with healthcare alone adding 133,000 jobs in the year to November 2017 (up 8.6% p.a. and accounting for 34% of all new jobs in the year to November 2017). Arts & recreation added 32,000 jobs (+15% p.a.) and other personal services added 31,000 jobs (6.5% p.a.). Some but not all industries with large proportions of minimum wage workers (whose pay increased by 3.3% from 1 July 2017) showed above-average wage increases in the year to Q4 2017, including healthcare, arts and recreation, personal services and hospitality, but not retail trade (charts 2 and 3).

In contrast at the other end of the scale, mining (the highest-remunerated industry nationally) shed a further 2,400 jobs in the year to November 2017 (-1.1%), after several years of strong growth in jobs and wages. Mining saw an average pay rise of just 1.4% p.a. in 2017 for its 220,000 workers (1.8% of the total workforce in Nov 2017) (charts 2 and 3).

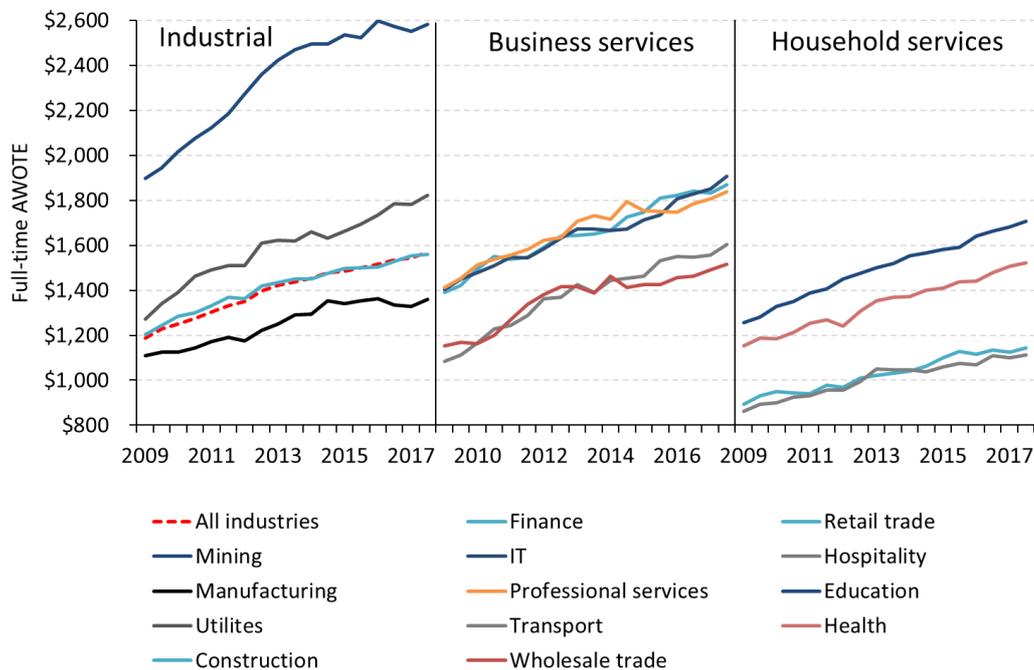
The influence of mining on national average wages is felt not just through the highly-paid, highly-skilled workers it employs directly but also through the industrial sectors that must compete with mining for skilled workers, such as utilities, construction and manufacturing. Particularly during the mining-investment boom of 2010 to 2014, some businesses in these industrial sectors had to offer larger pay increases to compete with mining, even though their own sectors were not enjoying the same ‘boom’ conditions. In manufacturing, average wages have been relatively flat since 2014, reflecting the reductions in output and employment in some of the better-remunerated segments (such as automotive assembly and metals manufacturing) during these years.

**Chart 2: Australian WPI in private sector industries, annual change, Q4 2017**



Source: ABS Wage Price Index.

**Chart 3: Full-time AWOTE, major industries\*, to Nov 2017**



\* Average for all employees, public and private sectors. Source: ABS *Average Weekly Earnings*.

### Recent wage share trends in Australia

Aggregate national wages and salaries (that is, as all compensation paid to or on behalf of employees as a component of total factor income) is another indicator of wages growth. This is a gross aggregate measure of income so it reflects changes in employment numbers, work hours and workforce composition, as well as changes in wage and pay rates.

National 'total factor income' data are available for Australia on a consistent basis since 1959. Over the period 1959 to 2017, the share of total factor income derived from wages and salaries (compensation of employees) has averaged 55.1%. It reached a record low of 50.1% in 1963 and a record high of 62.8% in 1975, with both periods affected by global commodity price disruptions.

Over the current economic cycle (since Australia's last recession in 1991), the share of total factor income derived from wages and salaries has averaged 54.1%, falling to 53.2% since the GFC. This shift in the *share* of income derived from wages and salaries is largely due to long-term changes in Australia's other sources of national aggregate income – and especially changes in the size and share of mining industry profits - rather than to changes in wages growth *per se*.

Growth in total factor income was distributed reasonably evenly in 2017, such that the shares of total factor income derived from each source were largely unchanged from a year earlier, despite some variations through the year (largely due to spikes in mining profits) (charts 4 and 5). In 2017:

- **Total compensation of employees** (including wages, salaries, superannuation contributions

and other social contributions) rose by 4.8% p.a. It accounted for 52.9% of total factor income in Q4 2017, compared with 52.4% one year earlier. A large part of this growth in aggregate income was due to workforce growth, so average compensation per employee was up just 1.6% p.a. for all employees, or 1.8% p.a. for non-farm employees. The ABS notes that total compensation of employees rose more strongly in the public sector than in the private sector in 2017 and was especially strong in healthcare, education, public administration, construction and finance, in line with stronger employment growth in these industries over the year.

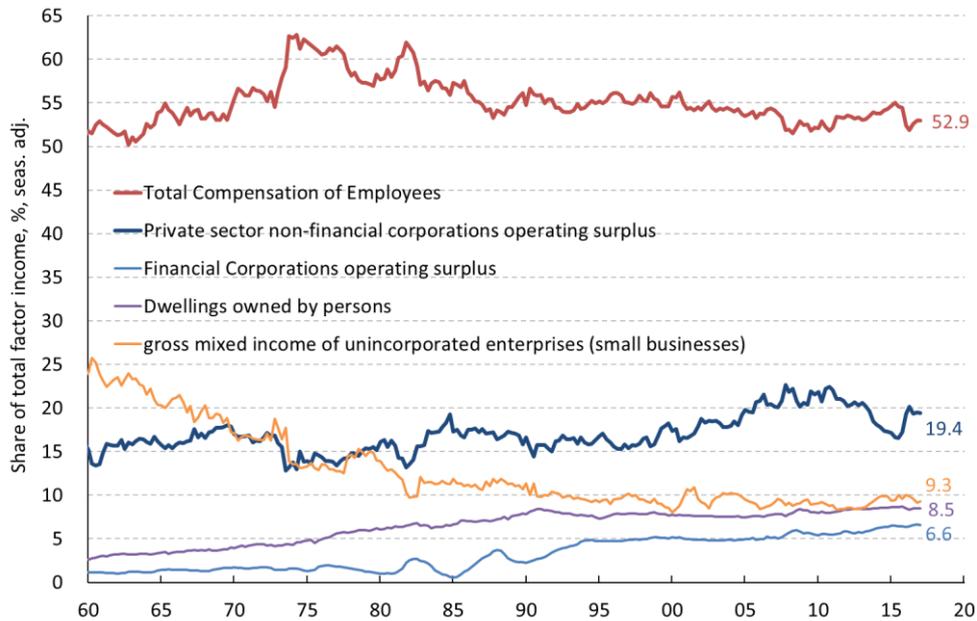
- **Gross operating surplus (gross profits) for private sector non-financial corporations** rose by 4.1% p.a. This type of income accounted for 19.4% of total factor income in Q4 2017, compared with 19.3% one year earlier. This type of income tends to be far more volatile than other types of national income, such that changes in the *shares* of national income are often due to temporary spikes and troughs in gross profits. This volatility is largely due to big swings in commodity prices and exports that affect nominal gross profits in mining (charts 4 and 5). Mining sector nominal gross operating profits (a slightly different but related measure to gross operating surplus in the *National Accounts*) spiked sharply higher in Q1 of 2017, but subsequently fell again, to be up just 1.4% p.a. in Q4. Mining accounted for one third of the nominal profits included in the ABS *Business Indicators* series in 2017, up from around one quarter in 2007 and one fifth in 1997, so its influence (mathematically) on national profits in total - and as a share of total factor income - is becoming far more pronounced over time.

Outside of mining, private sector corporate nominal gross operating profits (GOP) recovered in 2017 in some but not all industries included in the ABS *Business Indicators* series (chart 5). Aggregate nominal GOP in manufacturing for example, were 8% higher in Q4 2017 than one year earlier, but remained 22% below their all-time peak in 2008 (a bigger fall in real terms). Aggregate nominal GOP in construction were 15% lower in Q4 2017 than one year earlier and 26% below their all-time peak in 2014 (chart 5).

