COMMERCIAL IN CONFIDENCE

FINAL REPORT

Local government labour cost indexation

Options and assessment

Prepared for
Independent Pricing and Regulatory Tribunal of NSW (IPART)

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THE CENTRE FOR INTERNATIONAL ECONOMICS
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Executive summary

IPART is reviewing its methodology for setting the local government rate peg.[1] The rate peg is the maximum amount in percentage terms by which a council may increase its general income for the year. The CIE has been asked to review the labour cost indexation approach as part of IPART's broader review of the local government rate peg methodology.

Conceptually, the objective of the base increase in the rate peg is to match the change in cost that would be incurred by an efficient council to provide **the same level of services**. This objective passes directly into the objective of an approach to estimating changes in labour costs — to match the change in labour cost that would be incurred by an efficient council to provide the same level of services.

The current approach used by IPART is to use the ABS Wage Price Index (WPI) for the NSW public sector. This measure is dominated by NSW Government and Australian Government employees.

The evidence available for this review suggests that the labour market of local councils is different to that of NSW Government and Australian Government. It is more closely aligned in terms of occupations, education qualifications and skill levels to the private sector. This matches anecdotal evidence of wage pressures coming from what has happening in the private sector labour market.

We have created and assessed a range of alternative options to the current approach shown in table 1, alongside the indexation outcomes that would have occurred using each option historically.

1 Options to be assessed and historical outcomes using that option

Option number	Wage indexation	Productivity adjustment	Superannuation	5 year	10 year
				Per cent	Per cent
1A	ABS NSW Wage Price Index public sector	None	Super guarantee rate	11.4	27.1
1B	ABS NSW Wage Price Index for all sectors	None	Super guarantee rate	10.5	26.3
1C	ABS NSW Wage Price Index private sector	None	Super guarantee rate	10.3	26.1
2A	Local Government Award increases	None	Super guarantee rate	12.2	29.3
2B	Fair Work Commission minimum wage increase	None	Super guarantee rate	12.2	29.9
2C	NSW Industrial Relations Commission wage increase	None	Super guarantee rate	14.7	32.2

1 IPART website, https://www.ipart.nsw.gov.au/Home/Industries/Local-Government/Review-of-rate-peg-methodology, accessed 18 November 2022.

Option number	Wage indexation	Productivity adjustment	Superannuation	5 year	10 year
3A	Local council data on employment costs and FTEs	Market sector labour productivity	Not included	6.7	10.6
3B	Local council data on employment costs and FTEs	Market sector multi-factor productivity	Not included	9.7	21.9
4A	IPART WPI using council survey data	None	Super guarantee rate	NA	NA
4B	IPART WPI using job advertisement data	None	Depends on job data	NA	NA
5A	Forecast WPI for Australia from RBA	None	Super guarantee rate	NA	NA
5B	Forecast AHE for Australia from RBA	Market sector multi-factor productivity	Not included	NA	NA

Source: The CIE.

An overall summary of the assessment of these options is shown in table 2..

- Broader wage price index options (1B and 1C) perform better than the existing public wage price index. Their main drawback is timeliness and ability to reflect annual variation in cost pressures for local councils.
- Using the local government award scores highly on most criteria. Its main weakness is how it interacts with the wage negotiation process, which could lead to very significant unintended consequences.
- IPART constructing a local council specific WPI scores highly on most of the criteria. However, it would be high cost to implement.

The options that perform the best against the criteria are 1B, 1C, 2A and 4A. On balance, we consider that there is less risk that a broad-based WPI measure (Option 1 B or 1C), combined with changes to superannuation arrangements, will lead to systematic long term errors for councils. This supports using an all sector or private sector WPI for NSW.

Forecast options (5A and 5B) perform best on timeliness. However, these indicators are more likely to have persistent bias relative to actual wage pressures and a lower level of accuracy.

2 Assessment of options — overall summary

Option	Unbiased	Accurate	Timely	Stable	Simple and low cost	Unintended consequences
Current	Medium	Low	Low	High	High	High
1A (Public WPI)	Medium	Low	Low	High	High	High
1B (All WPI)	High	Medium	Low	High	High	High
1C (Private WPI)	High	Medium	Low	High	High	High
2A (Award increases)	High	High	Medium-High	Medium	High	Low
2B (FWC increases)	Medium	Low	Medium	High	High	High
2C (IRC increases)	Medium	Low	Medium	High	High	High

Option	Unbiased	Accurate	Timely	Stable	Simple and low cost	Unintended consequences
3A (Council cost and FTE data)	Low	Low	Low	High	Medium	Medium
3B (Council cost and FTE data)	Medium	Low	Low	High	Medium	Medium
4A (IPART WPI based on council data)	High	High	Low	High	Low	Medium
4B (IPART WPI based on other data)	High	Medium	Medium	Medium	Low	Medium
5A WPI forecasts from RBA	Medium-Low	Low-Medium	High	Medium-High	High	High
5B AHE forecasts from RBA	Medium-Low	Low	High	Medium	High	High

Source: The CIE.

1 Introduction

IPART's review of the local government rate peg

IPART is reviewing its methodology for setting the local government rate peg.[2] The rate peg is the maximum amount in percentage terms by which a council may increase its general income for the year.

The rate peg for a particular council currently involves:

- a base change — the percentage change applied to general income for all councils
- a population adjustment — a specific change for each council related to its population growth.[3]

The base change aims to capture increases in costs for councils, such as through general inflation.

Councils can receive increases above the rate peg only through special variations, which a council may seek from IPART so they can introduce new services or improve service quality, and supplementary valuations (to the extent these are not netted off the population adjustment).

The CIE has been asked to review the labour cost indexation approach as part of IPART's broader review of the local government rate peg methodology.

Current approach to measuring the base change in costs

Currently, IPART determines the base change in costs through the Local Government Cost Index (LGCI). The LGCI provides a view of how much costs on average are increasing, based on identifying the main cost components and their expected changes.

The largest component in the LGCI is the labour cost component. As of June 2021, this had a weight of 38.6 per cent.

The change in labour costs is currently measured through the use of the ABS Wage Price Index for the NSW public sector. On average over the past decade, this has provided an increase in labour costs of 2.3 per cent per year.

IPART's approach also allows for a productivity adjustment to be made to reduce the LGCI by productivity growth. This has been set to zero since 2018/19.

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2 IPART website, https://www.ipart.nsw.gov.au/Home/Industries/Local-Government/Review-of-rate-peg-methodology, accessed 18 November 2022.

3 Note that a council can increase its rates also through supplementary valuations. These increases are netted off the population factor.

Objectives of indexation of labour costs

The objective of the base increase in the rate peg is to match the change in cost that would be incurred by an efficient council to provide **the same level of services**. This objective passes directly into the objective of an approach to estimating changes in labour costs — to match the change in labour cost that would be incurred by an efficient council to provide the same level of services.

Note that this specifies that the level of services provided by a council remains constant. Over time it is expected that the community would want councils to provide higher service levels. The mechanism for this is special variations rather than the base increase in the rate peg.

Conceptual basis for indexation

The labour costs of a council depend on:

- the number of people employed across different roles and the number of hours they work
- the ordinary time earnings or wage for each role and overtime rates for each role.

The change in labour costs that a council experiences will therefore reflect changes in all of these factors. For example, a council's total labour costs could increase because:

- the composition of its workforce shifts to positions with higher earnings, even though earnings for any particular position are unchanged. This is a change in the **quality** of the council's workforce
- the wage for each role increases. This is a change in the **unit cost** of labour
- the amount of people employed and/or hours worked increases. This is a change in the **quantity** of the council's workforce
- the amount of hours undertaken as ordinary time decreases and overtime increases. This is a change in the **unit cost** of labour.

In addition, there are on-costs such as superannuation that are not part of wages earned by the council's workforce, but are part of a council's overall employment-related costs.

Estimating changes to labour costs for providing the same services is intended to **only capture the change in the unit cost of labour**.

- Quality changes are not included because they should lead to council producing more or higher quality services.
- Quantity changes are not included because they should lead to council producing more or higher quality services.

This means that councils will likely experience pressures on their overall labour costs that are broader than what is intended to be captured in the changes applied to labour costs for the purposes of the rate peg.

Problems with existing arrangements

Issues that have been raised with existing arrangements for estimating the change in labour costs include the following:

- The NSW public sector wage price index is likely to be driven by NSW Government employees. For example, there are ~50 000 people employed by local councils in NSW. In comparison, there are 388 000 people employed by the NSW Government (e.g. teachers, nurses, police, state administration) and 124 000 people employed by the Australian Government (e.g. universities, postal, Federal agencies, defence).[4]
  - There are specific cost control arrangements that apply to NSW Government employees such as the labour expenses cap. This caps the total labour expenses for agencies. It has typically been set at 2.5 per cent per year.[5] This cap includes superannuation.[6]
- The NSW public sector wage price index does not account for changes in superannuation arrangements.
  - The minimum amount of superannuation was 9.5 per cent from 2014/15 to 2020/21. This increased to 10 per cent for 2021/212, 10.5 per cent for 2022/23 and is expected to keep increasing at 0.5 percentage points each year until it reaches 12 per cent by 2025/26.[7]

Later in this paper we compare the changes in actual wages to the IPART allowed increases.

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4 ABS Census Table Builder 2021, accessed 18 November 2022. Note that some of the Australian Government employees would not be part of the NSW Public Sector WPI because it does not cover defence forces.

5 NSW-Public-Sector-Wages-Policy-2011 ,p1 available at https://arp.nsw.gov.au/assets/ars/attachments/TC14-18_NSW_Public_Sector_Wages_Policy_2011-v2.pdf , NSW Public Sector Wages Policy 2022, p3, available at: https://arp.nsw.gov.au/assets/ars/attachments/NSW-Public-Sector-Wages-Policy-2022.pdf

6 NSW Public Sector wages policy 2022, https://arp.nsw.gov.au/assets/ars/attachments/NSW-Public-Sector-Wages-Policy-2022.pdf.

7 ATO website, https://www.ato.gov.au/rates/key-superannuation-rates-and-thresholds/?anchor=Superguaranteepercentage#Superguaranteepercentage, accessed 30 November 2022.

