

Ai GROUP SUBMISSION

Fair Work Commission

**Annual Wage Review 2017-2018
Post-Budget Submission and
Questions for final consultations**

11 May 2018

Ai
GROUP

About Australian Industry Group

The Australian Industry Group (Ai Group) is a peak industry association in Australia which along with its affiliates represents the interests of more than 60,000 businesses in an expanding range of sectors including: manufacturing, engineering, construction, automotive, food, transport, information technology, telecommunications, call centres, labour hire, printing, defence, mining equipment and supplies, airlines, health and other industries. The businesses which we represent employ more than one million people. Ai Group members operate small, medium and large businesses across a range of industries. Ai Group is closely affiliated with many other employer groups and directly manages a number of those organisations.

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Introduction

The Australian Industry Group (Ai Group) has filed a detailed initial submission and a detailed reply submission in the Annual Wage Review 2017-2018.

This further submission:

- Provides an update on relevant tax arrangements and the economy;
- Provides an analysis of some recently released pieces of work on the trends and causes of recent wages growth in Australia; and
- Addresses some of the questions which the Expert Panel has distributed for the Final Consultations.

Update on relevant tax arrangements and the economy

The Australian Government released its Budget for 2018-19 on 8 May 2018.

Tax

This year's Budget proposes to reduce PAYE tax for individuals in 3 stages over a very long timeframe. This plan is scheduled to take seven years to fully introduce. Over the next four years (the Budget forward estimates) this plan will cost the Government (and save taxpayers) \$13.4bn.

For the 2018-19 tax year and the following three years, the tax relief will be small (up to \$530 per person per year) but it will be available to large numbers of low to middle income taxpayers. Payment will be in the form of a tax refund at the end of the year for those who are eligible (via a new Low and Middle Income Tax Offset which will sit alongside the existing Low Income Tax Offset for a period of four years).

The structure and value of these changes will be:

- Those who earn up to \$37,000 will receive a tax offset refund of \$200;
- The offset increases incrementally for those earning between \$37,000 and \$48,000;
- The maximum offset of \$530 applies to those earning between \$48,000 and \$90,000;
- The benefit then gradually decreases to zero at a taxable income of about \$125,000.

Also, from 1 July 2018, the tax bracket threshold for the marginal tax rate of 37% will lift from \$87,000 to \$90,000. This will see fewer people paying the second highest marginal tax rate of 37%.

Under current proposals, other tax bracket thresholds will change from 2022 as will the amount available under the Low Income Tax Offset. These changes will displace the Low and Middle Income Tax Offset as well as extending tax relief further up the income distribution.

Economic outlook

This year's Budget expects Australian GDP growth to accelerate from our current rate of 2.4% p.a. (as of Q4 2017) to 2.75% for the 2017-18 year and then to 3.0% in each of 2018-19 and 2019-20 (see table 3). 'Trend' or potential economic growth is currently estimated to be around 2.75% for Australia. GDP growth has averaged around 2.5% over the past decade. This indicates that GDP will need to grow at rates that are above our recent averages over the next few years in order to meet the Budget's expectations for employment, incomes and ultimately government revenue.

Areas of the economy that the Government expects to strengthen over the next four years include: household consumption (that is, spending by households on local goods and services), business investment, nominal national income, exports and government investment.

The Budget notes that the key immediate risks to these forecasts are: commodity prices, the terms of trade, employment growth and local consumption. Weakness in any of these areas will flow through to the entire economy and to the Budget bottom line.

In the labour market, employment growth looks likely to be more moderate over the next four years, after an especially strong year for jobs growth in 2017 (400,000 jobs added over the year). Despite a year of very strong jobs growth, however, the unemployment rate has been stable at around 5.5% since mid-2017. It is expected to fall only slowly from the current rate of 5.5% over the forecast period, due to relatively strong labour force participation rates and population growth.

This ongoing spare capacity in the labour market is likely to see wages growth remain relatively contained. The Budget expects average wage growth to accelerate from its current rate of around 2.1% (WPI in Q4 2017) to 2.75% in 2018-19 and then 3.25% in 2019-20. This acceleration in wages growth seems optimistic, due to:

- Ongoing spare capacity in the labour market (unemployment of 5.5% falling to just 5.0% in the forecast period, plus underemployment of around 8%);
- Weak background inflation (1.9% in Q1 2018); and
- Relatively weak national productivity growth over an extended period of time (average annual multi-factor productivity growth of 0.5% p.a. and average annual labour productivity growth of 1.2% p.a. from 2012 to 2017).

Table 3: Domestic economy forecasts^(a)

	2017-18		2018-19	
	2017-18	2018-19	2018-19	2019-20
Real gross domestic product	2.1	2 3/4	3	3
Household consumption expenditure	2.6	2.8	3.0	3.0
Government consumption expenditure	2.8	2.8	2.8	2.8
Total consumption expenditure	-4.0	-4.0	-4.0	-4.0
<i>By industry</i>				
Manufacturing and construction	-24.2	-24.2	-24.2	-24.2
Non-manufacturing	6.1	6.1	6.1	6.1
Construction	1.4	1.4	1.4	1.4
Manufacturing	5.1	5.1	5.1	5.1
Construction of non-residential buildings	0.1	0.1	0.1	0.1
Construction of residential buildings	2.4	2.4	2.4	2.4
Education and health	5.5	5.5	5.5	5.5
Government consumption expenditure	4.9	4.9	4.9	4.9
Non-government consumption expenditure	0.0	0.0	0.0	0.0
Non-manufacturing	5.9	5.9	5.9	5.9
Construction	1.9	1.9	1.9	1.9
Manufacturing	1.9	1.9	1.9	1.9
Construction of residential buildings	3.8	3.8	3.8	3.8
Construction of non-residential buildings	65.0	65.0	65.0	65.0
Education and health	1.9	1.9	1.9	1.9
Government consumption expenditure	5.6	5.6	5.6	5.6
Non-government consumption expenditure	14.4	14.4	14.4	14.4
Construction of residential buildings	-2.1	-2.1	-2.1	-2.1

(a) Percentage change on preceding year unless otherwise indicated.
 (b) Calculated using original data unless otherwise indicated.
 (c) Excluding second-hand asset sales from the public sector to the private sector.
 (d) Percentage point contribution to growth in GDP.
 (e) Through-the-year growth rate to the June quarter.
 (f) Seasonally adjusted, through-the-year growth rate to the June quarter.
 (g) Seasonally adjusted rate for the June quarter.
 (h) The forecasts are underpinned by price assumptions for key commodities: Iron ore spot price remaining at US\$55/tonne free-on-board (FOB); metallurgical coal spot price falling over the June and September quarters of 2018 to reach US\$120/tonne FOB by the December 2018 quarter; and the thermal coal spot price remaining at US\$93/tonne FOB.

Note: The forecasts for the domestic economy are based on several technical assumptions. The exchange rate is assumed to remain around its recent average level — a trade-weighted index of around 63 and a US\$ exchange rate of around 77 US cents. Interest rates are assumed to move broadly in line with market expectations. World oil prices (Malaysian Tapis) are assumed to remain around US\$71 per barrel.

Source: ABS cat. no. 5206.0, 5302.0, 6202.0, 6345.0, 6401.0, unpublished ABS data and Treasury.

Recent wages growth in Australia – trends and causes

Some new pieces of work have recently been released on average wages growth in Australia. A paper prepared by Ai Group’s Economics Team entitled *Recent wages growth in Australia – trends and causes (May 2018)* analyses these pieces work and other relevant data (**Attachment A**).

Questions for Final Consultations

1.3 Question to all parties

The three industries with the highest proportion of employees paid at the award rate in 2017 are (in order of award reliance) Accommodation and food services (43 per cent), Administrative and support services (42 per cent), and Retail trade (35 per cent). Chart 5.2 in the Statistical Report for this Review shows the growth in the WPI, by industry, over the year to the December quarter 2017. We note that on 1 July 2017, the NMW and all award rates of pay rose by 3.3 per cent.

The WPI grew by 2.0 per cent for Accommodation and food services; 1.8 per cent for Administrative and support services; and 1.6 per cent for Retail trade. Are any parties able to explain why the WPI for the most award-reliant industries rose by an amount that is substantially less than the growth in award rates?

Ai Group Response

Ai Group has no information that helps to shed light on this apparent anomaly. We note that:

- The annual minimum wage increase of 3.3% p.a. in 2017 was greater than all WPI increases and greater than all EBA increases over the comparable period (Q3 and Q4 2017) (chart 1);
- The annual minimum wage increase was larger than the private sector WPI for selected low wage industries in 2010, 2014 and 2017 (chart 2). This gap is not unprecedented.

Chart 1: WPI, EBA and minimum wage increases, % p.a.

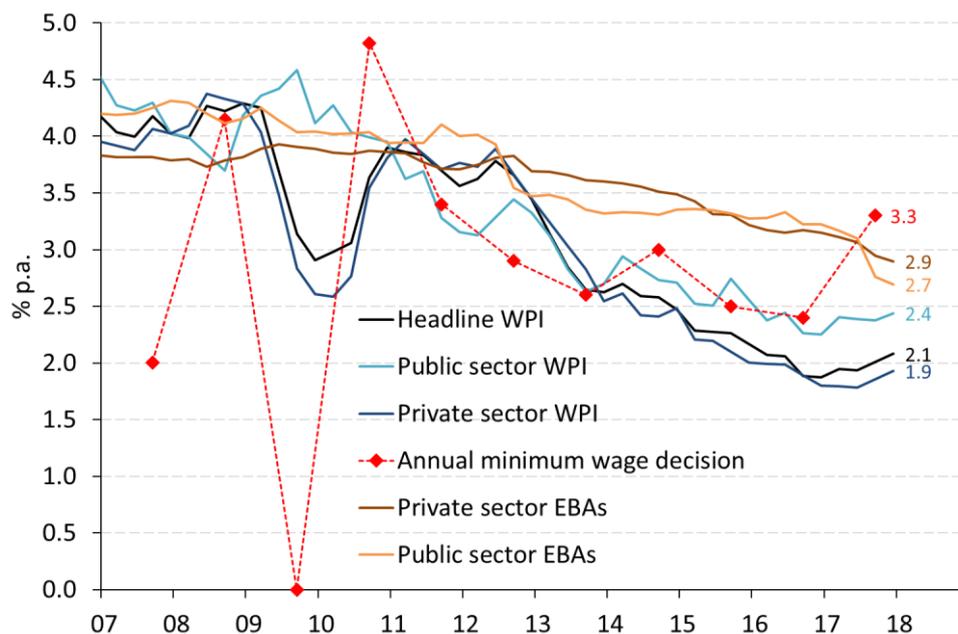
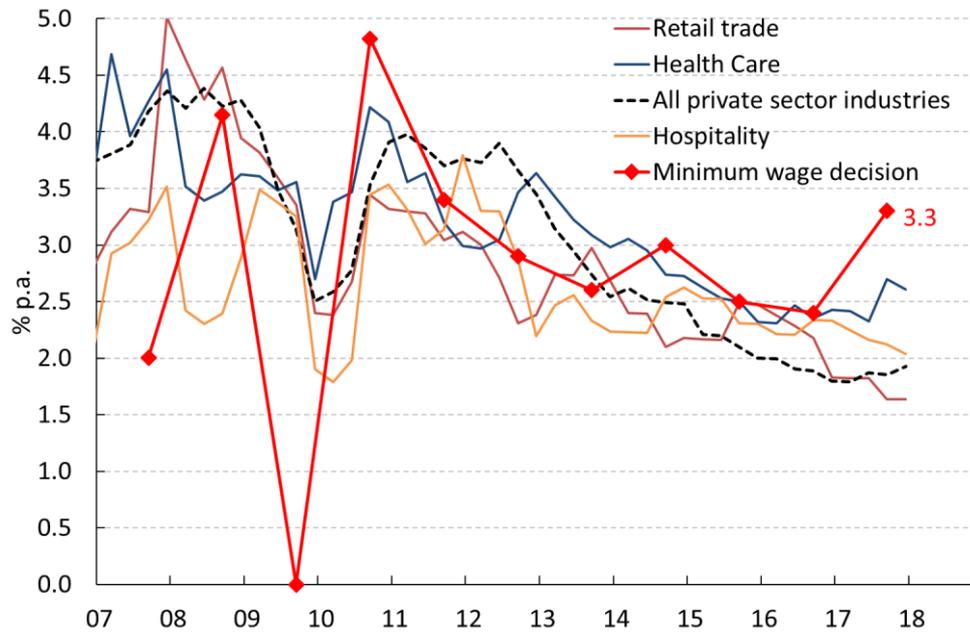


Chart 2: Private sector WPI in selected industries and minimum wage increases, % p.a.



1.4 Question to all parties

In past Reviews, the Expert Panel has taken into account changes to the tax-transfer system. How and to what extent, if any, should regard be had to the corporate tax rate reductions for ‘small business entities’ that took effect progressively from 1 July 2015 and for ‘base rate entities’ which took effect from 1 July 2017, and for the further future progressive reductions in corporate tax rates that have been legislated for?

Ai Group Response

While Ai Group has been and remains a strong advocate for taking changes to personal income tax and transfers into account in setting minimum wage rates, we have not argued that recent changes to business taxation should be taken into account in setting minimum wage rates.

There is a number of reasons we do not believe such an inclusion is warranted:

- Most importantly for the range of tax measures identified in Question 1.4 (i.e. tax measures applying to incorporated businesses), Australia’s dividend imputation system tends to negate many of the impacts that might be deemed relevant to considerations relating to the setting of minimum wage levels.

Under our imputation system, company taxation acts as a withholding tax against personal income tax liabilities at least in relation to domestic shareholders of domestic companies. This arrangement, which is designed to remove the double taxation of company profits, credits domestic shareholders with a corresponding amount of company tax paid when profits are paid out of taxed domestic earnings. (When company profits do not attract Australian tax, for example if profits are taxed in another jurisdiction, domestic shareholders

do not receive imputation credits in respect of those distributions and they pay tax at their full marginal tax rate.)

Thus, in respect of company earnings distributed to shareholders, changes to taxation at the company level do not change the after-tax earnings of domestic shareholders and they do not have a separate impact on absolute or relative after-tax incomes of domestic shareholders. In this sense we have not regarded them as relevant to the consideration of minimum wage rates.