- **Gross operating surplus (gross profits) for financial corporations** (including banks, finance providers and all superannuation funds) rose by 7.7% p.a., accounting for 6.6% of total factor income in Q4 2017, compared to 6.3% one year earlier. The share of national income derived from this source has been rising over a very long period (chart 4), reflecting the growth in banking and superannuation funds as a source of income for retirees and others.
- **Income derived from dwellings owned by persons** (excluding dwellings owned by corporations) up by 3.8% p.a. This source of income accounted for 8.5% of total factor income in Q4 2017 and 8.4% one year earlier. It has been gently rising as a share of national income over a very long period (chart 4), reflecting the rise of residential property investment as a source of income for more Australian households (including retirees as well as workers).

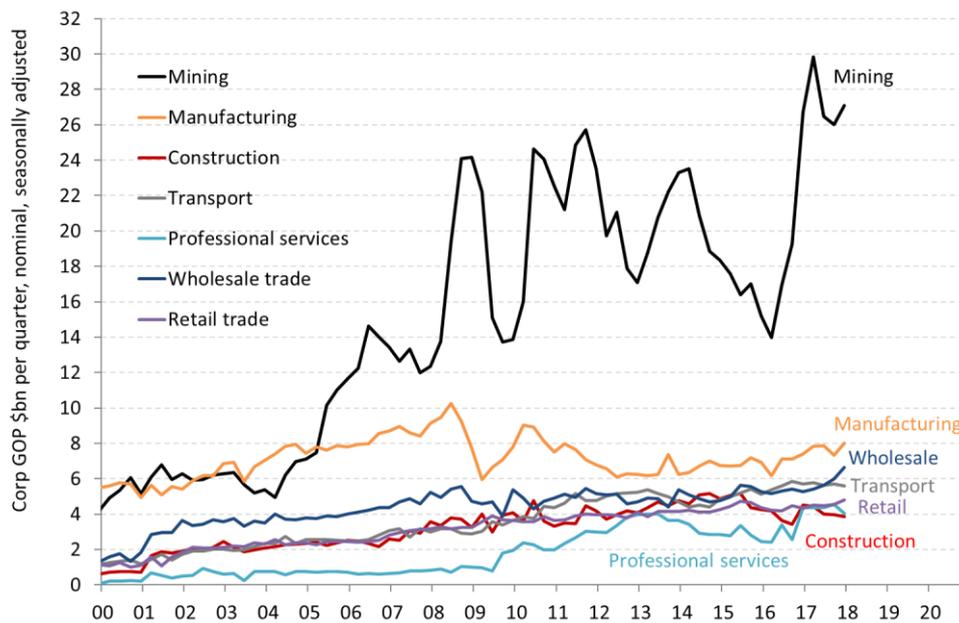
These rises in 2017 were offset by falls in nominal income for private unincorporated businesses (gross mixed income fell by 3.7% p.a.) and public sector non-financial corporations (-14.8% p.a.).

**Chart 4: Shares of nominal total factor income, 1960 to 2017**



Source: ABS National Accounts, Dec 2017.

**Chart 5: Aggregate company profits, nominal dollars per quarter, to Q4 2017**



Source: ABS Business Indicators, Dec 2017.

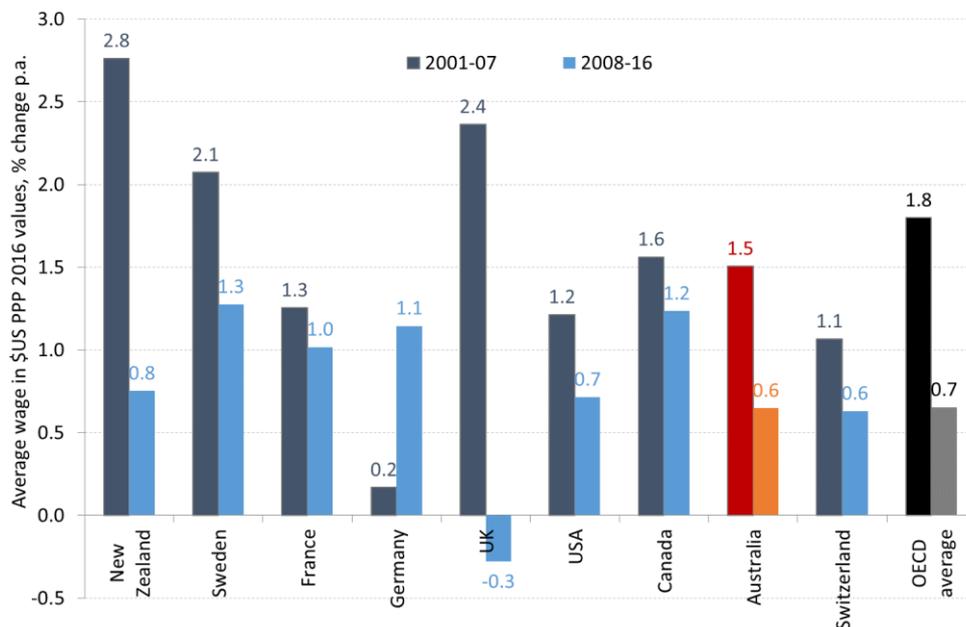
**Wage growth trends in advanced economies**

The Global Financial Crisis (GFC) in 2007-08 marked a turning point in the global economy, disrupting output, trade, employment, incomes and investment across the US, UK, Europe and many other economies over a protracted period. Indeed, in its annual assessment of OECD labour markets in 2017, the OECD noted that even 10 years after the GFC:

*“both OECD and non-OECD economies have been on a lower growth trajectory than before the crisis ... As the recovery in output has been weak relative to the recovery in employment, labour productivity and **wage growth** remain low”<sup>1</sup>.*

Comparing wages growth on a real \$US PPP basis (in constant 2016 values) confirms that almost all OECD countries experienced a radical deceleration in real wage growth following the GFC, with many countries halving their real wage growth rate and some (e.g. the UK) experiencing declines (chart 6). Across all OECD countries, annual wage growth slowed from an average of 1.8% p.a. in 2001-2007 to just 0.7% p.a. in 2008-16. Average annual wage growth in Australia was around the middle of the OECD pack in both the pre and post GFC periods, at 1.5% p.a. for 2001-07 and 0.6% p.a. for 2008-16.

**Chart 6: Real national average wages (\$US 2016, PPP), annual average growth, 2001-07 and 2008-16**



Source: OECD Employment and Labour Market Statistics, [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org).

<sup>1</sup> OECD June 2017, *Employment Outlook 2017*, pp. 9 and 17.

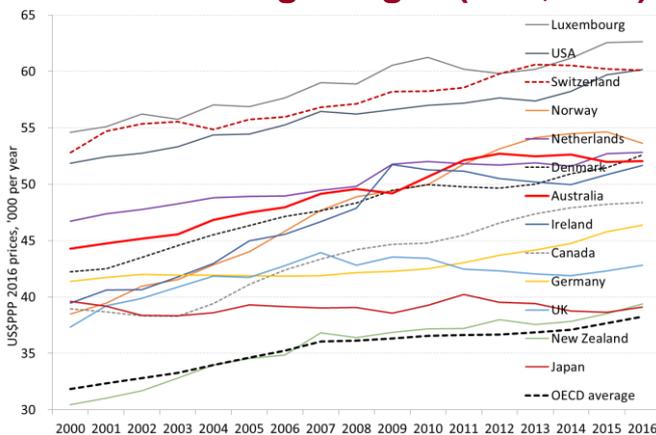
Germany and Japan are the only high-income OECD countries to have experienced stronger real wage growth in the period since 2008 than in the period directly before it. The IMF notes that this largely reflects unique factors in both countries in the period before the GFC, such that their “*gains have been from low bases: period of wage moderation in Germany intensified by the Hartz labor market reforms and in the midst of Japan’s decade-long deflation and shrinking nominal wages*”<sup>2</sup>.

Even when compared only to other high-income OECD countries (such as those displayed in chart 6), Australia stands out as a relatively high-income, high-wage country. This reflects a high cost base and supports a high standard of living. OECD data indicate that Australia’s average wage was the seventh highest in 2016 (latest internationally comparable data available, on a \$US PPP annual income basis), compared to the fifth highest in 2000 (chart 7). This slippage in rank is because Australia’s average wage has been relatively flat in real PPP terms over the past five years, during which time Denmark and the Netherlands have overtaken it. This partly reflects the influence of Australia’s terms of trade and currency fluctuations on this US-dollar measure.

