



The Role of Housing Costs in Central Banks' Inflation Targeting Regimes: The Cases of the Reserve Bank of Australia and the Bank of England

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Abstract: *Since the 1990s it has become common for central banks to be charged with using interest rates to meet consumer price inflation (CPI) targets. This article examines the cases of the Reserve Bank of Australia (RBA) and the Bank of England (BoE) and finds that whereas the RBA's CPI target includes a housing cost element, the BoE's does not. Moreover, it finds that contrasting treatments of housing costs produce different results, depending on whether the index includes mortgage interest as a housing cost. Whilst central banks dislike CPIs that include an element of mortgage interest because of the apparently perverse outcome of increasing interest rates, they also lack credibility by excluding such an important element of the cost of living. Credibility demands that the 30-year consensus on inflation targeting by monetary policy be replaced by a broader set of tools – including fiscal policy – to control inflation.*

Keywords: housing costs; central banks; monetary policy.



Introduction

Since the 1990s it has become common for central banks to be charged with deploying interest rates to meet consumer price inflation (CPI) targets. For example, the US Federal Reserve Bank (FRB) and the European Central Bank (ECB) were among some 67 central banks to have inflation targets in 2018 (Wolf 2021). Whilst these monetary policy regimes that operate across the world appear to be very similar, what these central banks are targeting often differs, not least in the way in which they treat housing costs.

Some central banks' inflation indices exclude housing costs altogether (for example, the ECB and Bank of England). Those that do, employ a variety of approaches to measuring homeowners' costs alongside less complex measurements of rents (IMF et al. 2020).

Many countries, including the US, adopt the "rental equivalence approach" which uses the concept of imputed rental value (how much it would cost to rent the property on the market), which is derived from the actual rents paid in the rental market and matched to owner-occupied properties. Whilst this approach may be relatively straightforward to implement provided there are sufficiently large market rental sectors, "it is a method based on notional or imputed prices rather than actual transaction prices. This could be viewed both as a significant conceptual departure from how other items are treated in a CPI and as an overreliance on imputed rather than actual prices" (IMF et al. 2020: 248). The EU treaty also rules it out within the Eurozone due to its reliance on imputation (Hill et al. 2023).

The "user-cost approach" seeks to identify the opportunity cost of owner-occupation by identifying real mortgage interest costs, depreciation, running and transaction costs and the real capital gains derived from the property. Hill et al. (2023: 7) concede that the inclusion of capital gains "goes against the basic principles of CPI, which focuses on actual costs directly incurred by households... [but] capital gains can be used to offset direct costs faced by owner occupiers." Rather they argue that the "central problem" is the inclusion of short-term interest rates that "can trigger the CPI to jump upward whenever monetary policy is tightened, thus making it harder for the central bank to achieve its objective" (ibid: 8). Instead, they propose a "simplified" version of user-cost in which long-term values for its key components, including real interest rates and capital gains, so that it becomes a house price index.

The "acquisitions approach" attempts to reflect the costs of acquiring a home. The IMF et al's (2020) manual suggests that this might include the costs of constructing new dwellings for sale into owner occupation (excluding land costs), and the cost of purchasing properties for homeownership that were previously in the rental sector. Repairs, maintenance, insurance, property taxes, legal and estate agent fees might also be included. Whilst this approach might be technically challenging, it has the advantage of being "consistent with the treatment of most other goods and services in the CPI and is not directly affected by methods of financing for house purchases" (ibid: 254).

Hill et al. (2023: 6) contend that the user cost-approach is "the only method that attempts to measure OOH [owner-occupiers' costs] costs directly." This is not the case, as there is also the "payments approach" that seeks to capture actual expenditure incurred by owner-occupiers to secure their housing. This is a sizeable omission that deserves consideration alongside the other approaches.