It is important to note that, if wage raises were associated with the reduction in company tax paid, shareholders would indirectly share in higher costs while also experiencing a higher level of personal tax on their dividends.

- Other things remaining equal, reductions in taxation at the company level can reasonably be expected to change the distribution practices of businesses because the retention of after-tax profits becomes relatively more attractive. To the extent this occurs, the disposable income of shareholders of domestic companies would be reduced in the near term. This may have a slight impact on absolute living standards of some low-income households but is more likely to have a favourable impact on relative living standards of low-income households because of the pattern of distribution of individual shareholdings (higher-income households have larger shareholdings both directly and via superannuation accounts).
- Looking beyond the disposable income impacts, other things remaining equal, shareholders in companies retaining additional profits could reasonably be expected to experience a rise in wealth as the value of their shares would rise due the higher value retained within the company. While, the Expert Panel has not tended to take into account changes in household wealth when assessing relative living standards, in the first instance the increase in wealth could be expected to negate the decrease the disposable income of shareholders.
- Complicating considerations further are the second-round impacts of higher retained earnings. Over time, other things remaining equal, a healthy share of retained earnings can be expected to be reinvested in capital equipment or additional research and development which, in aggregate, can be expected to lift capital per worker employed and productivity and lay the foundation for sustainable increases in real wages.

Importantly, if the additional retained income was absorbed by higher wage rates, the same funds would not be available for investment and would not generate the productivity and real wage benefits described above.

- A further set of complications arise from the selective application of the company tax reductions enacted in the past few years. Some medium and all larger companies are not eligible for these company tax cuts.

Nevertheless, changes in minimum wage rates would apply to both eligible and ineligible companies. Similarly, changes in market wage rates induced by the selective company tax cut would also apply to eligible and ineligible companies. Further, in many industries ineligible companies compete with businesses that are eligible for the tax reductions at the company level.

A change in minimum wage rates associated with a selectively applied change in company tax arrangements would unfairly exacerbate the relative position of companies that were not eligible for the company tax changes thus adversely impacting on their ability to invest and create employment.

For these reasons Ai Group maintains that changes to company tax arrangements are very different to changes in personal income tax and transfer payments made to households and should not be taken into account by the Expert Panel in its consideration of changes to minimum wage rates.

Research released this week by Zero and AlphaBeta¹ (**Attachment B**) provides the first insight into the responses of Australian small businesses with revenue under \$2 million that received a cut to their tax rate in 2015 from 30% to 28.5%. This research was based on analysis of the accounting information of thousands of small businesses held by Xero for its accounting and payroll services. It found that this tax cut was worth an average of \$2,940 per business per annum. In the year after the 2015 tax cut was received:

- 51% of the aggregate value of the tax cut went towards business operating costs and cash holdings (including paying down debt, paying any shareholders and/or relieving cash flow);
- 27% of the aggregate value of the tax cut went towards business investment;
- 19% of the aggregate value of the tax cut went towards hiring more workers and/or increasing their work hours; and
- 3% of the aggregate value of the tax cut went towards a direct wage rise for existing workers.

This indicates that the priorities for small businesses that received this tax cut in 2015 was almost equally split between: (1) operating balance and financial viability of their business; and (2) future growth through investment in equipment and/or people.

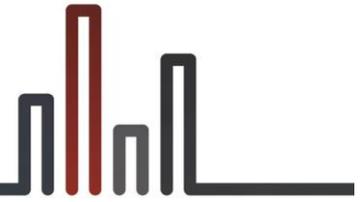
Although only a small proportion of the tax cut was directed toward an immediate wage rise, the aggregate effects of increased investment (potentially adding to labour and/or multi-factor productivity) and increased employment (adding to labour demand) could be expected to support wages growth in the medium term.

¹ Xero Small Business Insights and AlphaBeta May 2018, *Do company tax cuts boost jobs, wages and investment? Evidence from the 2015 Australian tax cuts for businesses with turnover below \$2 million.*

With 19% of the value of this small business tax cut going directly towards increased employment, this research strongly suggests that the company tax cuts in 2015 (and by implication, the tax cuts that followed in 2016) played a small but significant role in facilitating the record high number of jobs added to the Australian economy in 2017 (around 400,000 new jobs added over the year). If it is sustained, then this boost to local labour demand as a result of the company tax cuts will, over time, add upward pressure to wages across the economy.



ECONOMICS RESEARCH



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

- Australia's wages growth has decelerated in Australia over the past decade, with the annual rate of change in real wages falling from 4.5% in 2007 to 1.5% in 2017.
- Australia's wages growth has decelerated in Australia over the past decade, with the annual rate of change in real wages falling from 4.5% in 2007 to 1.5% in 2017. This is consistent with the trend in other developed countries.
- New research shows that the decline in wages growth is not just a result of cyclical factors, but also reflects structural changes in the economy.
- The Australian economy has experienced a period of slow growth since the GFC, with the annual rate of change in real wages falling from 4.5% in 2007 to 1.5% in 2017. This is consistent with the trend in other developed countries.
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Appendix: key findings on factors affecting recent wages growth in Australia

Data and references

Recent wage growth trends in Australia

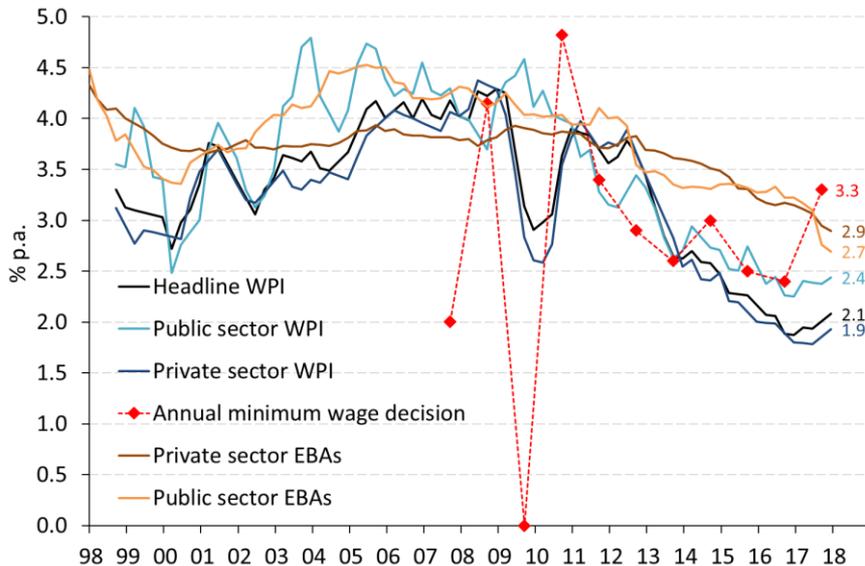
'Wage rates' are often discussed interchangeably with 'incomes'. Wage rates are however, more closely related to the concept of 'wages' which are the payments made to employees for their labour. In the context of this research note, 'wages' refers to the remuneration received by employees in the form of wages and salaries. This note examines the recent trends in wage growth in Australia, focusing on the headline wage price index (WPI), the public sector WPI, the private sector WPI, the national minimum wage, and enterprise bargaining agreements (EBAs).

In the context of this research note, 'wages' refers to the remuneration received by employees in the form of wages and salaries. This note examines the recent trends in wage growth in Australia, focusing on the headline wage price index (WPI), the public sector WPI, the private sector WPI, the national minimum wage, and enterprise bargaining agreements (EBAs).

The headline WPI is the most comprehensive measure of wage growth, covering all employees in the economy. The public sector WPI covers employees in the public sector, while the private sector WPI covers employees in the private sector. The national minimum wage is the lowest wage rate payable to employees in the private sector. EBAs are agreements between employers and employees that set out the terms and conditions of employment, including wages and conditions. The chart below shows the percentage change per annum for these indicators from 1998 to 2018.

That at a national aggregate level, Australia's average wage growth hit a low of 1.9% in 2018, down from 3.3% in 2017. This is the lowest rate since 2009, when it fell to 0.0% following the global financial crisis. The public sector WPI also fell to 2.1% in 2018, while the private sector WPI fell to 2.4%. The national minimum wage decision for 2018 was 3.3%, which is a significant increase from the 2.7% decision in 2017. The private sector EBA decision for 2018 was 2.9%, and the public sector EBA decision was 2.7%.

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



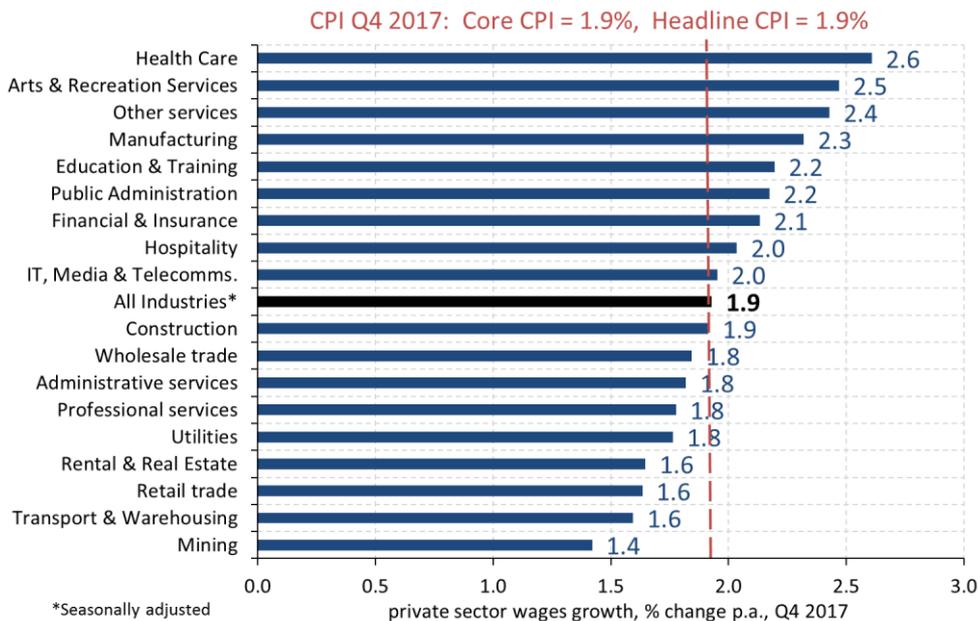
AB Wage Price Index C Annual Wage Review D Trends in Enterprise Bargaining

Recent months have seen a significant increase in private sector wages, with the annual change in the Wage Price Index (WPI) for private sector wages reaching 1.9% in Q4 2017. This is a notable increase from the 1.4% recorded in Q4 2016. The increase is driven by a combination of factors, including a tight labour market, strong demand for services, and a focus on training and development. The increase is also consistent with the overall trend in the economy, which has seen a steady recovery since the end of the financial crisis. The increase in private sector wages is a positive sign for the economy, as it indicates that businesses are confident in the future and are willing to invest in their workforce. It also suggests that the economy is moving towards a more sustainable growth path, with a focus on creating jobs and improving living standards. The increase in private sector wages is also consistent with the overall trend in the economy, which has seen a steady recovery since the end of the financial crisis.

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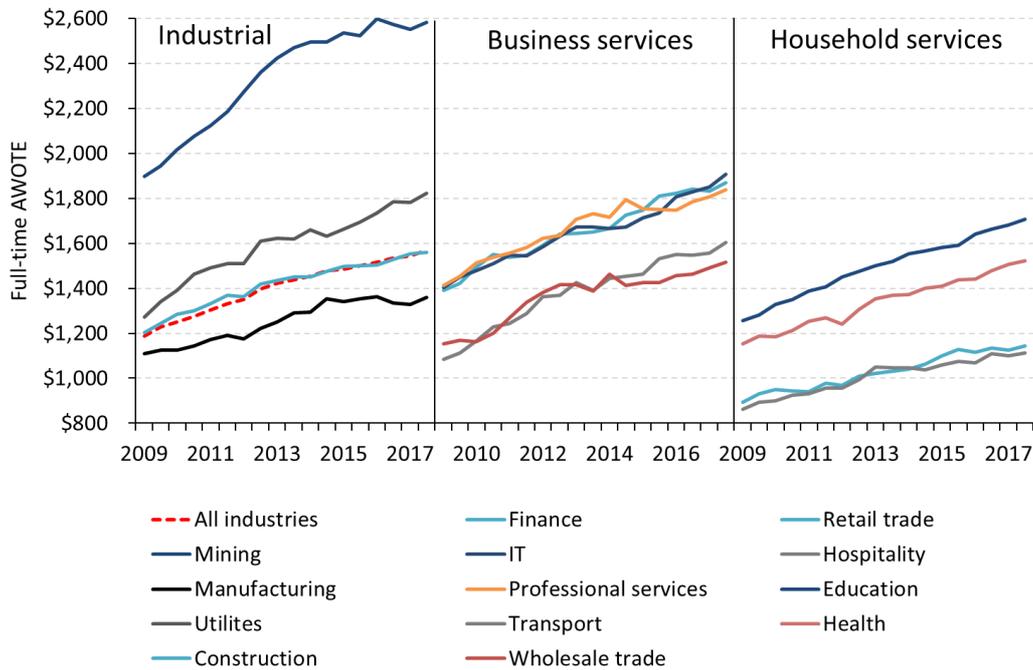
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Chart 2: Australian WPI in private sector industries, annual change, Q4 2017



AB Wage Price Index

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



*All values are in dollars. Source: ABS Average Weekly Earnings

Recent wage share trends in Australia

Australia's wage share has declined since 2008, reflecting a combination of factors including a shift in the composition of the economy towards services, a decline in the real wage rate, and a reduction in the number of hours worked. The decline in the wage share is a result of the fact that the real wage rate has fallen, and the number of hours worked has also declined. This has led to a reduction in the total wage bill, which has in turn led to a decline in the wage share of GDP.

Notwithstanding, total factor income' data for Australia shows a significant increase in the real wage rate since 2008. This is a result of the fact that the real wage rate has risen, and the number of hours worked has also increased. This has led to an increase in the total wage bill, which has in turn led to an increase in the wage share of GDP.