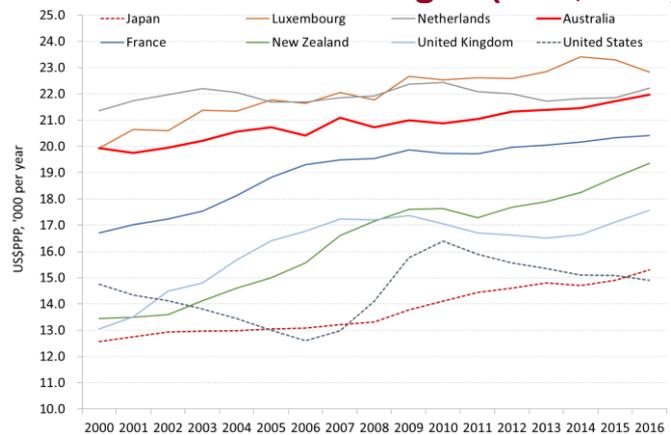
The USA, Switzerland and the northern European countries (plus tiny Luxembourg) consistently pay the highest average wages globally, well ahead of Germany, Ireland, the UK, New Zealand and Japan. All of these comparable countries are above the OECD average. Among this group, the UK is the only high-income OECD country to have experienced a decline in average wages (in real PPP terms) as a result of the GFC and its aftermath. Norway and others experienced drops in their average wage (in real PPP terms) in more recent years, largely due to temporary terms of trade and exchange rate effects which may soon reverse.

On the same PPP basis, Australia’s minimum wage was the third highest in 2016 and in 2000, behind Luxembourg and the Netherlands (chart 8). On an hourly pay rate basis, Australia’s minimum wage was second highest in 2016, behind only France. Rankings based on hourly pay rates differ from rankings based on annual pay rates due to differences in statutory annual work hours internationally.

**Chart 7: Average wages (\$US, PPP)**



**Chart 8: minimum wages (\$US, PPP)**



Source: OECD Employment and Labour Market Statistics, [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org).

<sup>2</sup> Gee Hee Hong, Zsóka Kóczán, Weicheng Lian, and Malhar Nabar 2018, *More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies*, IMF Working Paper WP 18/50. p. 9.

## Factors contributing to slow wage growth in Australia and internationally

This phenomenon of persistent and widespread slow wages growth since the GFC has come under intense scrutiny by international and national research agencies, various think-tanks and academics working in labour economics, industrial relations, demographics and other disciplines.

The IMF recently published a landmark study of factors contributing to wage growth from 2000 to 2016 across 29 advanced economies (mainly OECD member countries).<sup>3</sup> It concluded that:

*“macroeconomic factors such as: **labor market slack** (both headline unemployment and underutilization of labor in the form of involuntary part-time employment), **inflation expectations**, and **trend productivity growth** can account for the bulk of the variation in nominal wage growth at the country level in recent years. The analysis also suggests that [these] common factors have been exerting increasing downward pressure on wage inflation in the aftermath of the global financial crisis and especially during 2014–16.*

*... In economies where unemployment rates are still appreciably above their averages before the Great Recession, **conventional measures of labor market slack can explain about half of the slowdown in nominal wage growth since 2007**, with involuntary part-time employment acting as a further significant drag on wages.*

*... In economies where unemployment rates are below their averages before the Great Recession, **slow productivity growth can account for most—about two-thirds—of the slowdown in nominal wage growth since 2007**. However, even here, involuntary part-time employment appears to be weighing on wage growth, suggesting greater slack in the labor market than captured by headline unemployment rates.*

*... while accommodative policies can help lift demand and lower headline unemployment rates, **wage growth may continue to remain subdued until involuntary part-time employment diminishes or trend productivity growth picks up.**”*

Mathematically, the IMF found that across all advanced economies, in the decade since 2007:

*“a 1 percentage point increase in the unemployment rate is associated with a 0.3 to 0.4 percentage point decline in nominal wage growth,*

*... a 1 percentage point increase in lagged inflation is associated with a 0.2 percentage point increase in nominal wage growth.*

*... a 1 percentage point increase in trend productivity growth is associated with a 0.7 percentage point increase in nominal wage growth*

*... a 1 percentage point increase in the involuntary part-time employment share is associated with a 0.3 percentage point decline in nominal wage growth.”<sup>4</sup>*

<sup>3</sup> Gee Hee Hong, Zsóka Kóczán, Weicheng Lian, and Malhar Nabar 2018, *More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies*, IMF Working Paper WP 18/50. pp. 6-7.

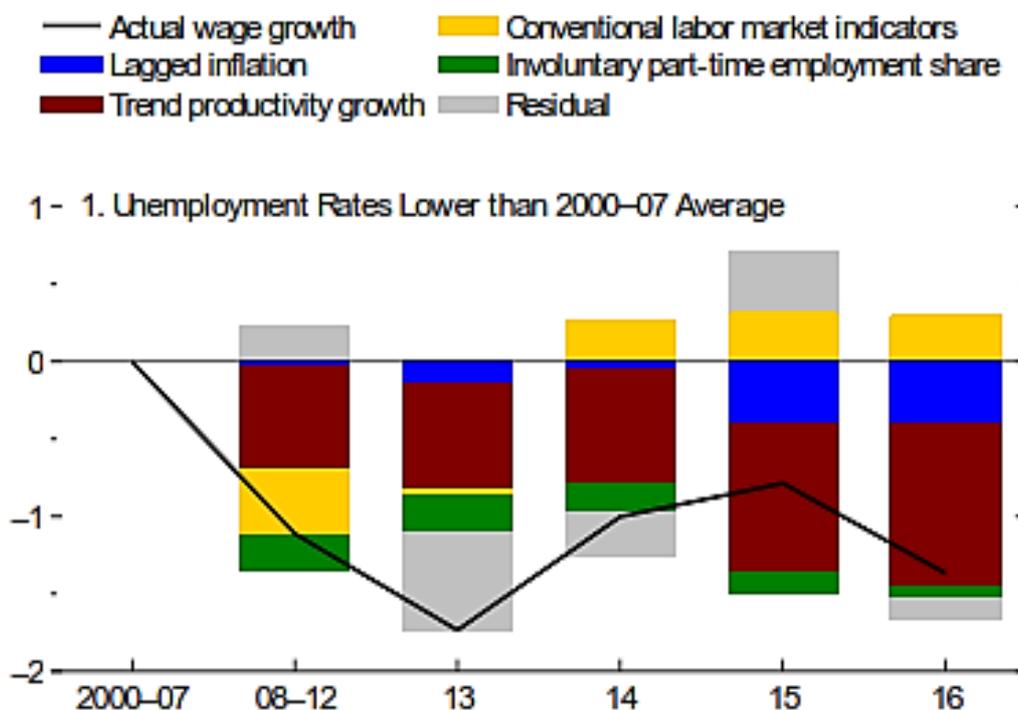
<sup>4</sup> Gee Hee Hong, Zsóka Kóczán, Weicheng Lian, and Malhar Nabar 2018, *More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies*, IMF Working Paper WP 18/50. pp. 19 and 23.

In this IMF study, Australia was one of a handful of countries in which the average national unemployment rate was modestly *lower* in the post-GFC period (5.4% on average from 2008-16 in Australia) than from 2000-07 (5.6%). In Australia, the effects of the GFC hit later than elsewhere and so the post-GFC period includes a year of very low unemployment rates in 2008 (4.2% annual average). Even excluding 2008 however, the average unemployment rate for post-GFC Australia was not higher than in 2000-07 (5.6% from 2009 to 2016). As such, the IMF’s findings for countries with *lower* unemployment rates in 2008-16 than their 2000-07 average are of most relevance to Australia (and indeed, Australia was included in this sample group in the analysis).

The key finding for this group of countries is that **slow trend productivity growth accounts for about two-thirds of the deceleration in nominal wage growth since 2007** (chart 9). The IMF analysis indicates that the influence of slow productivity growth on wage growth was strongest in 2016, which matches the year in which Australia’s nominal wage growth was (chart 1). The remainder is accounted for by:

- lagged inflation (or inflation expectations), which are especially pronounced by 2015 and 2016;
- spare capacity in the labour market as measured by the unemployment rate and its distance from the NAIRU, with an additional downward pressure coming from underemployment; and
- a smaller, residual (i.e. unidentified) pressure on wages coming from unidentified sources, which are negative in most but not all years. This pressure could be due to cyclical or structural changes in labour demand, flexibilities and/or labour bargaining relationships.

**Chart 9: Decomposition of wage dynamics, 2000-2016**



Source: Gee Hee Hong, Zsóka Kóczán, Weicheng Lian, and Malhar Nabar 2018, *More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies*, IMF Working Paper WP 18/50. p. 25.