The payments approach includes mortgage interest payments and can also include the repayment of capital. It may also include one-off costs associated with a transaction, such as deposits, legal and estate agent fees, and recurrent costs such as property taxes and repairs and maintenance. The IMF et al.'s (2020: 249) manual claims that the "main disadvantage" of the measure is that it excludes the offsetting benefit of capital gains, a moot point given that they are a form of wealth not income. The IMF et al. (2020) further note that volatility in mortgage interest rates can "give a very misleading picture of the home-owner's true long-term costs of living in the home (because the offsetting benefit is neglected)" (ibid.). Again, there are other items within a price index that are volatile, so one might equally say that a spike in petrol prices might give a misleading picture of the long-term cost of running a car. However, for architects of monetary policy, the objection to the payments approach (or at least including mortgage interest in it) is that the instrument (interest rates) deployed by central banks to control consumer price inflation directly affects mortgage interest rates (ABS 2021).

Although Hill et al. (2023) utilise data from Sydney, Australia to examine variants of rental equivalence and user-cost approaches net acquisitions approaches, they do not consider the implications of the payments approach. Moreover, although published recently their most recent data ends in 2018, and therefore misses the dramatic rise in consumer price inflation that followed the re-opening of the world economy after COVID-19 restrictions were removed and the energy price rises caused by Russia's invasion of Ukraine. This has created a different policy landscape that affects the judgement about the implications of housing costs in inflation indices.

This inflationary surge has required central banks to raise interest rates rapidly to the extent that for the first time since the 1990s the credibility of inflation targeting regimes operated by central banks has been challenged. For example, in May 2023, Agustín Carstens, the general manager of the Bank of International Settlements warned that unless inflation was contained "the credibility of monetary policy, and the autonomous central banks responsible for implementing it, will be called into question."

Yet it is not only the ability of central banks to contain inflation that has been challenged. Their credibility has also come under scrutiny particularly in countries with significant levels of homeownership secured by mortgage finance, much of it at relatively short-term interest rates. In the traditionally homeownership societies of Australia and the UK the recent rises in interest rates have caused much public and political controversy due to their impact on owner-occupiers' mortgage interest payments. It was this situation that prompted this article into the role of housing costs in central banks' inflation targeting regimes.

Australia and the UK have been chosen for this exploration because of their status as homeownership societies. Their monetary policy regimes and housing systems are sufficiently similar and between them their inflation indices reflect the principal methodologies for capturing housing costs. The article asks what implications our exploration has for the practice of the use of monetary policy as the principal means of targeting inflation.

The paper begins by providing a contextual explanation as to why the Australian and UK housing systems are sensitive to interest rate changes, and why this is currently such a live topic. We examine how they are treated in the Australian and UK CPIs. We examine the differences in the treatment of housing costs Australian and British inflation indices before turning to the broader implications of this exploration for monetary policy.



The Australian and UK housing systems

Both Australia and the UK are traditionally homeownership societies which have seen this ideal recede as more households have been priced out. Homeownership has declined in both countries, but the proportion of households purchasing a property with a mortgage has risen in Australia and fallen in the UK since 2002/03 (Table 1). Conversely, the proportion of unmortgaged owners has risen in the UK, but fallen in Australia. The private rented sector has grown in both countries, although it is larger in Australia, the balance being explained by the UK's larger social/ public rental sector. The private rented sector in both countries is dominated by small-scale (retail) landlords, many of whom also have mortgages. Overall, the level of mortgage debt is relatively greater in Australia (99.5% GDP in 2021) than in the UK (69.1% in 2021) (EMF 2022: Table 8). In both countries mortgages are predominantly set at relatively short-term fixed or variable interest rates. The tenure and mortgage debt structures therefore make both countries' housing systems sensitive to changes in interest rates, but to a greater extent in Australia.

Table 1: Tenure (% households), Australia and UK (2002/2003 and 2019/2020)

	2002/2003		2019/2020	
	Australia	UK	Australia	UK
Total ownership	69	70	67	65
<i>Outright ownership</i>	36	29	30	36
<i>Mortgaged ownership</i>	33	41	37	29
Public / social rent	5	20	3	17
Private rent	22	10	26	19
Other	4	-	4	-

Note: figures rounded to the nearest percentage point.

Source: Australian Bureau of Statistics (2021) Housing occupancy and costs 2019-20; ONS (2023) Family Resources Survey.

It is therefore unsurprising that many mortgagors feel aggrieved because the recent increase in interest rates in response to inflation was unanticipated – not only by the mortgagors, but by central banks themselves.