2 The labour market for local councils

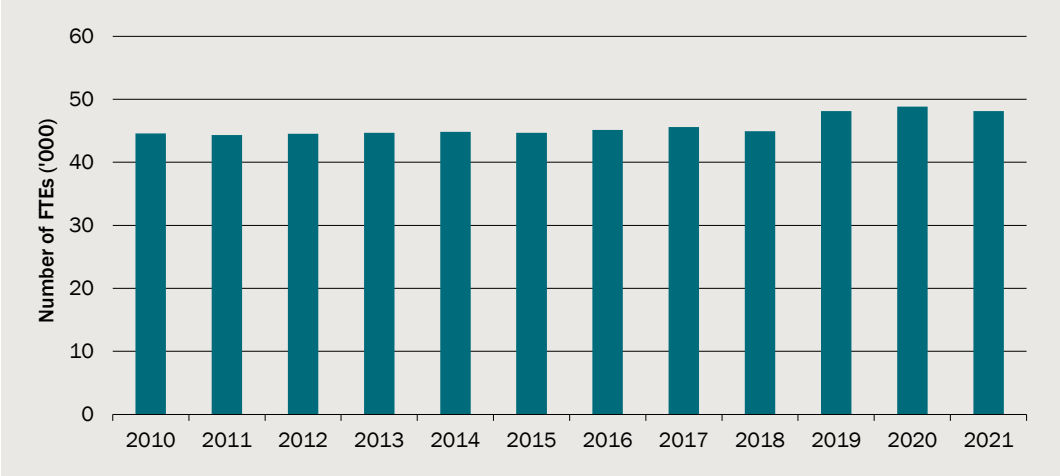
The appropriate mechanism for indexing labour costs for local government depends on the labour market in which local governments operate, as well as the regulatory arrangements in place for wage setting. The evidence presented in this chapter suggests that local councils are more closely linked to the private sector in terms of the labour market in which they operate than to NSW Government or Australian Government skills.

The chapter also sets out how different measures of labour costs have changed over time.

Nature of the labour market

Local government in New South Wales comprises 128 local government areas, employing a workforce of around 48 000 full time equivalent employees across the state in the financial year 2020-21. This is up from just below 45 000 full time equivalent employees from 2009-10, which implies a relatively stable but steadily growing labour force over time (chart 2.1).

2.1 Number of Full-time equivalent staff employed by local government



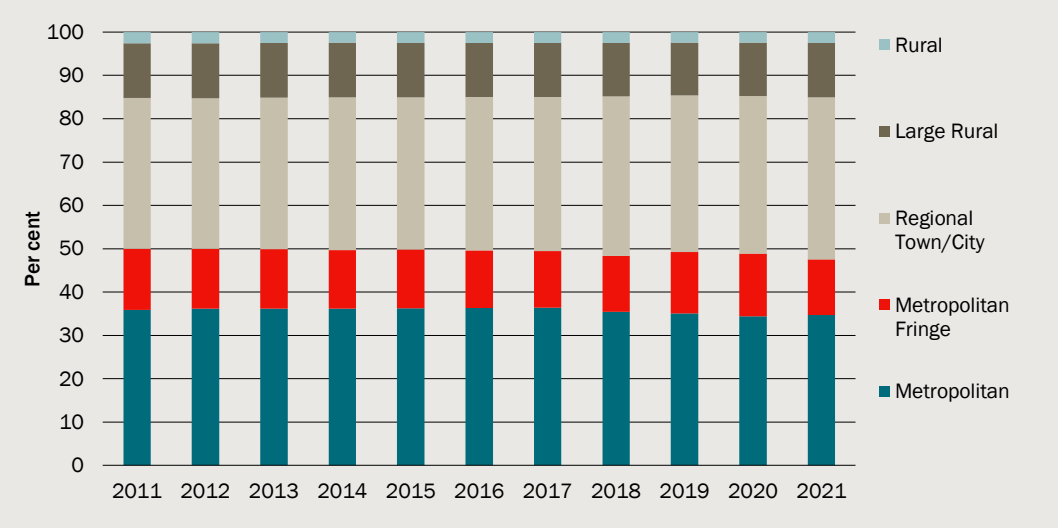
Note: Value for 2016 set equal to average of 2015 and 2017 due to data reporting issues resulting from council amalgamations. Years are financial year ending

Data source: Total FTEs across all councils reported in Your Council Report, Office of Local Government time series data 2009-10 to 2020-21, accessed at https://www.olg.nsw.gov.au/public/about-councils/comparative-council-information/your-council-report/

The local government sector's workforce is spatially distributed across local government areas, ranging from metropolitan to rural regions. Around half of local government employees work within councils that are within metropolitan or metropolitan fringe

areas, while the remainder work predominantly within regional towns and cities and larger rural areas (chart 2.2).

2.2 Local government employees by region



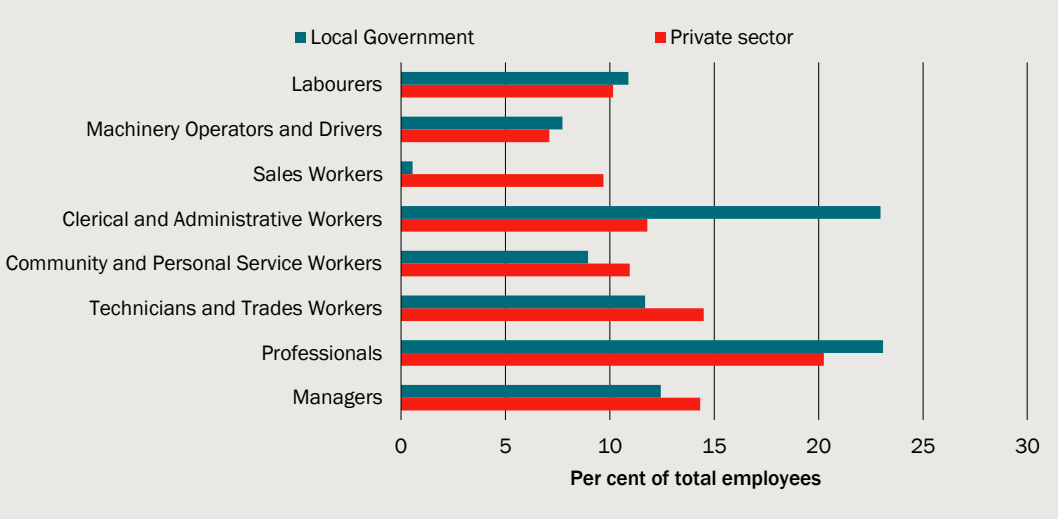
Note: Value for 2016 set equal to average of 2015 and 2017 due to data reporting issues resulting from council amalgamations. Years are financial year ending. Councils that have been merged are allocated to the category of the merged council.

Data source: Total FTEs across all councils reported in Your Council Report, Office of Local Government time series data 2009-10 to 2020-21, accessed at https://www.olg.nsw.gov.au/public/about-councils/comparative-council-information/your-council-report/.

The local government workforce comprises a diverse set of occupations and skills (chart 2.3). Of note is the relatively similar overlap in terms of the proportion of occupations that make up the local government workforce compared to the broader private sector. Two notable exceptions being clerical and administrative workers, of which councils employ a significantly higher share and sales workers, which comprise a very small share of employees compared to the private sector.

It should also be noted that some councils outsource activities directly to the private sector (for example the operation of animal shelters) and so some skills and occupations would not directly form part of the local government labour force.

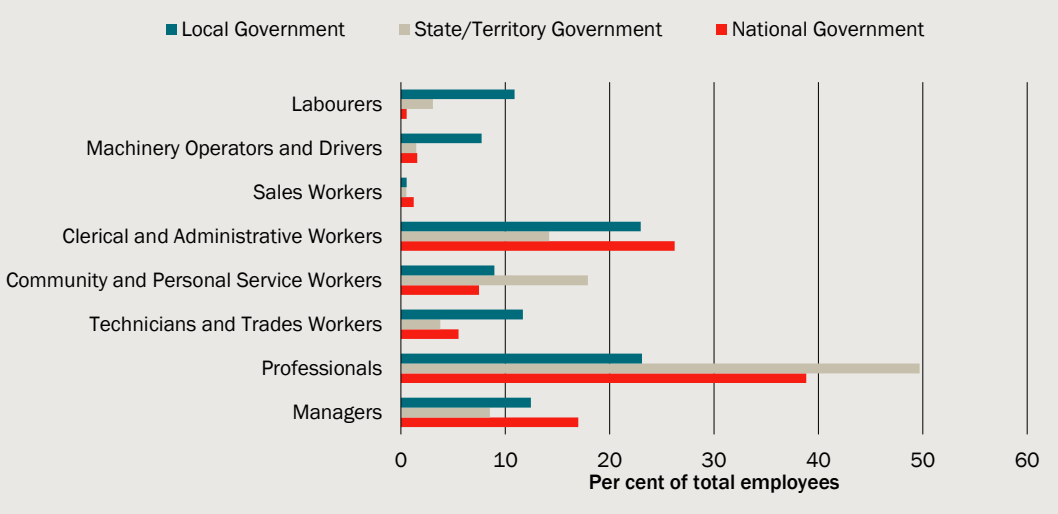
2.3 Occupations as a share of local government and private sector workforce 2021



Data source: ABS Census 2021

There is less of an overlap between the workforce compositions of local government compared to the broader public sector such as state/territory governments and national government agencies. Other public sector employers have a much higher share of employees who are professionals, while councils have a higher share of employees who are laborers, machinery operators and drivers (chart 2.4).

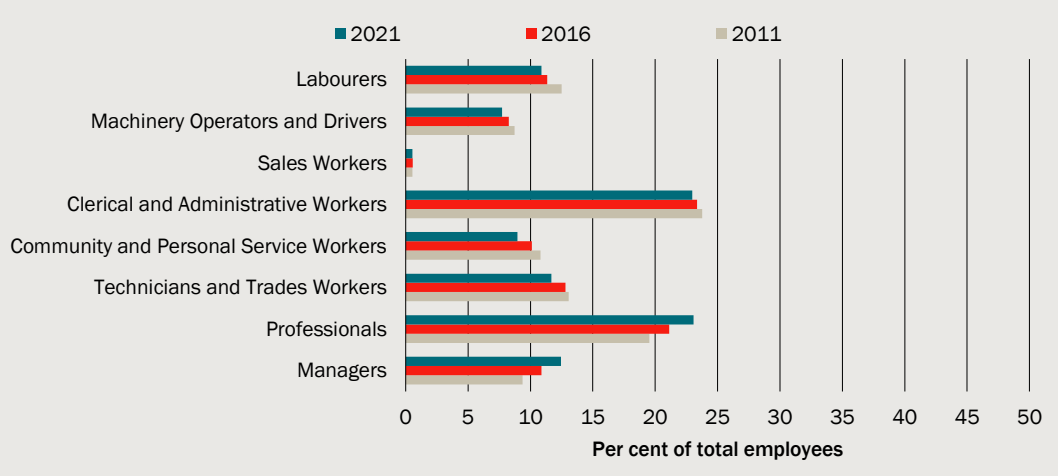
2.4 Occupations as a share of all government workforces 2021



Data source: ABS Census 2021.

The composition of the local government workforce in terms of the types of occupations has gradually shifted towards higher skilled occupations, such as professionals and managers (chart 2.5).