As a result of these changes, Australia's wage share has increased since 2008. This is a result of the fact that the real wage rate has risen, and the number of hours worked has also increased. This has led to an increase in the total wage bill, which has in turn led to an increase in the wage share of GDP. The increase in the wage share is a result of the fact that the real wage rate has risen, and the number of hours worked has also increased.

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- Total compensation of employees** This measure is based on the total compensation of employees in the private sector non-financial corporations. It includes salaries, wages, bonuses, and other benefits. The data is derived from the Australian Bureau of Statistics (ABS) Survey of Employee Earnings and Benefits. The survey is conducted annually and provides detailed information on the earnings and benefits of employees in the private sector non-financial corporations. The data is used to calculate the total compensation of employees, which is then used to estimate the gross operating surplus (gross profits) for private sector non-financial corporations.

- Gross operating surplus (gross profits) for private sector non-financial corporations** This measure is based on the gross operating surplus (gross profits) of private sector non-financial corporations. It is calculated as the total compensation of employees plus the gross operating surplus (gross profits) of private sector non-financial corporations. The data is derived from the Australian Bureau of Statistics (ABS) National Accounts. The National Accounts provide a comprehensive overview of the Australian economy, including the gross operating surplus (gross profits) of private sector non-financial corporations. The data is used to estimate the gross operating surplus (gross profits) for private sector non-financial corporations.

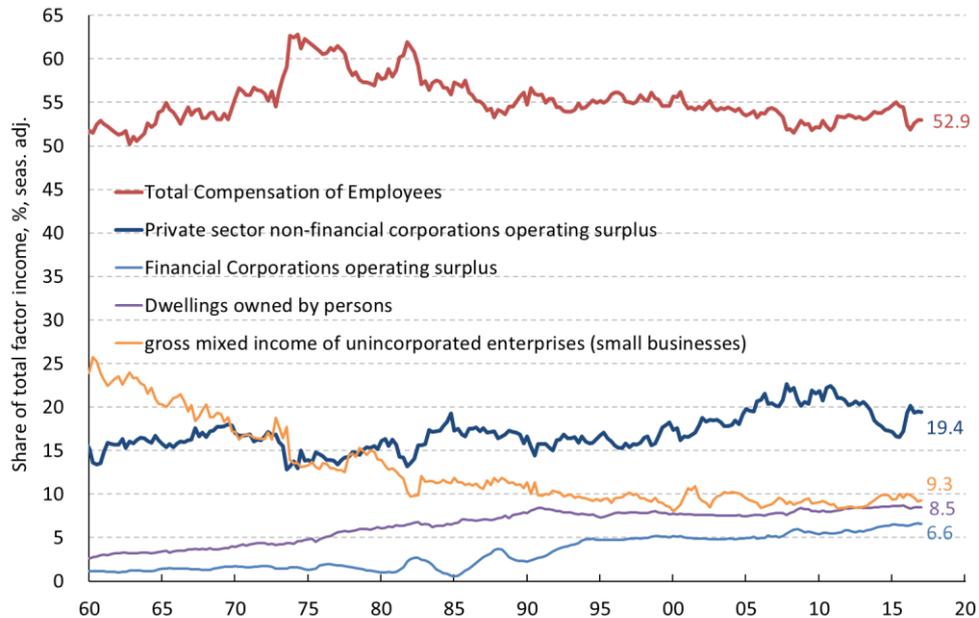
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- Gross operating surplus (gross profits) for financial corporations** This measure is based on the gross operating surplus (gross profits) of financial corporations. It is calculated as the total compensation of employees plus the gross operating surplus (gross profits) of financial corporations. The data is derived from the Australian Bureau of Statistics (ABS) National Accounts. The National Accounts provide a comprehensive overview of the Australian economy, including the gross operating surplus (gross profits) of financial corporations. The data is used to estimate the gross operating surplus (gross profits) for financial corporations.

- Income derived from dwellings owned by persons** This measure is based on the income derived from dwellings owned by persons. It is calculated as the total compensation of employees plus the income derived from dwellings owned by persons. The data is derived from the Australian Bureau of Statistics (ABS) National Accounts. The National Accounts provide a comprehensive overview of the Australian economy, including the income derived from dwellings owned by persons. The data is used to estimate the income derived from dwellings owned by persons.

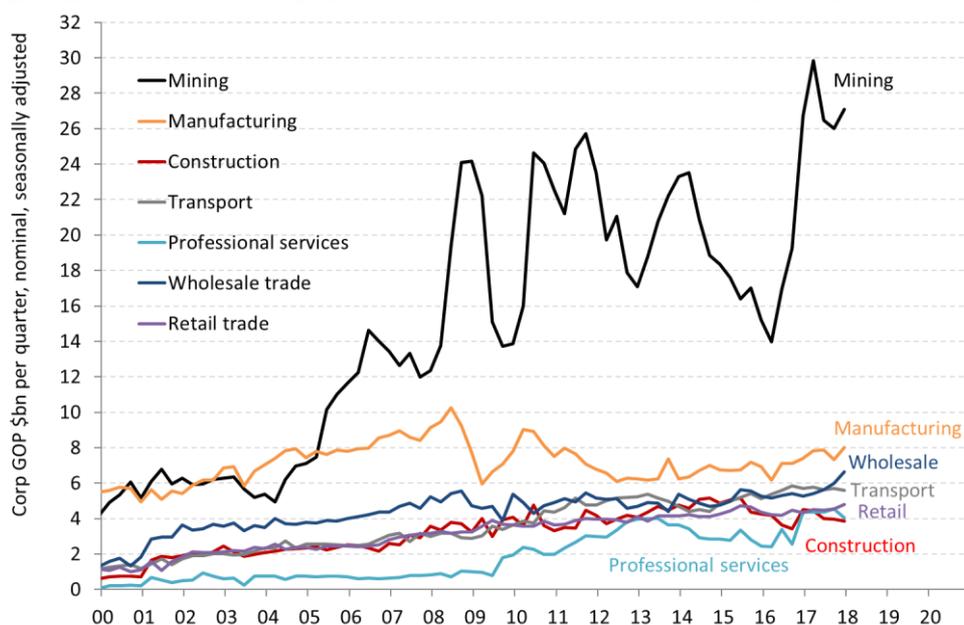
Trends in the economy are reflected in the performance of various sectors. The chart below shows the shares of nominal total factor income from 1960 to 2017.

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



Source: Australian Bureau of Statistics, National Accounts Database

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



Source: Australian Bureau of Statistics, Business Indicators Database

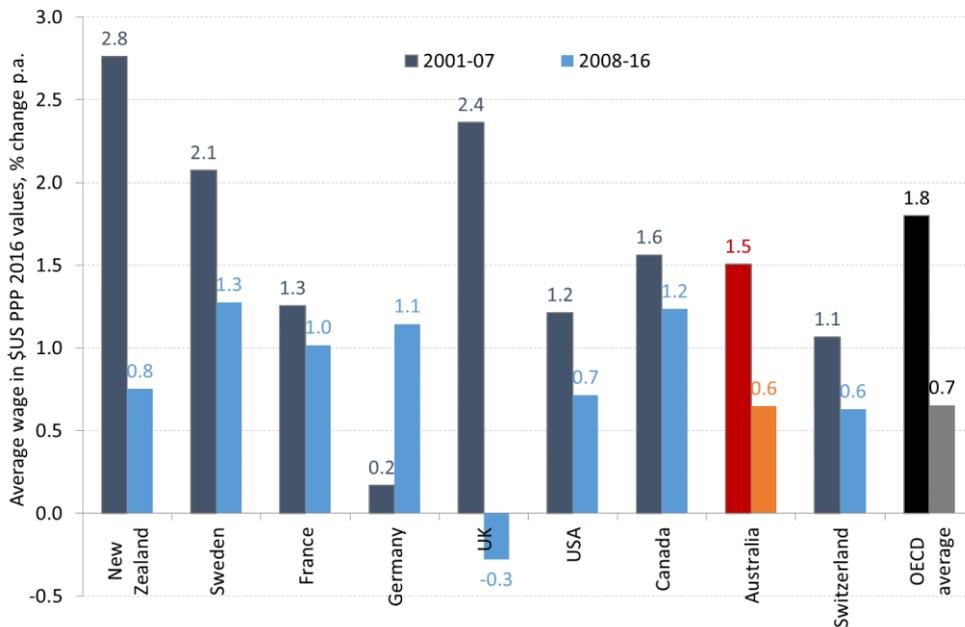
Wage growth trends in advanced economies

The OECD average annual average growth of real wages in advanced economies has fallen from 2.1% in 2001-07 to 0.7% in 2008-16. This is a significant decline, particularly for the UK which saw a negative growth of -0.3% in the 2008-16 period. The chart shows that while most countries experienced a decline in wage growth, the UK's decline was the most pronounced.

*“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”.¹*

Chart 6 shows that the OECD average annual average growth of real wages in advanced economies has fallen from 2.1% in 2001-07 to 0.7% in 2008-16. This is a significant decline, particularly for the UK which saw a negative growth of -0.3% in the 2008-16 period. The chart shows that while most countries experienced a decline in wage growth, the UK's decline was the most pronounced.

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



Source: OECD Employment Outlook 2017, Table A1.1.1. [Download the chart](#)

¹ OECD Employment Outlook 2017, Table A1.1.1.

... ECD ... *“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”*²

... ECD ... that Australia’s average ... influence of Australia’s terms of trade and currency fluctuations on this US ...

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On the same PPP basis, Australia’s minimum wage was the third highest in 2016 and in 2000, ...

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

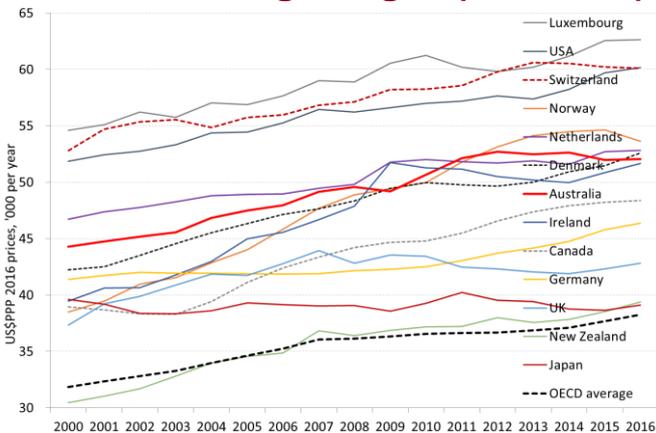
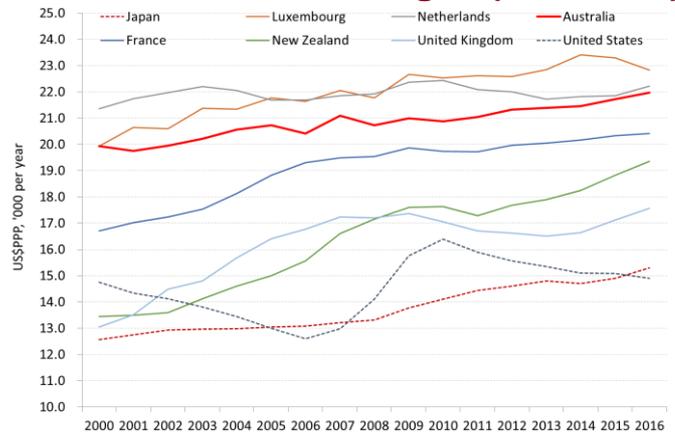


Chart 8: minimum wages (\$US, PPP)



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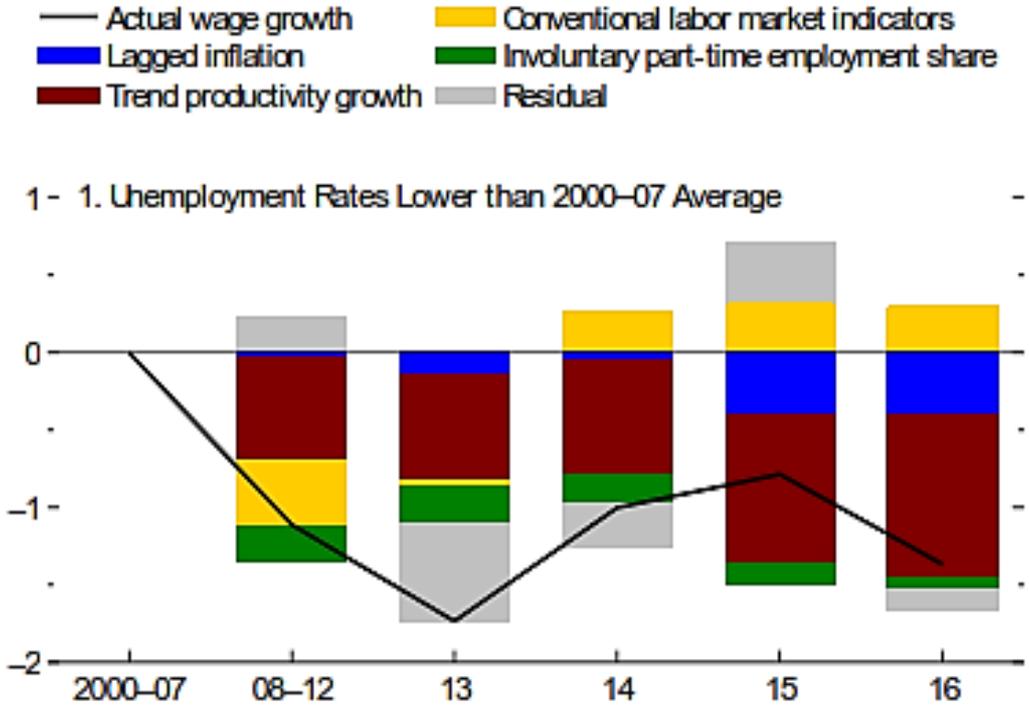
² ... *More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies*, M ...

The IMF's findings for countries with lower trend productivity growth accounts for about two-thirds of the deceleration in nominal wage growth since 2007. As such, the IMF's findings for countries with lower trend productivity growth accounts for about two-thirds of the deceleration in nominal wage growth since 2007.