These detailed findings by the IMF are consistent with studies of Australian wage trends by the RBA (2017 and 2018), Australian Treasury (2017) and others. Most recently, the RBA (2018) employed a similar statistical methodology to the IMF to examine the causes of slow wage growth in Australia and eight other countries since 2000.<sup>5</sup> Like the IMF, the RBA found that the three main macroeconomic variables included in its Phillips curve model – productivity, labour market capacity and inflation expectations – explain most but not quite all the deceleration in wages:

*“Overall wage developments over the past two decades are fairly well explained by these estimated Phillips curves, although over the past two years [2015-17] wages have been persistently weaker than estimated by the models”*

The RBA found that slow productivity growth since 2000 is the key long-term cause of slow wage growth, with the relative significance of various other contributing factors varying in individual years and individual countries. In 2009 for example, most of the deceleration in wage growth was explained by spare labour capacity (i.e. higher unemployment). Slow productivity growth:

*has been particularly relevant in advanced economies since 2015. Subdued productivity growth accounts for much of the weakness in wage growth in the US and New Zealand, and around a quarter of the weakness in the UK and Australia. A number of other recent studies have found a similar large role for productivity growth in explaining the sluggishness in wage growth in some economies (Pinheiro and Meifeng 2017). However, for the other advanced economies [e.g. Japan and the Euro zone], labour productivity does not help to explain the low wage growth in recent years. The OECD (2017) reaches a similar conclusion, suggesting that low productivity growth is only part of the story.”*

The IMF, OECD, RBA and Treasury all find a residual “unexplained” element adding additional downward pressure on wages in most years since the GFC (e.g. see chart 9). The RBA points out that this is not unusual or unprecedented; indeed, it was also observed in Australia in the early 2000s. For the period since 2007, the RBA agrees with the OECD (2017) that “*structurally lower employee bargaining power may also be depressing wage growth. Bargaining power is difficult to measure and may, in part, be determined by the labour market conditions themselves.*” That is, ongoing spare capacity in the labour market and weak productivity growth might have had a ‘second-round’ (but largely unquantifiable) dampening effect on wages through reduced bargaining power on the part of jobseekers competing for work. Changes in work hours, locations, technologies and other labour flexibilities might also have contributed to changes in labour demand and/or wage bargaining in some advanced economies since the GFC.

In yet another analysis based on statistical modelling of observed data, Tim Toohey of Ellerston Capital examined factors contributing to wage trends in the US and Australia over the current economic cycle.<sup>6</sup> Using a model that includes the gap between unemployment rate and the NAIRU, inflation expectations, the annual change in the unemployment rate, the employment sub index of the NAB survey, profit margins, and a demographic change variable, Toohey finds that these “*variables are statistically significant, stable and correctly signed. We can find no evidence*

<sup>5</sup> Ivailo Arsov and Richard Evans 2018, “Wage Growth in Advanced Economies”, *RBA Bulletin*, March Qtr 2018.

<sup>6</sup> Tim Toohey 2017, “Is there really a problem with wages?”, *Ellerston Capital Insights*, Nov 2017.

*of a structural break in either of the models. In the case of Australia, the model explains 78% of the quarterly variation in wages. In the case of the US the model explains 77% of the variation in annual growth in average hourly earnings.”*

Toohey explains that the current economic cycle in both the US and Australia includes an ageing population or ‘demographic skew’, which exerts additional downward pressure on wage growth due to the ‘mechanical effects’ of the non-linear wage cycle of the Baby Boomer generation bulge. This is a key difference to previous economic cycles and can be regarded as akin to a slow-moving structural change, even though its effects are temporary. All the other statistically significant variables in Toohey’s model are cyclical and so they should reverse at some point, if they have not begun to do so already. Most positively, Toohey believes some solid turning points in wages growth will become increasingly evident in both the US and Australia during 2018.

In Australia as elsewhere then, these macroeconomic trends (in productivity, labour capacity and inflation expectations) are mainly cyclical rather than structural and are not unusual in themselves. But they appear to have come together in an unusually powerful way – and interacted with some other unique (but temporary) factors arising from Australia’s commodity boom - to dampen Australian wage growth over the past decade. Professor Jeff Borland of the University of Melbourne notes that this confluence of influences is unusual and most probably temporary:

*... events that are out of the ordinary usually only happen when there are multiple causes all pushing in the same direction. And I think this case of slow nominal wage growth in Australia is an example. Four main factors, all of which cause slower wage growth, have happened to coincide. These factors are:*

- *low consumer price inflation;*
- *low growth in labour productivity;*
- *a low level of labour demand; and*
- *slow rate of growth in output prices due to the unwinding of the mining boom.”<sup>7</sup>*

It is therefore worth looking in more detail at these factors in Australia, in order to explain what is happening to wages growth, to shed light on the likely trajectory of wages from here and to consider some possible responses at a national policy level.

<sup>7</sup> Jeff Borland May 2016, “Why is wage growth in Australia so slow?” *Labour Market Snapshot #27*, Department of Economics, University of Melbourne, p.2.

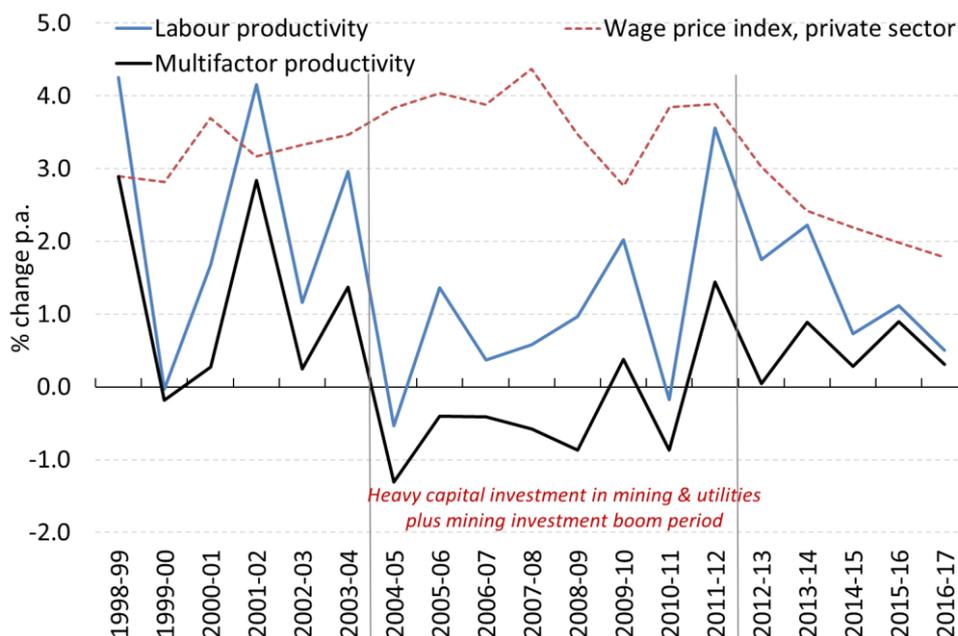
**Recent trends in productivity growth and wages growth in Australia**

The Australian Government’s Treasury examined the drivers of Australian wage growth in 2017.<sup>8</sup> It found that the main determinant of real wages growth in the longer term is productivity growth, with nominal wage growth also affected by inflation expectations and labour market dynamics. Treasury notes however, that in the short-term (e.g. from year to year), “*fluctuations across the business cycle can result in real wage growth diverging from productivity growth*”.

Treasury calculates that over the five years from 2012 to 2017, Australian real wages (calculated as the wage price index deflated by the consumer price index in the same quarter) grew by 0.4% p.a. on average, compared to 1.0% p.a. on average over the previous decade (2001-11).

In comparison, the most recent ABS estimates of national productivity (in the market sectors for which productivity estimates are possible) show that 2012-17 was a period of decelerating productivity in Australia, whether measured in terms of labour productivity (which reflects capital per worker) or multi-factor productivity (a broader measure which captures the combined outputs of labour and capital) (chart 10). Multi-factor productivity growth over this five-year period averaged 0.5% p.a., which is very close to the 0.4% p.a. growth observed in real wage growth. Labour productivity growth averaged 1.2% p.a., while capital productivity growth continued to drag lower, at -0.5% p.a. on average.

**Chart 10: Australian productivity cycles and wages growth, 1998-99 to 2016-17**



Sources: ABS Wage Price Index (to Dec 2017); ABS, Estimates of multi-factor productivity, 2016-17.

<sup>8</sup> Australian Government Treasury, Nov 2017, Analysis of Wages Growth, p. 2.

Treasury's analysis confirms that the period from 2004 to 2011 is a relatively unusual one in these national productivity data and in their relationship to wages growth. 2004 to 2011 recorded relatively poor gains in aggregate productivity in Australia, largely because of the aggregate drag on capital productivity (that is, the immediate output produced per unit of capital investment) caused by large-scale and long-term capital investment in utilities and especially mining, which tend to have long lead times between investment and output growth.

