



Cost of Living Measures

CPI Overview

1. The Consumer Price Index (CPI) measures the level of prices for a basket of goods and services that households purchase. It is produced by the Australian Bureau of Statistics (ABS) and released on a quarterly basis.
2. The ABS calculates the CPI by collecting the prices for approximately 85,000 items in Australia's eight capital cities, which are grouped into expenditure classes and groups. Each price change for an item is measured and aggregated to calculate the inflation rate for each expenditure class and group, as well as the entire CPI basket.¹
3. The ABS updates the weighting of the CPI basket of goods and services on an annual basis (since 2017) by adjusting the weighting of individual items based on household spending patterns. For example, if the cost of lamb rises more than the cost of beef, households might adapt by buying more beef and less lamb. This spending habit would then be reflected in the CPI annual weighting adjustment by increasing the weight of beef prices and lowering the weight of lamb prices.

CPI Limitations

4. There are of course limitations to the CPI and its application.² The CPI measures the rate of price changes in the economy, but not the price level of a basket of goods and services. To illustrate, for Perth as of December 2019 the price index for bread was 103.5 and the price index for milk was 108.2. Although the price index for milk is higher than bread it does not mean that milk costs more than bread, it only reflects that the price of milk has increased more than the price of bread from a particular point in time.³
5. Another limitation of the CPI is that it measures price changes for items only in the metropolitan areas of Australia's eight capital cities (where around two-thirds of Australian households live). It does not measure price changes in regional or remote areas. The CPI also does not take into account the differences in spending patterns between individual households. The composition of households vary, and some households may spend a lot more on certain items than others. For example, tobacco costs have a weight of 3.17 per cent in the CPI basket, but not every household purchases tobacco products.⁴

¹ ABS (2018) *Australian Consumer Price Index: Concepts, Sources and Methods*, Catalogue 6461.0.

² RBA (2020) *Inflation and its Measurement: Education*, www.rba.gov.au/education/resources/explainers/inflation-and-its-measurement.html

³ ABS (2020) *Consumer Price Index, Australia, December 2019*, Catalogue 6401.0, Table 9.

⁴ ABS (2019) *Information Paper: Introduction of the Consumer Price Index Weight Update, 2019*, Catalogue 6470.0.55.002.

6. The CPI calculates pure price changes by measuring a fixed basket of goods and services with unchanged composition and quality over time. This means that the CPI will ignore price changes that result from variations in the quality of items. In Australian households the quality of items in their basket continually varies and new products are often introduced.
7. The ABS attempts to remove any price changes that result from changes in quality or the mix of items that households buy. For instance, if the ABS was to calculate the pure price increase in the price of a recently released mobile phone it would be very difficult. There would be limited information about how much of the price increase for the new phone has changed because of the improvements in the quality of the phone. In this case, the ABS would estimate the price impact of the improved phone and adjust the mobile phone price accordingly. However, as the adjustment is only an estimate, it can result in under or overestimation of the pure price change.
8. The CPI is also affected by 'substitution biases'. This is because the CPI does not adjust for changes in household spending patterns very often. In reality, households frequently change the amounts they spend on items. As per the above example, if lamb prices rise by more than beef prices, households might adapt and buy more beef and less lamb. Not accounting for this type of substitution in expenditure results in too much weight being given to lamb in the CPI basket and too little weight given to beef. This biases the CPI for households substituting from relatively more expensive items to relatively cheaper ones. In the past, updates to the CPI basket have taken place every 5 or 6 years, but from late 2017 onwards, the ABS has started to update the CPI weighting of items on an annual basis, which should reduce the substitution bias in the CPI.
9. While members of the public will sometimes use the CPI to measure changes in a household's cost of living, the CPI is not ideally suited to this purpose. The CPI measures pure price changes, whereas changes in the cost of living are represented by the change in spending by households required to maintain a given standard of living. This issue is discussed further in the following section.

