

***Briefing Note:***

**Estimating Wage Trends  
From Personal Income Tax Data**

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**Summary**

This briefing note reports on new estimates of wage growth in Australia's economy using a novel source of data: personal income tax returns collected by the Australian Tax Office (ATO). These statistics are collected, with summaries released publicly, on a financial-year basis. Calculating the average wage and salary income declared by employed tax-filers (that is, by those tax-filers who report wage or salary income) provides an alternative measure of overall wage trends in the economy – supplementing traditional wage statistics gathered by the Australian Bureau of Statistics.

We compared income tax returns for 2012-13, when wages first began decelerating dramatically in Australia, to the most recent year available (2016-17). The analysis confirms that wage growth has indeed slowed to historically low rates: wage and salary income per employed tax-filer increased over that four-year period at an average rate of just 1.71% per year. That was slower than the average annual growth in consumer prices (1.88% nationally over the same period), producing a cumulative decline (of about 0.6%) in average real wages over the 4-year period.

The main advantage of using ATO data to estimate average wages is the ability to disaggregate data according to state, region, and even smaller jurisdictions (such as municipalities, postcodes, and electorates). The paper reports average trends in wages and real wages, based on personal tax returns, for each state and territory. It finds that wage growth has been slowest (and real wage losses largest) in two particularly hard-hit states: Western Australia and Queensland. Average real wage and salary income declared per tax-filer in Western Australia fell by over 5% over the four-year period considered, and by over 3% in Queensland.

Even within those two hard-hit states, the effects of the wages crisis have been experienced unevenly. Some communities – especially outside of the major cities – have experienced particularly large declines in real wages. Since debates over wage policies are playing an important role in the current federal election campaign, we analysed detailed wage trends in key electorates in those two hardest-hit states. We report disaggregated estimates of average wage growth in 17 marginal electorates: all electorates in the two states with an electoral margin of victory smaller than 5% in the 2016 election. Eleven of those electorates are currently represented by Liberal or Liberal-National MPs; six are held by the Labor Party. The analysis confirms that the erosion of real wages has been particularly acute in these marginal electorates: every one of them experienced average declines in real wages over the four-year period – and in 7 cases (6 of which are Liberal or LNP seats) the cumulative decline in real wages was greater than 5%.

The analysis confirms that wages across Australia have been growing unusually slowly since 2012, and that average real incomes (and hence living standards) have declined. The pain has been particularly acute in several key regions of the country, however – and those regions will be especially important in determining the outcome of the federal election. Frustration regarding falling real incomes could thus prove a politically potent factor on May 18.

## **Methodology**

We utilise Australian Tax Office (ATO) data regarding wage and salary incomes to provide a novel statistical perspective on wage trends, using the following methodology. ATO data breaking down personal tax returns (disaggregated by major income source) is available for individual postcodes. These data were attained for 2012-13 (the year when Australian wage growth most notably began to decelerate from traditional rates, and also the final tax year prior to the election of the current government) and for 2016-17 (the most recent year publicly available).

National and state totals for the number of tax-filers reporting wage and salary income, and their combined wage and salary income declared, are easily tallied from these ATO datasheets. Average wage and salary income per employed tax-filer<sup>1</sup> then equals the ratio of those two totals. Average annual growth in per-tax-filer average wage and salary income is then computed on a compound basis over the four-year period. Trends in real wages are similarly calculated by comparing nominal wage and salary income to the consumer price index for each state (state capital cities from ABS Catalogue 6401.0, averaged across financial years), and for Australia as a whole.

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<sup>1</sup> We consider only those tax returns which declare wage and salary income; not all of these tax-filers, of course, were employed through the entire year. Hence the number of “employed” tax-filers (ie. those who report at least some wage or salary income in a year) exceeds total employment at any point in time.

Electorate-level averages are more challenging to assemble, since the ATO data are not disaggregated according to electoral district. The Australian Bureau of Statistics produces a correspondence between postcode and federal electoral district,<sup>2</sup> assigning postcode regions to electorates (including recent electoral boundary changes). In many cases, postcodes are divided between different electorates; the ABS then assigns proportional shares reflecting the approximate division of the postcode's population between the two electorates. Utilising this correspondence, electorate-level estimates of average wage and salary income declared (in both 2012-13 and 2016-17) can be constructed: aggregating across all postcodes (including proportional shares where appropriate) included within each electorate. Electorate-specific average wage and salary incomes are then calculated, along with nominal and real growth rates.

