

# New Timely Indicators of Wages Growth

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## Abstract

Monitoring developments in wages is important for assessing the inflation outlook, as labour costs are a major factor in firms' pricing decisions. Over recent years, the Reserve Bank has developed a suite of timely wages indicators based on surveys and administrative data. Together with externally developed indicators, these measures provide a fuller view on wages developments ahead of the release of official statistics. This article explains the methodology behind these indicators and what they reveal about labour costs in Australia.

## Introduction

Timely monitoring of wages growth is an important part of assessing the outlook for inflation, as labour costs are a major component of input costs for most firms and greatly influence pricing decisions for goods and services. Wages are also the largest source of household income, meaning wages growth has a significant impact on household consumption. Previously, most wages growth measures have been sourced from official quarterly releases published with two to three months' delay, supplemented by partial and forward-looking measures derived from the Bank's liaison program.

To get a more timely read on wages and broader earnings growth, in recent years the Reserve Bank

has developed a suite of measures derived from surveys and administrative data and increased its use of other externally developed measures. This article describes these measures in turn.

## Official measures of labour costs

The Bank monitors a range of official measures of labour costs constructed by the Australian Bureau of Statistics (ABS), including the following:

- **The Wage Price Index (WPI)** measures changes in wage rates for a given quantity and quality of labour. The WPI tracks changes in the hourly base wage rate of a fixed basket of jobs – as such, it should be unaffected by changes in labour force composition. The ABS also adjusts

the WPI to exclude any changes in wages resulting from changes in a job's nature or the quality of work performed.

- **Average earnings from the National Accounts (AENA)** is wider in scope than the WPI, as it includes non-wage costs, such as superannuation and redundancy payments, along with pay increases resulting from worker promotions. For this reason, AENA is often viewed as a better indicator of inflationary pressures in the economy, at least at a conceptual level (Graph 1).

The WPI and AENA remain two of the most important labour costs measures for the Australian economy and are the focus of historical and econometric wages analysis. A key limitation is that both measures are published quarterly, with a two to three month delay relative to the period they relate to. Moreover, AENA measures are not adjusted for changes in labour market composition over time. The resulting volatility in the AENA measures can make it difficult to separate noise from signal, as has been the case over the past few years due to shifts in labour market composition that occurred during the pandemic.

### New indicators of wages growth

To help address these limitations, the Bank has recently developed several new indicators, including:

- two adjusted measures of base wages growth from a household survey
- a composition-adjusted measure of broader earnings growth from administrative data (i.e. single touch payroll data).

The development of these measures has been made possible by the increased availability of rich and timely microdata, facilitated by the ABS and other organisations such as the Melbourne Institute. These measures, in conjunction with a growing range of externally developed indicators, have improved the Bank's ability to monitor developments in wages and labour costs in a timely way.

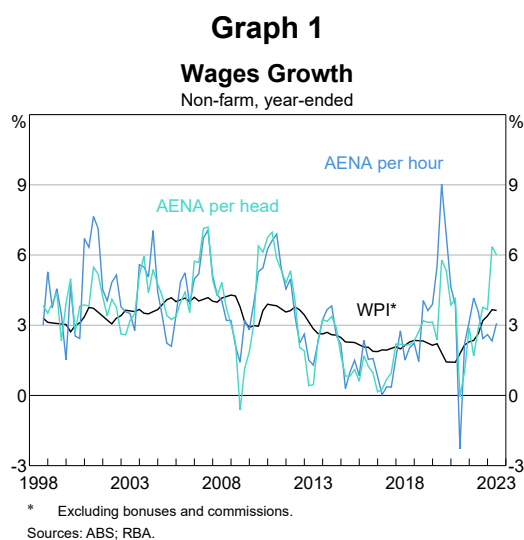
### Measures based on household survey data

The Melbourne Institute Consumer Attitudes, Sentiments and Expectations in Australia Survey is a representative monthly survey of around 1,200 Australian households. The survey collects information on households' actual wage growth outcomes over the past year and their expected wage growth for the year ahead.<sup>[1]</sup> We use the microdata underlying the survey to construct average measures of actual and expected wages growth for households, and find that after some adjustments they are closely aligned with trends in the WPI.<sup>[2]</sup> These measures can be updated by the end of each month, providing a timely signal on wage pressures in the economy.