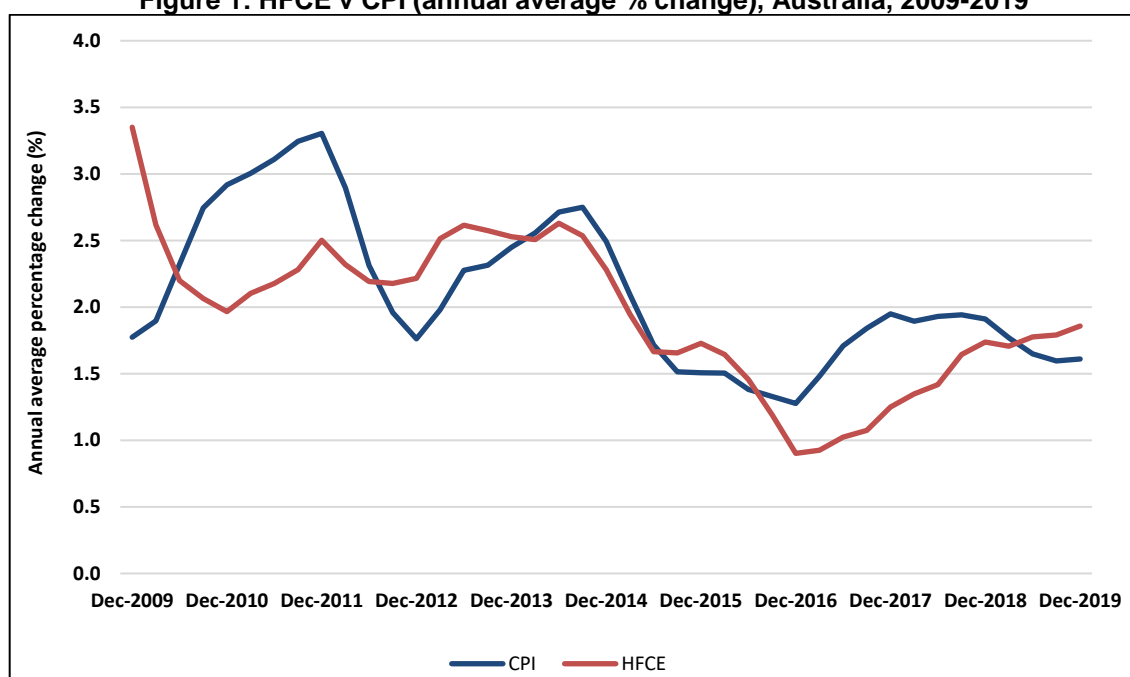
Alternative measures to the CPI

10. As mentioned, the CPI is often referred to in order to measure changes to the cost of living to maintain a household's 'standard of living'. The difficulty with this is that standards of living are relative and determined by societal expectations, and perceptions and therefore vary widely between households. While the rate of inflation in prices may be similar to that of the cost of living there are some conceptual and measurement differences.⁵
11. One of the limitations of the CPI is that it measures a fixed basket of goods and services with unchanged composition and quality over time. While this makes the inflation measure good for monetary policy, by itself, the CPI cannot assess changes in a household's cost of living.

⁵ Jacobs, D. Perera, D. and Williams, T. (2014) *Inflation and the Cost of Living*, Reserve Bank of Australia Bulletin, March quarter 2014, p.34.

12. An alternative measure which should be used in conjunction with the CPI is data on household expenditure to measure changes in consumption habits.⁶ The ABS produces a Household Final Consumption Expenditure (HFCE) index in the Australian National Accounts on a quarterly basis to measure the change in household's cost of living.⁷
13. The HFCE measures the market value of all goods and services, including durable products (such as cars, washing machines and home computers) purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses.⁸
14. As seen in Figure 1, the CPI tends to follow the movement of the HFCE, except for the periods following the Global Financial Crisis (GFC) in 2008 and the period from December 2016 to December 2018, when the HFCE annual average was lower than the headline CPI. These differences show that during the relevant periods although the price of goods and services was higher, a household's ability to consume these goods and services was lower.

Figure 1: HFCE v CPI (annual average % change), Australia, 2009-2019



⁶ ABS (2018) *Australian Consumer Price Index: Concepts, Sources and Methods*, Catalogue 6461.0.

⁷ ABS (2020) *Australian National Accounts: National Income, Expenditure and Product, December 2019*, Catalogue 5206.0, Table 1.