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- The IMF's findings for countries with lower trend productivity growth accounts for about two-thirds of the deceleration in nominal wage growth since 2007.
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Chart 9: Decomposition of wage dynamics, 2000-2016



More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies

The demand model and the M-r model are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve. The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve. The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve.

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

The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve. The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve.

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 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 OECD RBA and Trueman model is estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve. The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve. The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve.

The estimated Phillips curve and the RBA model are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve. The RBA model and the estimated Phillips curve are estimated using quarterly data from Australia, the RBA model and the estimated Phillips curve.

⁵ Ivailo Arsov and Richard Evans 2018, “Wage Growth in Advanced Economies”, *RBA Bulletin*
⁶ Tim Toohey 2017, Is there really a problem with wages?, *Ellerston Capital Insights*

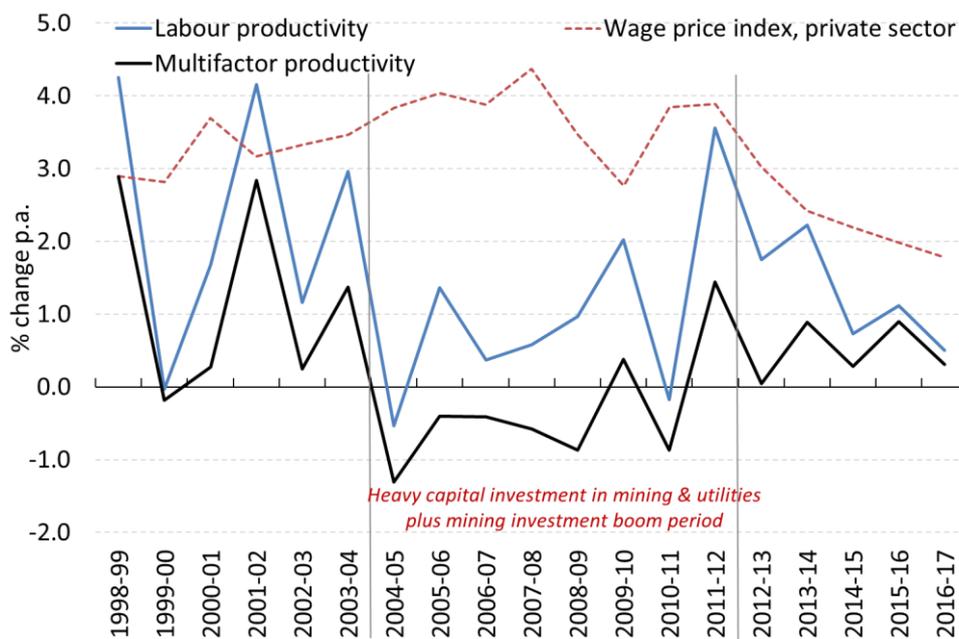
Recent trends in productivity growth and wages growth in Australia

The Australian Government's Treasury examined the drivers of Australian economic growth in a recent report. It found that the growth of the economy is driven by the growth of the labour force and the growth of productivity. Treasury notes that, over the long term (e.g. from year to year), "fluctuations across the business cycle can result in real wage growth diverging from productivity growth".

Treasury also notes that the growth of the economy is driven by the growth of the labour force and the growth of productivity. It also notes that the growth of the economy is driven by the growth of the labour force and the growth of productivity.

The Australian Bureau of Statistics (ABS) also notes that the growth of the economy is driven by the growth of the labour force and the growth of productivity. It also notes that the growth of the economy is driven by the growth of the labour force and the growth of productivity.

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



Source: ABS Wage Price Index; DIBP; ABS; Estimates of multi-factor productivity, 2016-17.

⁸ Australian Government Treasury, *National Analysis of Wages Growth*

Treasury’s analysis confirms that the period from 2004 to 2011 is a relatively unusual one in these terms. It notes that the real wage growth in Australia during this period was significantly higher than the real wage growth in other major economies. This was due to a combination of factors, including a sharp increase in the price of exports, a decline in the price of imports, and a strong increase in labour productivity.

The Treasury also notes that this period was characterized by a temporary ‘wages wedge’ that pushed real wages above the real wage growth rate. This was due to a combination of factors, including a sharp increase in the price of exports, a decline in the price of imports, and a strong increase in labour productivity. The Treasury notes that this period was unusual because it was the only time in the post-war period that real wages grew faster than labour productivity.

The Treasury also notes that this period was characterized by a temporary ‘wages wedge’ that pushed real wages above the real wage growth rate. This was due to a combination of factors, including a sharp increase in the price of exports, a decline in the price of imports, and a strong increase in labour productivity.

*“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”⁹*

The Treasury also notes that this period was characterized by a temporary ‘wages wedge’ that pushed real wages above the real wage growth rate. This was due to a combination of factors, including a sharp increase in the price of exports, a decline in the price of imports, and a strong increase in labour productivity.

“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”¹⁰

Jeff Borland also notes that this period was characterized by a temporary ‘wages wedge’ that pushed real wages above the real wage growth rate. 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”¹¹

The Treasury also notes that this period was characterized by a temporary ‘wages wedge’ that pushed real wages above the real wage growth rate. This was due to a combination of factors, including a sharp increase in the price of exports, a decline in the price of imports, and a strong increase in labour productivity.

⁹ Analysis of Wages Growth in Australia: Treasury’s Analysis of Wages Growth

¹⁰ Analysis of Wages Growth in Australia: Treasury’s Analysis of Wages Growth

¹¹ Jeff Borland, “Why is wage growth in Australia so slow?” *Labour Market Snapshot*

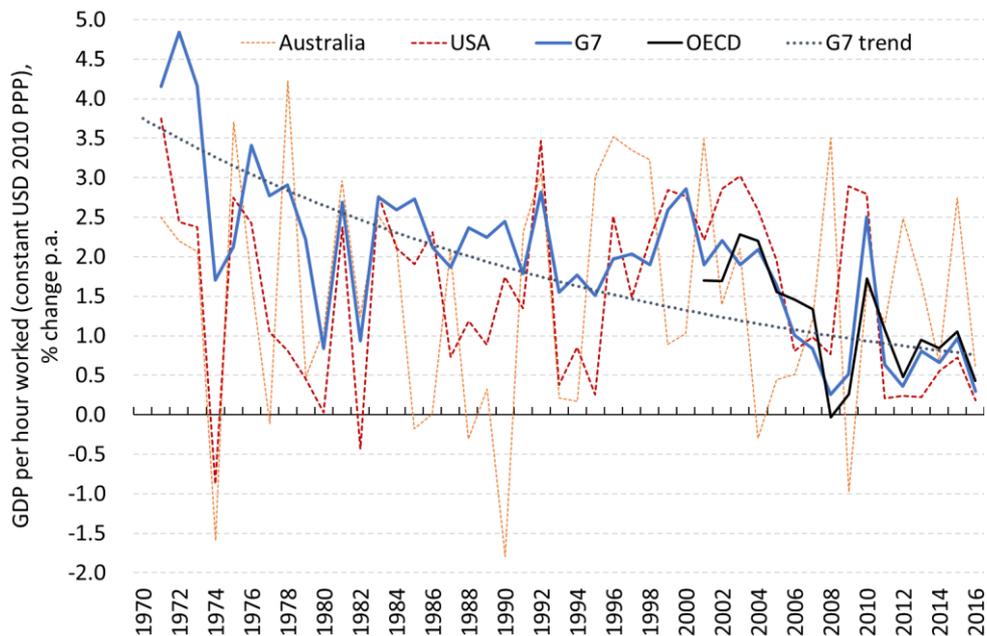
An examination of wage growth by business characteristics using the Business Longitudinal Analysis Data Environment (BLADE) suggests that higher-productivity businesses pay higher real wages and employees at these businesses have also experienced higher real wage growth. Larger businesses (measured by 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.

“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 growth in Australia has been volatile in recent years, with a sharp decline in 2016. This is in line with global trends, particularly for the G7 and OECD. The USA has shown a similar pattern of volatility, with a notable dip in 2016. The G7 trend line shows a steady decline in productivity growth over the long term, while the OECD average has remained relatively stable but lower than the G7. Australia's productivity growth has been consistently higher than the OECD average but lower than the G7 trend.

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

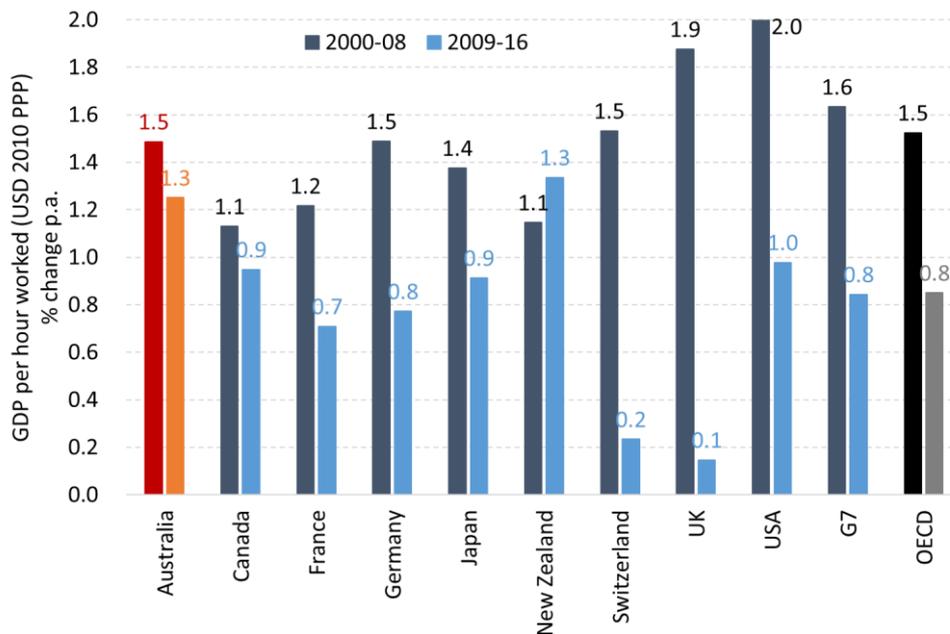


Source: OECD Productivity Database, <http://www.oecd.org/dataoecd/1/2/47622322.pdf>

Australia's productivity growth has been consistently higher than the OECD average but lower than the G7 trend. The USA has shown a similar pattern of volatility, with a notable dip in 2016. The G7 trend line shows a steady decline in productivity growth over the long term, while the OECD average has remained relatively stable but lower than the G7.

Australia's productivity growth has been slower than other OECD countries. Growth in Australia's GDP per hour worked slowed from an annual average of 1.5% in 2000-08 to 1.3% in 2009-16. This is a significant decline, particularly when compared to the USA which grew by 2.0% in both periods. The UK also shows a sharp decline from 1.9% to 0.1%. The G7 average fell from 1.6% to 0.8%, and the OECD average from 1.5% to 0.8%. New Zealand shows a notable increase from 1.1% to 1.3%.

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



Source: OECD Productivity Database, <http://www.oecd.org/dataoecd/1/2/44642322.xls>

Spare labour market capacity in Australia

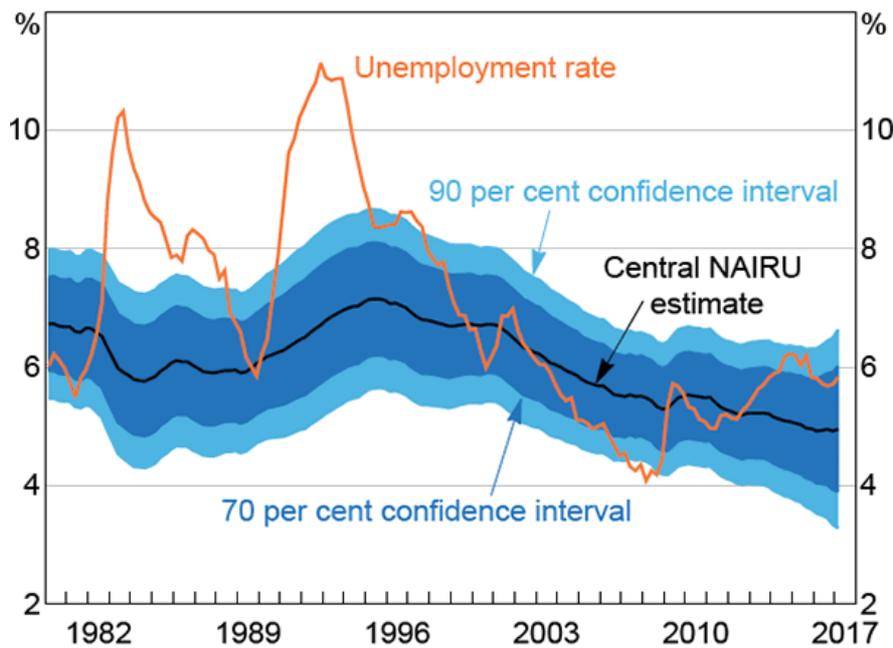
The Reserve Bank of Australia (RBA) has identified that when the observed unemployment rate is below the NAIRU, conditions in the labour market are tight and there will be upward pressure on wage growth and inflation. When the observed unemployment rate is above the NAIRU, there is spare capacity in the labour market and downward pressure on wage growth and inflation. The difference between the observed unemployment rate and the NAIRU is referred to as the 'labour market slack'.

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.¹²

The NAIRU is the rate of unemployment that is consistent with long-run equilibrium (and is therefore related). Research by the RBA suggests that Australia’s NAIRU has been relatively stable over the long run, but has fallen since the GFC. The RBA and Treasury have both estimated the NAIRU using different methods (chart 13). Prior to the GFC, Australia’s NAIRU was around 6.5 per cent, but fell to around 4.5 per cent by 2017. The unemployment rate has fluctuated around the NAIRU, but has fallen below it since the GFC, indicating that the economy is in a state of ‘below-equilibrium’ unemployment.

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



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

Unemployment remains the key observable indicator of labour market capacity (or ‘slack’), but it is not the only indicator. The NAIRU is a theoretical concept that represents the level of unemployment that is consistent with long-run equilibrium. The RBA and Treasury have both estimated the NAIRU using different methods. The unemployment rate has fluctuated around the NAIRU, but has fallen below it since the GFC, indicating that the economy is in a state of ‘below-equilibrium’ unemployment.