## National Results

<b>Table 1</b>				
<b>Growth in Average Wage &amp; Salary Income per Tax-Filer</b>				
	<b>2012-13</b>	<b>2016-17</b>	<b>Cumulative Change (%)</b>	<b>Avg. Ann. Change (%/yr)</b>
<b>Tax-Filers Declaring Wage &amp; Salary Income</b> (million)	10.133	10.844	7.02%	1.71%
<b>Total Wage &amp; Salary Income Declared</b> (\$billion)	\$562.7	\$644.5	14.55%	3.45%
<b>Amount per Tax-Filer</b> (\$)	\$55,529	\$59,435	7.03%	1.71%
<b>Real Amount per Tax-Filer</b> (\$2012-13)	\$55,529	\$55,172	-0.64%	-0.16%
Source: Author's calculations from ATO Personal Income Tax Statistics by Postcode, ABS Catalogue 6401.0. Excludes tax-filers from overseas and unknown locations.				

Table 1 reports the overall findings of the analysis at the national level. Some 10.1 million tax-filers reported wage or salary income in 2012-13, growing to 10.8 million four years later (see Table 1).<sup>3</sup> Aggregate wages and salaries totaled \$563 billion in 2012-13, and \$645 billion in 2016-17 – a cumulative increase of nearly 15%. That growth in aggregate wage income was driven equally by the growing number of employed people, and by growing average nominal incomes. Over the 4 years, nominal

<sup>2</sup> See ABS, "Postcode 2018 to Commonwealth Electoral Division 2018," Table 3, <https://data.gov.au/dataset/ds-dga-23fe168c-09a7-42d2-a2f9-fd08fbd0a4ce/distribution/dist-dga-951e18c7-f187-4c86-a73f-fcabcd19af16/details?q=ABS%20Correspondence>, file CG\_POSTCODE\_2018\_CED\_2018.xls.

<sup>3</sup> That is, tax-filers with wage or salary income. It is interesting to compare the number of tax-filers reporting wage or salary income in each financial year, with ABS estimates of the total number of employees (excluding owner-managers of independent businesses). ABS reported 9.4 million employees in financial 2012-13, and 10.0 million in 2016-17 (ABS Catalogue 6291.0.55.003, EQ04). The larger number of tax-filers reporting wage and salary income in each year reflects both the incidence of less-than-full-year-employment, and the likelihood that some owner-managers also declare some wage or salary income from their own businesses.

wage and salary income declared per employed tax-filer grew by 7%. That amounts to an annual average increase in declared wages per tax-filer of 1.71%.

Nominal wage growth over this period lagged behind the growth in consumer prices – which increased at an average annual rate of 1.88% (comparing financial years 2012-13 and 2016-17). Cumulated over four years, that gap between wage growth and price inflation translated into a cumulative decline in average real wages of about two-thirds of one percent. This is consistent with other studies which have reported a decline in Australian real incomes over this period.<sup>4</sup>

Measure	Average Annual Wage Growth (%/yr, 2012-13 through 2016-17)
Wage Price Index	2.27%
Average Weekly Earnings	1.74%
Labour Compensation per Employed	1.49%
ATO Returns	1.71%
Consumer Price Index	1.88%
Source: Author's calculations from ATO Personal Income Tax Statistics by Postcode; ABS Catalogue 6401.0; ABS Catalogue 6302.0; and ABS Catalogue 5206.0.	

It is interesting to compare the wage growth estimates generated from the ATO data to corresponding figures from other statistical sources (Table 2).<sup>5</sup> The most commonly-reported indicator of wage growth is ABS's quarterly Wage Price Index (WPI), which measures the change in wages paid for a composite "basket" of jobs. That basket is constructed after adjusting for changes in the composition of employment in the labour market; its methodology is similar to the Consumer Price Index, which also measures inflation in a hypothetical basket of goods and services (also held constant from one period to the next). The problem with this approach is that in reality the composition and quality of jobs does change over time. In particular, Australia's labour market has seen a growth in part-time jobs (now accounting for almost one in three positions),

<sup>4</sup> See, for example, Greg Jericho, "The Coalition Boasts about Economic Management: Where's the Evidence?", *The Guardian*, 15 April 2019, <https://www.theguardian.com/business/grogonomics/2019/apr/16/the-coalition-boasts-about-economic-management-wheres-the-evidence>.