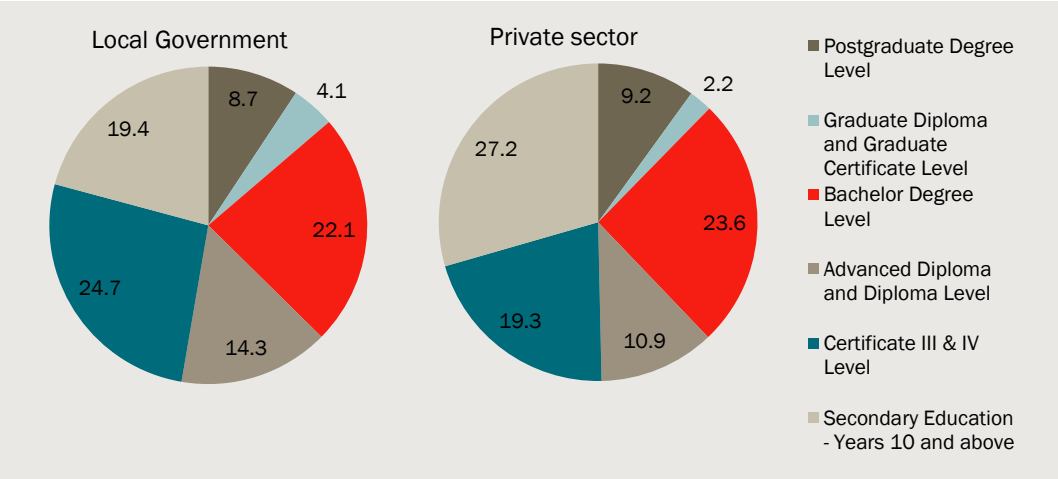
2.5 Occupations employed by local government over time



Data source: ABS Census 2021, 2016 and 2011.

The patterns of education across the local government workforce mirrors closely that of the private sector, with the majority of the workforce having completed some form of post-secondary school education such as a bachelor's degree, diploma or certificate level qualification (chart 2.6). The private sector comprises a higher share of workers having completed secondary education as the highest level of educational attainment, likely reflecting the mix of occupations for which higher level qualifications are not required (e.g. sales workers), as well as employing people who are still undertaking other qualifications.

2.6 Education level of local government and private sector workforce 2021

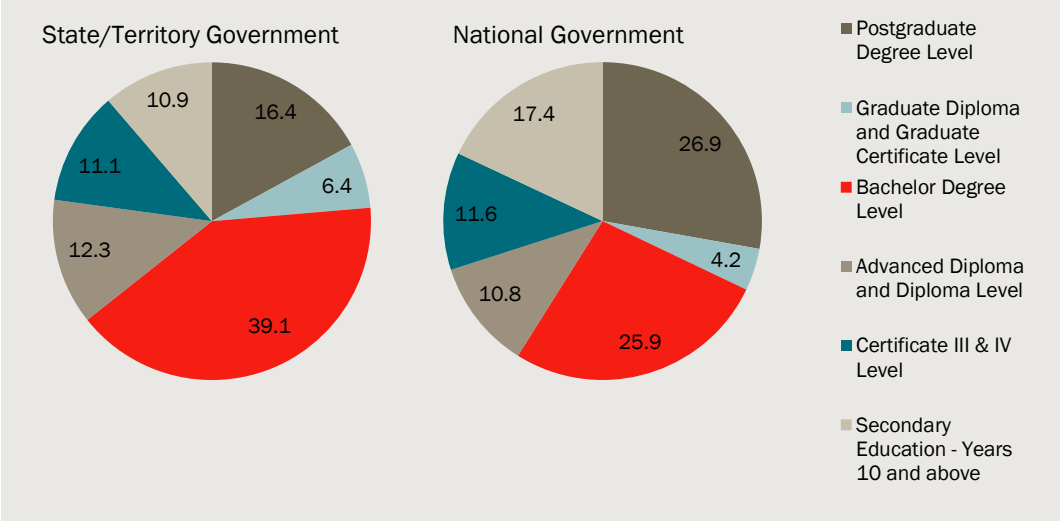


Note: Total do not sum to 100 per cent due to exclusion of supplementary and non-stated categories.

Data source: ABS Census 2021.

The level of education that can be seen across the state/territory and national government workforces are higher than that of the local government and private sector workforce, with higher overall proportions of bachelor's and postgraduate qualifications (chart 2.7).

2.7 Education level of state/territory and national Government workforce 2021



Note: Total do not sum to 100 per cent due to exclusion of supplementary and non-stated categories.
Data source: ABS Census 2021.

The ABS measures skill levels across a variety of occupations and sectors. Occupational skill level is defined as a function of the range and complexity of the set of tasks performed in a particular occupation. The greater the range and complexity of the set of tasks, the greater the skill level of an occupation[8]. Skill level is measured operationally by:

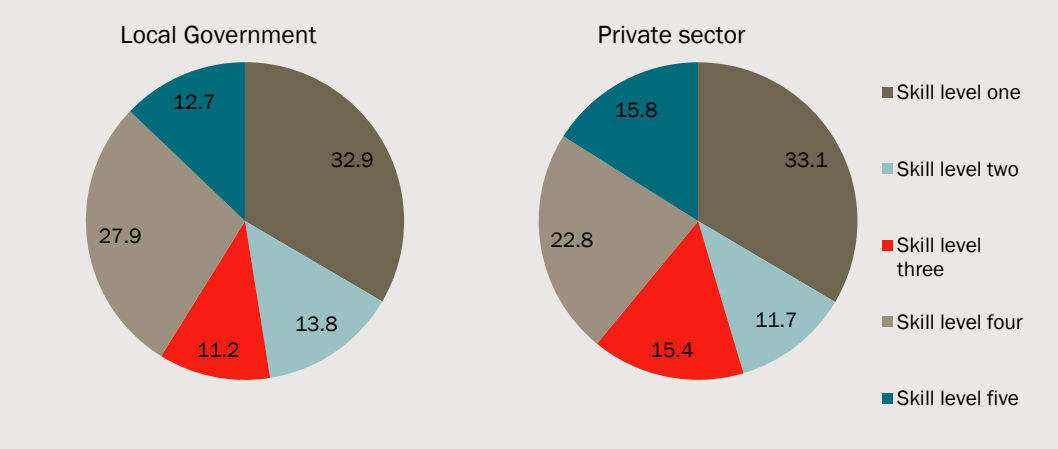
- the level of amount of formal education and training
- the amount of previous experience in a related occupation
- the amount of on-the-job training.[9]

The patterns of occupational skill are likewise very similar across the local government and private sectors (chart 2.8). This would indicate that, in addition to there being very similar occupations comprising the workforce in each sector, the overall quality of labour working across each sector within those same occupations is equivalent (i.e. a labourer working for a council is, on average, just as skilled as a labourer working in the private sector).

8 ANZSCO – Australian and New Zealand Standard Industrial Classification of occupations, First Edition, Revision 1 https://www.abs.gov.au/ausstats/abs@.nsf/0/598C2E23628BB8FDCA2575DF002DA6B8?opendocument

9 Ibid

2.8 Occupational skill level across local government and private sector 2021



Note: Totals do not sum to 100 per cent due to exclusion skill level not determined and non-stated categories.
Data source: ABS Census 2021.

The 2022 Local Government Workforce Skills and Capability survey found that over 91 per cent of local governments reported that they were experiencing skills shortages in 2021-22, compared to the 86 per cent of responding local governments in 2018[10]. The most cited skills shortages that local governments are experiencing are engineers, urban and town planners, building surveyors, project managers and labourers and ICT professionals.

Among the most common cited drivers of skills shortages within the sector was the inability to compete with market remuneration, particularly that of the mining industry[11]. This would further indicate that the local government sector must compete for labour from a pool common to other sectors (namely the private sector), meaning the local government workforce responds to changes in wages and conditions in other sectors.

Wage setting arrangements for local councils

Wages within the local government sector can be determined by a range of different factors, including:

- the local government industry award
- Enterprise bargaining agreements, and
- Individual agreements and non-financial benefits (e.g., annual leave, workplace flexibility etc…).

Consultation with Local Government New South Wales (LGNSW) has informed us that around 90 per cent of staff are eligible for award rates, however in practice, competition with the broader labour market can lead to either higher wages or a combination of

10 2022 Local Government Workforce Skills and Capability Survey — New South Wales Report, SGS Economics and Planning, prepared for the Australian Local Government Association, p13

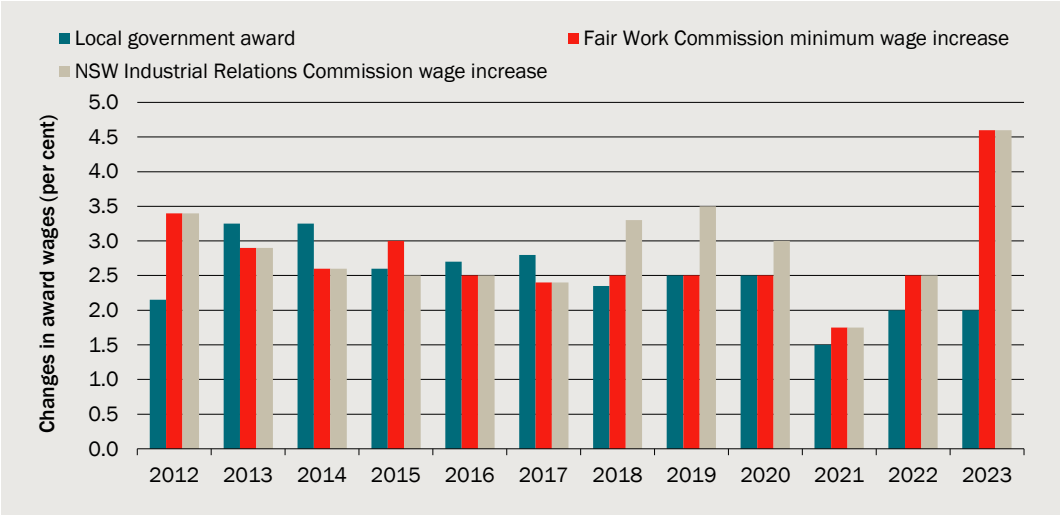
11 Ibid p45

conditions and other non-financial benefits that exceed the value of the award. There is no information available about how many local government employees are on award rates versus higher rates.

While the rate of change in any one individual wage or salary may be governed by an agreement such as the award or enterprise bargaining agreement, the level of remuneration received by employees of varying skill and experience levels can be determined by the individual council through their own salary system. A salary system determines the number and types of ranks within an organisation and their associated rates of pay. These can differ from council to council.

