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Nama : Dr. Njo Anastasia, S.E., M.T.

Nip : 00-017

untuk melakukan review makalah ilmiah bagi Journal of Housing and the Built Environment (JHO-D-20-00268) dengan judul :

"Housing Costs and Poverty: Analysing Recent Australian Trends" (JHO-D-20-00268)

Demikian surat tugas ini dibuat untuk dapat dilaksanakan dengan sebaik-baiknya di Semester Gasal 2020/2021.

nabaya, 9 Oktober 2020 an ius Jogi Christiawan, S.E., M.Si., Ak.

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Journal of Housing and the Built Environment (JOHO) <em@editorialmanager.com>

9:05 AM (09/10/2020

Dear Dr. Anastasia,

In view of your expertise I would be very grateful if you could review the following manuscript which has been submitted to Journal of Housing and the Built Environment. Manuscript Number: JOHO-D-20-00268 Title: Housing Costs and Poverty: Analysing Recent Australian Trends

Abstract: This paper examines recent trends in Australian poverty, measured both before (BHC) and after (AHC) housing costs. Australian poverty researchers were among the pioneers of the AHC measure because of its ability to highlight the impact of housing costs on the risk of poverty faced by specific groups, differentiated by age and housing tenure. The analysis shows how recent changes in the housing market, specifically the large increase in house prices have left many older Australians with an outstanding mortgage when they reach pension age and many younger Australians unable to afford to buy their own home and thus forced to become renters. These shifts have changed the profile of AHC poverty and raise important questions about the adequacy and sustainability of existing housing and income support policies.

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With kind regards, Ali Soltani Associate Editor Journal of Housing and the Built Environment

Journal of Housing and the Built Environment (JOHO) <em@editorialmanager.com>

1:46 PM (13 Oct 2020)

Dear Dr. Anastasia,

Thank you very much for your review of manuscript JOHO-D-20-00268, "Housing Costs and Poverty: Analysing Recent Australian Trends". We greatly appreciate your assistance.

With kind regards, Journals Editorial Office Springer

Reviewer comments

Abstract is supposed to be written in 150-200 words and states study background, aim, research method, results and contribution. The current abstract has not elaborated the research method used, as well as the contribution of this study.

Use 4-6 Keywords according to the words listed on the commentary in the abstract which are important clues in this study.

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What is the update of this study compared previous study regarding the before (BHC) and after of housing cost (AHC) in Australia? Is there any updated data that needs to be displayed to support the background of this study?

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ARTICLE



Housing costs and poverty: analysing recent australian trends

Bruce Bradbury¹ · Peter Saunders¹

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Abstract

This paper examines recent trends in Australian poverty, both measured using disposable income (before housing costs, BHC) and income after subtracting housing costs (AHC). Household-level data from Australian Bureau of Statistics household income surveys are used to estimate relative poverty rates since 1999–00. Changes in the Australian housing market, especially the large increase in house prices and falling home ownership, mean that trends and relative levels of poverty are quite different when using these two alternative measures of resources. While BHC poverty has decreased, AHC poverty has not—because of rising housing costs. These shifts have changed the profile of AHC poverty and raise important questions about the adequacy and sustainability of existing housing and income support policies.

Keywords Poverty · Housing costs · Family types · Housing tenure

1 Introduction

By far the most common method for measuring poverty, nationally and internationally, involves comparing household income with a poverty line. This method is used to estimate poverty rates in high-, middle- and low-income countries and provides valuable information about the extent and nature of poverty, including the factors associated with poverty and the impact of anti-poverty policies. It is acknowledged that low-income may not always result in poverty (nor that a higher income will always avoid it), and that other factors will be relevant in some instances (including wealth holdings, indebtedness and special needs) but measuring poverty using income has universal appeal and application. Acceptance is growing for the need to complement income-based measures with others that capture these different contributors to poverty status, and for the measures used to incorporate those factors that are having a growing influence on whether or not one is poor.

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One issue that is relevant in this context is housing costs and this paper focuses on the role of housing costs in affecting how poverty is measured, the impact of housing costs at a point in time and over time and which groups have been most affected. The results apply to Australia but are designed to be of wide interest, filling a general gap in the literature that has (with some notable exceptions) acknowledged the problem but made few efforts to address it. Results are presented for poverty rates measured both before and after taking account of housing costs in a recent year (2017–18) and all years since 1999–200 for which data are available, in aggregate and disaggregated by family type and housing tenure. Contextual information is also presented on recent (post-2000) changes in the distribution of these two variables. The results provide an important insight into how housing costs (and by implication the factors driving them, including housing policies) are contributing to poverty by reducing people's ability to meet their non-housing needs from the income left over after housing costs have been met.

Housing costs depend on the type and size of dwelling, where it is located and how it is financed. They are generally unavoidable and unalterable in the short to mediumterm, which means that income alone is an incomplete indicator of living standards and poverty. The standard way of adjusting for this deficiency is to deduct housing costs from income and use this metric to estimate poverty after housing costs (AHC) (Johnson & Webb, 1992). In the Australian context, homeownership has traditionally played an important role in reducing housing costs–particularly among older people—thereby protecting them from poverty and providing a foundation on which people can build their economic fortunes. A range of tax and social security (assets test) concessions tied to home purchase and ownership exist to encourage owner-occupation of private dwellings, serving in effect as a 'fourth pillar' (after public and private pensions and other forms of saving) of Australia's retirement income system (Bradbury, 2013; Yates & Bradbury, 2010).