Wages growth held up during this period however, creating what the Treasury has identified as a temporary 'wages wedge' that pushed the real price received by workers (i.e. wages) above the real cost borne by producers. For workers directly involved in the booming sectors, rapid wage growth in mining and engineering construction was funded by record high commodity prices and a record high terms of trade. Some of this surge in mining-related jobs was temporary and subsequently unwound, as can be observed in especially weak wages growth (and job cuts) in mining in the subsequent years and just 1.4% nominal wages growth in 2017 (see Chart 2).

For all other (non-mining) workers, Treasury explains the effect this 'wage wedge' in terms of the benefit that the (temporarily) higher dollar had on the real spending power of their wage, even as nominal wage rises remained relatively weak:

*"in aggregate, firms could sell their output at higher prices. Meanwhile, consumers did not see their living costs increase to the same extent, in part because of lower import prices following the sizeable appreciation of the Australian dollar. This income shock meant that the real consumer wage grew by **more** than labour productivity during the mining investment boom"<sup>9</sup>*

The period since 2011 has seen a partial reversal of these terms of trade and exchange benefits, with the lower Australian dollar eroding local spending power. Further to this, Treasury expects a 'correction' in real wages in order to bring it back into line with the underlying productivity trend:

*"With the unwinding of the terms of trade, the real consumer wage would be expected to grow by less than labour productivity as the economy transitions. Much of the current divergence in growth rates between the consumer and producer real wages likely reflects this adjustment in the terms of trade"<sup>10</sup>*

Professor Borland also emphasises the subsequent dampening effect of this cyclical reversal in the terms of trade. He notes that: *"During the mining boom output prices increased at a relatively fast rate. But since mid-2011 output prices have remained almost constant. Slower growth in output prices will have acted as a constraint on the capacity of firms to pay higher wages."*<sup>11</sup>

The Treasury analysis does not clarify whether or not this adjustment process is complete. If it is, then aggregate real wages growth should track more closely to productivity growth from here.

<sup>9</sup> Australian Government Treasury, Nov 2017, *Analysis of Wages Growth*, p. 19.

<sup>10</sup> Australian Government Treasury, Nov 2017, *Analysis of Wages Growth*, p. 20.

<sup>11</sup> Jeff Borland, "Why is wage growth in Australia so slow?" *Labour Market Snapshot #27*, p.5.

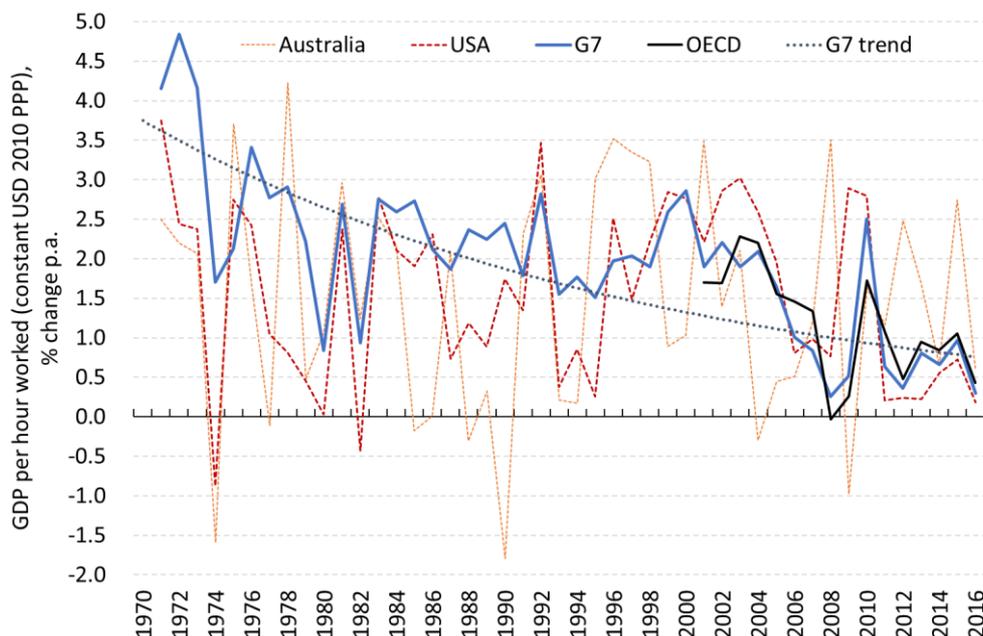
A separate section of the same Treasury report examines productivity and wages from individual businesses. This analysis shows that the close relationship between productivity and real wages holds true for individuals and businesses (that is, at a microeconomic level) as well as nationally:

*“An examination of wage growth by business characteristics using the Business Longitudinal Analysis Data Environment (BLADE) suggests that higher-productivity businesses pay higher real wages and employees at these businesses have also experienced higher real wage growth. Larger businesses (measured by turnover) tend to be more productive, pay higher real wages and have higher real wage growth. Capital per worker appears to be a key in differences in labour productivity and hence real wages between businesses, with more productive businesses having higher capital per worker.”*

### Recent productivity growth in Australia compared to global trends

Productivity estimates are available on a globally comparable annual basis up until 2016. GDP per hour worked (adjusted for inflation and exchange rates) is a proxy for labour productivity that confirm that productivity growth has slowed across all developed economies in recent decades, with especially poor performance in the period since the GFC in 2007-08 (chart 11).

**Chart 11: Australian and global productivity: GDP per hour worked (\$US 2010, PPP), annual growth, 1971 to 2016**

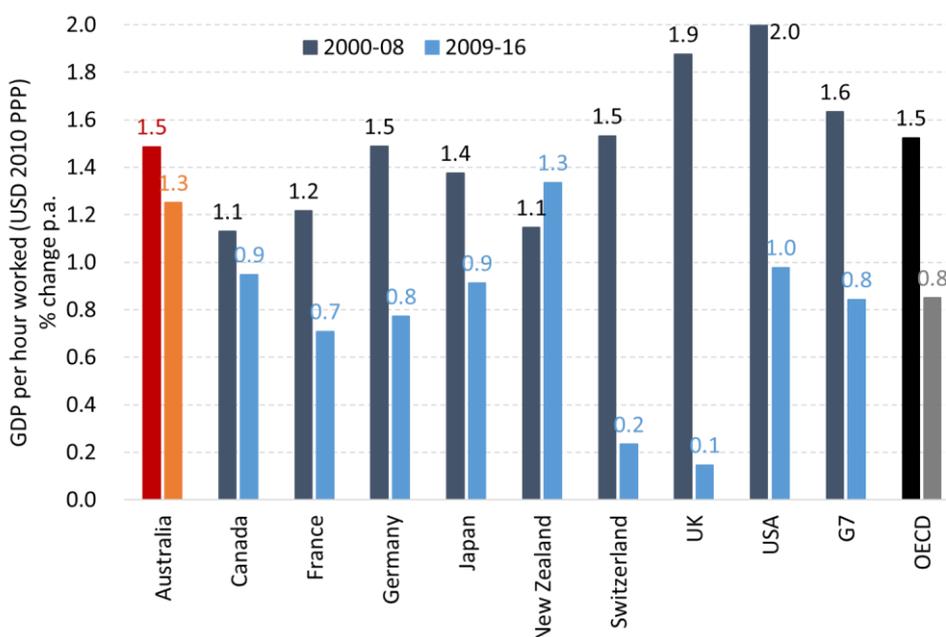


Source: OECD Productivity Statistics, [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org).

Across all OECD countries, growth in GDP per hour worked slowed from 1.5% p.a. on average from 2000 to 2008 to 0.8% p.a. on average from 2009 to 2016 (chart 12). This helps to explain why real wages growth across all OECD countries dropped from an average of 1.8% p.a. in the first period to 0.7% p.a. in the second period (chart 6).

Australia experienced a marked deceleration in productivity growth after the GFC, along with most other OECD countries. Growth in Australia’s GDP per hour worked slowed from an annual average of 1.5% p.a. pre-2008 to 1.3% p.a. after 2009. This drop was less severe than in most other OECD countries, albeit with a more complicated trajectory due to our mining investment and terms of trade boom (as noted above). New Zealand is another outlier in these OECD data, with the effects of the GFC seemingly muted by distance. New Zealand is alone in showing an improvement in productivity growth after 2009, when measured as GDP per hour worked.

**Chart 12: Australian and global productivity: GDP per hour worked (\$US 2010, PPP), annual average growth, 2000-08 and 2009-16**



Source: OECD Productivity Statistics, [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org).