In Australia, for example, much anger has been directed at the Reserve Bank of Australia's (RBA) Governor due to his statement in February 2021 that the Board did not expect the conditions that would justify an interest rate increase "to be met until 2024 at the earliest" (Lowe 2021). Following the RBA's decision to increase interest rates for the eleventh time in June 2023, the Australian Government's Treasurer, sought to distance himself from the decision, noting that there were "a lot of Australians who will find this decision difficult to understand and difficult to cop" (*SMH*, 9/6/23). Another politician even described the RBA as having gone "rogue" (*Guardian*, 6/6/23).

In the UK, too, the Bank of England¹ (BoE) has been criticised by politicians. A former chair of the governing Conservative Party accused the BoE of being "asleep at the wheel" and warned of a "mortgage time bomb" (*FT*, 23/6/23). The BoE's own polling suggested a lack of public

¹ Despite its name, the Bank of England is the central bank for the whole of the UK.



confidence in its decisions, and the Chancellor (finance minister) felt obliged to express his “full support” for its Governor, Andrew Bailey, in the week that the BoE raised interest rates by half a percentage point to 5 per cent (*ibid.*). (In the UK context an expression of support or confidence is often an indicator of the vulnerability of the subject.) The government resisted calls for it to provide support for mortgagors, but placed pressure on commercial banks to, in the words of the Chancellor, “live up to their responsibilities” by being flexible and exercising forbearance regarding overstretched borrowers (*FT*, 23/6/23).

These criticisms of the monetary policies of the RBA and BoE might prompt us to take a step back, and to question precisely what it is that these central banks are targeting, and even why. Both the RBA and BoE – like other central banks – target consumer price inflation, that is the prices of goods and services faced by households that are grouped together and weighted in a “basket” to make up a consumer price index. Central banks respond to a different housing-related debate by pointing out that although their policies can affect house prices, it is not their responsibility to target them directly because they are asset, not consumer, prices. As Dougherty and van Order (1982: 154) observed, “... the CPI is supposed to be a ‘cost of living’ index that is an index of the minimum expenditure flow needed to support a standard level of welfare.” To relate this to housing, is to recognise that housing is a consumption good as well as being an asset. A house price represents the price of an asset, but consumers of housing services – both owners and renters – experience costs that might reasonably be expected to be reflected in a cost-of-living index.

Measuring housing costs in consumer price inflation indices in Australia and the UK

The treatment of housing costs in Australian CPI

The Australian Consumer Price Index includes estimates for both owner occupiers’ and renters’ costs on the following basis.

The Australian CPI employs the net acquisition approach to estimate owner occupiers’ housing costs. This is principally a construction cost index applied to newly built houses. It excludes the sales of second-hand dwellings – because they change hands within the household sector, so at an aggregate level there no net expenditure (ABS 2021). It also excludes the land cost element within new buildings because this is regarded as being an investment rather than expenditure (*ibid.*). The construction cost index is based on surveys of builders in each state capital city. The index is adjusted to take account of the types of buildings being sold and price movements are on a like-by-like basis (or mix-adjusted) (*ibid.*).

The rent element seeks to capture the rents paid by both within existing tenancies and on new ones. The private rent index is based on information supplied by property managers for some 600,000 rental properties cross regional and capital city areas which goes back to 2018 and since July 2022 are updated monthly (Hanmer and Marquant 2023). These represent almost one-third of the private rental stock. As is the case with owner-occupied properties, the rent index considers the type of property, its size, location, and the start and end dates of the lease (*ibid.*). The CPI also includes public sector rents and makes an adjustment for Rent Assistance (Australia’s means-tested housing allowance which is available to private – but not public – tenants) (*ibid.*). The rent element within CPI is both a stock and flow measure with the result



that steeper rises in rents on new tenancies are moderated by stickier rents applied to existing tenancies. Consequently, whilst rents on new tenancies rose by 14 per cent in the year to February 2023, the rent index within CPI rose by five per cent (ibid.). The CPI also makes allowances for repair and maintenance costs of homes, property taxes and utilities (ABS 2021).

The cost of acquiring new dwellings by owner occupiers accounts for 8.6 per cent of all household expenditure, whilst rents make up 5.8 per cent. (ABS 2021). Overall, therefore, rental and owner occupier housing costs account for 14.4 per cent of household expenditure within the CPI.