Although ownership rates are declining, these policies still serve an important role in easing housing cost pressures, but they have also created inter-generational inequities as older homeowners and low-balance mortgagees benefit at the expense of younger groups excluded by increases in house prices from owning their own homes. There is abundant evidence that many of those unable to purchase their own home and forced to rent are among the most disadvantaged groups as measured by their exposure to poverty (Davidson et al., 2018) or deprivation (Saunders et al, 2008; Saunders and Naidoo, 2018; 2019). Their relative disadvantage is compounded by Australia's under-supply of social housing and tenancy laws that offer private renters inadequate protection from landlords (who often receive capital gains and rental income tax subsidies).

These anomalies and inequities raise important questions about the rationale for, and sustainability of current housing policy settings. They also suggest a need to better understand the relationships between housing tenure, housing costs and poverty that form the background to this paper. Although its focus is on technical aspects of the treatment of housing costs when measuring poverty, the results shed light on the broader housing market issues noted above that, as will be seen, is changing in ways that raise serious questions about current Australian income support and housing policies.

The paper is organised as follows: Sect. 2 summarises the main arguments used to justify the use of the after-housing costs poverty measure. Section 3 presents recent estimates of poverty measured both before deducting housing costs from disposable income (BHC) and after deducting housing costs (AHC) and compares the difference, in aggregate and between social groups at a point in time. Section 4 describes recent housing market trends and Sect. 5 examines trends in BHC and AHC poverty rates since 2000 to highlight how the relationship between the two measures has changed, and which groups have been most affected. The main conclusions are summarised in Sect. 6.

2 The treatment of housing costs when measuring poverty

Australia's use of the AHC poverty measure has a long history, making it a pioneer in this approach to poverty measurement. The first Australian large-scale survey-based study of poverty, conducted in Melbourne in the mid-1960s, measured poverty using both the BHC and AHC measures and highlighted the importance of the after-housing costs measure, arguing that:

'In some cases, because of high rents or instalment payments, families appeared to be in poverty by this measure although their income had apparently been adequate for their needs' (Henderson et al., 1970: 24-5)

The subsequent Commission of Inquiry into Poverty—established in 1972 and chaired by Henderson, the chief author of the Melbourne study—adopted a similar measurement framework. It argued that housing costs not only affect the exposure to, and hence level of poverty at any point in time but are also a key potential driver of changes in poverty. Using an AHC poverty measure also affects the composition of those identified as poor, for example with older units (single and couples combined) comprising 42.9 per cent of the BHC poor, but only 20.7 per cent of the AHC poor (Commission of Inquiry into Poverty, 1975: Tables 3.9 & 3.10).¹ Although the estimation methods have some differences from these earlier approaches, it is now standard practice in Australia to measure poverty using both the BHC and AHC measures (e.g. Bradbury et al., 1986; Cassells et al., 2014; King, 1998). Recent studies conducted by the leading community sector non-government organisation the Australian Council of Social Service (ACOSS) and the university-based Social Policy Research Centre (SPRC) have focused solely on the AHC measure since this is seen as better reflecting the circumstances of those facing the greatest risk of poverty (ACOSS, 2016; Davidson et al., 2018).

The basic arguments for applying the AHC poverty measure were set out by Johnson and Webb (1992). They identify the 'most powerful argument' in favour of the AHC measure being that many households have little or no choice over their housing costs, so that any increase will result in a fall in real living standards that may in turn result in an increased exposure to poverty.² This argument is particularly compelling if the variation in housing costs between families does not reflect variations in housing quality, since when this is the case (for example, where the price of a given type of house varies by region, or where the same type of house is mortgage-free and fully owned by an older couple and by

¹ It is important to note that the difference between the BHC and AHC poverty rates measures the *net* impact of housing costs, as households may move in either direction relative to the poverty line when one measure replaces the other. This net impact differs from the numbers in 'housing-cost-induced poverty' which captures only those who are not experiencing poverty until housing costs are taken into account (see Tunstall et al., 2013: 5).

² The UK Social Metrics Commission (2018) has recently made the same point, arguing (p. 17) that 'weekly recurring housing costs should be viewed as an inescapable cost that reduces the overall level of available resources that a family has'. Recurring costs are defined here to include the cost of rental or mort-gage payments, ground rents and service changes, water rates and other charges including council tax and structural insurance premiums.

a younger couple who have to finance a large outstanding mortgage), families with identical houses and the same (monetary) incomes will experience different living standards. Similar arguments apply when interest rates change, since this affects the cost of housing (for mortgagees) but not its quality, leading to living standards differences that will only be captured by the AHC measure. In a country like the UK where income support payments are based on housing costs actually incurred, the case for using the AHC measure becomes even more compelling, since otherwise increases in income that compensate (even partially) low-income households for higher housing costs will show up as increases in income and a decline in poverty if the BHC measure is used.³ We show below that this issue is also relevant in Australia.

The main argument against the AHC measure revolves around the degree to which housing is seen as a consumption good that reflects choices freely entered into.⁴ Why should a person who chooses to spend excessively on housing be considered any more at risk of poverty than someone who over-spends similarly on their children's education or expensive holidays? Johnson and Webb see this argument as applying only to those in the mainstream of the population when viewed over longer periods. Some households with low AHC incomes currently because of high mortgage repayments will gain from ownership benefits later and for this group, the BHC measure may be more appropriate – although Johnson and Webb show that there are relatively few households of this type in the lowest decile of the income distribution and that those that are, are there on both a BHC and AHC basis.⁵ In fact, it is renters who are far more likely to fall into the lowest decile when income is measured AHC, leading the authors to conclude that:

'In our view, in the short term and for the poorest groups, it is difficult to see increases in housing costs as other than an unavoidable burden, and as such it seems reasonable to take them into account when assessing standards of living' (Johnson & Webb, 1992: 289)

The focus of the discussion so far has been on the role of housing costs and the choice between the BHC and AHC income metric as the basis for measuring poverty. A related issue concerns how housing costs themselves are measured. They are normally defined to include mortgage interest and principal repayments (including for any dwelling alterations or additions), rent and unavoidable costs such as local government charges and water rates but excluding expenditure on repairs and maintenance and body corporate fees. The rationale for including the capital component of mortgage repayments has been criticised because this is a form of saving that will reap future benefits, as noted earlier. However, it is usually not feasible for people in financial stress to re-finance to an interest-only mortgage.