### The survey reveals a downward bias in self-reported wages growth

The average of actual and expected wage increases reported by Australian households in the survey have been persistently below wage outcomes observed in the WPI (Graph 2). Households' actual wage growth and expectations averaged in the range of 1–2 per cent over the sample period, while year-ended growth in the WPI averaged around 3 per cent. Though there is a large gap between the survey measures of wages growth and the WPI, the series tend to move together. For example, the household survey measures and the WPI both moved higher prior to the global financial crisis (GFC), before declining over the 2010s.

The downward bias in household survey measures of wages growth is largely due to a significant share



of people reporting wage freezes and wage cuts. On average, a little over 40 per cent of respondents reported that their wages were ‘the same’ as a year ago. Similarly, around half of respondents reported that they expect their wages in a year’s time to be ‘the same’. As such, the survey records their actual or expected wage growth as zero (Graph 3). This is much higher than the 22 per cent of jobs on average in the WPI that experienced wage freezes over the same period (Graph 4). Similarly, a higher share of households reported wage cuts in the Melbourne Institute survey compared with in the WPI.

The greater prevalence of wage freezes reported in the household survey could reflect several factors, including respondents misunderstanding the question (e.g. by reporting ‘the same’ they may mean that their wages *growth* will be the same), rounding down their responses as rounding is common in consumer surveys (e.g. reporting 1 per cent wage growth as zero), or carelessness.

**Adjusting the measures to address the downward bias**

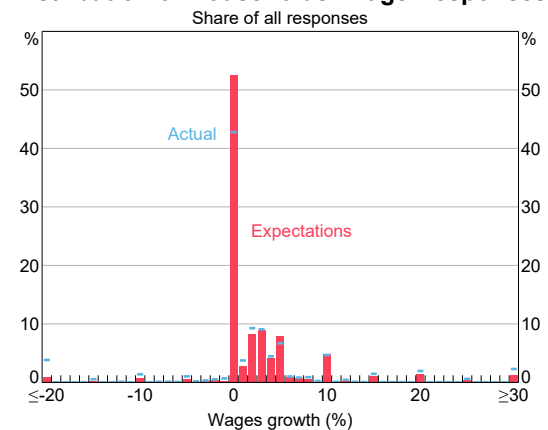
One way to address the gap between the survey measures of wages growth and WPI growth is to adjust the household survey measures so that the share of jobs with wage freezes is consistent with the WPI data.<sup>[3]</sup> The resulting measures bring the levels closer to the WPI outcomes (Graph 5). In addition, the wage expectations measure appears to lead the WPI by one to two quarters at major turning points such as during the GFC and the

COVID-19 pandemic – this is the case both with and without the adjustment. This leading property of the data is likely to exist because employees are sometimes informed of their wage changes several months before they come into effect. Over recent months both the actual and expected survey measures of wage growth have increased alongside the higher WPI, though the increase for the expectations-based measure has been smaller.

These adjusted measures are a valuable addition to the Bank’s suite of indicators to monitor wage pressures in the economy; they are more timely (available by month end) and provide information from the perspective of households, supplementing existing indicators like the Bank’s liaison program with firms.

**Graph 3**

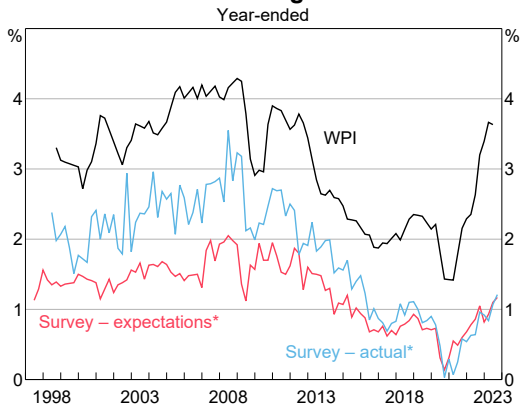
**Distribution of Households’ Wage Responses**



Sources: Melbourne Institute; RBA.