The difference between the unemployment rate and the NAIRU is the ‘unemployment gap’. A positive gap indicates that the economy is in a state of ‘above-equilibrium’ unemployment, while a negative gap indicates that the economy is in a state of ‘below-equilibrium’ unemployment.

¹² Tom Cusbert, 2017, “Estimating the NAIRU and the Unemployment Gap”, *RBA Bulletin*

¹³ Tom Cusbert, 2017, “Estimating the NAIRU and the Unemployment Gap”, *RBA Bulletin*

Analysis of Wages Growth

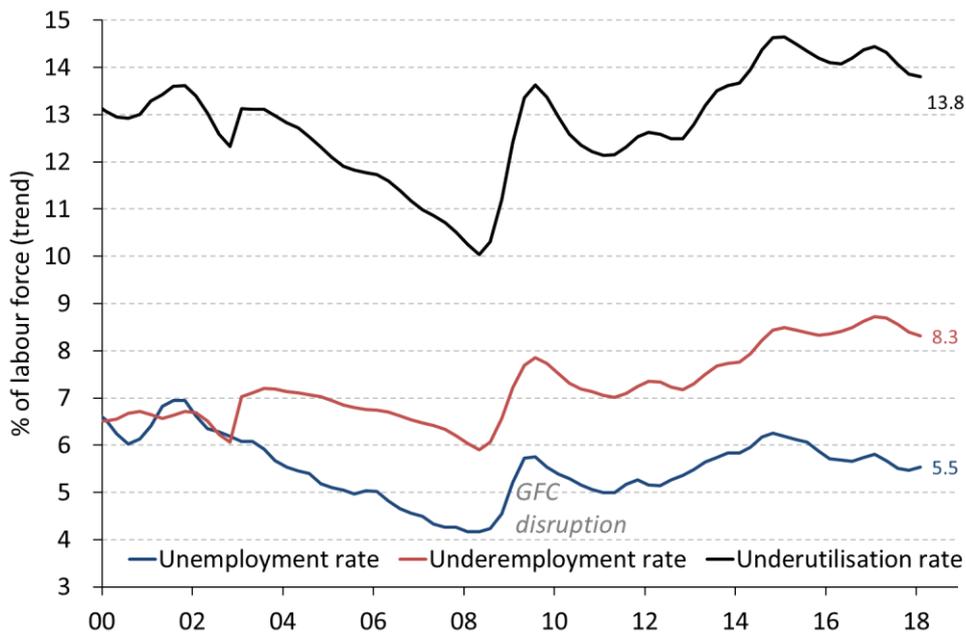
or less) are willing and able to work more hours. These workers are ‘underemployed’. They are not taking active steps to secure those additional hours.”¹⁴

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.”¹⁵

Internationally, the IMF found underemployment (or ‘involuntary part-time employment’) to have increased in many countries since the GFC. In Australia, the underemployment rate rose from 6.5% in 2000 to 8.3% in 2018.

The RBA notes that the rise in underemployment since the GFC is largely due to a decline in full-time employment. The RBA notes that the underemployment rate has risen from 6.5% in 2000 to 8.3% in 2018.

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



Source: RBA, Labour force Australia, Quarterly detail

¹⁴ RBA, *The Labour Market and Monetary Policy*, RBA, 2017, p. 10.

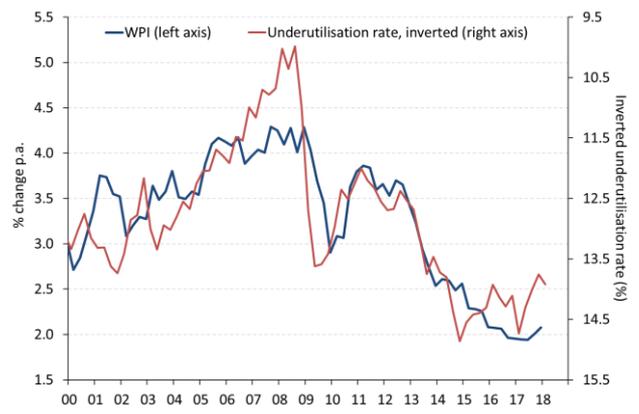
¹⁵ James Bishop and Natasha Cassidy March 2017, “Insights into Low Wage Growth in Australia”, *RBA Bulletin*, March 2017, p. 10.

More recent trends in underemployment and unemployment could also account for some of the wage growth slowdown. The RBA notes that the underemployment rate has risen from 6.5% in 2008 to 7.5% in 2018, while the unemployment rate has risen from 4.5% to 6.5% over the same period. The RBA also notes that the underemployment rate has risen from 6.5% in 2008 to 7.5% in 2018, while the unemployment rate has risen from 4.5% to 6.5% over the same period. The RBA also notes that the underemployment rate has risen from 6.5% in 2008 to 7.5% in 2018, while the unemployment rate has risen from 4.5% to 6.5% over the same period.

“the divergent trends in underemployment and unemployment could account somewhat for wage growth slowing by more than what is suggested by the unemployment gap. As a result, trends in the underemployment rate and other measures of underutilisation will continue to be monitored.”¹⁶

Chart 15: Unemployment and wages 2000-2018

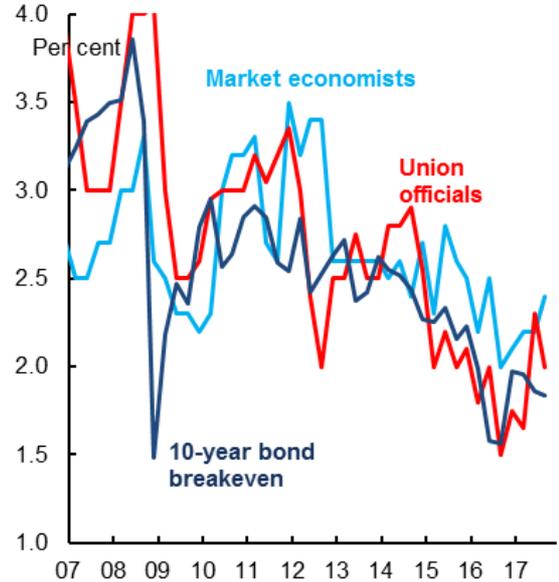
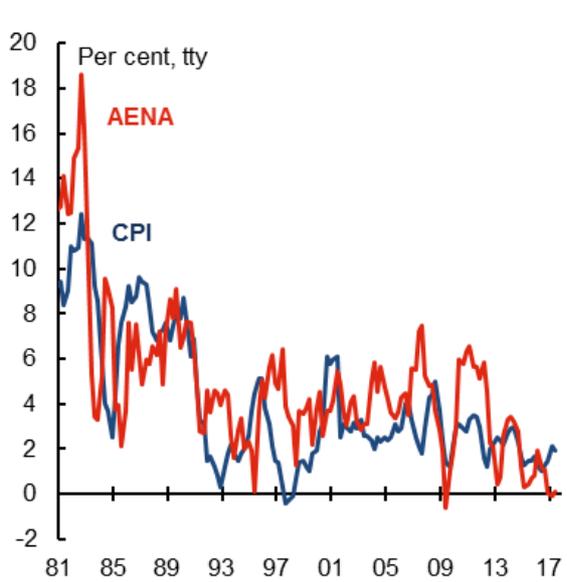
Chart 16: Underutilisation and wages 2000-2018



Source: Australian Bureau of Statistics, Wage Price Index, Department of Employment and Workforce, Labour force Australia, Quarterly detail

¹⁶ James Bishop and Natasha Cassidy March 2017, “Insights into Low Wage Growth in Australia”, *RBA Bulletin*

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



© Australian Economic Review, November 2017. AENA and CPI data from the Australian Bureau of Statistics. Market economists, Union officials, and 10-year bond breakeven data from the Reserve Bank of Australia.

Other factors of relevance to recent wage trends in Australia

Three factors are highlighted as relevant to recent wage trends in Australia: technological innovation, the rise of robots, and the shift in employment towards 'non-routine' jobs. These factors are argued to have contributed to the stagnation of wage growth over the long term.

- technological innovation
- the rise of robots
- growing share of employment in 'non-routine' jobs that are less repetitive and less manual

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”

The 'digital revolution' or 'Fourth Industrial Revolution' is argued to be a key driver of these trends. As noted by Tim Toohy, 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”.¹⁸

As the RBA notes, the RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market. The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market.

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“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.”¹⁹

The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market. The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market. The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market.

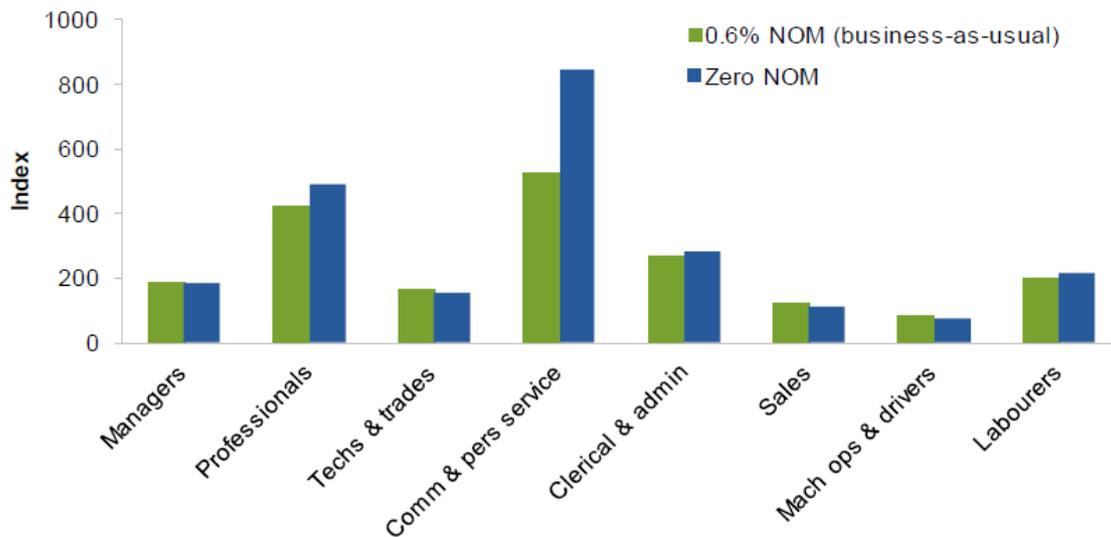
The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market. The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market. The RBA’s perception of the impact of technological disruption on the labour market is based on the RBA’s perception of the impact of technological disruption on the labour market.

“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.”²²

¹⁸ T. T. “The Impact of Technological Disruption on the Labour Market: A Review of the Evidence”, *Ellerston Capital Insights*, N. 2018.
¹⁹ RBA speech to the Anika Foundation, 2018.
²⁰ H. H. “More Slack than Meets the Eye? Recent Wage Dynamics in Advanced Economies”, M. 2018.
²¹ C. C. “Migrant Intake into Australia”, R. 2018.
²² A. A. “Analysis of Wages Growth”, N. 2018.

Trends in the Australian economy are being shaped by a number of key factors, including demographic change, technological innovation and globalisation. This research examines the impact of net overseas migration (NOM) on the Australian economy, focusing on projected real wages by occupation in 2060.

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



Source: Ai Group, 'Migrant Intake into Australia: A Review of the Evidence', 2014.

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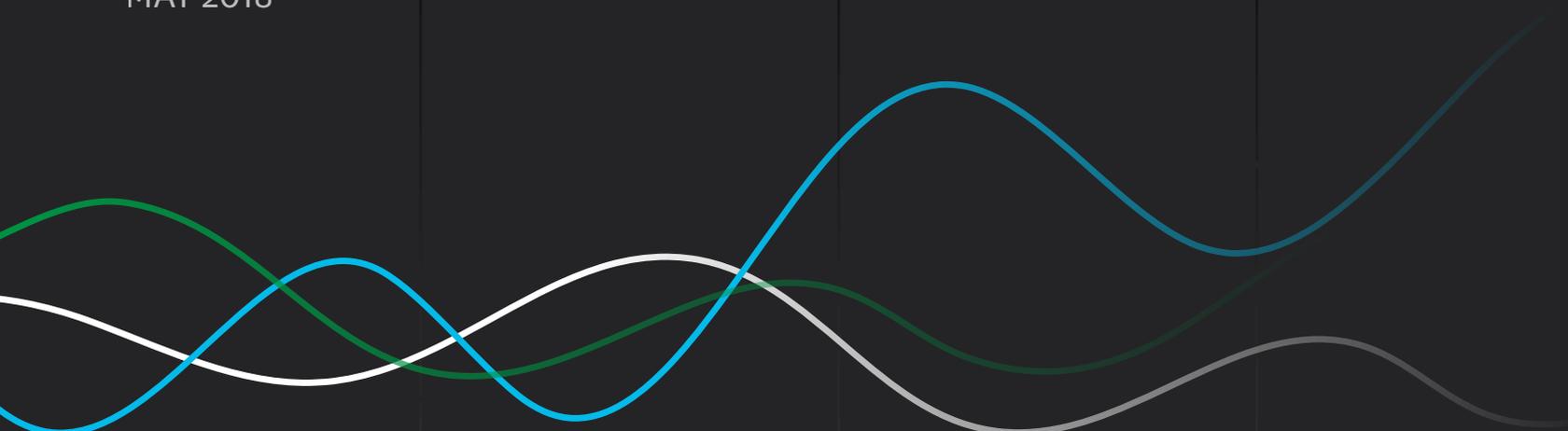
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Do company tax cuts boost jobs, wages and investment?

Evidence from the 2015 Australian tax cuts for businesses with turnover below \$2 million

MAY 2018



This paper, including the insights and analysis contained within it, was prepared by [AlphaBeta](#) with the support of [Xero](#), through Xero Small Business Insights data, for the purpose of informing and developing policies to promote small business in Australia. This report contains general information only and should not be taken as taxation, financial, investment or legal advice. Xero recommends that readers always obtain specific and detailed professional advice about any business decisions.

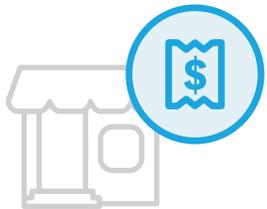
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The authors would like to thank Dr Jim Minifie, Professor Henry Ergas and Professor Richard Holden for comments on a draft of the report.