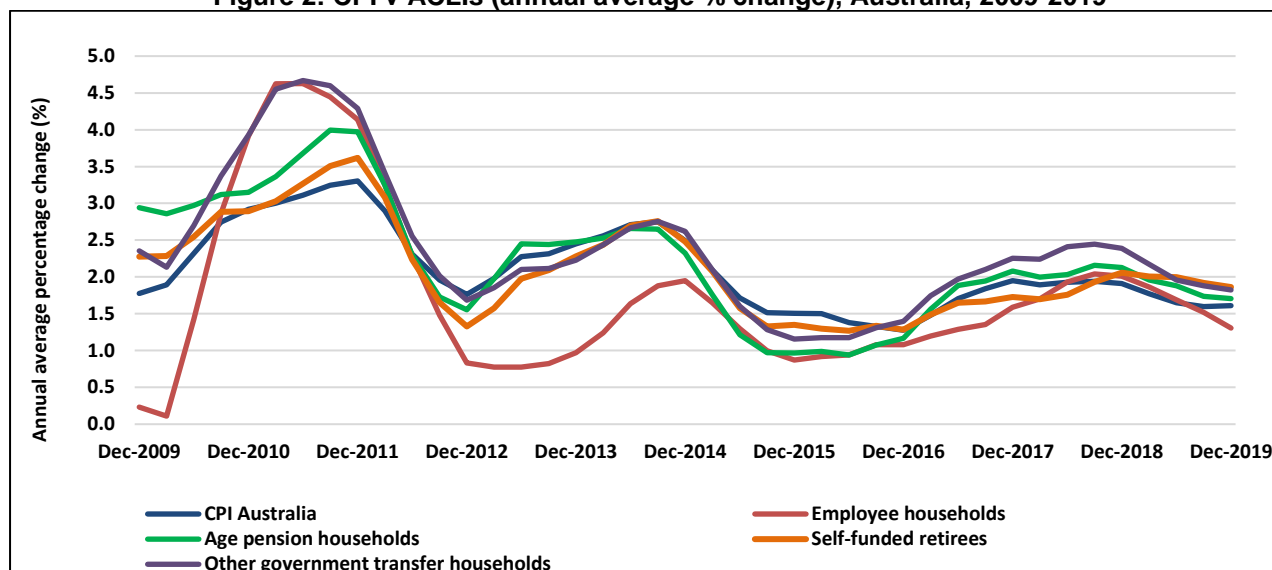
⁸ ABS (2016) *Australian System of National Accounts: Concepts, Sources and Methods, 2015*, Catalogue 5216.0.

15. Another significant issue mentioned above is that the CPI does not reflect the price of inflation for different household types. The CPI reflects rates of inflation for average individual households and does not take into effect how different household types are impacted by inflation. Alternative measures that take into account the changes of prices on different household types are the ABS' Analytical Living Cost Indices (ALCIs).
16. The ACLIs are released on a quarterly basis for the following household types:
 - Employee households (where the principal source of income comes from wages and salaries);
 - Age pensioner households (where the principal source of income comes from the age pension or veterans affairs pension);
 - Other government transfer recipient households (where the principal source of income comes from a government pension or benefit that is not the age pension or the veterans affairs pension); and
 - Self-funded retiree households (where the principal source of income comes from superannuation or property income).⁹
17. The difference between the ALCIs and the CPI is that the ACLIs reflect changes over time in the purchasing power of the after-tax incomes of households.¹⁰ It measures the impact of changes in prices on the out of pocket expenses incurred by a household to gain access to a fixed basket of consumer goods and services. By comparison the CPI is designed to measure price inflation for the household sector as a whole.
18. As Figure 2 illustrates, the CPI and the ACLIs generally display similar movements, except for the period following the GFC in 2008 when the ACLIs were higher than CPI, reflecting the greater inflationary costs on different household types compared to the headline CPI.

⁹ ABS (2020) *Selected Living Cost Indexes, Australia, December 2019*, Catalogue 6467.0.

¹⁰ Ibid.

Figure 2: CPI v ACLIs (annual average % change), Australia, 2009-2019



19. A significant body of academic research has analysed the conceptual and measurement differences between CPI and the cost of living.¹¹ This research has found that overall CPI inflation generally overstates the cost of living by 0.25 to 0.5 per cent per quarter compared to the 'true' cost of living inflation. Although the CPI may inflate a household's cost of living, the rate of increase in the varying indices used to measure household inflation and the cost of living (the CPI, the HFCE and the ACLIs) have been increasing by similar amounts over the past decade.¹²
20. As can be seen in Table 1 below, inflation has been higher for some households and socio-economic groups than for others, though the differences have generally not been large and have tended to even out over time. The different measures indicate aggregate total inflation of between 19.7 and 26.5 per cent since 2009.