³ A recent view undertaken for the Joseph Rowntree Foundation found that housing costs 'constitute the most important direct impact of housing on poverty and deprivation' and that the poverty rate was 5 percentage points higher in 2011–12 (and the numbers in poverty 3.1 million greater) when housing costs are taken into account (Tunstall et al., 2013).

⁴ This point is acknowledged by Jenkins (2016), who still describes the gap between the BHC and AHC measures as 'an important distinction'. His analysis shows that between 1990 and 2012–13 the UK poverty level and its trend vary according to which measure is applied. Thus, while BHC poverty declined by 6 percentage points over the period, AHC poverty declined by only 3 percentage points and the gap between them doubled.

⁵ Another strategy is to place a cap on the housing costs that are deducted (van Dam et al, 2003). However, the heterogeneity of the housing stock makes justifying this approach difficult.

For the vast majority, mortgage repayments are, like other elements of housing costs, a fixed cost that have to be met out of current income and can thus result in poverty.⁶

A further issue relates to how poverty is measured more generally. There is broad agreement that the best approach to measuring BHC poverty involves aggregating incomes at the household level, adjusting for differences in household need using a scale like the modified OECD equivalence scale and applying individual weights, so that the estimated poverty rate measures the percentage of individuals living in households with equivalised incomes below the poverty line (Atkinson et al., 1995: see also the Appendix for further details).

The poverty line is set at either 50 per cent or 60 per cent of median (equivalised) income.⁷ These poverty lines are relative but arbitrary, in the sense that they are not based on estimates of the cost of meeting basic household needs, but there is broad agreement that they provide a valuable relative benchmark that is comparable over time and between countries.⁸ Using an AHC poverty line introduces additional complexities. Ideally, a different adjustment for household needs should be used in this case–because housing expenditure needs are likely to vary less with the number of people in the household than do total expenditures. However, while there is some consensus that the modified OECD scale represents a reasonable way to adjust total disposable income or overall consumption for differences in household size, no such consensus exists for how to adjust after-housing-costs income or non-housing consumption.⁹ Consequently, the results shown here use the same equivalence scale for both the BHC and AHC housing measures. This does have an advantage of focussing attention on the impact of housing costs when comparing the two measures.

Similarly, in calculating the AHC poverty line, we use the same approach as for the BHC line. The poverty line is set at half the median of income after deducting housing costs and adjusting for household size. This relative approach means that, just as changes in median incomes will influence the BHC poverty line, changes in housing costs for the median household will influence the AHC poverty line and hence the AHC poverty rate. This can produce some counter-intuitive results. For example, in some circumstances a general increase in housing costs holding BHC income unchanged will lower the AHC poverty line and may result in a lower relative poverty rate, even though everyone is worse off using the AHC income measure.¹⁰

⁶ It is arguable that repayments on alterations or extensions should also be omitted because they (like expenditure on repairs and maintenance) are a choice that can often be avoided or deferred, but they are relatively small and do not affect the overall picture very much.

⁷ This approach is consistent with the wide adoption of median income-based poverty lines in the international literature (see Atkinson, Rainwater and Smeeding, 1995; Jenkins, 2016). It is common practice in European countries to set the poverty line at 60 per cent of median income, although Australian studies more commonly set the benchmark at 50 per cent and that approach is used here. It should be noted that recent outputs from the OECD use the square root of household size equivalence scale, not the modified OECD scale.

⁸ Poverty lines established using other methods such as budget standards studies (as used in the Poverty Commission) can often produce quite different relativities (for Australia, see Saunders et al., 1998: chapter 12).

⁹ The Poverty Commission, for example, used a different scale for the AHC poverty measure, though this scale was based on a budget-standards type calculation for New York in the 1950s, and it is difficult to argue that this would have contemporary relevance.

¹⁰ More precisely, an equal-proportionate change in median after-housing income, and after-housing income around the poverty line will leave AHC poverty unchanged. If the increase in housing costs as a proportion of after-housing income is greater near the poverty line, then the AHC poverty rate will increase.

This discussion highlights how the use of the AHC income measure has many advantages, particularly in a country like Australia with a high home ownership rate and wide variations in housing costs (geographically) and in housing wealth (generationally). Its general appeal has grown in line with increases in home ownership rates and, more recently, in housing costs in many OECD countries. But the switch from the BHC to the AHC income measure when measuring poverty raises several new issues that do not arise when the BHC approach is used. For this reason, there is much to be said for applying both approaches to identify and assess what differences exist and which groups are most affected.

3 Survey data and the level and structure of poverty in 2017–18

The poverty estimates have been calculated from the biennial Surveys of Income and Housing (SIH) conducted by Australian Bureau of Statistics (ABS) (e.g. ABS, 2019). The ABS publishes reports that use the survey data to estimate the distributions of income and wealth but does not estimate or present poverty rates. They do, however, release a confidentialised version of the data file to researchers that allows poverty rates to be derived, and those files from the basis of the results presented here. The ABS data is used in the majority of Australian poverty studies conducted by government agencies and independent research institutes (see McLachlan et al., 2013: Table 3.1) and forms the basis of the widely-cited international comparisons produced by the Luxembourg Income Study (see https://lisdatacenter.org/data-access/key-figures/ and Gornick & Boeri, 2016) and the OECD (see https://data.oecd.org/inequality/poverty-rate.htm and OECD, 2008).¹¹ The methods used here are described in more detail in the Appendix.