Changes in wages from local government award rates and other indicators of regulated wages are presented in chart 2.9. Generally, changes in the local government award has moved in-line with changes in the NSW Industrial Relations Commission wage increase and the Fair Work Commission minimum wage increase, with the exception of 2022-23 which saw the minimum wage increase more strongly by 4.6 per cent.

2.9 Government award rates 2011-12 to 2022-23



Data source: LGNSW data provided to The CIE.

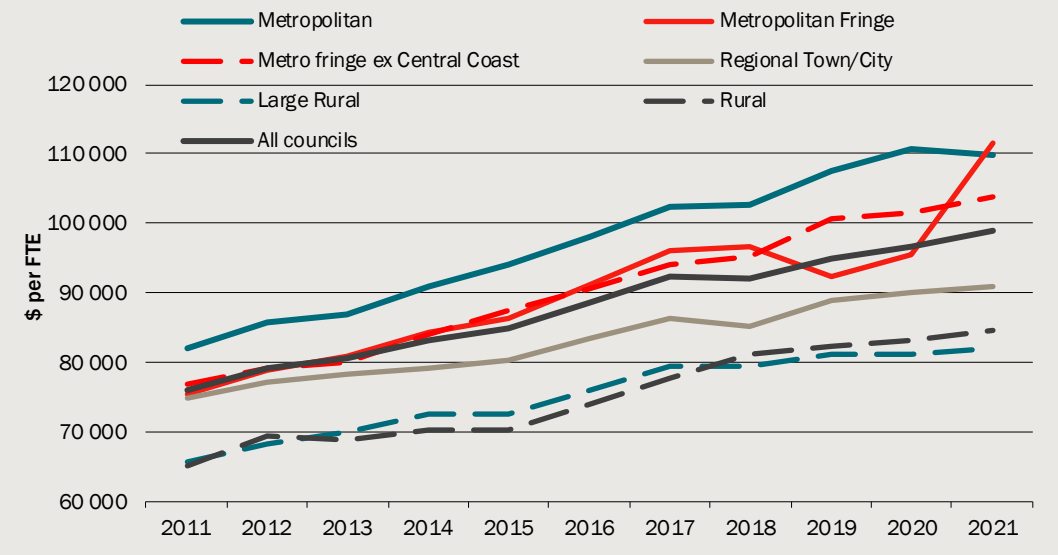
Historical evidence about labour cost changes

There are range of indicators which can be used to track changes in local government labour costs. The most direct measure is employment costs reported by councils to the NSW Office of Local Government divided by reported aggregate full-time equivalent (FTE) employment for each council.

- Metropolitan councils have higher employment costs (including superannuation) per FTE, followed by Metropolitan Fringe, Regional town/city and rural councils (chart 2.10).
- Employment costs per FTE have grown in all regional classifications, ranging from 22 per cent to 48 per cent over the ten years from 2010-11 to 2020-21. The high growth in Metropolitan Fringe of 48 per cent is largely linked to reporting from Central Coast

Council, who reported a very large drop in employment but unchanged employment costs in 2020-21.

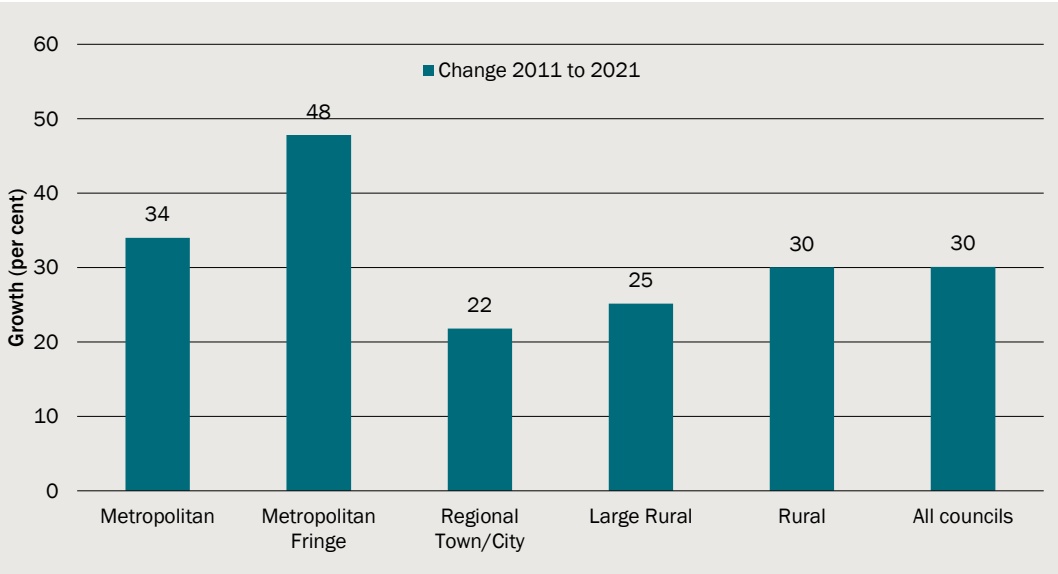
2.10 Council employment costs per FTE



Note: Value for 2016 set equal to average of 2015 and 2017 due to data reporting issues resulting from council amalgamations. Years are financial year ending. Councils that have been merged are allocated to the category of the merged council.

Data source: The CIE analysis, based on data provided by IPART.

2.11 Changes in employment costs per FTE by type of council region

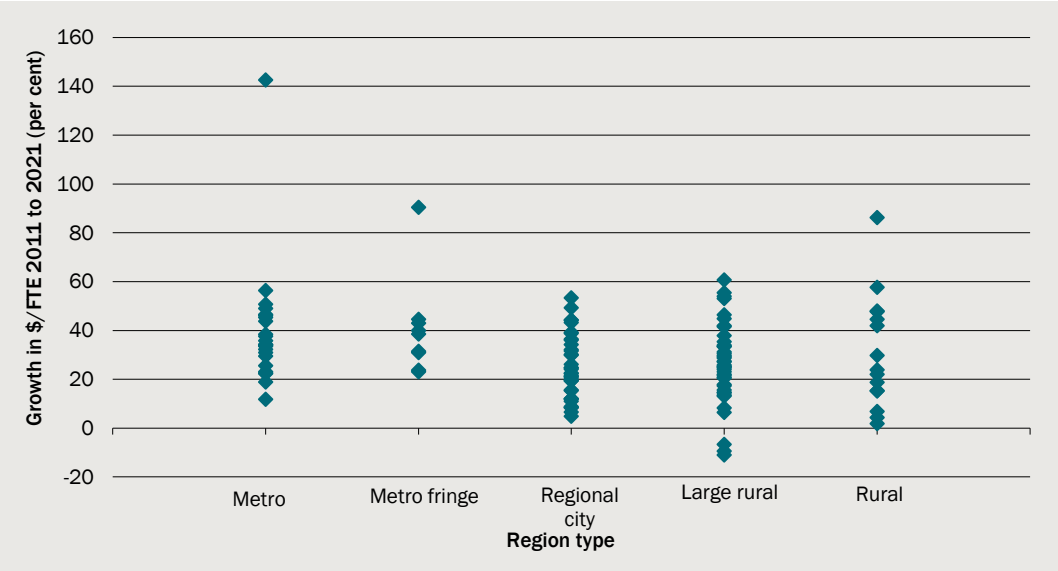


Note: Years are financial year ending. Councils that have been merged are allocated to the category of the merged council.

Data source: The CIE analysis, based on data provided by IPART.

We have compared changes in unit costs at an individual council level over the past 10 years. Councils are linked to their current council for those that have merged. This shows that changes in employment costs per FTE vary widely across councils, even within the same regional categorisation (chart 2.12).

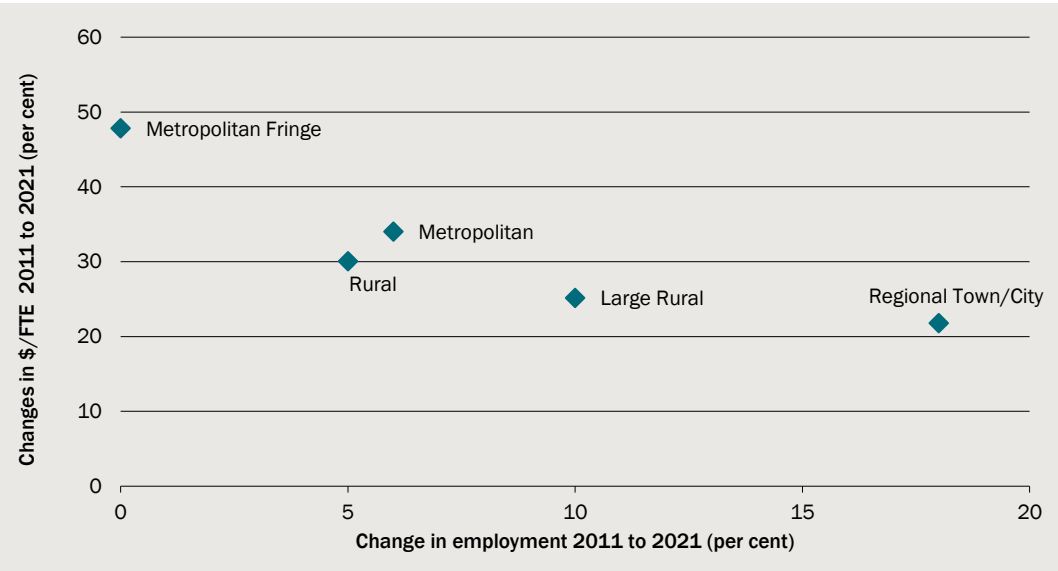
2.12 Distribution of changes in employment costs by council by type of council region 2011 to 2021



Note: Years are financial year ending. Councils that have been merged are allocated to the category of the merged council.
Data source: The CIE analysis, based on data provided by IPART.

It is likely that data on FTEs is inaccurate. Council groupings that have reported higher FTE growth are those with lower employment cost per FTE growth, which would not be expected, and likely means some of the variation in employment costs per FTE simply represents inaccurate data on employment growth. To highlight this, metropolitan fringe councils, which are typically the fastest growing areas, have reported zero employment growth over a decade (chart 2.13). This in part reflects large changes in Central Coast's reported employment numbers.

2.13 Relationship between changes in FTE wage costs and changes in employment



Note: Years are financial year ending. Councils that have been merged are allocated to the category of the merged council.
Data source: The CIE analysis, based on data provided by IPART.

Also note that there can be changes to what is captured in a council's data. For example, some activities may be contracted out or moved in (e.g. waste management).

The changes in employment costs reported above are the employment cost including superannuation per FTE. It would be expected that this would increase over time because of:

- labour price increases for the same quality of labour, and
- changes in the composition of labour to higher skilled occupations (see chart 2.5).