Table 1 Comparison of inflation indices between 2009 and 2019¹³

Inflation price indicator	Average annual % change 2009-2019	Total % change 2009-2019
CPI - Australia	2.1%	23.2%
CPI - Perth	1.4%	19.7%
HCFE - National Accounts	1.9%	21.0%
ACLI - Employee households	1.8%	19.8%
ACLI - Age pensioner households	2.2%	23.3%
ACLI - Other government transfer recipient households	2.4%	26.5%
ACLI - Self-funded retiree households	2.1%	22.8%

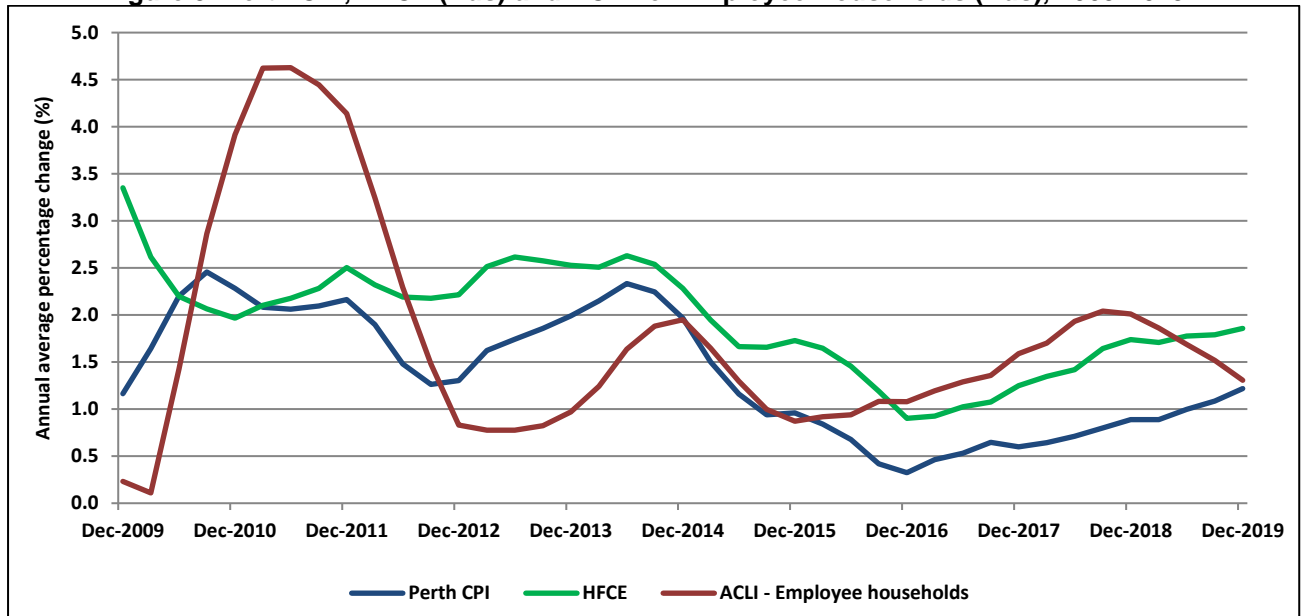
¹¹ Jacobs, D. Perera, D. and Williams, T. (2014) *Inflation and the Cost of Living*, Reserve Bank of Australia Bulletin, March quarter 2014, p.35.

¹² Ibid.

¹³ ABS (2020) *Consumer Price Index, Australia, December 2019*, Catalogue 6401.0, Tables 1 and 6; ABS (2020) *Australian National Accounts: National Income, Expenditure and Product, December 2019*, Catalogue 5206.0, Table 1; and ABS (2020) *Selected Living Costs Indexes, Australia, December 2019*, Catalogue 6467.0, Table 1.

21. As seen in Figure 3, Perth's CPI has trended below both the HFCE and the ACLI for employee households since December 2016.

Figure 3: Perth CPI, HFCE (Aus) and ACLI for Employee Households (Aus), 2009-2019



Conclusion

22. The CPI remains a key indicator in regard to measuring living standards for employees. Of particular relevance, the CPI is available by capital city, allowing the Perth CPI to provide an indication of inflationary pressures facing Western Australians compared to the rest of Australia. ACLIs are not available for Perth or Western Australia and only measure Australia-wide cost changes, which limits their value in relation to the State Wage Case. While the CPI has limitations, it generally mirrors movements in the ACLIs, with differences averaged out over time.
23. While there is no perfect cost of living measure for Western Australia, the Perth CPI when considered with other key economic indicators, remains an important and useful measure when gauging movements in cost of living standards for Western Australians. The Minister submits the CPI continues to have a role to play in assessing cost of living changes in Western Australia.