Income is measured on a weekly basis and includes all government cash transfers but deducts income tax (and the compulsory Medicare levy) and is adjusted for differences in household needs using the modified OECD scale. Poverty rates have been person-weighted and thus refer to individuals. Households that either report zero or negative income, or who have at least one self-employed member have been removed from the sample, in both cases because of concerns that the income data is not appropriate for assessing their poverty status. The BHC income measure is as reported in the survey, while the AHC measure deducts housing costs. These include interest and principal mortgage repayments (including for any dwelling alterations or additions) and general and water rates for homeowners and rent payments for renters.

We report results for the surveys conducted between 1999–00 and 2017–18. Over this period, there were changes in the survey methods, most significantly in 2007–08 where a more comprehensive income definition was introduced (see ABS, 2009; Wilkins, 2014). Surveys since then also include income estimates based on the earlier income definition and so we use this earlier measure to ensure trend comparability.

However, there were also other methodology changes made in the early 2000s (including a shift to computer aided interviewing) for which no such adjustment is possible. We can compare some of our results with those from another data source, the *Household Income* and Labour Dynamics in Australia (HILDA) survey. Our estimates of before-housing

¹¹ The other main source of national data that can be used to estimate poverty is the longitudinal *House-hold, Income and Labour Dynamics in Australia (HILDA)* survey (Summerfield et al, 2018), although this has a smaller sample size, a lower response rate and is potentially subject to the attrition problems that are common among panel surveys. We compare some of our results with this survey below.

poverty from the HILDA survey show a slightly decline between 2000–01 and 2005–06 (2 percentage points), compared to the slight increase (<1 percentage point) that we show in Fig. 2.¹² The trend thereafter for both surveys is very similar.¹³ So, it possible that the increase in poverty that we show in the first half of our period is over-estimated, although attrition bias in the HILDA survey could also explain this difference.

3.1 Poverty rates in 2017–18

Table 1 presents estimates of BHC and AHC poverty in 2017–18, in aggregate and disaggregated by family type and by housing tenure. The BHC poverty rate varies across family types from 5.8 per cent for working-age childless couples to 22.7 per cent for lone parent families, and by tenure groups from 4.0 per cent for owner-purchasers to 41.1 per cent for public renters. The overall BHC poverty rate of 8.4 per cent increases to 13.1 per cent $(p < 0.01)^{14}$ when the AHC approach is applied, even though the single-adult poverty line is now \$87 a week, or 19 per cent, lower. Taking account of housing costs affects not only the overall level of poverty, but more importantly, its composition.¹⁵ For example, while older families (single and couples) account for 18.5 per cent and families with children (lone parents and couples) account for 47.4 per cent of those in BHC poverty, these percentage shares are 14.4 per cent and 52.8 per cent of AHC poverty, respectively. While the AHC poverty rate of older people living alone is 47 per cent higher than the BHC rate (23.4 vs. 15.9, p < 0.01), the AHC poverty rate for older couples is slightly below (and not significantly different from) the BHC rate.

The first step in understanding more clearly the role of housing costs involves examining the tenure composition of those identified as being in BHC and AHC poverty. Comparisons of the BHC and AHC poverty rates for those in a given tenure situation highlight the limitations of the BHC estimates. For example, Table 1 shows that the BHC poverty rate among those who have paid off their mortgage is considerably *higher* than for those who are still paying it off, while private renters face a *lower* poverty rate than outright owners. Both results are reversed when the AHC measure is used and the perilous plight of renters (public and private) compared with homeowners is now clearly apparent (owners vs. renters all p < 0.01).

Perhaps the most remarkable feature of Table 1 is that the AHC poverty rate for single older people is almost 50 per cent above the BHC rate–23.4 per cent compared with 15.9 per cent (p < 0.01). This finding is at odds with the original rationale for introducing the AHC measure, which was that the BHC measure over-estimates poverty among older people who often have low (mainly pension) incomes but also face low housing costs because many of them own their homes outright. The BHC and AHC rates for older couples are virtually the same, further compounding this apparent paradox, which is examined in more detail below.

¹² For another study of poverty using the HILDA data, see Sila and Dugain (2019).

¹³ Detailed results are available from the authors on request.

¹⁴ See Appendix for variance calculation methods.

¹⁵ The higher AHC poverty rate is associated with the fact that housing is a necessity–a good where expenditures are a greater share of the budget for poorer households. This means that housing consumption is more evenly spread across incomes than total consumption, and correspondingly, that non-housing consumption (captured by the AHC measure) is more unevenly spread–leading to a higher poverty rate.

4 Housing market trends

To understand what is driving these results-for all Australians not just older cohorts—it is helpful to review recent developments in the Australian housing market. Since the turn of the century, the Australian housing market has seen substantial changes which have had major impacts on housing costs (see Kohler & van der Merwe, 2015; Lowe, 2019).

Dwelling prices increased dramatically, both in the years prior to the global financial crisis, and again after 2011–12. The median real value of owner-occupied houses increased by 132 per cent, from \$280,000 in 1999–00 to \$648,000 in 2017–18 (both in 2017–18 prices). Mean values similarly increased from \$364,000 to \$814,000. At the same time, the average mortgage owing increased from \$68,000 to \$195,000, an increase of 186 per cent.¹⁶

In the second half of the period rents also increased, with the real value of the ABS rental price index 11 per cent higher in 2017-18 than $1999-00.^{17}$

Irrespective of the determinants of these trends, they have had substantial implications for the housing opportunities and housing costs facing a wide fraction of the population. In particular, home ownership rates among younger cohorts fell dramatically over this period as they were priced out of the housing market (Wood et al, 2019).