<sup>5</sup> For a detailed comparison and discussion of alternative methodologies for measuring wage growth, see Jim Stanford, "Charting Wage Stagnation in Australia," in Andrew Stewart, Jim Stanford and Tess Hardy (eds.), *The Wages Crisis in Australia: What It Is and What To Do About It* (Adelaide: University of Adelaide Press, 2018), pp. 21-40, <https://www.adelaide.edu.au/press/titles/wages-crisis/>.

labour hire, temporary and casual positions, contractors, and ‘gigs.’<sup>6</sup> In its search for a “pure” measure of wage inflation, the WPI does not capture the impact of these changes in employment composition on actual wages earned in the economy. At a time when average job quality is declining (as has been the case in recent years), the WPI will overstate actual realised wage growth; the opposite is the case (as during the mid-2000s) when average job quality is improving.

Our analysis of ATO data on wage and salary income confirms that the WPI series has been overstating the rate of growth of employment income – and by a significant margin, in excess of 0.5 percentage points per year. The WPI measure (for all sectors) rose at an annual average rate of 2.27% over those four years. That was 0.56% per year more per year than the average annual growth in wage and salary income declared per employed tax-filer on ATO tax returns. Because of shorter hours, more temporary work, the growing importance of insecure and low-wage work, and other compositional changes, the realised wage and salary income received by Australians has been growing even more slowly than the most commonly-cited ABS indicator suggests.

Two other indicators of wage growth are also reported in Table 2: the annual growth in weekly earnings, and the growth in labour compensation (including wages, salaries, and superannuation contributions) per employed Australian. Those indicators do take account of changes in employment quality (unlike the WPI), and hence are more consistent with the realised reality of Australians’ pay packets. The estimate of wage growth derived from ATO data suggests a very similar trajectory as the ABS report on average weekly earnings; it is slightly higher (by about 0.2% per year) than the measure of labour compensation per employed person derived from the national accounts. In sum, our analysis reinforces the conclusion that wage increases reported by the WPI provide an overly optimistic assessment of the true state of labour incomes in Australia.

## State-Level Results

Table 3 summarises estimates of average wage and salary growth generated from ATO statistics, on a state-level basis. Nominal wage growth since 2012-13 has been unusually weak in every jurisdiction. The strongest wage growth was reported in Victoria – which has enjoyed Australia’s strongest economy and labour market during this period.<sup>7</sup> But even there average wages and salaries increased by just 2.33% per year, on average, over the four-year period considered – barely half the traditional pace experienced in Australia. NSW also recorded wage growth faster than the national average (but still historically weak). Wage growth in South Australia and Tasmania (under 2% per year)

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<sup>6</sup> For further detail on the growth of insecure work, see Tanya Carney and Jim Stanford, *The Dimensions of Insecure Work* (Sydney: Centre for Future Work, 2018), <https://www.futurework.org.au/the-dimensions-of-insecure-work>.

<sup>7</sup> Average wage and salary income per employed tax-filer grew faster in Northern Territory (by 2.8% per year), but the number of wage and salary-earners filing taxes there (just 115,000 in 2016-17) is a very small proportion of the national total.

barely matched consumer price inflation in each state – implying no change in real wages at all over the four-year period considered.

<b>Table 3</b>			
<b>Wage Trends by State &amp; Territory</b>			
	<b>Average Annual Wage Growth (%/yr)</b>	<b>Average Annual CPI Growth (%/yr)<sup>1</sup></b>	<b>Cumulative Real Wage Change (over 4 years)<sup>2</sup></b>
<b>NSW</b>	2.22%	2.01%	0.82%
<b>VIC</b>	2.33%	1.92%	1.63%
<b>QLD</b>	1.14%	1.99%	-3.28%
<b>SA</b>	1.69%	1.63%	0.27%
<b>WA</b>	0.17%	1.59%	-5.49%
<b>TAS</b>	1.71%	1.70%	0.00%
<b>ACT</b>	1.78%	1.49%	1.14%
<b>NT</b>	2.82%	1.33%	6.02%
<b>AUSTRALIA</b>	1.71%	1.88%	-0.64%
Source: Author's calculations from ATO Personal Income Tax Statistics by Postcode; ABS, "Postcode 2018 to Commonwealth Electoral Division 2018"; ABS Catalogue 6401.0. 1. State capital city. 2. Cumulative decline in ratio of wages to state capital CPI over 4 years between 2012-13 and 2016-17.			