**Graph 2**

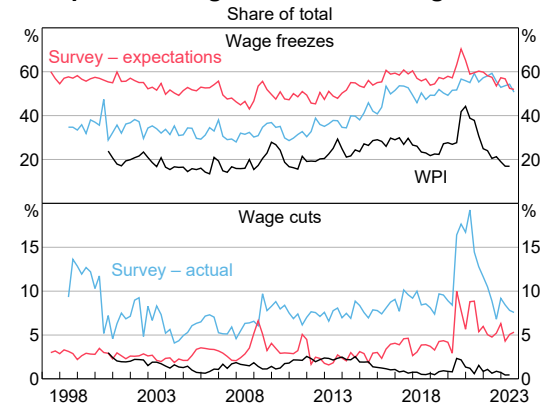
**Measures of Wages Growth**



\* Based on a 30 per cent trimmed distribution.  
Sources: ABS; Melbourne Institute; RBA.

**Graph 4**

**Reports of Wage Freezes and Wage Cuts**



Sources: ABS; Melbourne Institute; RBA.

## Measures of broader labour costs from single touch payroll data

Wages measures (such as the WPI or those derived from household surveys) typically focus on growth in base wages, which is the largest component of labour income for most workers. However, firms often use non-base wages, such as bonuses and allowances, to attract and retain workers, particularly when the labour market is tight (Leal 2019). This means that broader measures of employment earnings can provide a fuller picture of the state of the labour market, firms' costs and inflationary pressures across the economy.

The main official measures of broader earnings are AENA per head and AENA per hour. These are available on a quarterly basis with two months' lag relative to the end of a given quarter. As discussed above, a shortcoming of these measures is that they can be volatile, reflecting compositional changes (such as low wage workers entering and leaving the workforce or worker flows across industries) that mask fundamental supply and demand dynamics in the labour market.

To overcome these limitations, we construct composition-adjusted earnings growth measures (on a per job and per hour basis) using the Australian Tax Office's (ATO) Single Touch Payroll (STP) database. STP data, which are available from 2020 onward, consist of payslip information reported to the ATO each time a worker is paid by their employer. Like AENA, STP covers a wide range

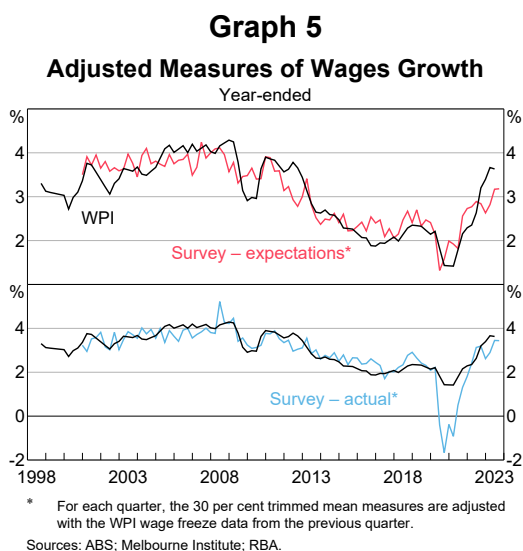
of earnings types (base wages, overtime, bonuses, superannuation and allowances) but is available at a weekly frequency and released with a one month lag. Our measures track a fixed basket of jobs over time and thereby abstract from compositional changes in the labour market.<sup>[4]</sup> In this sense, they are like the WPI.

### Smoothing out volatility by tracking earnings per job

We track earnings changes for workers in a given job over time to construct an STP earnings per job measure ('STPE per job'). By tracking earnings growth *within* jobs, we abstract from most of the compositional changes in the labour market that drive volatility in AENA.<sup>[5]</sup>

Growth in STPE per job provides a clearer signal on underlying momentum in average earnings per worker, especially during periods of significant compositional change. To demonstrate this, Graph 6 shows a measure of average earnings per job based on STP data that is *not* adjusted for compositional change (derived from publicly available information from the ABS's Weekly Payroll Jobs release). The unadjusted measure shows a sharp decline in labour income growth in mid-2021. This primarily reflects a compositional shift in the labour force, as many lower paid workers returned to jobs after having previously exited the labour market during pandemic-related lockdowns. STPE per job smooths through these compositional changes by focusing on those workers who continued to be employed and tracking their earnings growth over that time. More recently, growth in STPE per job has been higher than in the unadjusted earnings measure, suggesting that compositional effects have been weighing on earnings.