The treatment of housing costs in United Kingdom inflation indices

The treatment of housing cost in UK inflation indices has a complex history.

The Retail Price Index² (RPI) was from 1947 to 2013 the UK's official measure of inflation. Sometimes known as the "all items" measure, it includes rent, mortgage interest payments and a number of other housing-related costs, including: local property tax, house depreciation, building insurance, ground rent, water charges, repairs and maintenance and DIY materials (ONS 2023b: Table 39). However, a revised version of the RPI, known as the RPIX, which removed housing costs, was used when the Bank of England's Monetary Policy Committee was charged with targeting inflation in 1998.

In 2003, the UK Government adopted the Consumer Prices Index (CPI) as its preferred measure of inflation. It had compiled the index since 1997 to comply with EU requirements. The Government also switched to the CPI when instructing the Bank of England to use for inflation targeting, does not include housing. Unlike its counterpart in Australia, the CPI contains no elements of housing costs other than university accommodation fees (Mulkearn 2022).

However, the Office for National Statistics (ONS) does produce a version of the CPI with a housing cost element, the CPIH, which since 2017 has been the ONS' "lead indicator" of inflation because "it is our most comprehensive measure as it includes costs associated with owning, maintaining and living in one's own home (known as owner occupiers' housing costs, or OOH), along with Council Tax" (ONS, 2017). The housing cost element also includes private sector and social rents. Owner occupiers' housing costs are weighted at 16 per cent and renters' at 6.4 per cent (ONS 2023b: Table 3). The CPIH is otherwise identical to the CPI.

In its 2018 Budget, the Government stated that CPIH should become "its headline measure over time" (quoted by House of Lords Economic Affairs Select Committee, 2019) and the then Governor of the Bank of England suggested that it would be "good to consolidate the focus on one [price index]" (ibid.). The then Chancellor confirmed the official preference for CPIH, but noted that it had only become a "national statistic" in 2017 and it needed to "bed down and become accepted by the public and other users" (ibid.).

The ONS did consider the merits of the different approaches to measuring housing costs in CPIH. It rejected the payments approach to measuring owner occupiers' housing costs (OOH)

² The RPI is a consumer price index. It employs the arithmetic mean in calculating price changes, in contrast to the CPI which uses the geometric average.



on the narrow ground that “interest payments represent the cost of borrowing money, not consumption” (ONS 2017). In seeking to measure housing costs through net acquisitions approach, it noted that with the available data, it “does not separate between the land and house price, and therefore there will be some measure of asset price included...” (ibid.).

The ONS preferred the “rental equivalence” approach to OOH, reasoning,

“As the principle behind CPIH is to measure the average change in the prices of goods and services for the purposes of consumption by households, the appropriate measure of OOH in CPIH is rental equivalence, which captures the ongoing consumption of OOH services. This is because the other approaches include either a measure of interest rates, or some measure of the capital element of housing, which make them suitable for a price index that measures the changing cost of consumption.” (ONS 2017).

Elsewhere, the ONS explains its preference for the rental equivalence approach because “it has the strong advantage of not including asset prices. This means that it is suitable as a measure of consumption.” (ONS 2016). This is a curious argument in that the other measures also exclude house/ asset prices.

A likely effect of opting for rental equivalence as a measure of owner occupiers’ housing costs is that it lags behind current house prices (and their associated costs) and is less volatile than the other measures. This is because “the flow of new rents based on recent developments in house prices will only gradually influence developments because the stock of existing dwellings is so much larger” (ONS 2016). Moreover, the peaks and troughs associated with rental equivalence are “subdued” compared to the other measures, as “the large stock of rental properties is likely to mute the impact of volatile house prices” (ibid.).