**Spare labour market capacity in Australia**

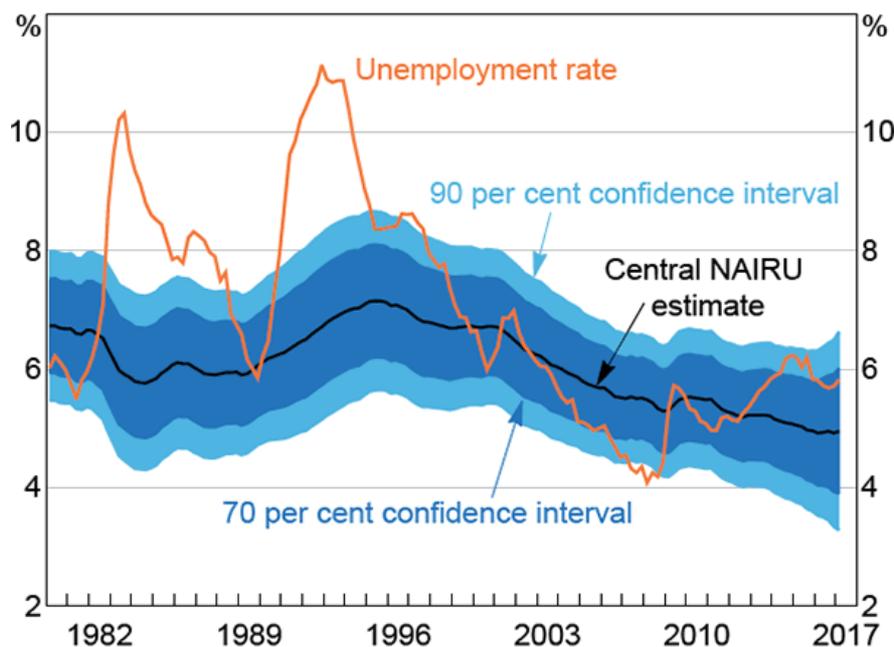
Spare labour market capacity has a direct effect on wages growth due to the normal interactions of supply and demand. When labour supply is greater than labour demand, wages tend to slow (or in extreme cases of over-supply, may even fall). Labour shortages have the opposite effect, with wage levels rising until demand levels out. This typically happens when the labour market reaches ‘full capacity’ – marked by the non-accelerating-inflation rate of unemployment (NAIRU) - and can lead to wages and prices inflation. The RBA explains this relationship neatly:

*When the observed unemployment rate is below the NAIRU, conditions in the labour market are tight and there will be upward pressure on wage growth and inflation. When the observed unemployment rate is above the NAIRU, there is spare capacity in the labour market and downward pressure on wage growth and inflation. The difference between the*

*unemployment rate and the NAIRU – or the ‘unemployment gap’ – is therefore an important input into the forecasts for wage growth and inflation.<sup>12</sup>*

The NAIRU for each country can fluctuate over time for a range of reasons (demographic, structural, cyclical and policy-related). Research by the RBA suggests that Australia’s NAIRU has fallen over time, from as high as 7.0% in the mid-1990s. The NAIRU is currently estimated by the RBA and Treasury to be around 5.0% of the labour force<sup>13</sup> (chart 13). Prior to the GFC, Australia’s unemployment rate fell below the NAIRU from 2003 to around 2008, helping to push wages growth higher. Unemployment again fell briefly below the NAIRU in 2011 and 2012, during the peak of the mining investment boom. It subsequently rose to a recent peak of 6.3% in 2014 before easing to around 5.5% in 2017. The unemployment rate has been 5.5 to 5.6% since June 2017 (chart 14), which is above the NAIRU and not exerting pressure on wages.

**Chart 13: RBA estimates of Australian NAIRU and the unemployment rate**



Source: Tom Cusbert, 2017, “Estimating the NAIRU and the Unemployment Gap”, *RBA Bulletin* June Quarter 2017.

Unemployment remains the key observable indicator of labour market capacity (or ‘slack’), but it is not the only indication of spare capacity. Over the past two decades, part-time work has risen in Australia and in other advanced economies in response to demographic, structural and lifestyle shifts. This has, on the whole, been a positive development, enabling more people to take up paid work on a flexible basis. In 2018, Australia has one of the highest rates of part-time work globally, at around 31% of the total workforce (47% of working women and 18% of working men).

The downside to part-time work is that not all workers are perfectly matched to their preferred work hours, and so a proportion of part-time workers (defined in Australia as 35 hours per week

<sup>12</sup> Tom Cusbert, 2017, “Estimating the NAIRU and the Unemployment Gap”, *RBA Bulletin* June Quarter 2017.

<sup>13</sup> Tom Cusbert, 2017, “Estimating the NAIRU and the Unemployment Gap”, *RBA Bulletin* June Quarter 2017; Australian Government Treasury, Nov 2017, *Analysis of Wages Growth*, p. 20.

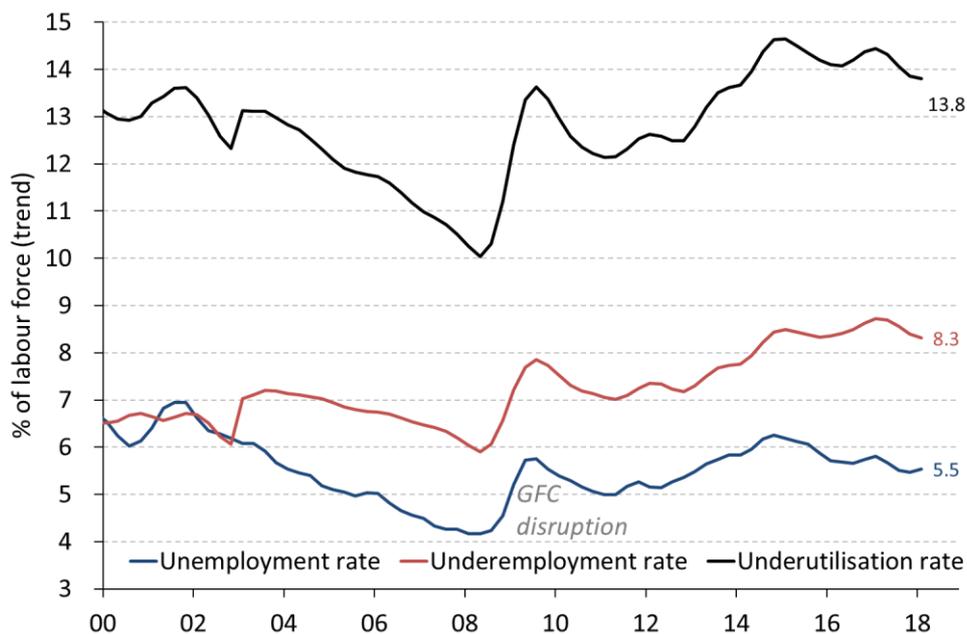
or less) are willing and able to work more hours. These workers are ‘underemployed’. They currently comprise around one quarter of part-time workers or 8.3% of the labour force, taking the underutilisation rate to 13.8% of the labour force, which is relatively elevated (chart 14). The RBA notes that “on average, they are looking to work an additional 14 hours per week, although many are not taking active steps to secure those additional hours.”<sup>14</sup>

These rises in part-time work and underemployment in Australia and elsewhere are significant for a range of reasons, not least being their effect on wage dynamics and estimates of the NAIRU. Internationally, the IMF found underemployment (or ‘involuntary part-time employment’) to have had a measurable impact on the pace of wages growth since the GFC in all of the 29 countries it studied, with the strongest effect in countries where the unemployment rate has been significantly higher after the GFC than before it.

In Australia, the unemployment rate has been lower, on average, after the GFC than before it (see above). The IMF found the effect of underemployment on wages growth has been more muted in this group of lower-unemployment countries (chart 9).

The RBA examined the role of underemployment in wages growth in Australia in 2017 and concluded that statistically, underemployment and unemployment have largely moved up or down together over most of the current century (chart 14) and so their effects are hard to separate.<sup>15</sup>

**Chart 14: Unemployment, underemployment and underutilisation, 2000-2018**



Source: ABS, *Labour force Australia, Quarterly detail*, Feb 2018.

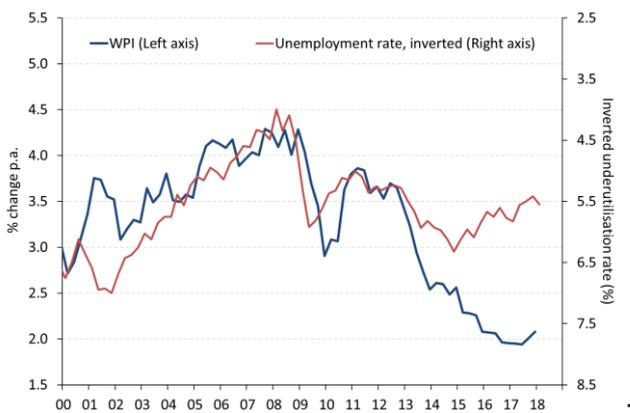
<sup>14</sup> Philip Lowe July 2017, *The Labour Market and Monetary Policy*, RBA speech to the Anika Foundation.