The two states which experienced the weakest wage growth over this period were Queensland and Western Australia. In Queensland, average wages and salaries per employed tax-filer increased at an annual average rate of just 1.14% between 2012-13 and 2016-17. That lagged well behind average annual consumer price inflation in that state (which equaled 1.99% per year over the same period), producing a cumulative decline in average real wages in excess of 3%. Western Australia was hit even harder: experiencing hardly any nominal wage growth at all – just 0.17% annually over the four years. This lagged far behind consumer prices, generating a cumulative decline in real incomes of over 5% by the end of the period.

The decline in incomes from resource projects after 2012, when many major construction projects (which produced temporary, localised “boom” conditions) were completed, has played a role in the decline in real wages in both states. So has the lack of regional development initiatives, the growth of labour hire and other precarious employment practices in regional and resource sectors, the concentration of investment and job-creation in the capital cities, and other negative trends. Even in larger centres, however, nominal and real wage growth have been historically weak.

## Marginal Electorates in Western Australia and Queensland

Concerns over the slow growth of nominal wages, and the erosion of real living standards, have played a major role in the current federal election campaign. In this context, the dramatic downturn in Australian wage growth could prove to be politically potent. Widespread public frustration with stagnant incomes, and the stress of paying for escalating household expenses from flat wages, could be decisive in this closely-fought national election.

**Table 4**  
**Wage Trends in Marginal Electorates, QLD and WA**

Electorate <sup>1</sup>	Held Currently By	Estimated 2PP Margin (2016, %)	Average Annual Nominal Wage Growth (2012-13 to 2016-17)	Cumulative Real Wage Change (over 4 years) <sup>2</sup>
<b>QLD</b>				
<i>Average Annual CPI Growth:</i>			<i>1.99%</i>	
<b>Bonner</b>	LNP	3.4	1.81%	-0.68%
<b>Capricornia</b>	LNP	0.6	0.03%	-7.47%
<b>Dawson</b>	LNP	3.4	-0.01%	-7.59%
<b>Dickson</b>	LNP	1.7	1.60%	-1.51%
<b>Flynn</b>	LNP	1.0	-1.26%	-12.15%
<b>Forde</b>	LNP	0.6	1.44%	-2.13%
<b>Griffith</b>	ALP	1.4	1.48%	-1.97%
<b>Herbert</b>	ALP	0.02	0.77%	-4.69%
<b>Leichhardt</b>	LNP	4.0	1.53%	-1.76%
<b>Longman</b>	ALP	0.8	1.61%	-1.47%
<b>Moreton</b>	ALP	4.0	1.13%	-3.32%
<b>Petrie</b>	LNP	1.7	1.69%	-1.16%
<b>WA</b>				
<i>Average Annual CPI Growth:</i>			<i>1.59%</i>	
<b>Cowan</b>	ALP	0.7	0.29%	-5.05%
<b>Hasluck</b>	LIB	2.1	0.15%	-5.58%
<b>Pearce</b>	LIB	3.6	-0.12%	-6.58%
<b>Perth</b>	ALP	3.3	0.31%	-4.97%
<b>Swan</b>	LIB	3.6	-0.10%	-6.51%

Source: Author's calculations from ATO Personal Income Tax Statistics by Postcode; ABS, "Postcode 2018 to Commonwealth Electoral Division 2018"; ABS Catalogue 6401.0; Nick Evershed, "State of play: interactive map of seat margins before the 2019 Australian election," *The Guardian*, 11 April 2019, <https://www.theguardian.com/australia-news/ng-interactive/2019/apr/11/state-of-play-interactive-map-of-seat-margins-before-the-2019-australian-election>.

1. Includes all electorates with 2016 2PP margin of under 5%.

2. Cumulative decline in ratio of wages to CPI over 4 years between 2012-13 and 2016-17.

To consider the potential political implications of the wages crisis, we have examined the specific wage and salary trends experienced in key electorates in Western Australia and Queensland – the two states which experienced the worst wage outcomes over the four-year period considered. We constructed electorate-level information on tax-filers declaring wage or salary income from the postcode-level data reported by the ATO, using the ABS’s postcode-to-electorate correspondence. The results are striking, and summarised in Table 4.

We consider 17 marginal electorates: all current electorates (adjusted to reflect redefinitions) that were won in the 2016 election by less than a 5% margin.<sup>8</sup> 12 of those seats are in Queensland, 5 are in Western Australia. 11 of the marginal electorates are currently held by Liberal or LNP members; 6 are held by the Labor Party.