ONS also suggest that the rental equivalence approach is the one most used internationally and benefits from “a good quality source of data that allows it to be reliably estimated” (ibid.). The data source is the Index of Private Housing Rental Prices (IPRHP), which was established in 2013 following a review of housing statistics. Officially, it remains an “experimental” data source which means that it is subject to periodic methodological refinement. However, “experimental” status is not applied to the CPIH even though it is derived from the same rent data. (The OOH element differs from the IPRHP in that it is weighted differently to reflect the different composition of the owner-occupied housing stock.) Data is provided by the Valuation Office Agency’s (VOA) private rental data for England, supplemented by data supplied by the devolved administrations. Each jurisdiction relies on rent officers to collect rent information from agents who are encouraged to collect sufficient cases that are equivalent to 10 per cent of the private rental stock as measured by the 2011 census (ONS 2018). There appear to be differences in practice, since the ONS record that Scottish data is based on advertised rents with assumptions made regarding the length of tenancy which means that changes in rents for existing tenancies are “largely estimated.” Around 450,000 cases are collected in England, 30,000 in Wales, 25,000 in Scotland and 15,000 in Northern Ireland (ONS 2023a). The index itself reflects both the stock of existing rents and the flow of new tenancies within the period. It captures changes in rents, but does not provide estimates of the level of rents themselves. The data are available at national and regional levels, but not at lower-level jurisdictions such as local authorities – an important limitation.

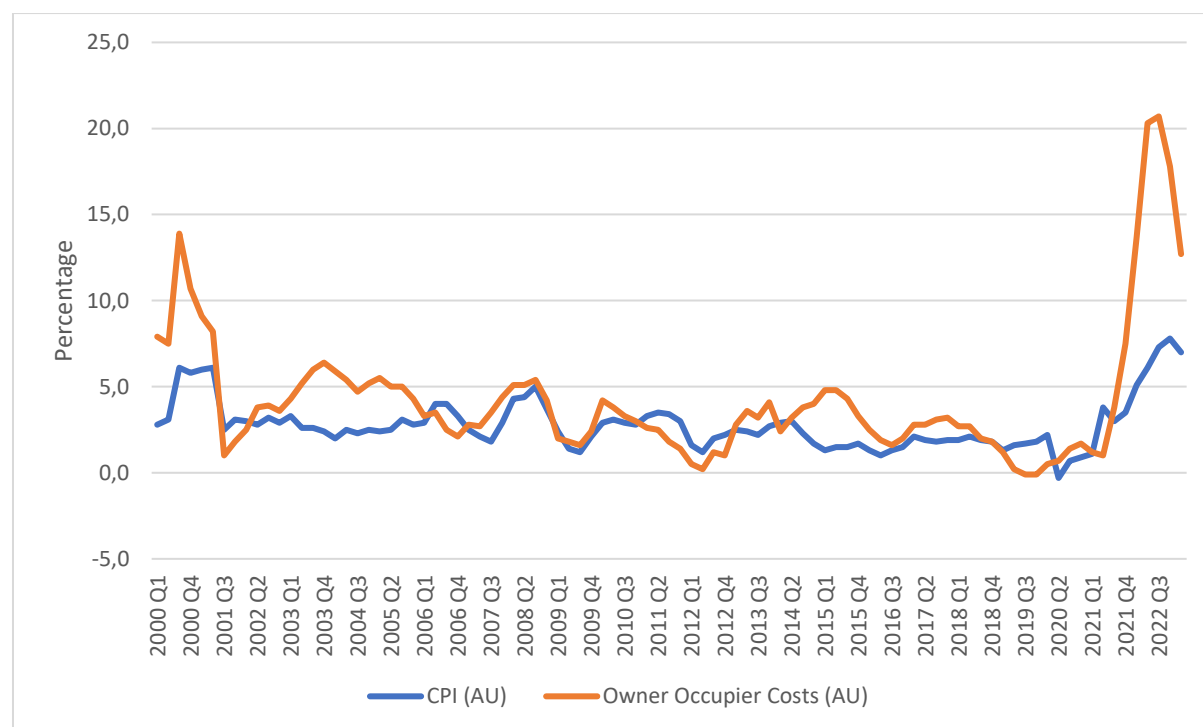


The impact of housing costs in inflation indices

In this section we examine the implications of different approaches to measuring housing costs.

Figure 1 illustrates the way in which measured owner occupier housing costs affect the Australian measure of consumer price inflation. We have compared the CPI (which includes housing costs) with the index of owner-occupiers' costs within it. Even a casual examination of the graph indicates that owner-occupiers' costs are more volatile than the overall index with some pronounced peaks (e.g. Q3 2000 - Q2 2001; Q1 2022 – Q1 2023) helping to pull CPI above its target range. The implication is that as a flow measure net acquisitions is likely to be a more volatile measure than one based a primarily stock measure, such as imputed rent.