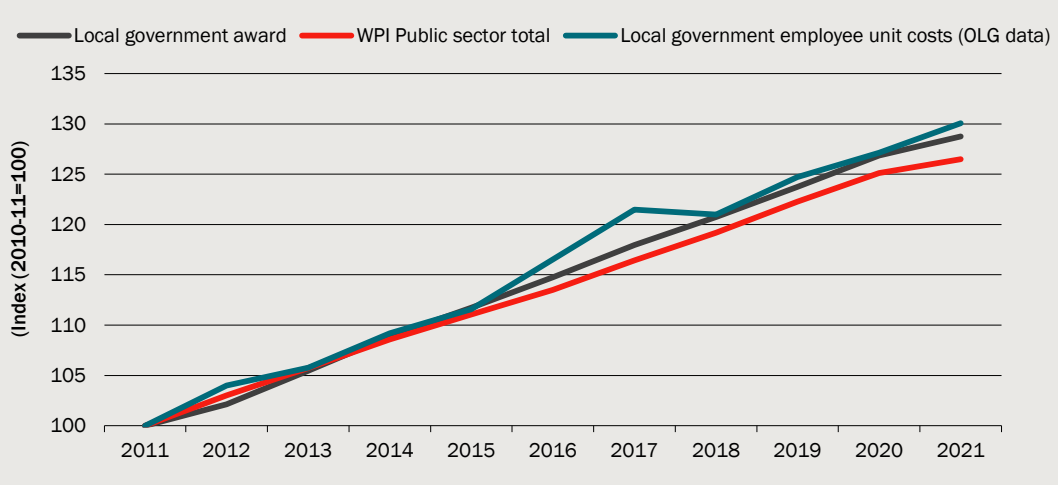
Only the first of these is a change relevant for IPART's labour price indexation.

There are a number of pure measures of labour price increases, of some relevance to local councils. These include:

- the local government award increases
- ABS Wage Price Indices, which cover more than just local council employees.

Indices of these measures, and the labour cost per FTE, are shown in chart 2.14. The local government award index has a very similar overall pattern to the labour cost per FTE. The WPI public sector is slightly lower over the ten year period.

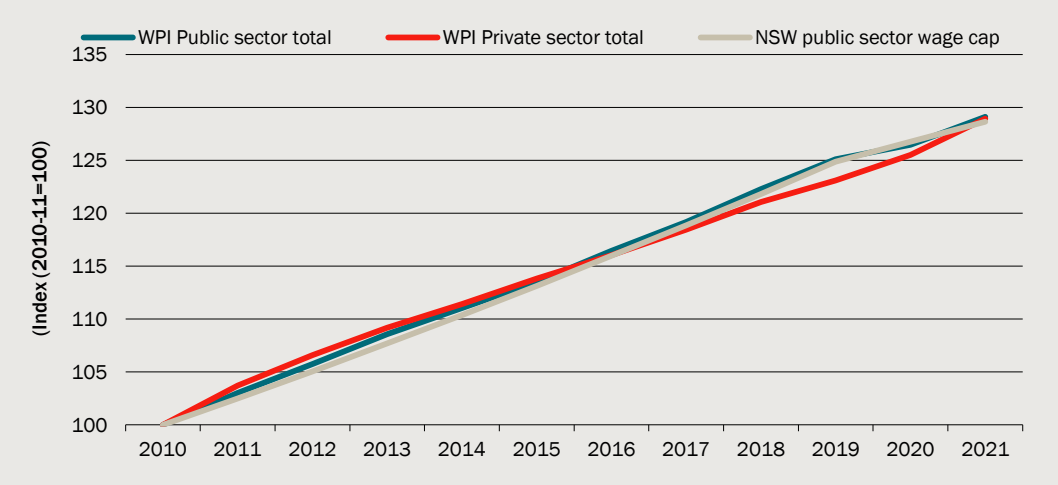
2.14 Local government wage cost indicators



Data source: The CIE analysis, based on data provided Local Government NSW and IPART (for historical local government award rates and employee unit costs), ABS wage price index, "A guide for the NSW Local Government" Industrial relations NSW, p1 available at: https://www.industrialrelations.nsw.gov.au/assets/Uploads/publications/Local-Government-Award-2020-Guide-2021.pdf , NSW Government (State) Award 2017, section 44 (vi-viii), Local Government (State) Award 2014, section 43 (vi-viii)

We can also compare the private sector wage profile to the public sector in NSW (chart 2.15). We have also shown the NSW Government's wage cap. There is very little overall difference in the ABS wage price index for public and private over this 11-year period.

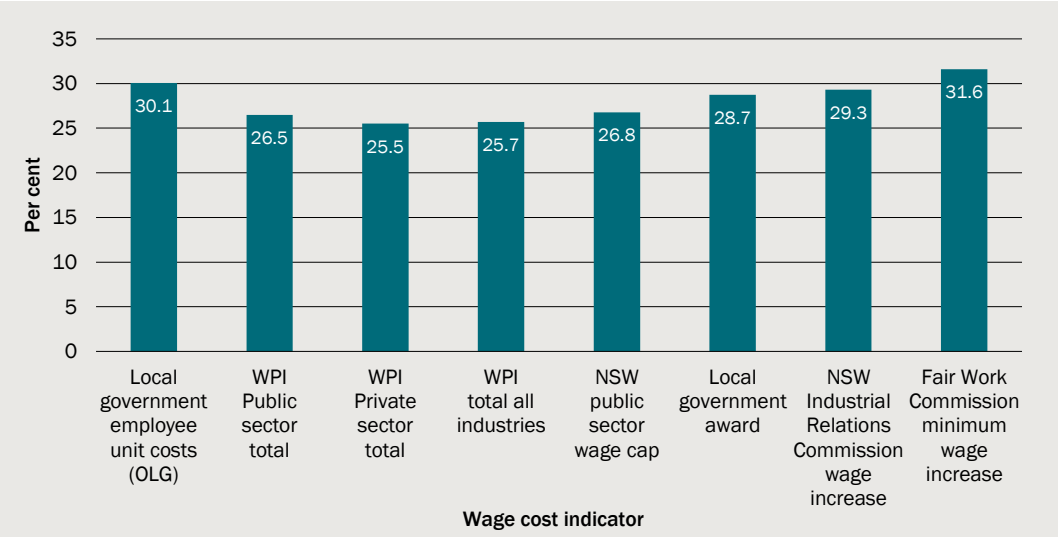
2.15 Public and private sector wage cost indicators



Data source: The CIE analysis based on data from ABS Wage Price Index, NSW Public Sector Wages Policy 2022, p3, NSW Public Sector Wages Policy 2021, p3, NSW Public Sector Wages Policy, 2011, p1

Using a consistent time period, a summary of a number of different wage indicators from 2010-11 to 2020-21 is shown in chart 2.16. All wage indicators are quite close, suggesting wage growth of 25-32 per cent over the 10 year period. The local government employee unit costs measure should be somewhat higher, because it includes composition changes to higher skilled jobs.

2.16 Cumulative growth in all wage indicators across 2010-11 to 2020-21



Note: WPI measures are for NSW, ordinary time earnings.

Data source: ABS Wage Price Index; NSW Public Sector Wages Policy 2011, 2021 and 2022, pages 1-3 (NSW public sector wages cap); dataset provided by Local Government NSW and IPART on historical local government award rates, NSW Industrial relations Commission and employee unit costs from OLG; "A guide for the NSW Local Government" Industrial relations NSW, p1 available at: https://www.industrialrelations.nsw.gov.au/assets/Uploads/publications/Local-Government-Award-2020-Guide-2021.pdf , NSW Government (State) Award 2017, section 44 (vi-viii), Local Government (State) Award 2014, section 43 (vi-viii) (NSW state award); Fair Work Commission Annual Wage review 2010-11 to 2021-22, available at https://www.fwc.gov.au/hearings-decisions/major-cases/annual-wage-reviews/annual-wage-review-2021-22

Historical evidence about productivity changes

Labour or multi-factor productivity would have to be factored into some measures of labour cost, if these are not already stripping out productivity changes. For example, a historical measure of labour cost per FTE would overstate pure labour price increases that a council would need to increase revenue to cover, because each employee should be producing higher output. For example, if 20 employees were required to provide services today at a price of $75 000 each, then the total cost of labour to provide services is $1.5m. If in 10 years time, 15 employees were required to provide the same services at a price of $100 000 each, then the total cost of labour to provide services is still $1.5m. A direct measure of cost per FTE would show an increase of 33 per cent ($100 000 compared to $70 000). However, the productivity adjusted increase would be zero per cent ($1.5m compared to $1.5m).

Broad measures of labour cost, such as employment cost per FTE, will likely need to have some productivity adjustment applied. Pure measures of labour costs, such as the Wage Price Index or local government award rates, should already be holding the quality of labour and hence productivity constant, and should not need a productivity adjustment.

There are two main measures of productivity:

- labour productivity measures the change in the amount of output per unit (e.g. hour) of labour
- multi-factor productivity measures the change in the amount of output per amount of combined inputs of labour and capital.

If a business moves to use machines to do some tasks previously undertaken by people, then this would lead to labour productivity improvements, but not necessarily multi-factor productivity improvements, because the amount of capital used would increase. For this reason, multi-factor productivity growth is typically lower than labour productivity growth.

The ABS measures productivity for the market sector, which is businesses that sell their product in a market. It provides aggregate as well as industry-specific measures. Productivity measurement is less exact than other ABS measures and relies on assumptions about depreciation of capital and quality of outputs that are subject to significant uncertainty.

Conceptually, we consider the right productivity measure to adjust any measure of employment costs per unit for IPART's purposes is a multi-factor productivity measure. This is because a labour productivity adjustment would imply changes in the capital stock which would not elsewhere be included in the overall local government cost index.[12] The ABS measure of overall multi-factor productivity using hours worked has grown by 7 per cent from 2010-11 to 2020-21.

12 Note that the MFP growth adjustment would apply to labour and capital inputs into the local government cost index.

3 Assessment of options for indexing labour costs

Possible options

There are a range of possible options for adjusting the rate peg for changes in labour costs, with varying levels of complexity and specificity to local government. Options for indexing include:

- using ABS wage price indices such as:
  - changes in wages across NSW in general
  - changes in public sector wages (which is the current approach)
  - changes in wages for the private sector
- using the wage adjustments factored into industrial relations arrangements, such as any increases allowed in the Local Government Award
- using data collated specifically from councils by NSW OLG, such as overall wage costs and employment, to construct a measure of labour cost changes
- using surveys of councils undertaken by IPART to construct a wage price index specifically related to all or sets of councils
- using data from job advertisements to estimate changes in wage rates
- using forecasts of labour price changes, of which the most consistently provided are from the Reserve Bank of Australia for the wage price index and average hourly earnings

Options for productivity adjustments include:

- multi-factor productivity of market economy/specific sectors
- labour productivity of market economy/specific sectors.