Recent changes in the housing tenure of different household types are shown in more detail in Table 2. Overall, the fraction of people in households owning their house outright fell by over 11 percentage points–offset by an increase of 5 percentage points in those with mortgages. The proportion in public rental housing also declined from an already low level, with a consequent substantial expansion (by 9.3 percentage points) in the fraction of people living in private rental accommodation. These patterns were also observed among the older population, though the changes there are smaller and not always significant. The fractions of single and partnered older people owning their home outright fell by 3.5 (not significant) and 5.5 percentage points respectively, and there was an offsetting increase in mortgage holding among older couples.

The most dramatic changes in outright homeownership rates were found among younger couples, who experienced decreases of 16.7 and 13.7 percentage points for those without and with children, respectively. Lone parents were adversely affected by both rising house prices and the shrinking public rental sector, with the result that the fraction living in the private rental sector rose by 12.5 percentage points (from around one-third to approaching one-half).

The impact of all these changes on housing costs over the period is summarised in Fig. 1, which shows trends in the median of the housing cost/disposable income ratio (the 'housing share') for quintiles of equivalised household disposable income among those aged under 65, and 65 and over separately. The top line in the left panel thus shows the median of the housing cost/disposable income ratio for the one-fifth of the under-65 population with the lowest equivalised disposable income, and so on. Across the 15-year period, housing costs as a share of income were relatively stable for the older population. For those under 65, however, all groups faced an increase in relative housing expenditure. This increase was greatest for the bottom fifth (of disposable income), whose median housing

¹⁶ Authors' calculations from the SIH, confidentialised unit record files. These are home-owners' estimates of the current sale value and outstanding mortgage on their dwelling. Home-owners with zero mortgage are included when calculating both means.

¹⁷ Source: ABS Cat 6401.0 Consumer Price Index, September Quarter 2018; Table 9.

Characteristic	Poverty before	housing costs (BHC)	Poverty after housing costs (AHC)		
	Poverty rate	Composition of the poor	Poverty rate	Composition of the poor	
Family type					
Single, 65 +	15.9	8.9	23.4	8.4	
Partnered, 65+	9.4	9.6	9.2	6.0	
Single, ^{<} 65	13.9	9.8	25.5	11.5	
Partnered, ^{<} 65	5.8	8.4	8.4	7.7	
Partnered with children	5.9	28.9	11.5	36.0	
Lone parent	22.7	18.5	32.3	16.8	
All	8.4	100.0	13.1	100.0	
Housing tenure					
Outright owner	11.9	34.2	8.7	16.1	
Owner-purchaser (mortgagee)	4.0	20.5	9.3	30.2	
Public renter	41.1	14.3	54.5	12.1	
Private renter	7.9	24.9	17.9	36.1	
All	8.4	100.0	13.1	100.0	

 Table 1
 Poverty Rates by Family Type and Housing Tenure in 2017–18, Before and After Housing Costs (percentages)

Estimates for 'mixed households' and other tenures (e.g. rent-free) not included in the categories listed are included in the totals

Source: ABS Survey of income and Housing, 2017–18; confidentialised unit record file. See appendix for details

cost/income rose from around 22 per cent in 1999–00 to 29 per cent in 2017–18 (p < 0.01). This had a corresponding negative impact on the level of income remaining after housing costs and, as we shall see in the next section, on AHC poverty for this group.

5 Trends in poverty before and after housing costs, 1999–2000 to 2017–18

Figure 2 shows aggregate BHC and AHC poverty rates in each survey year between 1999–2000 and 2017–18. The BHC poverty rate rose between 1999–2000 and 2007–08 (with the exception of a sharp drop in 2003–04 that was reversed by 2005–06 and may reflect the ABS measurement changes mentioned earlier) but declined steadily since 2007–08 to reach its lowest level (7.8 per cent) in 2015–16. The AHC rate also reached a peak in 2007–08 although it fluctuated less in the preceding years and has declined much less since then, and not at all since 2009–10. The gap between the two series began at 3.5 percentage points, narrowed to 2.1 at the peak in 2007–08 but has widened substantially since then to 5.0 in 2015–16 and 4.7 in 2017–18.¹⁸ This more recent pattern is consistent

¹⁸ The gap in 2017–18 is significantly larger than in 2007–08 (p < .01) but not significantly different from the gap in 2015–16.