Figure 1: Australian CPI and owner-occupiers' cost index (quarterly, 2020-2023)

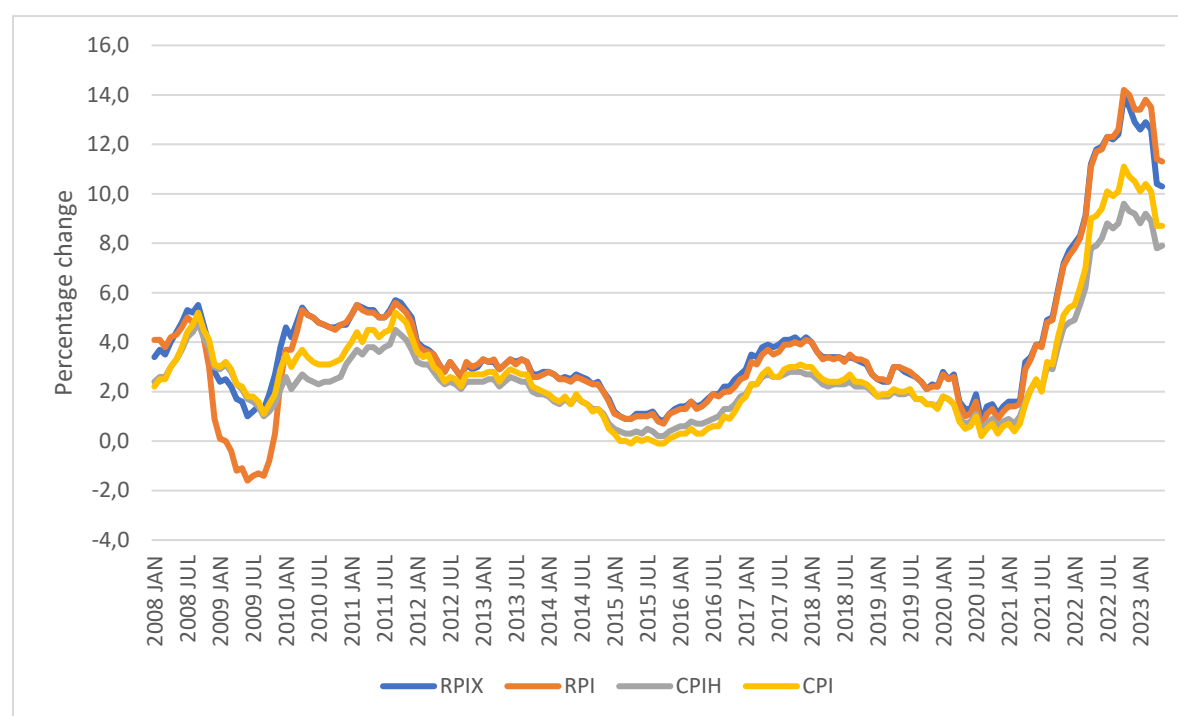


Source: ABS.

The divergent treatment of housing costs in the UK's RPI and CPIH allow us to compare first the difference between price indices that include/ exclude housing costs (i.e. RPI – RPIX and CPIH – CPI), and second, the impact of different treatments of housing costs.



Figure 2: Different measures of inflation, UK, January 2008 – May 2023 (% year-on-year change)



Source: ONS.

Figure 2 traces monthly year-on-year percentage changes in prices according to the four indices outlined above from January 2008 to March 2023: those based on retail prices, including (RPI) and excluding (RPIX) housing costs, and those based on consumer prices, including (CPIH) and excluding (CPI) housing costs. An analysis of Figure 2 is provided in Table 2.

Table 2: Analysis of RPI against RPIX and CPIH against CPI, January 2008 – May 2023

	Number of months	% of months		Number of months	% months
RPI > RPIX	25	13.6	CPIH > CPI	44	23.9
RPI = RPIX	49	26.6	CPIH = CPI	20	10.9
RPIX > RPI	110	59.7	CPI > CPIH	120	65.2
Total	184	99.9	Total	184	100

Source: Figure 2.