<sup>15</sup> James Bishop and Natasha Cassidy March 2017, “Insights into Low Wage Growth in Australia”, *RBA Bulletin*, March Quarter 2017.

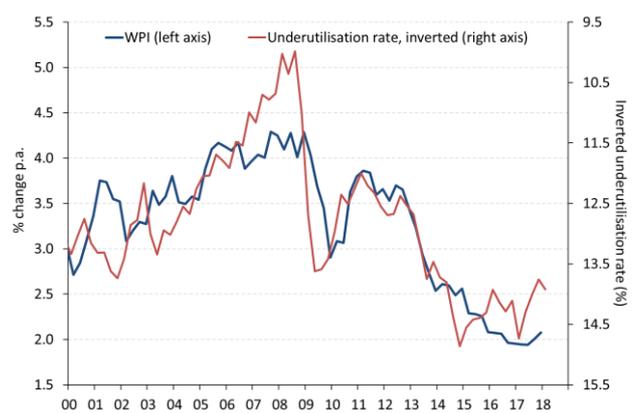
More recently (since about 2014), underemployment has remained relatively elevated, even though the unemployment rate has declined (chart 14). Over the same period, a gap has opened and then widened the between the unemployment rate and wage growth (chart 15). but not between the underemployment rate and wage growth (chart 16). This suggests a larger effect on wages is being exerted by the incidence of underemployment in Australia, as was found to be the case internationally by the IMF. Without seeking to quantifying a separate effect from underemployment on wages (as did the IMF), the RBA therefore concludes that:

*“the divergent trends in underemployment and unemployment could account somewhat for wage growth slowing by more than what is suggested by the unemployment gap [between the observed unemployment rate and the NAIRU]. As a result, trends in the underemployment rate and other measures of underutilisation will continue to be monitored.”<sup>16</sup>*

**Chart 15: Unemployment and wages 2000-2018**



**Chart 16: Underutilisation and wages 2000-2018**



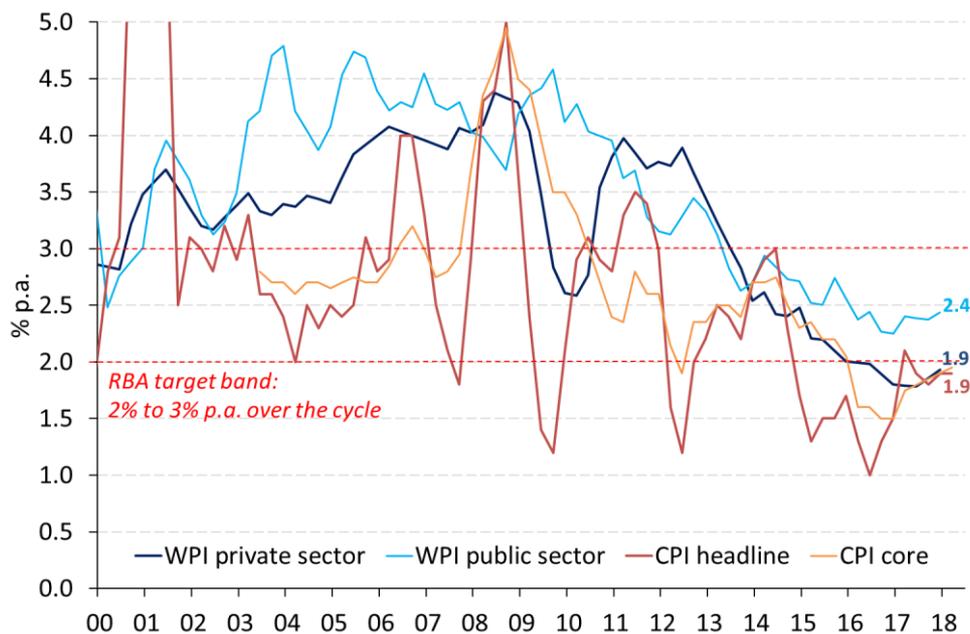
Source: ABS, *Wage Price Index*, Dec 2017; *Labour force Australia, Quarterly detail*, Feb 2018.

<sup>16</sup> James Bishop and Natasha Cassidy March 2017, “Insights into Low Wage Growth in Australia”, *RBA Bulletin*, March Quarter 2017.

**Inflation trends in Australia**

Inflation – and perhaps more importantly, inflation expectations – have a cyclical ‘lagged’ effect on wages. The timing of wage responses depends on the frequency with which wage rates can be updated. In Australia, inflation has decelerated from its recent peaks in 2008 (which were due to record high commodity prices). Headline inflation has been below the RBA’s target band of 2-3% since early 2015, excepting one weather-related spike in Q1 2017. This deceleration in inflation has pulled nominal wages lower over time, although nominal wage growth in the public sector has stayed stubbornly higher, reflecting less frequent (and ‘stickier’) wage changes (chart 17). Even in the private sector, wages growth has mostly remained above headline inflation, keeping real wages growth positive in all years since 2001 excepting 2007-08 and 2013-14.

**Chart 17: Inflation and wages, 2000-2018**



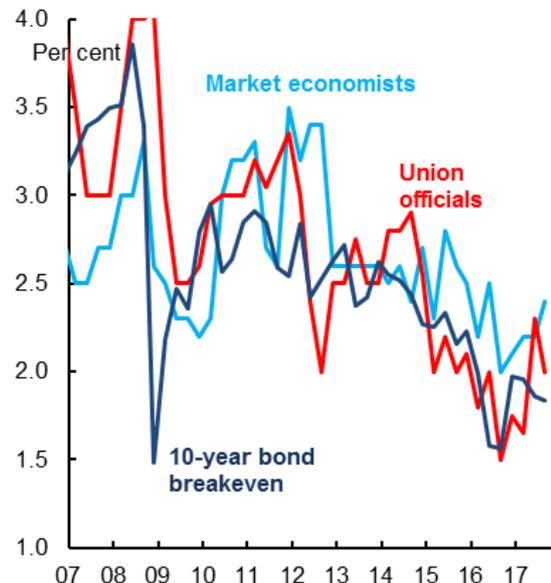
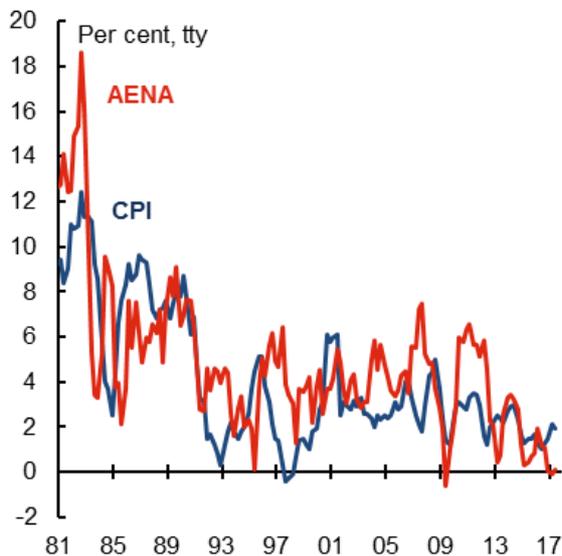
Sources: ABS Wage Price Index, Dec 2017; ABS Consumer Price Index, Mar 2018.

Over the longer term, the relationship between inflation and wages is even closer, because both employers and employees tend to build their experiences of current inflation (chart 18) as well as their expectations for future inflation (chart 19) into their wage negotiations. The effect of inflation expectations is especially important to the outcomes of wage bargaining:

*Inflation expectations are important because wage-setting decisions are forward looking and wages are typically negotiated infrequently. Thus, how firms and employees expect inflation to evolve over the period for which wages are set will influence wage negotiation. Lower inflation expectations are a cyclical drag on wage growth that is likely to abate as inflation picks up.<sup>17</sup>*

<sup>17</sup> Australian Government Treasury, Nov 2017, *Analysis of Wages Growth*, p. 22.

**Chart 18: Long-term inflation and wages\***      **Chart 19: Inflation expectations, 2007 - 2017**



\* Average Earnings from National Accounts (AENA). Sources: ABS, Australian Treasury, RBA.

**Other factors of relevance to recent wage trends in Australia**

In addition to these three primary influences on wage rates - productivity, labour market capacity and inflation - various other factors can influence wage rate changes at various times and under various circumstances. These factors can be significant for individual workers, businesses and industries at times, but they are generally not strong enough to affect wages across the economy.

In Australia, the Treasury identified three long-term trends of relevance to recently slower wages:

- rising part-time employment, which is associated with rising underemployment;
- growing share of employment in services industries rather than industrial sectors; and
- growing share of employment in ‘non-routine’ jobs that are less repetitive and less manual, which is associated with declining demand for low-skill workers in industrial and office settings.