What is the impact of company tax cuts?



in 2015 Australia cut tax rates from **30%** to **28.5%** for companies under **\$2 million** turnover

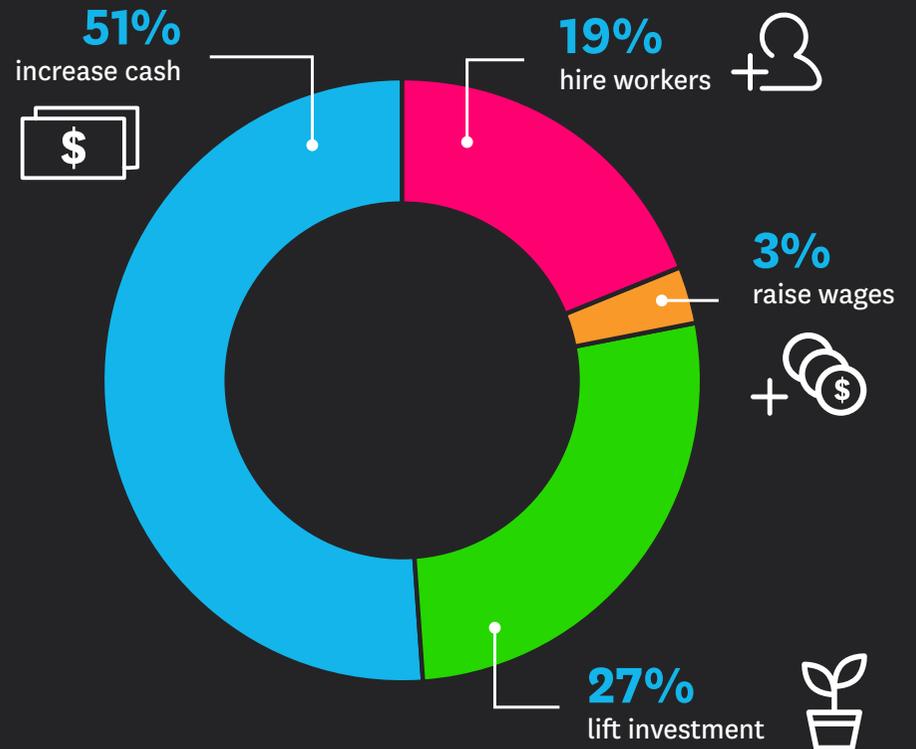


The average company at the \$2 million threshold received a **\$2,940 tax cut**



Xero
Small Business Insights provided data from tens of thousands of small businesses

HOW WAS THE TAX USED?





Xero is a global small business platform with over **half a million** subscribers in Australia who use it to conduct their bookkeeping, accounting, invoicing, taxes and payroll.

Executive Summary

What's the impact of company tax cuts on Australian businesses? Do companies hire more workers, increase wages and boost investment after tax cuts? Despite the importance of these questions, economists and policy-makers often struggle to answer them precisely, in part because of a lack of quality firm-level data. Using anonymised data from Xero, this report answers these questions by directly observing how Australian businesses responded to recent company tax cuts.

From 1 July 2015, the tax rate for Australian businesses with a turnover of less than \$2 million was lowered from 30 percent to 28.5 percent. At the time, over 90 percent of incorporated businesses fell under that turnover threshold. This report investigates whether the businesses that received this tax cut went on to hire additional workers, pay higher wages or increase business investment.

Xero Small Business Insights: a remarkable new lens on the economy

This report uses data from Xero Small Business Insights. Xero is a global small business platform with over half a million subscribers in Australia who use it to conduct their bookkeeping, accounting, invoicing, taxes and payroll. Xero Small Business Insights provides a snapshot of the sector's health based on anonymised, aggregated data drawn from hundreds of thousands of Xero subscribers. The mission of Xero Small Business Insights is to support small businesses, including by delivering analysis that informs small business policy (see section 4 for further detail on the data used in this paper).

Xero's data enables us to analyse whether firms just below the \$2 million turnover threshold that received the 2015 tax cut increased employment, wages and investment more than firms in a control group just above the threshold that did not receive a tax cut.

We use a regression discontinuity design that exploits the fact that the turnover threshold creates two quasi-random groups of similar firms. This allows us to estimate the causal effect of the tax cut by asking whether firms just below the turnover threshold that received the tax cut increased employment, wages and investment more than firms in a control group just above the threshold that did not receive a tax cut. As a further test, we also asked whether incorporated firms that received the tax relief increased employment, wages and investment more than similar unincorporated entities, who were ineligible for the tax cut (see section 5 for further detail on the methodology).

Executive Summary

JOBS: Firms that received tax cuts hired more workers

Firms just below the threshold (turnover of \$1.5m - \$2.0 million) that received the 2015 tax cuts increased their employment by 2.6 percent in the year that the cuts were introduced, while firms that did not receive the tax cut because their turnover was just above the threshold (\$2.0 - \$2.5 million) increased their employment by 2.1 percent (table 1). While this difference is modest, it is statistically significant (table 2).

Further evidence to support the employment impact of the 2015 tax cut comes from comparing incorporated companies with unincorporated entities (such as partnerships, sole traders and non-profits) that were ineligible for the tax cut. Incorporated firms below the \$2 million turnover threshold increased their employment by more than unincorporated firms of a similar size, but incorporated firms above the \$2 million threshold did not significantly increase employment more than similar unincorporated firms (see section 5, table 4).

WAGES: Little impact on wages seen at businesses receiving tax cuts

The 2015 tax cuts do not appear to have had a distinct impact on wages. Firms just below the threshold (turnover of \$1.5m - \$2.0 million) increased their wages per employee by 4.88 percent in the year that the tax cuts were introduced, while firms that did

not receive the tax cut because their turnover was just above the threshold (\$2.0 - 2.5 million) increased their wages per employee by 4.84 percent (table 1).¹ This difference is very small and not statistically significant across most of our specifications (table 2).²

These results are not surprising. Tax cuts only affect wages indirectly through labour market adjustments, which may take more than two years to mature.³ Further, because these tax cuts only applied to small businesses, the effect on the broader labour market is likely to have been relatively small and to have affected all firms rather than just those that received the tax cut (see discussion in section 6).⁴

INVESTMENT: Businesses receiving tax cuts invested slightly more

There is some evidence that the 2015 tax cuts encouraged firms to increase investment. Firms just below the threshold (turnover of \$1.5m - \$2.0 million) increased their investment by 2.45 percent in the year that the tax cuts were introduced while firms that did not receive the tax cut because their turnover was just above the threshold (\$2.0 - 2.5 million) increased their investment by 1.53 percent (table 1). This difference is statistically significant across our parametric specifications (table 2). There is also some evidence of significant positive effect on investment in the second year after the tax cut was introduced (table 3).

These results are broadly in line with our expectations. Firms that receive a tax cut may experience an increase in their post-tax capital returns, which could cause them to increase their investment. It is not surprising that, although we observe an effect of this nature, the magnitude of the increase in investment is modest because small businesses tend to be domestically owned. The impact of the tax cut on investment returns is larger for foreign businesses which do not benefit from dividend imputation.

AWARENESS: Many firms are unaware their taxes were cut

The effect of company tax cuts on employment, wages and investment may be reduced by low awareness of the tax cuts among small businesses. A survey to accompany this analysis received responses from 502 small businesses of which 337 (67 percent) were eligible for a small business tax cut. However only 115 firms (23 percent) said they received a tax cut in the last two years and 169 firms (34 percent) said that they do not know whether they received a tax cut. Low awareness of the tax cuts could have reduced their impact on employment, wages and investment.

¹ For both these groups, the reported wage increase was higher than the national average. Firms across the Xero sample tend to pay higher wage increases than the broader economy. This may be a selection feature of the sample, i.e. firms that use cloud based accounting software tend to be faster-growing and more successful firms.

² There is also no significant positive effect on wages in the second year after the tax cut is introduced (table 3) and no significant difference between the wages growth incorporated companies that received the tax cut and unincorporated entities that did not (table 4).

³ See, for example, Freebairn 2015.

⁴ For example, the extra demand for employees from small businesses is not likely to have substantially reduced the supply of workers, and thereby driven up the wages all businesses are prepared to pay to hire new employees. Also because the general equilibrium effect of the tax cuts should affect all firms, we are unlikely to be able to observe a differential between firms that received the tax cut and those that did not.

Executive Summary

CONCLUSIONS

The 2015 tax cut appears to have had a small effect on employment and investment and an insignificant effect on wages in the companies that received tax relief. The average tax cut for the businesses in our sample just below the turnover threshold was \$2,940. Compared with businesses just above the turnover threshold, in the 2016 income year, businesses just below the threshold hired more people equivalent to \$560 additional wages for new workers (19 percent of the tax cut), marginally increased their wages per worker by \$75 (3 percent) and reported \$800 greater investment (27 percent). The remaining \$1,500 (51 percent) on average went to other purposes including increased post-tax profits in that year.

The results of this study should be interpreted carefully. First, the statistical significance of the results varies. We present a range of statistical tests in this paper and observe consistently positive effects of the tax cut on employment, but the effects on wages and investment are only statistically significant in some specifications.

Second, this analysis relates only to the short-term effects of company tax cuts. We are studying how the companies used the additional benefit in the two years after the tax cut was introduced. It is possible that many of the hypothesised effects of tax cuts, especially those that require market adjustments, may take time to develop.

Third, we are only analysing small businesses and our results may not be generalisable to larger businesses. One obvious difference is that the share of foreign ownership is higher among larger businesses. The ultimate impact of company tax cuts on domestic shareholders is mitigated by dividend imputation, so the effect of tax cuts may be more significant for larger businesses if their share of foreign ownership is higher. In 2016, the Australian government introduced a further reduction in the corporate tax rate to 27.5 percent for businesses with turnover below \$10 million. As further time passes, it will be possible to examine the impact of this tax cut using similar approaches.

The 2015 tax cut appears to have had a **small effect** on **employment** and **investment** and an **insignificant effect** on **wages** in the companies that received tax relief.

1. Introduction

Proposals to cut the corporate tax rate in Australia have generated considerable debate about the effect of corporate taxes on investment, employment and wages.

In this paper, we directly observe how Australian businesses responded to recent company tax cuts. From 1 July 2015, the tax rate for Australian businesses with a turnover of less than \$2 million was lowered from 30 percent to 28.5 percent. This paper investigates whether the businesses that received this tax cut responded by hiring additional workers, paying workers higher wages or increasing their investment.

To ensure we are robustly capturing the effect of the tax cut, we use a quasi-experimental research design which takes advantage of the \$2 million turnover threshold in the 2015 tax cut. We ask whether firms just below the turnover threshold that received the tax cut increased employment, wages and investment more than firms in a control group just above the threshold who did not receive a tax cut. In a second specification, we ask whether incorporated firms that received the tax relief increased employment, wages and investment more than similar unincorporated entities that did not receive the tax cut.

We are privileged to use a remarkable new source of data to analyse this question. Xero is one of Australia's largest cloud-based platforms for small business. Small businesses use Xero to manage all aspects of their finances. Xero Small Business Insights has anonymised, aggregated data on the cash flow, payments, employment, wages and tax payments of hundreds of thousands of Australian subscribers.

2. Company taxes and firm behavior

The question of who benefits from company tax cuts is complicated by significant uncertainty about whether it is shareholders or workers who ultimately bear the impact of corporate taxes. The fact that corporate tax payments fall in the first instance on corporations does not mean that corporations (or their owners) bear their full burden. In a competitive market, the forces of demand and supply for labour and capital will determine the extent to which workers also carry some of the weight of corporate taxes in the form of lower employment and lower wages. There is a large literature examining these questions (see for example, Auerbach 2006; Clausing 2013; Cronin et al. 2013; Gravelle 2013).

Some early theoretical studies of corporate taxes concluded that business owners, rather than workers, capture most of the benefits of company tax cuts (e.g. Harberger 1962). These models often assumed that businesses are immobile and have few options to respond to higher taxation. Under these assumptions, business owners bear the brunt of corporate tax and are the principal beneficiaries of lower rates (Freebairn 2015).

More sophisticated models allow for the possibility that the impact of company tax cuts could fall on workers as well as business owners. These models assume that companies can respond to changing tax rates by moving across borders and

shifting between asset classes.⁵ If the effect of higher corporate taxes is to make companies invest less, then the demand for workers may be reduced with consequent impacts for workers and their wages. These models concluded that, in the long run, workers capture a large share of the benefits of company tax cuts (Henry et al. 2009; Mirrlees et al. 2011).

In Australia, macro-economic models incorporating these effects have been used to estimate the potential impact of company tax cuts. For example, modelling by the Australian Treasury (Kouparitsas et al. (2016)) found that a corporate tax cut would increase investment and labour productivity, with benefits ultimately flowing through to workers. The study concluded that employment would increase by between 0.1 and 0.4 percent if the company tax rate were to be reduced to 25 percent. Another Treasury study using a similar macro-economic model (Rimmer, Smith and Wende (2014)) estimated that about one-third of the benefit of a cut in the corporate tax rate would accrue to business owners and around two-thirds would accrue to workers through higher wages. Dixon and Nassios (2016) found that company tax cuts would stimulate foreign investment in Australia by increasing returns to capital for foreign investors who do not benefit from dividend imputation, and thereby drive up wages over time. However, they point out that the benefits to Australian workers may be outweighed by the government revenue lost to foreigners.

These macro-economic modelling exercises usefully illuminate some of the theoretical channels through which tax cuts may affect the economy, but our practical understanding of those channels can be complemented by observing how real firms responded to actual tax changes. In practice there have been few empirical studies because of the absence of quality firm-level data, the small number of relevant tax reforms to study, and the daunting challenge to establish what wages and investment would have been in the absence of tax reform.⁶

This study contributes to the evidence on corporate taxes by analysing the effect of the 2015 Australian small business tax cut. We are able to use a rich new source of firm-level data and apply it to a quasi-experimental design.

⁵ As we discuss in Section 6 some of these effects may have different impacts on small and large businesses.

⁶ Leigh (2018) analysed a sample of around 1000 large firms and found that firms that paid less tax tend to create fewer jobs.