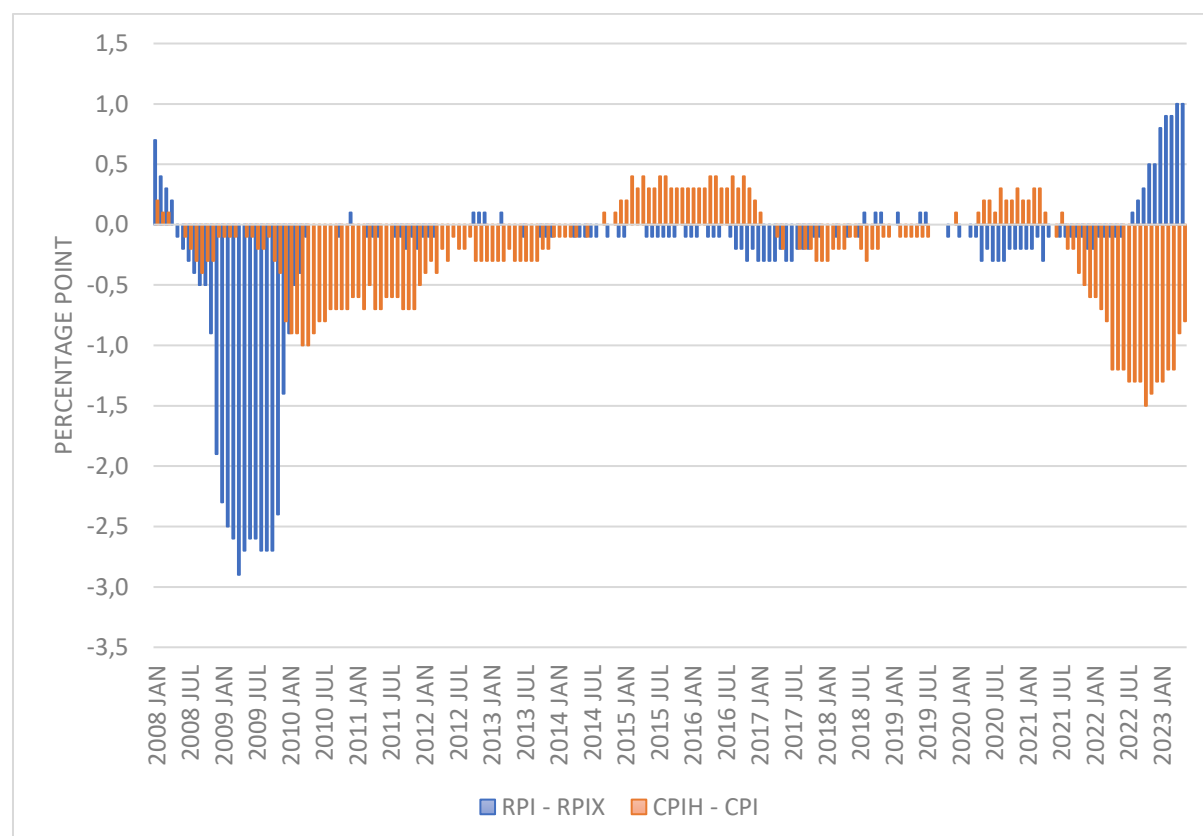
Table 2 shows that inflation indices including housing costs usually lagged behind those excluding them over the period between January 2008 and May 2023. In the case of retail prices RPI exceeded RPIX on only 25 out of 184 months (13.6% of the total), whilst CPIH exceeded CPI on 44 months out of 184 (23.9%).

Figure 2 also demonstrates how RPI is more volatile in relation to its equivalent that excludes housing costs than consumer price counterparts. It is likely that this reflects the more volatile mortgage interest component. RPI fell 2.5 percentage points (pp) or more below the RPIX between February and October 2009 (when mortgage rates were falling), with a maximum divergence of 2.9 pp in April 2009. Conversely RPI rose by at least 0.8 pp above the RPIX



between January and May 2023 (the most recent statistic) when mortgage rates were rising, with a maximum of a full percentage point in April and May. CPIH lagged behind CPI by at least one pp between April 2022 and May 2023 with a maximum difference of 1.5 pp in October 2022. The most by which CPIH exceeded CPI was 0.4 pp (in eight months during 2015 and 2016).