As noted above, the productivity adjustment should link to the indexation method. For example, if the indexation method leads to higher growth because of compositional change in the workforce, then a productivity adjustment would conceptually make sense. However, it would make less sense where the indexation method for wages already strips out composition changes in the workforce.

We have created options that combine the indexation and productivity adjustment approach in table 3.1.

3.1 Options to be assessed

Option number	Wage indexation	Productivity adjustment	Superannuation
1A	ABS NSW Wage Price Index public sector	None	Added using super guarantee rate
1B	ABS NSW Wage Price Index for all sectors	None	Added using super guarantee rate
1C	ABS NSW Wage Price Index private sector	None	Added using super guarantee rate
2A	Local Government Award increases	None	Added using super guarantee rate
2B	Fair Work Commission minimum wage increase	None	Added using super guarantee rate
2C	NSW Industrial Relations Commission wage increase	None	Added using super guarantee rate
3A	Local council data on employment costs and FTEs	Market sector labour productivity	Not included
3B	Local council data on employment costs and FTEs	Market sector multi-factor productivity	Not included
4A	IPART surveys of councils to construct own wage price index	None	Added using super guarantee rate
4B	IPART data collection from job advertisements to construct own wage price index for local councils	None	Depends on data collected from job ads
5A	RBA forecasts of the wage price index (Australia)	None	Added using super guarantee rate
5B	RBA forecasts of average hourly earnings (Australia)	Market sector multi-factor productivity	Not included

Source: The CIE.

Criteria for assessing options

Options for indexing wages and making productivity adjustments have been assessed against the following criteria:

- whether it provides an **unbiased** estimate of the change in the efficient cost of labour for local councils — an unbiased estimate is one that is not going to systematically overestimate or underestimate changes in efficient labour costs
- whether it provides an **accurate** and **timely** estimate of the cost of labour for local councils — an accurate estimate is one that has a minimum error every year to actual changes in labour costs
- whether it is **simple and low cost** to implement for IPART and councils
- whether the methodology is likely to be **stable** over a long period

- whether it has potential **unintended consequences** or **perverse incentives** for councils in the way they negotiate wage agreements.

Note that while these criteria are relatively straightforward, applying these to assess options is not as straightforward because there is no observable 'true' efficient labour costs that can be used as a comparison.

Indexation outcomes under each of the options historically

We have backcast what each of the options would have led to in terms of the labour cost increase if it had been applied. This has been done for a five year period (2015-16 to 2020-21) and a ten year period (2010-11 to 2020-21).

- Most options give increases of ~10-15 per cent over a five year period and 25-30 per cent over a ten year period.
- The options to use actual council employment cost adjusted with productivity give the smallest increases. This may reflect that the market sector has been able to achieve higher productivity gains than local councils.
- Options using forecasts cannot be backcast as forecasts are only available for a shorter period.

3.2 Backcasting of options

Option number	Wage indexation	Productivity adjustment	Superannuation	5 year	10 year
				Per cent	Per cent
1A	ABS NSW Wage Price Index public sector	None	Added using super guarantee rate	11.4	27.1
1B	ABS NSW Wage Price Index for all sectors	None	Added using super guarantee rate	10.5	26.3
1C	ABS NSW Wage Price Index private sector	None	Added using super guarantee rate	10.3	26.1
2A	Local Government Award increases	None	Added using super guarantee rate	12.2	29.3
2B	Fair Work Commission minimum wage increase	None	Added using super guarantee rate	12.2	29.9
2C	NSW Industrial Relations Commission wage increase	None	Added using super guarantee rate	14.7	32.2
3A	Local council data on employment costs and FTEs	Market sector labour productivity	Not included	6.7	10.6
3B	Local council data on employment costs and FTEs	Market sector multi-factor productivity	Not included	9.7	21.9
4A	IPART surveys of councils to construct own wage price index	None	Added using super guarantee rate	NA	NA
4B	IPART data collection from job advertisements to construct own wage price index for local councils	None	Depends on data collected from job ads	NA	NA

Option number	Wage indexation	Productivity adjustment	Superannuation	5 year	10 year
				Per cent	Per cent
5A	RBA forecasts of the wage price index for Australia	None	Added using super guarantee rate	NA	NA
5B	RBA forecasts of average hourly earnings (AHE) for Australia	Market sector multi-factor productivity	Not included	NA	NA

Source: The CIE.

Note that backcasting using the superannuation guarantee rate does not make much difference as the rate has not changed much historically. However, this will make much more difference in the next few years.

Assessment of options

In this section we assess each of the options against the criteria outlined above.

Unbiased

An unbiased option is one that over the medium to long term would be expected to lead allow for an increase in labour costs at the same level of that faced by local councils. The assessment of options is shown in table 3.3. The rating shown is High is a good rating, down to Low is a poor rating for the option.

Many options have the potential for some bias. Indicators of the overall labour market, such as a broad-based WPI, are not likely to be biased in the medium term because labour markets are connected. The local council award is also probably not biased, although if it does start diverging from overall labour market conditions then it may understate wage increases, such as is occurring currently.

Forecast options have a risk of bias, based on our assessment of historical RBA forecasts for CPI. RBA forecasts for WPI and AHE do not have a long enough time series to determine their performance.

3.3 Assessment of options — unbiased

Option	Assessment	Rating
1A	Potentially biased if there are wage changes being driven by the NSW Government that are different to local councils.	Medium
1B	Likely unbiased. There is some potential for bias if there are wage changes in the labour market in general that diverge from labour market pressures for local councils. However, evidence from the previous chapter suggests labour markets are quite closely linked.	High
1C	Likely unbiased. There is some potential for bias if there are wage changes in the labour market in general that diverge from labour market pressures for local councils. However, evidence from the previous chapter suggests labour markets are quite closely linked.	High

Option	Assessment	Rating
2A	Likely unbiased. There is some potential that it is biased downwards if there are trends for more staff to be paid above the award, or councils increase provision of non-wage conditions (eg parental leave), which means the actual local government award increases understate the real labour price increases faced by councils.	High
2B	Potentially biased as Fair Work Commission decisions do not have to relate to the actual labour market pressures faced by councils.	Medium
3C	Potentially biased as the NSW Industrial Relations Commission decisions do not have to relate to the actual labour market pressures faced by councils.	Medium
3A	Almost certainly biased as the labour productivity adjustment does not account for the capital deepening required to achieve this.	Low
3B	Potentially biased if the multi-factor productivity of councils is different to the market sector.	Medium
4A	Likely unbiased as can construct to be unbiased.	High
4B	Likely unbiased as can construct to be unbiased.	High
5A	High risk of bias through forecasts being persistently different to actual wage price outcomes, such as evidence in historic CPI forecast performance	Medium-Low
5B	High risk of bias through forecasts being persistently different to actual wage price outcomes, such as evidence in historic CPI forecast performance	Medium-Low

Source: The CIE.

Accurate and timely

The accuracy of an option is based on whether it matches the short term movements in labour costs faced by councils. Timeliness is measured separately, but is a related concept — a measure might accurately reflect year to year movements, but do so with a two year lag. The assessment of options is shown in table 3.4 and table 3.5.

3.4 Assessment of options — accurate

Option	Assessment	Rating
1A	There is little reason for the WPI Public Sector to move in line with council in the short term because of different wage setting arrangements. There would be pressure to align for some parts of council workforces in the medium term.	Low
1B	Year to year we would expect that there could be differences. However, given labour market connectivity there would be pressure on councils related to meeting wage changes for private and relevant public sector comparators.	Medium
1C	Year to year we would expect that there could be differences. However, given labour market connectivity there would be pressure on councils related to meeting wage changes for private sector comparators.	Medium
2A	This should move closely in line with council actual wage increases year to year.	High
2B	The National Minimum Wage award annual increase is not correlated with the local council award, so is not likely reflective of year to year wage pressures on councils.	Low

Option	Assessment	Rating
2C	The National Minimum Wage award annual increase is not correlated with the local council award, so is not likely reflective of year to year wage pressures on councils.	Low
3A	This measure will have a lot of data error, as can be seen in historical series. Issues such as individual councils dramatically changing reporting of employment will impact year to year allowances. Productivity adjustments can also be very variable on an annual basis.	Low
3B	This measure will have a lot of data error, as can be seen in historical series. Issues such as individual councils dramatically changing reporting of employment will impact year to year allowances. Productivity adjustments can also be very variable on an annual basis.	Low
4A	Should match councils annual cost pressures fairly accurately (except with a lag).	High
4B	Should match councils annual cost pressures to some degree but likely to be issues with the sampling of jobs and representativeness.	Medium
5A	Forecasts of WPI for Australia are likely to be a fairly inaccurate view of actual WPI for NSW (see Appendix) and of council labour cost pressures	Low-Medium
5B	Forecasts of AHE for Australia are likely to be a fairly inaccurate view of actual AHE for NSW (see Appendix) and of council labour cost pressures. The need to include a productivity adjustment is also a risk to accuracy, as it will be difficult to know if councils are able to achieve the same productivity gains (or losses) as measured by the ABS, as well as measurement error in productivity estimates.	Low

Source: The CIE.

3.5 Assessment of options — timely

Option	Assessment	Rating
1A	The WPI is historical, so IPART would always be slightly more than a year behind actual labour price movements when developing an annual measure to be applied forward. In practice, because of when IPART releases its rate peg, there is a two-year lag.	Low
1B	The WPI is historical, so IPART would always be slightly more than a year behind actual labour price movements when developing an annual measure to be applied forward. In practice, because of when IPART releases its rate peg, there is a two-year lag.	Low
1C	The WPI is historical, so IPART would always be slightly more than a year behind actual labour price movements when developing an annual measure to be applied forward. In practice, because of when IPART releases its rate peg, there is a two-year lag.	Low
2A	The future increases allowed in the local government award are often known for a three year period, so this measure is aligned to when councils will face cost increases. When negotiations are occurring, we expect that this would not necessarily be the case, and there may be a gap in timing.	Medium-High
2B	The National Minimum Wage award is typically made in mid-June to start 1 July that year. IPART sets the rate peg in September to begin the following July. This suggests this measure would have a one year lag.	Medium

Option	Assessment	Rating
2C	The IRC sets the State Wage Case, which is the per cent adjustment applied to a number of public service awards. This happens after the Fair Work Commission decision. For example, the first orders for the State Wage Case for 2021/22 occurred in October 2021. Hence likely to be lagged by a year, if not more.	Medium
3A	Likely to be lagged by a similar amount to WPI (two years) depending on council reporting.	Low
3B	Likely to be lagged by a similar amount to WPI (two years) depending on council reporting.	Low
4A	Likely to be lagged by one to two years similar to ABS WPI.	Low
4B	Could be very timely if linked to up to date job advertisements. However, it is not expected to be as forward looking as a local government award scheduled increase.	Medium
5A	Forecasts will be a timely estimate of the future expected labour cost change, as they are for the future.	High
5B	Forecasts will be a timely estimate of the future expected labour cost change, as they are for the future.	High

Source: The CIE.