Although our composition-adjusted measure of average earnings has advantages over measures of AENA per head, a downside of the new measure is that it has a relatively short history, which makes it difficult to establish where a given reading sits relative to the long-run average for the series. The short history also means it is difficult to remove seasonal variation (as standard seasonal adjustment methods typically require several years of data to be effective).



### Adding LFS microdata to measure earnings per hour

Another limitation of the STP data is that it has no information on hours worked. This means that a measure of growth in earnings per hour, which is typically the preferred unit for wages analysis, cannot be constructed from the STP data alone. To partly address this, we use microdata from the Labour Force Survey (LFS) to estimate hours worked for those workers who remained in the same job over time.<sup>[6]</sup> The hours measure is combined with the STPE per job measure to create a timely, composition-adjusted STP earnings per hour measure ('STPE per hour'), which can provide a clearer signal on underlying growth in AENA per hour. The use of LFS microdata (based on a monthly survey) decreases the frequency at which the STP-based measure can be calculated, from a weekly to a monthly basis. The timeliness of the measure is unaffected, however, as the ABS releases the LFS microdata in a timely manner after each official LFS release.

After making compositional adjustments to the measure of hours worked (the denominator in STPE per hour), there is still a moderate amount of volatility in the STPE per hour measure; this may make it difficult to interpret changes in the measure from month to month. Focusing on the trend instead, the STPE per hour results suggest that growth in total take home pay for workers that

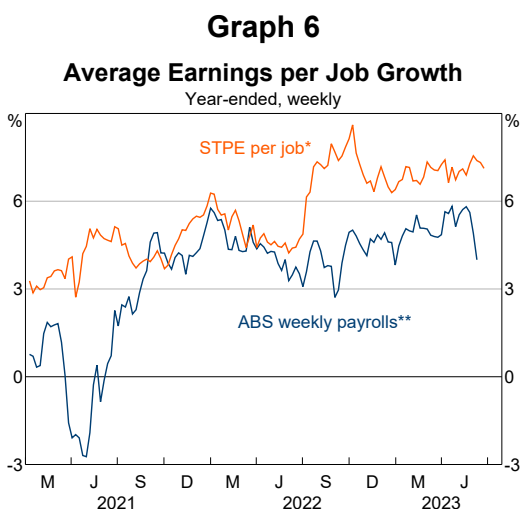
remained with the same employer has been around 5–6 per cent over the past year, well above recent readings for the WPI and similar to STPE per job (Graph 7).

Like with STPE per job, the short history of STPE per hour makes it difficult to be definitive about whether these recent outcomes are 'strong' in the context of the series itself. However, the upward trend is in line with the recent signal coming from WPI and would be consistent with the strong labour market and robust growth in non-base wage components of remuneration.

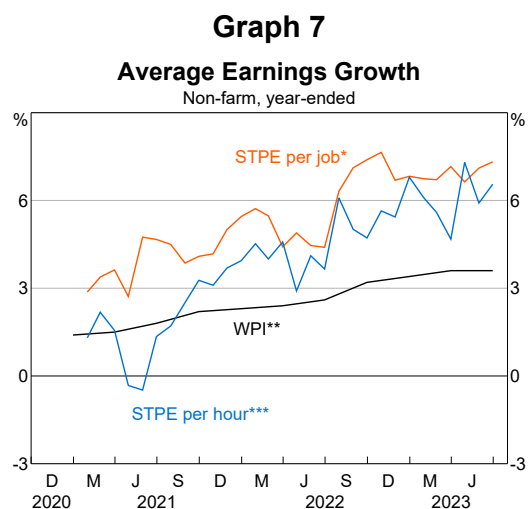
Changes to STP data collection over time will facilitate improvements to composition-adjusted STP-based earnings measures. For example, the ATO will soon start collecting data on casual and part-time worker status, along with separable data on ordinary time earnings, bonuses and paid leave (ATO 2022). The increasing length of the series over time will also facilitate the development of monthly and quarterly growth rates measures that can be seasonally adjusted.