Figure 3: Differences between Retail and Consumer Price indices including and excluding housing costs



Note: When differences are positive, the inflation index including housing costs is greater to the equivalent index excluding housing costs.

Source: Author's calculations; ONS.

Figure 3 allows us to compare the relative effects of RPI and CPIH on their counterparts that exclude housing costs. The striking feature here is that the periods when RPI/CPIH exceeded their counterparts excluding housing costs were generally different. Between November 2014 and January 2017 CPIH consistently exceeded or equalled CPI, the average difference being 0.3pp. In contrast RPI *never* exceeded RPIX during this period, lagging by an average of -0.1pp. Similarly, CPIH consistently exceeded CPI between April 2020 and April 2021 by an average of 0.2 pp. In contrast, in each of these months, RPI lagged behind RPIX by an average of -0.2 pp. Meanwhile, whilst during the current inflationary period, we see RPI exceeding RPIX in every month between August 2022 and May 2023 (the most recently available data) by an average of 0.6 pp. Yet in the same period CPIH lagged behind CPI by 1.2 pp. The opposite impacts of different housing cost inflation measures could therefore impact on policy decisions.



Discussion and conclusions

This exploratory paper identified the different ways in which housing costs can be treated conceptually. These are reflected in the various inflation indices employed in Australia and the UK, which has allowed us to take a provisional view of their impacts on measured inflation.

Three observations are suggested by the exploration.

First, the treatment of housing costs using flow-dominated measures of rents and owner-occupiers' imputed rent have had only a small impact on the overall CPI. In the case of the UK CPIH housing costs have been a moderating influence. Should the UK proceed with the shift from CPI that excludes all housing costs to CPIH for inflation targeting, then the effects are likely to be modest.

Second, the net acquisitions approach used for the owner occupiers' component of housing costs is quite volatile because it is a flow measure. Even when overall housing costs are tempered by the rent index (which is dominated by the stock of rents) it seems that owners' housing costs may well have contributed to pulling overall CPI inflation above the target range.

Third, the use of a cost-based measure which includes mortgage interest can be quite volatile. This will depend on the extent and interest rate structure of mortgage debt as well as movements in interest rates.

Fourth, different housing cost measures impact on overall inflation not only by degree. They can work in opposite directions. Consequently, how housing costs are measured could lead to different policy responses.

These findings help to explain why monetary policy has become so controversial in Australia and the UK where interest rates have been increased to contain inflation measures that exclude mortgage interest as a cost. Put bluntly, they highlight a credibility gap in policy.

The context of this paper – focusing on two homeowner societies where significant mortgaged ownership sectors during a period of rapidly rising interest rates – also provides additional insights into the previous discussions. Although recently published, Hill et al's (2023) analysis preceded the inflationary surge and consequent disruption to monetary policy. Their analysis of inflation indices leads them to conclude that their simplified user-cost measure would "improve the perceived legitimacy of the CPI with the public" and that by variables such as real interest rates it is "not too volatile and behaves sensibly [sic]" (ibid: 10). The more recent experience in Australia and the UK suggests that these attributes are likely to conflict with one another during an inflationary surge or deflation. Inflation indices that fail to reflect the reality experienced by mortgaged owners with interest rates fixed only for only relatively short periods appear to lack credibility. Conversely, they undoubtedly can be more volatile. But this does not so much mean that they are not "sensible" but rather that the accurate reflection of lived experience is inconvenient for the purposes of monetary policy.

There is therefore no universally acceptable answer to the treatment of housing costs in inflation indices *that are used for inflation targeting through monetary policy*. This points to a far more radical – and heretical – implication. This is to question the 30-year consensus that controlling inflation should be the responsibility of independent central banks using monetary policy to



target inflation indices. The argument advanced here is inflation indices should do what their core function is: to provide a credible reflection of the cost of living. If this is inconvenient for current inflation targeting regimes, then it may be that inflation should be targeted by employing a wider range of policy instruments, including taxation and market regulation, as well as monetary policy.



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