		1999–00	2017-18	Increase		
		%	%	Percentage points	(t)	
Single, 65+	Owner, no mortgage	72.3	68.8	-3.5	(-1.4)	
	Owner with mortgage	4.5	5.6	1.2	(1.1)	
	Public renter	9.7	6.4	-3.3	(-1.7)	*
	Private renter	6.0	10.8	4.8	(3.2)	***
	Other	7.6	8.3	0.8	(0.5)	
	All	100.0	100.0			
Partnered, 65+	Owner, no mortgage	87.1	81.6	-5.5	(-2.8)	***
	Owner with mortgage	5.2	10.9	5.7	(4.4)	***
	Public renter	2.9	1.2	-1.7	(-2.2)	**
	Private renter	2.4	3.1	0.8	(0.9)	
	Other	2.4	3.1	0.7	(0.9)	
	All	100.0	100.0			
Single, <65	Owner, no mortgage	25.5	17.3	-8.2	(-4.0)	***
	Owner with mortgage	24.1	28.7	4.6	(2.2)	**
	Public renter	9.5	6.7	-2.8	(-2.4)	**
	Private renter	31.0	37.9	6.9	(3.5)	***
	Other	9.8	9.4	-0.4	(-0.3)	
	All	100.0	100.0			
Partnered, < 65	Owner, no mortgage	40.4	23.7	- 16.7	(-9.1)	***
	Owner with mortgage	36.7	41.6	4.9	(2.2)	**
	Public renter	1.9	0.6	-1.3	(-3.0)	***
	Private renter	17.6	30.3	12.8	(7.9)	***
	Other	3.5	3.9	0.4	(0.5)	
	All	100.0	100.0			
Partnered with children	Owner, no mortgage	24.4	10.7	- 13.7	(-8.8)	***
	Owner with mortgage	55.7	61.9	6.2	(3.2)	***
	Public renter	3.5	1.4	-2.1	(-3.3)	***
	Private renter	12.3	23.1	10.8	(7.5)	***
	Other	4.0	2.8	-1.2	(-2.0)	**
	All	100.0	100.0			
Lone parent	Owner, no mortgage	15.1	8.8	-6.3	(-2.6)	***
	Owner with mortgage	23.2	29.8	6.6	(2.2)	**
	Public renter	21.7	10.1	-11.6	(-3.9)	***
	Private renter	32.2	44.7	12.5	(3.6)	***
	Other	7.8	6.7	-1.2	(-0.7)	
	All	100.0	100.0			
All	Owner, no mortgage	34.9	23.5	-11.4	(-12.8)	***
	Owner with mortgage	39.0	44.2	5.2	(5.0)	***
	Public renter	5.1	2.5	-2.6	(-5.7)	***
	Private renter	16.3	25.6	9.3	(11.2)	***
	Other	4.6	4.1	-0.5	(-1.4)	
	All	100.0	100.0			

 Table 2
 Changes in Tenure Distribution by Household Type between 1999–00 and 2017–18

The last panel for All households includes mixed households not shown separately. All estimates are person-weighted. (t) is estimate divided by standard error

Table 2 (continued)

***, **, *significantly different from zero at 1%, 5% and 10% level respectively

Source: ABS Survey of income and Housing, 1999-00 and 2017-18; confidentialised unit record files. See appendix for details



Fig. 1 Trends in Housing Costs as a Share of Income by Age Group, 1999–00 to 2017–18. *Notes* Disposable income adjusted for household size. Quintiles are within age group. Self-employed and households with zero/negative income excluded. *Source* ABS *Survey of income and Housing*, various years; confidentialised unit record files. See Appendix for details



Fig. 2 BHC and AHC poverty rates, 1999–00 to 2017–18 Source ABS Survey of income and Housing, various years; confidentialised unit record files. See Appendix for details

with that reported by Jenkins (2016) for the UK, although the extent of the change is less marked in Australia. However, it has meant that the overall decline from 1999–00 to 2017–18 in BHC poverty in Australia of 1.3 percentage points (p < 0.05) is not reflected in a similar decline in AHC poverty, which was unchanged.

To better understand the impact of the broad trends shown in Fig. 2, we disaggregate the changes over the period by housing tenure and family type, with the latter also broken down by age into those below-65 and those aged 65 and over, as before. We also present a more detailed analysis for the 65 and over group to understand what is driving the recent reversal of the BHC and AHC poverty rates for this group.

Figure 3 shows that BHC poverty was low and remained constant throughout the period for private renters and purchasers with a mortgage. In contrast, the trend was upwards up until 2007–08 for mortgage-free owners and public renters, but declined for both groups after then, particularly for public renters, whose poverty rate declined from around threeand-a-half times that of other tenure groups, to around two-and-a-half times (even allowing for the increase in the latest year). The AHC trends are markedly different, both in terms of the point-in-time ranking of the four groups and in how they fared over the period. Public renters still face the highest poverty rate, followed by private renters who now look much worse, while the two homeowner groups look far better and the relativity between them is now as expected (with mortgagees generally faring worse than outright owners). The AHC poverty trends show that the marked post-GFC decline in BHC poverty slowed after 2011–12 for public renters and was reversed after 2009–10 for outright owners.

Figure 4 presents a similar comparison of BHC and AHC poverty trends over the period disaggregated by household type. The sharp contrast in the BHC and AHC trends for older households is immediately apparent, particularly after poverty reached its peak in 2007–08. After then and following the large increase in the single rate of age pension in September 2009, BHC poverty fell sharply for older single people–more so than for older couples (who did not receive the same pension increase), bringing the two rates closer together by 2015–16. AHC poverty trends were less volatile over the period. Though experiencing some volatility, the AHC poverty rate for older singles was the same at the end of the period as at the beginning.

The anomalous result highlighted earlier, whereby the AHC poverty rate of older single people exceeds the BHC rate can be clearly seen to have occurred only in the most recent years–since 2013–14 (p < 0.01 in each year). Similarly, for older couples, the BHC rate only comes down to near the AHC rate in these years and at the beginning of the observation period.

In stark contrast to the older groups, the other family types have similar BHC and AHC poverty trends. However, while the two rates are virtually the same for couples without children, AHC poverty consistently exceeds BHC poverty for couples with children, single person households and lone parent households.¹⁹ The gaps for these latter two groups are large and point to the poverty-inducing role of housing costs for both groups.

Figure 5 shows the trends in AHC poverty disaggregated by both household type and housing tenure.²⁰ Although the gaps differ across household types and over time for given household types, poverty rates of homeowners (with or without a mortgage) are consistently below those for renters (public and private). The dire circumstances facing non-aged single and couple households in public housing is also apparent and both groups have

¹⁹ P < .01 for couples with children, single person households and lone parent households in all years.