16 of the 17 marginal electorates experienced annual growth in nominal average wages and salaries that was worse than the national average (that is, below the 1.71% annual increase in national average wages per employed tax-filer summarised in Table 1). This confirms that marginal electorates in Queensland and Western Australia have indeed been disproportionately impacted by the national wage slowdown.

In 4 of the 17 electorates, workers experienced an outright *decline* in average *nominal* wage income over the four-year period: in other words, nominal incomes were lower, on average, in 2016-17 than in 2012-13. This is a dramatic and very unusual result; it is rare in economic history for nominal incomes to decline over such an extended period. Two of the electorates experiencing a decline in nominal incomes were in Queensland (Dawson and Flynn), and two were in WA (Pearce and Swan).

We also calculated the cumulative change in real wages in each electorate, by comparing annual nominal wage growth to changes in the relevant consumer price index.<sup>9</sup> These cumulative changes are reported in the last column of Table 4. In every one of the 17 marginal electorates, average real earnings for workers declined over the four years considered. With such widespread downward pressure on real wages and real living standards, it is little wonder that concerns over the gap between flat wages and the rising cost of living have been so acute in these communities.

The largest decline in average real wages per tax-filer was experienced in the Queensland electorate of Flynn – where real average wages were more than 12% lower in the 2016-17 financial year, than four years earlier. The severe downturn in incomes in that region partly reflects the completion of major LNG construction projects there

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<sup>8</sup> Based on analysis of electorate results by ABC analyst Antony Green, as cited by Nick Evershed, “State of Play: Interactive Map of Seat Margins Before the 2019 Australian Election,” *The Guardian*, 11 April 2019, <https://www.theguardian.com/australia-news/ng-interactive/2019/apr/11/state-of-play-interactive-map-of-seat-margins-before-the-2019-australian-election>.

<sup>9</sup> This calculation used the CPI for state capital cities; electorate-specific estimates of consumer prices are not available.



after 2013, and the failure to replace lost work with other economic and regional opportunities. But several other communities in both Queensland and Western Australia also experienced large cumulative declines in real earnings. A total of 7 electorates (3 in Queensland and 4 in WA) experienced a loss in real average wages exceeding 5% over the 4 years – representing a major, sustained deterioration in living standards. 6 of those hardest-hit marginal electorates are currently held by Liberal or LNP representatives.

## **Conclusion**

All parts of Australia have been deeply affected by the unprecedented deceleration of wage growth which commenced around 2013. In every state and region, wage increases have slowed to the weakest sustained rates since the end of the Second World War. And in every state and territory, real wage gains effectively disappeared – in some cases replaced by a decline in real earnings (as wages lagged behind consumer price inflation). The traditional promise of a ‘fair go’ – namely, that if Australians work hard and efficiently, they will be rewarded with a fair share of national wealth – has been betrayed. Even in states with relatively stronger economies (such as NSW and Victoria), the slowdown in wages has been profound and unprecedented: contributing to household financial stress, weak spending conditions, and rising personal indebtedness. Our analysis of detailed ATO data confirms that the national deceleration of wages has been considerably more severe than the most commonly-reported statistical indicator (the ABS’s Wage Price Index) has suggested.

However, it is also clear that the effects of the wage slowdown have been experienced unevenly, and that some parts of Australia have been hit harder than others. Nominal wage growth has been especially weak in Western Australia and Queensland – and hence real wage losses have been largest in those two states. And even within those hard-hit states, the effects of wage stagnation have been unevenly distributed. Very severe declines in real earnings – exceeding 5% over four years – have been experienced in 7 marginal electorates. And all 17 of the marginal electorates in both states experienced real wage declines over the 4 years.

Debates over wage policy, and inequality more generally, have featured centrally in the current federal election campaign. The major parties have offered starkly different visions for how to respond to the slowdown in wages, and the resulting loss of real purchasing power for many workers.<sup>10</sup> Given the disproportionate impact of the wage slowdown on a group of key marginal electorates in two crucial states (Queensland and WA), it is quite possible that local anger over wage stagnation and falling living standards could decide the national outcome on May 18.

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<sup>10</sup> For a convenient summary of the major parties’ positions on these issues, see Sarah Kaine and Chris Wright, “How the Major Parties Stack Up on Industrial Relations Policy,” *The Conversation*, 6 May 2019, <https://theconversation.com/how-the-major-parties-stack-up-on-industrial-relations-policy-116256>.