3. 2015 Australian corporate tax cut

The Australian government announced in the 2015-16 Budget that it would reduce the company tax rate for companies that are small business entities from 30 percent to 28.5 percent. A small business was defined as one with an aggregated turnover of less than \$2 million in the income year commencing on or after 1 July 2015.

At the time, over 90 percent of incorporated businesses (over 780,000 out of a total of 850,000 incorporated businesses) fell under the \$2 million turnover threshold and could potentially have benefited from this measure.⁷

The tax cut received support from all major parties and aimed to increase investment, employment and wages. The legislation stated that providing “small businesses with a reduced rate of company tax will permit them to retain more earnings for investment. Investment is important as it leads to existing output being produced at a lower cost (capital deepening) and new and improved ways of doing business (innovation), which improves the amount of output produced for each unit of input, including labour (productivity). As a result, higher investment can lead to higher employment and wages over time.”⁸

Several features of the tax cuts and related policy changes are relevant to this study. First, the reduced tax rates apply only to businesses below a turnover threshold of \$2 million. This

threshold is key to our identification strategy as subsequently outlined and described more formally in section 5. Second, the tax cuts only apply to incorporated small businesses and do not apply to unincorporated entities such as partnerships, sole proprietorships and non-profit organisations. We use this distinction as a robustness check by comparing incorporated and unincorporated businesses during the introduction of the tax cut.⁹ Third, the scope of the tax cut was subsequently limited on 18 October 2017 such that only corporate entities who meet the aggregated turnover threshold and have no more than 80 percent passive income will be eligible for the lower corporate tax rate. This limitation only came into effect from the 2017-18 income year, so it is not directly relevant to the period we are analysing.¹⁰

In 2016, the Australian government introduced a further reduction in the corporate tax rate to 27.5 percent for businesses with turnover below \$10 million. As further time passes, it will be possible to examine the impact of this tax cut using similar approaches to the one in this study.

⁷ Tax Laws Amendment (Small Business Measures No. 1) Bill 2015, Explanatory memorandum

⁸ Tax Laws Amendment (Small Business Measures No. 1) Bill 2015

⁹ This difference between incorporated and unincorporated small businesses was mitigated in part by the introduction of a tax discount for unincorporated small businesses, although the effect of this measure was capped at \$1,000 per small business owner.

¹⁰ Treasury Laws Amendment (Enterprise Tax Plan Base Rate Entities) Bill 2017.

4. Xero Small Business Insights

The main source of data for this study comes from Xero Small Business Insights. Xero Small Business Insights publishes anonymised, aggregated data with the goal of helping businesses owners and policy makers make informed decisions.

Businesses use Xero software to manage all aspects of their financial and accounting needs. Xero therefore has up-to-date and accurate information on firm turnover (including revenue from active and passive sources), employees, wages paid to each employee, dividends, cash on hand, taxation paid, industry (ANZSIC code) and incorporation status.

An important variable is the number of employees in each firm, which we use to infer the impact of the tax cut on firm's propensity to hire new workers. Xero records the number of workers paid by each firm in each month and the status of those workers (full time, part time and casual employees). In this study we analyse the change in the number of full time and part time employees, although the results are robust to considering only full time employees, paid over the financial years 2015/16 and 2016/17.

Xero also records employee wage information, including both their stated salary and their actual monthly payments, which may vary based on overtime, bonuses and other factors. We analyse change in the actual payments made to workers over the financial years 2015/16 and 2016/17. To analyse investment, we use

information from the firms' fixed assets register. We observe the change in the value of the register over the financial years 2015/16 and 2016/17.

To create the most reliable sample for this analysis, we put a number of restrictions on it. The final sample for this report is 69,076 entities.

We complemented this data from the Xero platform with a PureProfile survey. The survey was conducted by email in March 2018 with a response rate of 33 per cent (502 responses). The survey asked small businesses about their awareness of the small business tax cut and whether the tax cut would affect their employment, investment or dividend policies.

5. Results

Summary statistics

Table 1 presents summary statistics for the firms in the Xero sample which meet the eligibility criteria. Column A presents information for all firms in the sample with turnover of less than \$10 million. Column B presents information for firms just under the threshold which received the tax cut (\$1.5-\$2.0 million turnover). Column C presents information for firms that are just above the threshold and did not receive the tax cut (\$2.0-2.5 million turnover).

The cohort just below the threshold increased employment by 2.6 percent while those that did not receive the tax cut increased employment by 2.1 percent. Firms that received the tax cut increased wages by 4.88 percent while those that did not receive the tax cut increased wages by 4.84 percent. Firms that received the tax cut increased investment by 2.45 percent while those that did not receive the tax cut increased employment by 1.53 percent.

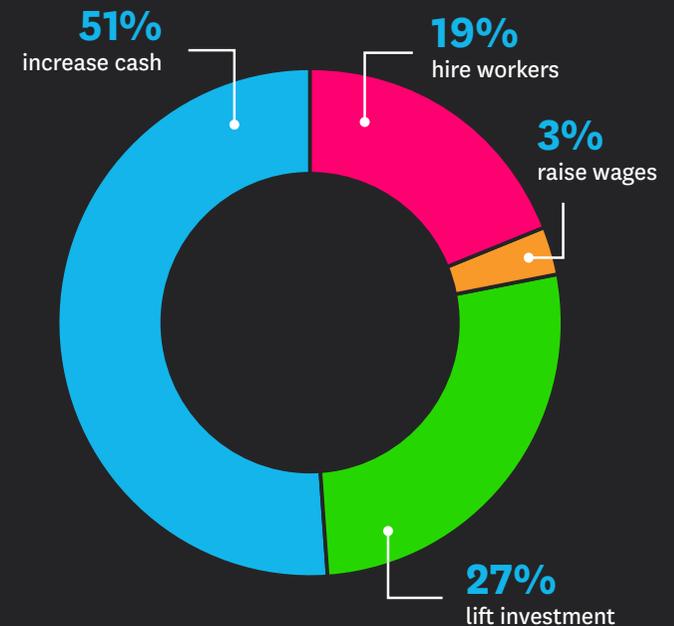
The magnitude of these differences is small. At the average wage of employees in firms near the threshold, the differential increase in employment equates to an additional \$562 through the year in additional expenditure on new employees. The average differential increase in wages per employee equates to \$75 through the year in additional wages. The average differential increase in investment equates to \$804 additional investment through the year. The average tax payable reduction for firms that received the tax cut at the threshold is \$2,940 which implies that, on average, around \$1,500 per firm was not used for employment, wage increases or investment.

FIGURE 1: How did small businesses use the tax cut?

In 2015 corporate taxes were cut from **30%** to **28.5%** for Australian companies with turnover below **\$2 million.**

The tax cut delivered an average benefit of around **\$2,940** for firms close to the threshold.

By comparing the firms just below the threshold to those just above, we observe how the tax cut affected the firms that received it.



Results

Statistical estimates

However, comparing firms above and below the threshold may not be a valid test of the impact of the tax cut because the allocation of firms into these two groups is not random. To identify the causal effects of these tax cuts we use a regression discontinuity design which exploits the quasi-random variation in employment, wages and investment around the thresholds.

$$t_i = \begin{cases} t_i(0) & \text{if } X_i > c \\ t_i(1) & \text{if } X_i \leq c \end{cases}$$

Where X_i is firm turnover, c is the turnover threshold, $t_i(0)$ denotes the normal tax rate and $t_i(1)$ the reduced tax rate. Hence, the tax reduction creates a sharp discontinuity in the tax rate as a function of the firm's turnover. This feature of the policy allows us to identify and estimate the effect of the tax cuts by employing a sharp regression discontinuity design.

Our approach can be formalised using the potential outcomes framework introduced by Rubin (1974). The firms in the Xero sample are assigned to two different groups. The binary variable $D_i \in \{0,1\}$ describes the treatment status of firm i . Let $D_i = 0$ if the firm's turnover is higher than the threshold $X_i > c$. In this case the firm is assigned to the control group and is subject to the normal tax rate $t_i(0)$. Let $D_i = 1$ if the firm's turnover is lower than the threshold $X_i \leq c$ in which case the firm is considered as treated to the reduced tax rate $t_i(1)$.

Our estimation strategy uses both non-parametric and parametric methods. The parametric approach is conventional and involves estimating the equation

$$y_i = \alpha + \beta D_i + \gamma_1 X_i + \gamma_2 (X_i * D_i) + \varepsilon_i$$

where y_{it} is an outcome variable for firm i . We also implement a nonparametric regression discontinuity design (Lee and Lemieux, 2010). The nonparametric approach fits local polynomial regression functions either side of the threshold and estimates the treatment effect as the jump that occurs at the threshold (see figure 2). Given that the regression discontinuity design tends to rely on a small sample size, there is a trade-off between the efficiency and precision of the estimates. We use two sample windows with a range of \$50,000 and \$100,000.

Estimates of the treatment effect are provided in table 2. The upper panel presents results from the parametric approach. We find evidence that employment growth, wages growth and investment growth in the first year of the tax cut (financial year 2016) are significantly higher in the treatment group (which received the tax cut) relative to the control group (which did not receive a tax cut). The lower panel presents results from the non-parametric approach. The coefficients on employment suggest a statistically significant impact of the tax cut on employment. The coefficients on wages and investment are not statistically significant at established levels.

Perhaps the effect of the tax cut on employment, wages and investment grows over time as suggested in much of the theoretical literature. To begin to investigate this question, table 3 presents parametric and non-parametric estimates of

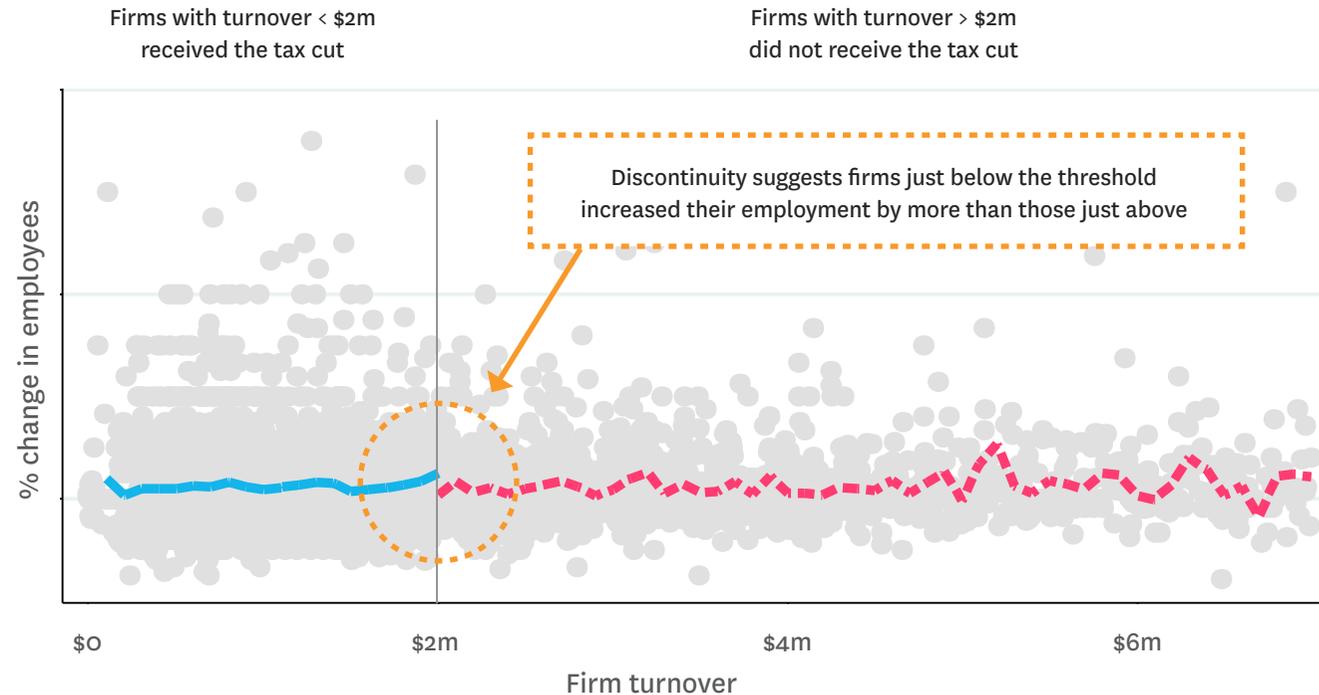
the treatment effect of receiving a tax cut in financial year 2016 on employment, wages and investment growth in financial year 2017. The parametric results show a positive and statistically significant effect on employment and investment, but no significant effect on wages. The non-parametric results are not significant.

Results

Regression discontinuity analysis seeks to identify a **causal effect** by exploiting the fact that firms just below the threshold are likely to be very similar to firms just above the threshold, other than that the ones below received a tax cut.

In this example we find that firms just below the threshold **increased employment** more than firms just above the threshold and the difference is significant.