### Other timely measures of wages growth

In addition to the newly developed measures discussed above, the Bank monitors several other wages growth indicators that provide additional sources of timely information. These measures are typically available less than one month after their



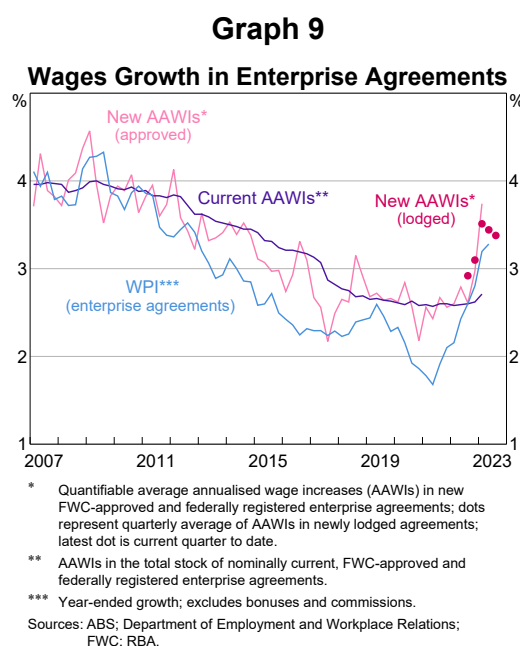
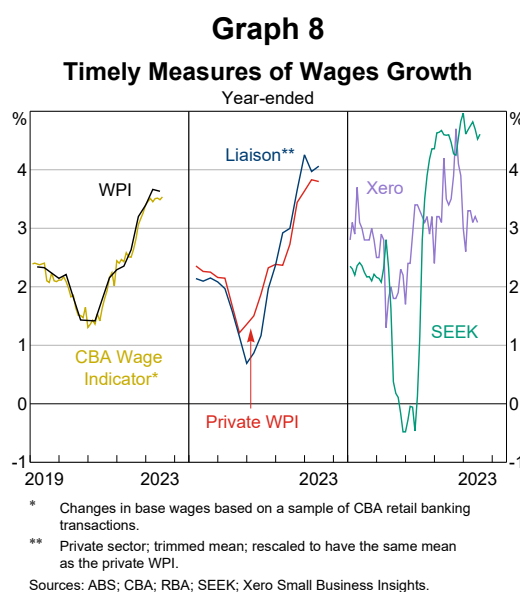
\* Weekly earnings per job using composition-adjusted ATO Single Touch Payroll microdata; non-farm.  
 \*\* Combination of Total Wages and Payroll Jobs indices from ABS Weekly Payroll Jobs and Wages in Australia release; all industries; the ABS ceased publication of the Total Wages Index from mid-June 2023.  
 Sources: ABS; ATO; RBA.



\* Monthly frequency.  
 \*\* Quarterly frequency.  
 \*\*\* Monthly earnings per job from ATO Single Touch Payroll data, deflated by ABS Labour Force Survey hours worked; composition-adjusted.  
 Sources: ABS; ATO; RBA.

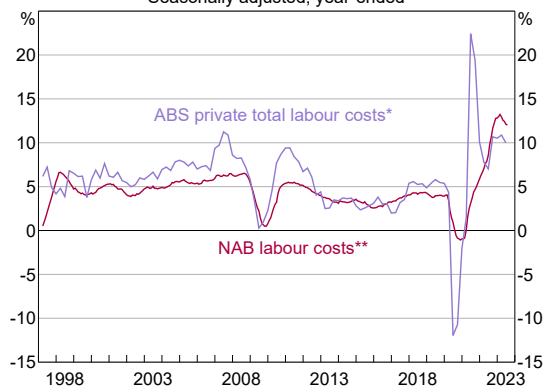
respective reference period and include the following:

- The Reserve Bank produces a measure of **private sector wages growth** using insights drawn from its liaison program.<sup>[7]</sup> The measure describes actual average base wages growth, as reported by firms in liaison each month. It has historically tracked private sector WPI closely (Graph 8 – ‘Liaison’).
- The Commonwealth Bank of Australia (CBA) produces a monthly indicator that uses data on labour income paid into customer bank accounts to track **base wages growth** over time. CBA imposes restrictions on the data to filter out changes in earnings that are unlikely to relate to base wages (Graph 8 – ‘CBA Wage Indicator’).
- The SEEK Advertised Salary Index tracks **growth in advertised salaries** for jobs posted on the SEEK platform (Graph 8 – ‘SEEK’).
- Xero produces an indicator of **hourly wage growth for small businesses** using anonymised and aggregated data as part of its Xero Small Business Insights program, which covers hundreds of thousands of small businesses (Graph 8 – ‘Xero’).
- The Fair Work Commission (FWC) publishes an indicator of **average annualised wage increases** for enterprise agreement approval applications lodged with the FWC in the most recent fortnight (Graph 9). The indicator captures agreements covered by the federal workplace relations system, which includes the vast majority of private sector agreements and some public sector agreements in a handful of jurisdictions.<sup>[8]</sup>
- National Australia Bank (NAB) produces measures of growth in **total labour costs** from its monthly and quarterly business surveys (Graph 10 – ‘NAB labour costs’). These are designed to track growth in total labour costs, which is affected by the quantity of labour as well as growth in wages.



**Graph 10****Growth in Total Labour Costs**

Seasonally adjusted, year-ended



\* Compensation of employees plus payroll taxes, less employer subsidies.

\*\* Rate of growth in survey respondents' total wages bill.

Sources: ABS; NAB; RBA.

**Conclusion**

The new measures of wages and broader earnings discussed in this article are timely and frequent. In this way, they supplement existing official data sources. The Bank will continue monitoring these measures to understand the evolution of labour costs across the economy and their impact on inflation. Future work and improvements in how the data are collected, particularly for STP data, will allow for additional refinements, quality adjustments and further disaggregation of the data by firm and worker characteristics. ↗

**Endnotes**

- [\*] The authors are from Economic Group. They would like to thank Jonathan Hambur and Jess Young for their contributions in preparing this article.
- [1] For more information on this survey data, see Haidari and Nolan (2022). For actual wages growth, respondents are first asked if their 'pay' has increased, decreased or remained the same since this time last year. If they choose increase/decrease, they are then asked to provide a numerical answer in percentage terms; if they respond 'the same', they are automatically given zero. The format of expected wages growth for the following year is similar. While the wording of the questions may prompt information on broader labour income growth, the correlation with the WPI suggests that responses mostly relate to base wages growth (aside from the pandemic period).
- [2] Our analysis covers the period from when the series first became available (April 1997 for wage expectations and May 1998 for actual wages growth) to August 2023. While the survey is monthly, we transform the data to a quarterly basis. As is common with surveys and following the methodology of the Melbourne Institute, we apply a 30 per cent trimming to the data (cutting the largest 15 per cent and smallest 15 per cent of responses) to reduce the effects of extreme responses.
- [3] Another option is to exclude the zero responses when constructing the average. This approach yields measures that overestimate the WPI for most of the sample period. It also has the undesirable effect of systematically excluding genuine wage freezes, which contain legitimate economic information.
- [4] Unlike the WPI, our STP-based measures do not make adjustments for job 'quality' (i.e. within-job changes in the nature of work being performed over time).
- [5] The granularity of the STP data also allows impacts from government wage subsidies such as JobKeeper to be filtered out; such subsidies are included in published measures of labour income and obscure information about how the balance of labour market supply and demand is translating to changes in pay.
- [6] We identify workers with extended spells in the same job using proxy variables from the microdata, as there is no direct identifier of worker–firm relationships in the LFS. In addition, we adjust the hours worked measure to remove volatility associated with fluctuations in paid leave hours (such as annual or long service leave), given STPE per head (the numerator in STPE per hour) includes the income workers receive when they take paid leave.
- [7] For more information on the Bank's liaison program, see Dwyer, McLoughlin and Walker (2022).
- [8] This includes all agencies in the Commonwealth and ACT and most agreements in Victoria, the Northern Territory and Tasmanian local government.

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