²⁰ The corresponding BHC poverty trend results are available on request from the authors.

become disconnected from all other household types in terms of the severity of the poverty rates they face. Although not shown, the data indicate that this disadvantage arises from their high BHC poverty rates (rather than high housing costs). A similar pattern exists for lone parents and couples with children and although the gaps here are not so large, they are large enough to raise concerns about the negative longer-term effects on the children affected.

Also notable in Fig. 5 is the increase in AHC poverty since 1999–00 among older single home owners with a mortgage. For this group, increases in housing costs have offset the poverty reduction associated with the increase in the age pension.²¹

Table 3 examines the recent trends in both BHC and AHC poverty rates for those aged 65 and over, disaggregated by family type (singles and couples) and housing tenure. In order to keep the discussion manageable, results are presented only for SIH survey years since the onset of the financial crisis in 2007–08 (when poverty reached its peak: see Fig. 2).²² A degree of caution should be applied to these estimates for two reasons: first, because many of them are based on small samples and are thus subject to large standard errors (particularly for public renters); and second, because older person poverty rates are sensitive to small movements in the level of the pension relative to median income, to which the poverty line is tied.

Notwithstanding this, Table 3 highlights several important features. Both older person BHC and AHC poverty rates in any year vary greatly across housing tenure groups. The BHC variation reflects the correlation of incomes with housing tenure, and in particular the stringent means-testing associated with access to public housing in the Australian system. The low BHC poverty rate for private renters reflects the additional rent assistance component of income support payments, which only private renters receive. This, however, is more than offset by their higher housing costs, leading to a much higher rate of AHC poverty among private renters.²³ In this case the AHC measure is clearly a better indicator of poverty than the BHC measure.

Table 3 also clearly shows the impact of the increase in the single rate of age pension in September 2009 noted earlier. This led to a marked reduction in older single person BHC and AHC poverty rates, and poverty continued to decline for this group through to 2015–16.²⁴ Finally, it shows that the paradoxical excess of the AHC poverty rate over the BHC rate which first emerged in 2013–14, exists only for single people and is driven by owners still paying off a mortgage and public and private renters. This result is not apparent for homeowners without a mortgage (still 70–80% of the population, see Table 2) and reflects the high housing costs facing those in the other three tenure situations.

Overall, the findings in Table 3 highlight the important role that improvements in pension adequacy can play in alleviating poverty among older Australians, but also point to the need to review how the income support system can better protect older (and younger) Australians from being exposed to poverty by high housing costs that are not compensated for adequately by income support provisions. If house prices continue to

²¹ The proportion of older singles with a mortgage has also risen over this period, thought the difference is not significant (Table 2).

 $^{^{22}}$ AHC estimates for all years are in Fig. 5 and BHC results for the years before 2007–08 are available on request from the authors.

²³ Significantly higher at the 5% level in all years for both singles and couples.

²⁴ The lagged indexation arrangements meant that the Age Pension increased relative to median income up until 2015–16 (and decreased slightly thereafter).



Fig. 3 Poverty by Housing Tenure Before (BHC) and After Housing Costs (AHC), 1999–00 to 2017–18. *Source* ABS *Survey of income and Housing*, various years; confidentialised unit record files. See Appendix for details



Fig. 4 Poverty by Household Type Before (BHC) and After Housing Costs (AHC), 1999–00 to 2017–18. *Source* ABS *Survey of income and Housing*, various years; confidentialised unit record files. See Appendix for details

rise, increasing proportions of older cohorts will reach pension age with a mortgage that they have not been able to pay off. Housing costs will increase their risk of poverty as the homeownership 'fourth pillar' (Yates & Bradbury, 2010) of the retirement income support system fails to provide adequate support. If this situation continues, it will raise



Fig. 5 Trends in AHC Poverty by Household Type and Housing Tenure, 1999–00 to 2017–18. *Source* ABS *Survey of income and Housing*, various years; confidentialised unit record files. See Appendix for details

questions about the need to further increase the pension itself in order to ensure that the overall support package for older Australians protects them from poverty.

6 Conclusions

This paper contributes to the growing literature on the role of housing costs in poverty by examining patterns and trends in Australian poverty rates, measured both before (BHC) and after (AHC) taking account of housing costs. It provides a more detailed examination of this issue than previous studies, including by estimating the impact of moving from the BHC to the AHC poverty measure on poverty rates, focusing on the impact at a point in time, over time, and for groups differentiated by their age, family type and housing tenure. Although the results presented are for one country, their focus, the methods used to produce them and the implications drawn from them have wider relevance. A key finding is that the detailed results presented help explain some of the apparent paradoxical results that are revealed by comparisons based on more simplified aggregate analyses.

Australia pioneered the use of the AHC poverty measure because of its relevance to the many households, particularly older households, who own their own homes and face low housing costs. These lower costs allowed many with incomes that would otherwise be below or close to the BHC poverty line to avoid poverty when measured using after-housing income. This in turn has been a factor that has allowed successive governments to provide a pension that is low by international (OECD) standards but still result in an AHC poverty rate among older people that is close to average. Against this, low levels of social housing provision and weak tenancy regulation and laws continue to leave many renters exposed to AHC poverty.