Stable

A stable measure is one that is expected to be readily available in the same format over time. The assessment of options is shown in table 3.6.

3.6 Assessment of options — stable

Option	Assessment	Rating
1A	Yes, expectation ABS WPI would continue	High
1B	Yes, expectation ABS WPI would continue	High
1C	Yes, expectation ABS WPI would continue	High
2A	Likely to be stable. However, it is possible that wage setting arrangements alter in ways that mean there is no per cent change overall available. For example, if there is a reset of wage rates rather than indexing each council's salary system by the same amount.	Medium
2B	Expectation that the Fair Work Commission would continue to set Minimum Award increases in a consistent way.	High
2C	Expectation that the IRC would continue to make State Wage Case decisions in a consistent way.	High
3A	It is likely that data would continue to be collated on employment costs and employment. However, quality of employment data appears poor.	High
3B	It is likely that data would continue to be collated on employment costs and employment. However, quality of employment data appears poor.	High
4A	Yes, as IPART has control over the survey process	High
4B	There could be changes in data available from job advertisement sources	Medium

Option	Assessment	Rating
5A	It is likely that the RBA would continue to publish WPI forecasts. However, this is not certain and is more likely to be changed than ABS data.	Medium-High
5B	The average hourly earnings measure is constructed by the RBA, not the ABS. It is plausible that the RBA would discontinue this measure and making forecast of this indicator.	Medium

Source: The CIE.

Simple and low cost

A simple and low cost option is one that can draw information easily from an existing process into IPART's local government cost index. An assessment of options is made in table 3.7.

3.7 Assessment of options — simple and low cost

Option	Assessment	Rating
1A	Simple and low cost	High
1B	Simple and low cost	High
1C	Simple and low cost	High
2A	Simple and low cost, except where renegotiations of the award lead to different changes across different jobs	High
2B	Simple and low cost	High
2C	Simple and low cost	High
3A	Moderate cost to collect data and higher cost to improve data quality	Medium
3B	Moderate cost to collect data and higher cost to improve data quality	Medium
4A	High cost and complex	Low
4B	High cost and complex	Low
5A	Simple and low cost	High
5B	Simple and low cost	High

Source: The CIE.

Unintended consequences

IPART is intending to set the efficient labour cost increase applicable to councils. In doing so, its decision could lead council's to be more or less efficient in their decisions about wages or in wage negotiations. An assessment of options is shown in table 3.8.

The main possible consequences arise from linking the rate peg directly to the local government award increases. If this was done, then negotiations for award increases could alter significantly — council's would have much less incentive to keep wage increases constrained and would also much prefer wage increases to changes in conditions.

3.8 Assessment of options — unintended consequences

Option	Assessment	Rating
1A	None	High
1B	None	High
1C	None	High
2A	Yes, as councils bargaining as a group would have limited incentive to bargain around wage increases, as this would directly be passed through into rate peg changes. There would also be an incentive for councils to prefer wage increases as this would be reflected in the rate peg, rather than changes to conditions, which would not be reflected.	Low
2B	No likelihood of interactions from the FWC decisions from IPART's rate setting arrangements.	High
2C	No likelihood of interactions from the IRC decisions from IPART's rate setting arrangements.	High
3A	Possible that labour productivity is highly volatile, leading to negative labour cost increases in some years Using actual data can mute incentives for efficiency of bargaining, particular because councils develop an Award together rather than through individual bargaining	Medium
3B	Possible that multi-factor productivity is highly volatile, leading to negative labour cost increases in some years Using actual data can mute incentives for efficiency of bargaining, particular because councils develop an Award together rather than through individual bargaining	Medium
4A	Using actual data can mute incentives for efficiency of bargaining, particular because councils develop an Award together rather than through individual bargaining	Medium
4B	Using actual data can mute incentives for efficiency of bargaining, particular because councils develop an Award together rather than through individual bargaining	Medium
5A	None	High
5B	None	High

Source: The CIE.

Overall summary

An overall summary of the options is shown in table 3.9.

- Wage price index options (1B and 1C) perform better than the existing public wage price index. Their main drawback is timeliness and ability to reflect annual variation in cost pressures for local councils.
- Using the local government award scores highly on most criteria. Its main weakness is how it interacts with the wage negotiation process, which could lead to very significant unintended consequences.
- IPART constructing a local council specific WPI scores highly on most of the criteria. However, it would be high cost to implement.

- Forecast options perform well on timeliness, but less well in terms of being unbiased and accurate.

The options that perform the best against the criteria are 1B, 1C, 2A and 4A.

3.9 Assessment of options — overall summary

Option	Unbiased	Accurate	Timely	Stable	Simple and low cost	Unintended consequences
Current	Medium	Low	Low	High	High	High
1A (Public WPI)	Medium	Low	Low	High	High	High
1B (All WPI)	High	Medium	Low	High	High	High
1C (Private WPI)	High	Medium	Low	High	High	High
2A (Award increases)	High	High	Medium-High	Medium	High	Low
2B (FWC increases)	Medium	Low	Medium	High	High	High
2C (IRC increases)	Medium	Low	Medium	High	High	High
3A (Council cost and FTE data)	Low	Low	Low	High	Medium	Medium
3B (Council cost and FTE data)	Medium	Low	Low	High	Medium	Medium
4A (IPART WPI based on council data)	High	High	Low	High	Low	Medium
4B (IPART WPI based on other data)	High	Medium	Medium	Medium	Low	Medium
5A WPI forecasts from RBA	Medium-Low	Low-Medium	High	Medium-High	High	High
5B AHE forecasts from RBA	Medium-Low	Low	High	Medium	High	High

Source: The CIE.

Historically, wages have not moved around a lot because there has been a relatively stable inflation environment. Since June 2021 this has changed and this highlights issues with all of the most preferred options:

- For 2022-23, the local government award has an allowed increase of 2 per cent. However, we expect that wage pressure on local councils would be significantly higher. It is not obvious if the local government award would catch up or remain an understatement of wage increases.
- The ABS WPI series at the time of analysis were available to December 2022. The WPI suggests that wage pressures are increasing, with an annual increase of 3.4 per cent (all sectors) and 3.6 per cent (private). Public sector wages have increased much less in the past year. These impacts will eventually be included in the rate peg if it used the private or all sectors WPI (Option 1B and 1C). However, it will be lagged.
- If IPART constructs its own wage price index, it would need to think carefully about timing, to ensure that the current wage pressures are not excluded from calculations.

On balance, we consider that there is less risk that a broad-based WPI measure, combined with changes to superannuation arrangements, will lead to systematic long term errors for councils. This supports using an all sector or private sector WPI for NSW.

Options related to forecasting can provide more timely expectations about labour cost changes. However, the evidence about forecast accuracy and bias suggests that there could be considerable risk that for relatively long periods forecasts are systematically below or above actual labour cost outcomes that forecasts are seeking to measure.

A Performance of labour price forecasts

Forecasts of the WPI

The WPI measures changes in the price of labour, independent of any changes to workforce composition or changes to hours worked. This section examines the accuracy of WPI forecasts made by the RBA, as well as a comparison of the Australian and NSW WPI measures.

Accuracy of WPI forecasts

The RBA started forecasting WPI in November of 2018. This means that there is limited historical information on forecast error. Table A.1 shows the error from the WPI forecasts taken in August of 2019 and 2020, which would have been used as the forecast for the rate peg for years 2020-21 and 2021-22 respectively under a forecast approach.

A.1 WPI August forecast errors

Year of rate peg	Forecast Dec	Forecast Jun	Actual Dec	Actual Jun	Error Dec	Error Jun
2020-21	2.30	2.40	1.40	1.80	-0.90	-0.60
2021-22	1.25	1.50	2.30	2.60	1.05	1.10

Note: Forecasts taken from August of the year before the rate peg applies

Source: RBA Statements on Monetary Policy August 2019 and August 2020 Forecast Tables, accessed at https://www.rba.gov.au/publications/smp/2019/aug/forecasts.html; ABS Cat No 6345.0 Table 1, accessed at https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/wage-price-index-australia/latest-release#data-downloads

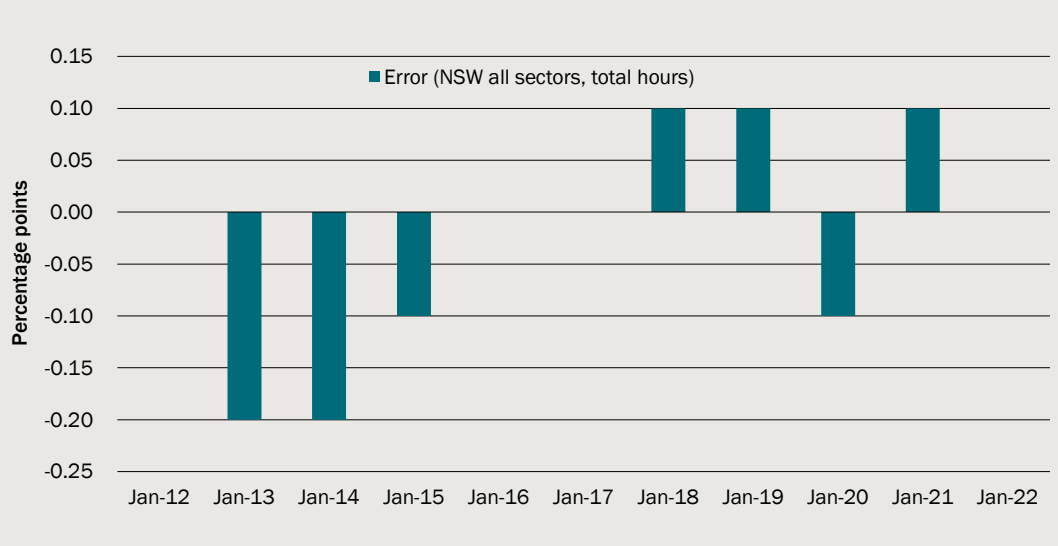
There is no indication of a consistent overestimation or underestimation of the WPI from the very short period available. The errors between forecasts and actuals are quite large, but also occurred during COVID-19 so are difficult to generalise.

There are other forecasts available, such as from NSW Treasury, Australian Treasury, SMH Business Day survey and a range of financial market participants. We have not examined the performance of these forecasts with respect to WPI at this stage, given that the timing of these is less conducive to IPART's needs.