FIGURE 2: Regression discontinuity analysis compares the behaviour of firms on either side of the threshold



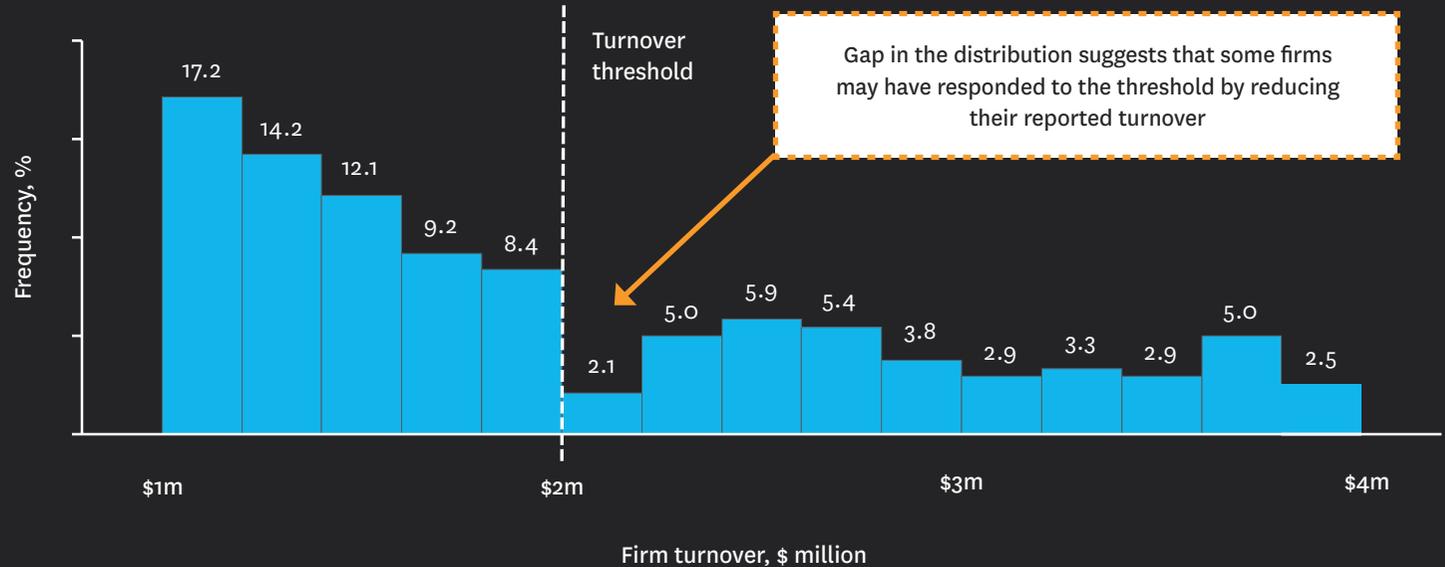
Results

Endogeneity concerns

Our estimation strategy assumes that individuals cannot influence their assignment into the control or treatment group. However, if firms are aware of the threshold, they may seek to manipulate their turnover to become eligible for the lower rate. We investigate this possibility by grouping the tax data into \$200,000 bins and plotting a histogram of turnover. We find a gap in the proportion of firms with turnover between \$2.0 million and \$2.2 million, i.e. just above the eligibility threshold for the tax cut (figure 3).

FIGURE 3: Some firms may have sought to take advantage of the tax cut by ensuring their turnover was below the threshold

Histogram of firm turnover in the range \$1m-\$4m



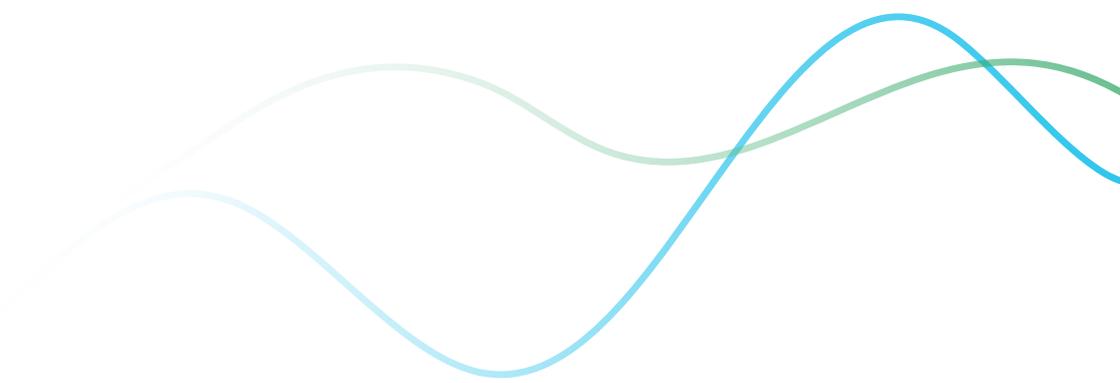
Results

Whether this sorting around the threshold affects the validity of our results depends on whether the sorting is related to the outcome variables, i.e., are firms that manipulate their turnover under the threshold likely to have higher growth in employment, wages and investment than other firms above the threshold?

We address this question in part by exploiting an alternative feature of the policy that cannot be manipulated so easily. Only incorporated firms in the sample received tax cuts, while other small businesses with turnover under \$2 million – including partnerships, not-for-profit entities and sole proprietorships – did not receive a tax cut.¹¹

If the tax cut had an impact, then we would expect to see a larger difference between the increase in employment, wages and investment in incorporated and unincorporated entities below the \$2 million turnover threshold than above the threshold. Table 4 presents estimates of the treatment effect for “incorporation” for entities above the threshold and below the threshold. Incorporated entities below the \$2 million turnover experienced significantly faster growth in employment than non-incorporated entities. However incorporated entities above \$2 million (which did not receive a tax cut) experienced no significant increase in employment relative to non-incorporated entities. The magnitude of the effect is consistent with evidence from the regression discontinuity analysis. The results for wages show little effect. The results for investment show that the growth in investment for incorporated entities above \$2 million was significantly lower than non-incorporated entities. The effect is not significant for entities below the \$2 million

threshold. These results are a useful robustness check because entities cannot easily change their incorporation status in response to a tax cut, mitigating the sorting concerns associated with the turnover threshold analysis.



¹¹ This difference between incorporated and unincorporated small businesses was mitigated in part by the introduction of a tax discount for unincorporated small businesses, although the effect of this measure was capped at \$1,000 per small business owner.

6. Conclusions and discussion

These results provide some evidence that company tax cuts provided to Australian small businesses in 2015 increased job creation in the short term, some weaker evidence that they contributed to investment and little evidence that they contributed to higher wages.

The proportion of benefits flowing through to workers in the form of higher employment and/or wages is significantly smaller than suggested by other recent Australian studies (Freebairn, (2015), Kouparitsas et al. (2016), Rimmer, Smith and Wende (2014). However, in the discussion below we identify several potential factors that may explain this discrepancy including differences in the sample, timing and magnitude of the 2015 tax cut.

Firms that received the 2015 tax cuts hired more workers than similar firms that did not. This difference is statistically significant across a number of parametric and non-parametric specifications and persists in the second year after the tax cut is introduced. Employment growth was higher in incorporated companies (which were eligible for the tax cut) than in similarly-sized unincorporated entities (such as partnerships, sole traders and non-profits which were not eligible for the tax cut), suggesting further evidence of a positive impact of tax cuts on employment.

Firms that received the 2015 tax cut did not increase wages more than those that did not. This result is not surprising because

tax cuts only affect wages indirectly.¹² Firms that receive a tax cut may experience an increase in their post-tax capital returns. This may cause them to invest more, and this investment in turn may increase labour productivity and cause firms to hire more workers. As many firms seek to attract additional workers, the competition for workers may increase and firms may have to pay higher wages. This, in broad terms, is the hypothesised channel through which tax cuts affect wages.¹³ It is no surprise that we do not see wage increases in our data. First, these labour market adjustments take time to have an impact, and we are only analysing the first two years after the tax cut. Second, because most smaller firms are domestically owned, the impact of the tax cut on investment returns is muted by dividend imputation. Third, the impacts on wages requires many firms to be simultaneously looking for new workers that wages rise; but these tax cuts only applied to the small business part of the economy, so the effect on the broader labour market is likely to have been relatively small. Fourth, because wage increases caused by tax cuts are general equilibrium effects, they should apply to firms that received the tax cut as much as those that did not.

Firms that received the 2015 tax cut increased investment by slightly more than those that did not. This result is broadly in line with our expectations. A significant part of the investment effect of tax cuts in most macroeconomic models occurs through foreign-owned companies, whose shareholders experience a

significant increase in their post-tax return on capital. It is not surprising that the magnitude of the increase in investment is lower among small businesses which tend to be domestically owned because the impact of the tax cut on investment returns is partially muted by dividend imputation.

These results should be interpreted with caution. First, this study considers the impact of tax cuts on small businesses and the results are not necessarily generalisable to larger businesses. Second, we are only considering the short-term impacts of the 2015 tax cut. Some of the effects of the tax reduction (particularly those that involve adjustment in labour markets) may take time to develop. Freebairn (2015) for example finds that at least 40 percent, and as much as 60 percent, of a reduction in the corporate tax rate in Australia would flow through to higher wages, but explicitly notes that these effects will take time and in the short run a larger share of the benefits may accrue to capital owners.

¹² See, for example, Freebairn 2015.

¹³ Tax Laws Amendment (Small Business Measures No. 1) Bill 2015

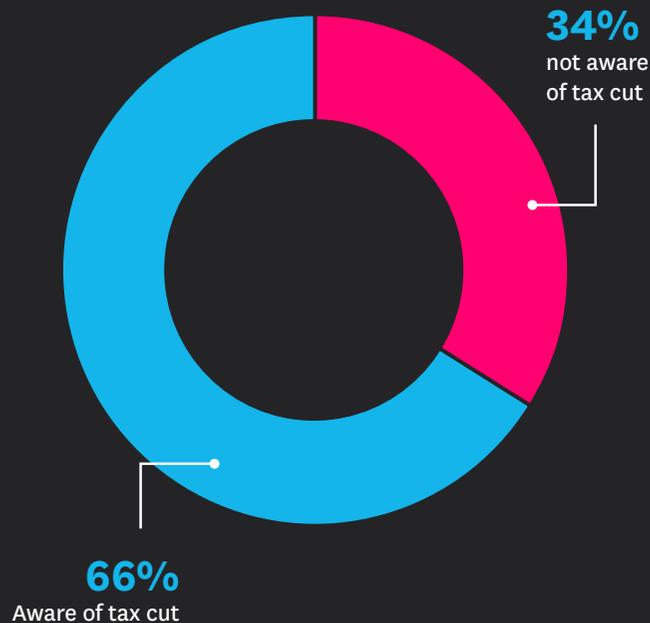
Conclusions and discussion

FIGURE 4: Low awareness of the tax cut may have reduced some of its impacts

Xero commissioned a survey of **502** Australian small businesses.

34 per cent said they were unaware whether they had received the tax cut.

Low awareness may reduce the impact of the tax cut on employment, wages and investment.



Third, the effect of company tax cuts on employment, wages and investment may be reduced by low awareness of the tax cuts among small businesses. The survey results contain some evidence relevant to support this conclusion. The survey received responses from 502 small businesses of which 337 (67 percent) were eligible for a small business tax cut. However only 115 firms (22.9 percent) said they received a tax cut in the last two years. The survey did not include questions about the firm's profitability, so it is possible that some of the firms with turnover below \$2 million were eligible for a lower rate of tax but did not have any income. However, 169 firms (34 percent) said that they do not know whether they received a tax cut. Low awareness of the tax cuts could have reduced their impact on employment, wages and investment. If firms are not aware of the tax cuts, they are unlikely to hire more people, raise wages or boost investment in response to them.

Tables

Table 1: Summary statistics

This table presents summary statistics for the Xero sample. Column A is all firms in the sample which meet the eligibility criteria and are between turnover of \$0-10m. Column B is firms just under the threshold which received the tax cut. Column C is firms that are just above the threshold and did not receive the tax cut.

	All firms (A)	Just below threshold (B)	Just above threshold (C)
<i>FY16</i>			
Turnover range	\$0 - \$10m	\$1.5 - \$2.0m	\$2.0- \$2.5m
Number of firms	55,023	2,671	1,667
Turnover (average)	906,517	1,734,235	2,235,420
Tax rate		28.50%	30%
	<i>Change FY16/FY15</i>	<i>Change FY16/FY15</i>	<i>Change FY16/FY15</i>
Employment	2.50%	2.60%	2.10%
Wages	5.10%	4.88%	4.84%
Investment	2.70%	2.45%	1.53%

Tables

Table 2: Parametric & Non-parametric estimates of the treatment effect of 'being under the turnover threshold' (Year 1)

This table compares the behaviour of firms under the turnover threshold (who received a tax cut) with those above the threshold (who did not). It presents parametric and non-parametric regression discontinuity estimates of the treatment effect. The upper panel presents parametric estimates for the range \$0 to \$4 million. The dependent variable in all regressions is the change in the outcome variable over 2015/16, i.e. a coefficient of 0.01 implies that treatment (tax cut) is associated with a 1% change in the outcome variable. P values are reported below coefficients. The lower panel presents non-parametric estimates of the treatment effect for two bandwidths (\$50,000 and \$100,000).

Parametric	Employment		Wages		Investment	
Treatment effect	0.023		0.017		0.041	
	0.000		0.067		0.002	
N	28,770		26,894		22,449	
Non-parametric	Employment		Wages		Investment	
Bandwidth	50,000	100,000	50,000	100,000	50,000	100,000
Treatment effect	0.089	0.048	0.060	0.025	-0.010	0.020
	0.072	0.172	0.445	0.176	0.955	0.731
N	30,473		28,507		23,951	

Tables

Table 3: Parametric & Non-parametric estimates of the treatment effect of 'being under the turnover threshold' (Year 2)

This table compares the behaviour of firms under the turnover threshold (who received a tax cut) with those above the threshold (who did not). It presents parametric and non-parametric regression discontinuity estimates of the treatment effect. The upper panel presents parametric estimates for the range \$0 to \$4 million. The dependent variable in all regressions is the change in the outcome variable over 2016/17. P values are reported below coefficients. The lower panel presents non-parametric estimates of the treatment effect for two bandwidths (\$50,000 and \$100,000).

Parametric	Employment		Wages		Investment	
Treatment effect	0.025		0.000		0.027	
	0.000		0.544		0.015	
N	34,583		32,848		24,955	
Non-parametric	Employment		Wages		Investment	
Bandwidth	50,000	100,000	50,000	100,000	50,000	100,000
Treatment effect	0.053	0.047	0.008	0.009	-0.05	-0.018
	0.334	0.203	0.901	0.843	0.538	0.752
N	36,641		34,870		26,557	

Tables

Table 4: Estimates of the treatment effect of 'incorporation'

This table presents estimates of the difference in the behaviour of incorporated and non-incorporated entities above and below the turnover threshold for eligibility for the tax cut. Only incorporated firms below the \$2m threshold received the tax cut. The dependent variable in all regressions is the change in the outcome variable over 2015/16. P values are reported below coefficients.

Turnover	Employment		Wages		Investment	
	<\$2m	>\$2m	<\$2m	>\$2m	<\$2m	>\$2m
Incorporation	0.023 0.058	0.025 0.188	0.002 0.894	0.001 0.957	-0.033 0.562	-0.016 0.044
N	4,662	2,202	4,464	2,186	6,694	4,031

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