The great strength of the AHC poverty measure is that it draws attention to the role of housing tenure in protecting some groups from poverty and the role of housing costs in drawing others into poverty. These factors are highlighted by comparisons between BHC

Family type/Housing tenure	Poverty rate								
	2007–08	2009-10	2011-12	2013-14	2015-16	2017-18			
Single, before housing costs (BHC)									
Owner, without mortgage	50.1	36.5	33.8	12.2	7.8	16.3			
Owner, with mortgage	60.1	48.5	38.2	1.7	12.5	9.1			
Public renter	87.3	73.7	70.7	40.5	18.4	30.8			
Private renter	46.8	22.2	9.7	15.2	1.8	8.2			
All	55.5	39.3	34.1	14.7	8.3	15.9			
Single, after housing costs (AF	HC):								
Owner, without mortgage	33.4	6.6	7.8	7.4	5.8	11.5			
Owner, with mortgage	58.5	32.7	36.8	18.3	33.4	33.6			
Public renter	89.7	77.8	72.2	52.8	47.8	74.8			
Private renter	68.0	67.7	65.9	71.5	51.0	58.1			
All	44.5	19.9	20.2	18.1	15.2	23.4			
Couples, before housing costs	(BHC)								
Owner, without mortgage	22.6	19.9	13.2	10.1	9.0	9.5			
Owner, with mortgage	26.0	26.8	18.6	7.5	9.3	10.4			
Public renter	44.6	27.3	36.2	26.6	10.2	14.6			
Private renter	22.4	8.1	5.4	3.8	6.1	7.4			
All	23.7	19.9	14.1	10.3	8.8	9.4			
Couples, after housing costs (A	AHC)								
Owner, without mortgage	5.9	5.4	5.9	5.7	6.2	6.8			
Owner, with mortgage	19.8	15.6	22.6	11.6	13.4	19.3			
Public renter	71.9	44.8	38.2	33.0	29.6	14.6			
Private renter	57.1	48.9	42.6	48.0	35.8	29.2			
All	10.2	8.6	9.6	9.4	8.5	9.2			

Table 3Recent Trends in Older Person BHC and AHC Poverty Rates, by Family Type and Housing Ten-ure, 2007–08 to 2017–18

Totals within each group include those in other housing tenures

Source: ABS Survey of income and Housing, various years; confidentialised unit record files. See Appendix for details

and AHC poverty rates, which are shown to vary greatly across different household and housing tenure groups and over time. However, changes in the housing market since the turn of the century have challenged several of the assumptions that underpin conventional (BHC) poverty studies and the policy implications drawn from them.

The most significant of these in the current context is the sharp increase in house prices that have left many Australians with unpaid mortgages when they reach pension age, and the growing number of both young and old Australians who are unable to gain access to homeownership and forced to rely on the private rental market. These developments in the older population mean that the AHC poverty rate for singles now exceeds the BHC rate. Among younger people, AHC poverty rates remain high among the growing population living in rental accommodation.

These shifts were not planned but reflect the failure of housing and income support policies to adjust to a rapidly changing housing market, part of which is a direct consequence of existing policies, particularly the treatment of housing costs in the tax and transfer systems. Unless the impacts of these housing market changes on household expenditures are recognised and addressed, it seems likely that increasing numbers of Australians will be exposed to poverty, not only in the short run but also over longer periods.

Appendix

Methods

Our estimates are based on our harmonisation of data from the public release confidentialised unit record files of the *Survey of Income and Housing* (SIH) conducted biennially by the Australian Bureau of Statistics (ABS) (e.g. ABS, 2019). The surveys provide a representative sample of individuals in private dwellings, with the sample size ranging between 14 and 18,000 households in each year. The SIH is the benchmark Australian collection for household income data.

Population weights calculated by the ABS are used in the calculation of all estimates. Estimates of standard errors and statistical significance take account of the survey design features, using jackknife replication and the replicate weights supplied by the ABS. These variance estimates are calculated conditional on the population median (and hence poverty line) and quintile boundaries estimated on the full sample in each year. SAS 9.4 software was used.

Because of the difficulty of distinguishing between personal and business income, and the ability to finance current living standards by drawing down on business assets, our analysis population excludes households where there is a self-employed person in the household. Self-employment is defined as either reporting any income (negative or positive) from their own unincorporated business, or reporting their labour force status as employer, own account worker, contributing family worker or employee paid in kind in their main or second job. We also exclude households with zero or negative disposable income. These two exclusions together affect about 16 percent of the population (in 2015–16).

The key income variable used is current household disposable (i.e. after-tax) income, adjusted for needs using the modified OECD equivalence scale. This scale assigns a score of 1.0 to the first adult in each household, 0.5 to each other adult and 0.3 to each non-adult (persons under age 15). To ensure time-series comparability, for the surveys from 2007 to 08 onwards, we use the '2005–06 basis' income measure provided by the ABS. This excludes some income components (such as fringe benefits) which were only collected in later years.²⁵ In addition, to ensure a consistent population over time, we top-code the number of adults in each household to 6 and the number of children to 4.

Income after housing costs is calculated by deducting housing costs from disposable income. Housing costs include recurrent outlays by household members in providing for their shelter and is limited to major cash outlays on housing, that is, mortgage repayments (both principal and interest and including for any dwelling alterations or additions) and general and water rates for owners, and rent payments for renters. For simplicity, the same equivalence scale is used to adjust both before and after housing costs.

 $^{^{25}}$ If the latest (2007–08) income measure is used instead of the previous (2005–06) measure, the aggregate poverty rate estimates in 2017–18 are 8.2 per cent (BHC) and 13.2 per cent (AHC). This compares with those based on the 2005–06 income measure of 7.8 per cent (BHC) and 12.8 per cent (AHC) shown in Table 1.

All incomes and housing costs are inflated to 2017–18 values using the consumer price index for the quarter in which the interviews took place.

The counting unit for all results is the individual. People are defined to be poor before housing costs if the equivalised disposable income of their household is less than half the median of equivalised disposable income in the same year (a relative poverty definition). Poverty after housing costs is defined in a similar way, comparing equivalised household income minus housing costs with the median of this after-housing income.

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Declaration

Conflict of interest The authors have no conflicts of interest to declare.

Human or animal rights The research does not involve human participants (all analysis is of previously collected survey data).

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