National WPI vs local WPI measurements

Another possible source of error from WPI data is a difference between national WPI and NSW WPI. The differences in historical WPI data between state and national WPI since 2012 are shown in chart A.2. The differences are quite small suggesting geographic coverage is not a major concern.

A.2 Difference between NSW and Australia WPI



Data source: ABS Cat No 6345.0 Table 2a and Table 4a, accessed at https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/wage-price-index-australia/latest-release#data-downloads

Average hourly earnings (AHE)

WPI is a pure measure of the increase in labour costs for the same quality of labour.

- The WPI measure used by the RBA accounts for overtime in some respects but not others — a change in the rate paid for overtime would impact on the WPI. However, a shift of more hours towards overtime would not impact on the WPI.
- The WPI measure used by the RBA does not account for bonuses.

An alternative measure is average hourly earnings (AHE). AHE is calculated as the total earnings of non-farm labourers divided by the number of hours worked. It is therefore affected by both the number of hours worked, and changes in the composition of the labour force. When choosing between AHE and WPI to include in the BCC as a forecast variable, key factors will be accuracy and volatility. Note that the measure of AHE includes superannuation while WPI does not.

Forecast AHE accuracy

As with the WPI, the only historical data on forecast accuracy at the correct time lag are from the RBA's 2019 and 2020 August forecast tables. These forecasts, along with their errors are reported in table A.3. In this very limited sample, the AHE forecasts performed worse than the WPI forecasts in every time period. The poor performance of forecasts of AHE largely reflects enormous volatility in AHE over 2020-22, compared to WPI (chart A.4).

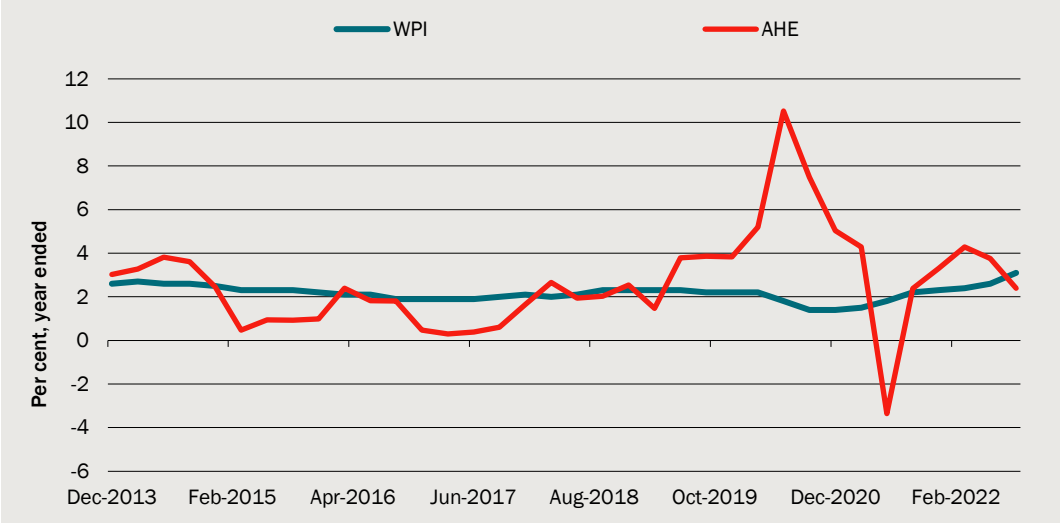
A.3 AHE August forecast error

Year of rate peg	Forecast Dec	Forecast Jun	Actual Dec	Actual Jun	Error Dec	Error Jun
2020-21	2.40	2.60	5.00	-3.40	2.60	-6.00
2021-22	0.25	2.50	3.30	3.80	3.05	1.30

Note: Forecasts taken from August of the year before the rate peg applies

Source: Statements on Monetary Policy August 2019 and August 2020 Forecast Tables, accessed at https://www.rba.gov.au/publications/smp/2019/aug/forecasts.html; RBA Labour Costs and Productivity – H04, accessed at https://www.rba.gov.au/statistics/tables/

A.4 Change in AHE and WPI



Data source: ABS Cat No 6345.0 Table 1, accessed at https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/wage-price-index-australia/latest-release#data-downloads; RBA Labour Costs and Productivity – H04, accessed at https://www.rba.gov.au/statistics/tables/

The large spike in June 2020 likely corresponds to a substantial reduction in hours worked during pandemic lockdowns. This meant that for employees on a salary, their average compensation per hour increased sharply.

Even factoring out the pandemic, the AHE is more volatile than the WPI, which may translate into added volatility of forecasts. Note that it is plausible that forecasts would remove the volatility in actual AHE to some degree.

An important question is whether AHE or WPI more closely reflects actual changes in cost for local councils. Both metrics will capture any increases in the amount paid for a given role. This includes increases to both award and non-award salaries and wages.

AHE will do a better job at capturing any changes in expenditure due to changing staff composition in local councils. For instance, if a council chooses to hire a highly skilled worker in place of a less skilled worker, or else people in the council change roles from lower paid to higher paid, these changes will be captured by AHE, while WPI will not. If this type of change occurred, some offsetting productivity gains would be expected. As noted earlier, AHE may also capture changes which do not directly feed into local government costs, such as changes in hours worked.

Forecasts of CPI

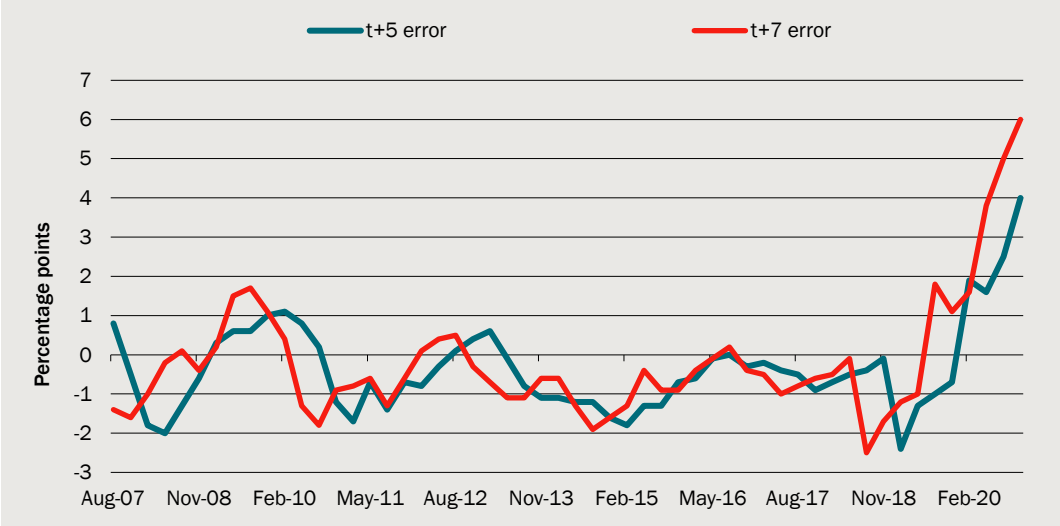
Longer term forecasts are available from the RBA for CPI. These provide an indication of what might be expected in terms of accuracy and bias over the longer term for WPI forecasts.

Assessment of historical accuracy of CPI forecasts

The RBA has been releasing CPI forecasts every quarter since 2007, which allows us to look at the historical accuracy of their forecasts from this far out. The forecast errors are shown in chart 2.16.

From 2007 to 2019, the RBA forecast CPI consistently overestimated the change in actual CPI. This reflected inflation outcomes being below the RBA's inflation band of 2-3 per cent on average. When there was a large increase in CPI in mid to late 2020, the forecasts failed to accurately pick this up from either 5 or 7 quarters ahead.

A.5 Difference between CPI and RBA forecast

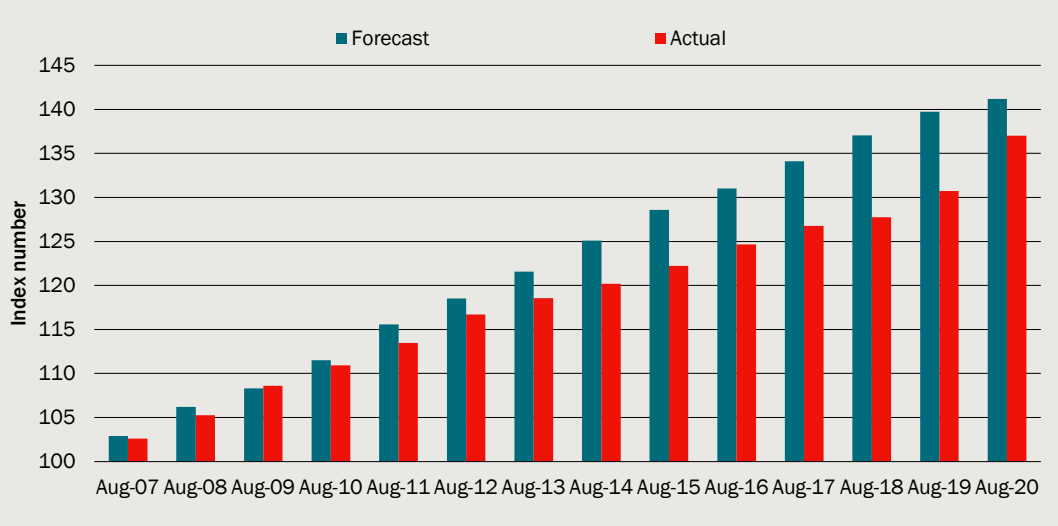


Note: Shows dates at which forecasts are made

Data source: RBA Historical Forecasts, accessed at https://www.rba.gov.au/statistics/historical-forecasts.html; RBA Consumer Price Inflation – G1, accessed at https://www.rba.gov.au/statistics/tables/

Because the errors between the forecast and actual are persistent, these can accumulate materially over time. From 2007 to 2020, the persistently high forecasts would have led to a widening level difference over time, and the forecast drifting away from the actuals (chart A.6). Each series starts with a dummy index value of 100, and then grows according to either forecast or actual CPI growth rates. While the difference between the two in a single year is quite small, the consistent overestimation of CPI from 2007 to 2019 leads to large cumulative differences of up to 7 per cent. If not accounted for, this drift could create a significant divergence between forecasts and actuals. This is likely to be an issue for WPI forecasts as well, with persistent errors in forecasts accumulating to give councils very different forecast outcomes than they would get from applying actual data.

A.6 Drift in errors between RBA forecasts and actual CPI over time



Note: Each series is constructed by applying forecast and actual CPI growth rates to a base index of 100. Shows dates at which forecast was made

Data source: The CIE analysis, based on RBA Historical Forecasts accessed at https://www.rba.gov.au/statistics/historical-forecasts.html

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