Treasury notes however, that it is “difficult to draw firm conclusions on the effect of [these three] structural factors on wage growth, given they have been occurring over a long timeframe.”

With regard to technological change, there is not yet any evidence to indicate the current wave of change (dubbed the ‘digital revolution’ or, the ‘Fourth Industrial Revolution’) is different or advanced enough from previous technological changes to suppress wage growth nationally (or indeed, globally). Despite widespread negative rhetoric about technological change (and especially changes due to digital technologies), Tim Toohey argues that “common explanations for weak wage growth such as technological innovation and the rise of robots are largely not

*supported by the available evidence. Indeed, the spillovers from technological disruption tend to boost aggregate employment and consumption growth”.<sup>18</sup>*

While it is undoubtedly true that new technologies create jobs and promote higher wages and living standards in the long-term, RBA Governor Lowe has wondered if the *perception* of reduced labour demand and/or job security due to automation might be enough to discourage workers who feel vulnerable from negotiating higher wages, during the transition phase in the short-term.<sup>19</sup>

The IMF and OECD both recommend that the best policy response to technological change (and fears about technology change) is to equip workers and workplaces with the ability to harness it:

*“possible policy actions to address the income security of workers with part-time jobs or temporary contracts ... include tackling slack, supporting retraining and reskilling, addressing remaining labor market and structural rigidities, and ensuring fairness of treatment across employees under various types of contracts.”<sup>20</sup>*

Population and immigration growth are another area of popular but possibly misguided theories regarding pressures on jobs and wages. The links between higher rates of population growth and immigration on wage growth are not clear-cut. In its review of Australia’s migration program in 2016, the Productivity Commission noted the positive impacts on wage growth from immigration in the longer term (for example, through higher consumer demand and GDP growth), but it also said that *“immigrants unambiguously increase the supply of labour, generating downward pressure on wages (and wage growth) in the short term, all else remaining equal.”<sup>21</sup>* In practice, this is most likely to occur in industries and occupations in which labour shortages might arise in the absence of immigration (chart 20). It is unclear whether higher migration can suppress wages in aggregate across the economy in a way that cancels out its positive (wage-raising) effects.

With regard to factors relating to wage bargaining positions and/or equality, slow wage growth has been experienced by the majority of Australian employees over the decade since the GFC, regardless of income, education-level, location within Australia, occupation, industry or wage-setting method. Treasury notes that changes in wage-bargaining arrangements do not appear to have contributed to slower wage growth or changes in wage relativities over the past decade:

*“Wage growth is low across all methods of pay setting. In recent years, increases in award wages have generally been larger than the overall increase in the Wage Price Index. At the same time, award reliance has increased in some industries while the coverage of collective agreements has fallen. There are a range of reasons for the decline in bargaining including the reclassification of some professions, the technical nature of bargaining, natural maturation of the system and award modernisation which has made compliance with the award system easier than before.”<sup>22</sup>*

<sup>18</sup> Tim Toohey 2017, *Is there really a problem with wages?*, *Ellerston Capital Insights*, Nov 2017.

<sup>19</sup> Phillip Lowe, July 2017, *The Labour Market and Monetary Policy*, *RBA speech to the Anika Foundation*.

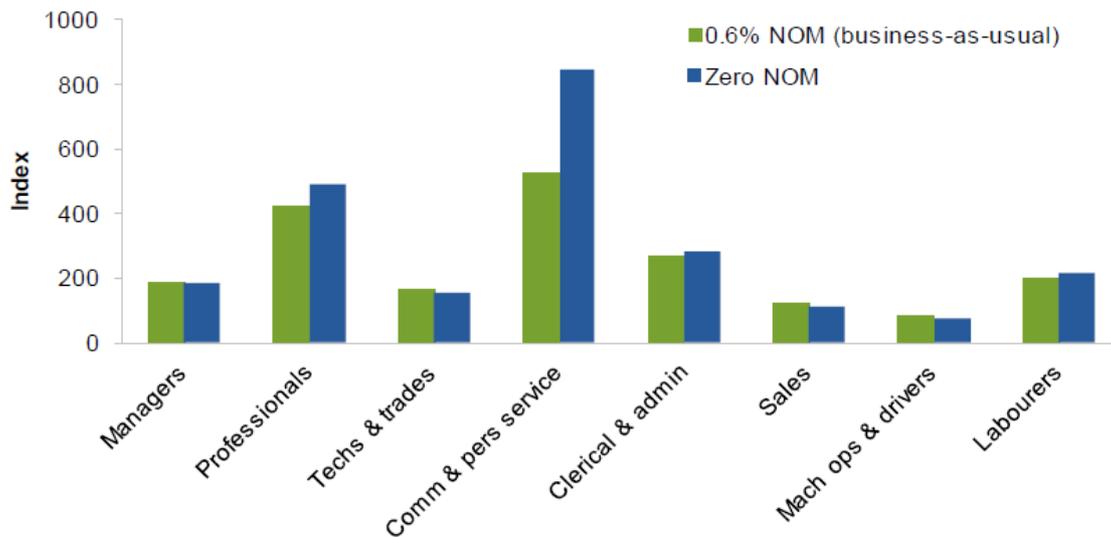
<sup>20</sup> Gee Hee Hong, Zsóka Kóczán, Weicheng Lian, and Malhar Nabar 2018, *More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies*, IMF Working Paper WP 18/50. p. 5.

<sup>21</sup> Productivity Commission 2016, *Migrant Intake into Australia*, Inquiry Report No 77, 13 April 2016, pp. 357-8.

<sup>22</sup> Australian Government Treasury, Nov 2017, *Analysis of Wages Growth*, p. 2.

These factors are not significant at a national level, although some of them might become relevant to individual workers or workplaces, now or in the future.

**Chart 20: Projected real wages by occupation, 2060 (base year = 2014): net overseas migration (NOM) = 0.6% p.a. average or zero**



Source: Productivity Commission, *Migrant Intake into Australia*, Inquiry Report No 77, 13 April 2016, pp. 357-8.

## Appendix: Key findings on factors affecting recent wages growth in Australia

| Source   | Slow productivity   | Labour capacity  | Slow inflation  | Other factors   |
|--|---|--|---|---|
| IMF 2018<br>(Hee Hong, Kóczán, Lian and Nabar)                 | Key long term driver. Accounts for 2/3 of slower wages since GFC in 2007 in Australia and similar countries   | Unemployment + underemployment accounts for most of wage deceleration in many countries, adds to deceleration in all countries                             | Accounts for a smaller share of slow wages than labour gap and productivity | Part-time & temporary work, insecurity concerns<br><br>Euro zone post-GFC “policy measures to slow wage growth and improve competitiveness” |
| RBA 2018<br>(Arsov and Evans)                                  | Key long term driver. Accounts for 1/4 of slower wages in Australia since 2009.<br><br>Cyclically weak productivity due to low rates of business investment   | Ongoing spare capacity since GFC, underemployment.<br><br>Slower wage response to rising labour demand means ‘wage overhang’ is taking longer to dissipate | Inflation expectations are a key driver                                     | Greater labour mobility<br><br>Changes in bargaining power in some sectors  |
| OECD 2017<br><i>Employment Outlook</i>                         | Key long term driver, especially in advanced economies  | Ongoing spare capacity and rising underemployment  | Inflation expectations  | Changes in job security, bargaining power, technology and globalisation   |
| Australian Government Treasury 2017                            | Key long term driver. Temporary “wage wedge” divergence between productivity and wages due to mining, terms of trade  | Strong cyclical effect. Longer time lags between changes in labour demand and changes in wages   | Strong cyclical effect, especially from inflation expectations              | Terms of trade effects. Long-term structural factors: (1) more part-time work (2) more services jobs (3) less demand for manual low-skilled |
| RBA 2017<br>(Bishop & Cassidy)                                 | Not addressed. Strong terms of trade effect on wages in mining and related industries   | Post-GFC labour market slack persisting longer than anticipated  | Inflation expectations and outcomes. CPI indexation                         | Temporary high wages due to high terms of trade. Declining frequency of wage adjustments  |
| RBA 2017<br>(Lowe speech)                                      | Key long-term driver of real wage growth  | Wages responding slowly to spare labour capacity   | Expectations. Global price setting.   | Perceptions of job insecurity and vulnerability   |
| Toohy 2017   | A standard statistical model (the gap between the unemployment rate and NAIRU, inflation expectations, the unemployment rate) plus profit margins, and a demographic change variable explain 78% of quarterly wage growth |  |   | Ageing population creates a ‘population bulge’ in the lifetime wage cycle which lowers wage growth  |
| J. Borland 2016, “why is Australia’s wage growth so sluggish?” | Mainly cyclical. Temporary divergence between productivity and wages growth due to terms of trade   | Cyclical   | Cyclical  | Successful RBA inflation targeting (2) international trade (3) reduction in automatic wage flow-ons   |

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