University Library



A gateway to Melbourne's research publications

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:
Botha, F;Bentley, R;Li, A;Wiesel, I

Title:
Housing affordability stress and mental health: The role of financial wellbeing

Date:
2024-09

Citation:
Botha, F., Bentley, R., Li, A. & Wiesel, I. (2024). Housing affordability stress and mental health: The role of financial wellbeing. Australian Economic Papers, 63 (3), pp.473-492. https://doi.org/10.1111/1467-8454.12340.

Persistent Link:
https://hdl.handle.net/11343/345449

License:
CC BY

Check for updates

Received: 9 May 2023 | Revised: 12 November 2023 | Accepted: 1 February 2024

DOI: 10.1111/1467-8454.12340

ORIGINAL ARTICLE

AUSTRALIAN ECONOMIC PAPERS WILEY

Housing affordability stress and mental health: The role of financial wellbeing

Ferdi Botha[1,2] | **Rebecca Bentley**[2,3] | **Ang Li**[2,3] | **Ilan Wiesel**[2,4]

[1]Melbourne Institute: Applied Economic & Social Research, The University of Melbourne, Melbourne, Victoria, Australia

[2]ARC Centre of Excellence for Children and Families over the Life Course, Australia

[3]Melbourne School of Population and Global Health, The University of Melbourne, Carlton, Victoria, Australia

[4]School of Geography, Earth and Atmospheric Sciences, The University of Melbourne, Carlton, Victoria, Australia

Correspondence
Ferdi Botha, Melbourne Institute: Applied Economic & Social Research, The University of Melbourne, Melbourne, VIC, Australia.
Email: ferdi.botha@unimelb.edu.au

Funding information
ARC Centre of Excellence for Children and Families over the Life Course, Grant/Award Number: CE200100025; Hallmark Research Initiative for Affordable Housing (HRIAH)

Abstract

Using data from wave 20 of the Household, Income and Labour Dynamics in Australia Survey, we provide a descriptive examination of the relationship between housing affordability stress (HAS) and a multi-item measure of financial wellbeing across tenure types and test whether good financial wellbeing is protective of the negative mental health effects of HAS. We find that HAS is associated with lower financial wellbeing and that this is differentially distributed by tenure, with renters who experience HAS reporting, on average, lower financial wellbeing than owners. This suggests that HAS, which focuses on income to define housing stress, is different to financial wellbeing. Being in control of finances and feeling financially secure are important components of the way in which financial hardship impacts mental health. Renters may be more likely to experience these issues than owners; hence, they fare worse in terms of their mental health when in HAS than owners do.

KEYWORDS

Australia, financial wellbeing, housing affordability stress, mental health

JEL CLASSIFICATION

I10, I31

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.
© 2024 The Authors. *Australian Economic Papers* published by John Wiley & Sons Australia, Ltd.

1 | INTRODUCTION

The effect of housing affordability stress (HAS)—generally defined as households in the lowest 40th percentile of the national income distribution spending at least 30% of total household income on housing payments—on mental health is well established. Movements into HAS are related to a deterioration in self-reported mental health (Baker et al., 2020; Bentley et al., 2011; Singh et al., 2020), with much of the negative mental health effects of HAS attributed to greater financial hardship (Singh et al., 2020). There is also evidence that housing tenure matters, with greater adverse mental health impacts of HAS among private renters as compared to homeowners paying a mortgage (Arundel et al., 2021; Mason et al., 2013).

The analysis in this paper focuses on Australia, which has recently experienced substantial increases in housing costs. This is especially the case for renters, who, since the backend of the COVID-19 pandemic, have had to absorb significant rises in asking rent. Individuals can move into HAS because of either a fall in income, a rise in housing costs, or both. In Australia, growth in housing payments has, in more recent times, exceeded real income growth, with little evidence of this trend disappearing soon. It is, therefore, highly likely that a higher proportion of Australians may find themselves in HAS at some stage in the future.

Housing influences both physical and mental health through both direct and indirect pathways. Housing quality factors such as temperature (Clair & Baker, 2022), overcrowding (Ruiz-Tagle & Urria, 2022) or the presence of toxins (Howden-Chapman et al., 2023) directly affect both physical and mental health. High housing cost impacts the quality of housing people can obtain and could induce mental stress by reducing available income for other household expenditures, such as food, transport and medical care (Bentley et al., 2012; Chung et al., 2020; Singh et al., 2020). The impact of HAS on mental health is mediated by various factors, such as tenure (Arundel et al., 2021; Mason et al., 2013); spells and cumulative time spent in HAS (Bentley et al., 2012), trajectories of HAS over time, for instance, whether it is stable or increasing (Dotsikas et al., 2023), gender (Bentley et al., 2012; Pevalin et al., 2008; Taylor et al., 2007; Wells & Harris, 2007), generational differences (Bentley et al., 2022) and social withdrawal (Wells & Harris, 2007).

Though HAS focuses on the cost of housing relative to income, Chung et al. (2020) argued that income measures overlook important aspects of poverty and financial hardship, such as non-monetary resources or barriers. They propose an alternative measure of deprivation, which includes factors such as lack of command over sufficient resources over time to afford the social and material necessities of life to give a more comprehensive and multidimensional understanding of financial circumstances beyond income. Their study found that in Hong Kong, deprivation was a partial but significant explanation for the relationship between HAS and mental health. In this paper, we follow a similar approach in looking beyond income by incorporating financial wellbeing into our analysis.

The role that a person's financial wellbeing plays in the association between HAS and mental health has not yet been considered. Multifaceted, financial wellbeing is 'the extent to which people both perceive and have financial outcomes in which they meet their financial obligations, financial freedom to make choices that allow them to enjoy life, control over their finances, and financial security—now, in the future, and under possible adverse circumstances' (Comerton-Forde et al., 2022, p. 137). This definition encompasses different temporal dimensions, including how people deal with day-to-day expenses, the extent to which they make provision for unexpected expenses, and how they are providing for their long-term financial future.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

In the context of housing, Comerton-Forde et al. (2022) have shown that financial wellbeing is substantially lower among Australians who experience trouble paying their rent or mortgages.

This paper's main objective is to explore descriptively whether an individual's level of financial wellbeing can mitigate the relationship between mental health and HAS. Conceptually, we expect that good financial wellbeing can be a protective factor for mental health in the face of HAS. Being in HAS makes it harder for people to exercise discretion over what happens with the financial resources they have. A large proportion of income, which for those in HAS is often already relatively low, is spent on housing costs, with little left afterwards. Having good financial wellbeing can potentially reduce some of the negative effects of HAS. For example, exercising sound savings habits and having good credit card management would likely decrease people's financial stress and ability to meet financial obligations and, in turn, be beneficial for their mental health. However, tenure and levels of HAS impact people's capacity to exercise such financial management habits and, therefore, impact their financial wellbeing.

We make several important contributions to the literature. First, to our knowledge, this is the first paper to study whether financial wellbeing can mediate part of the association between HAS and mental health. We provide descriptive evidence for financial wellbeing as another pathway through which the mental health of those in HAS can be protected. Second, we demonstrate that housing tenure matters, with financial wellbeing being especially important for renters as a protective factor against HAS. Third, we demonstrate the direct importance of financial wellbeing to improve mental health. For renters specifically, efforts to enhance financial wellbeing may, therefore, not only provide a buffer to the adverse mental health effects of being in HAS, but also have a direct relationship with mental health.

2 | DATA AND MEASURES

2.1 | Data

We use data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey is a nationally representative longitudinal survey conducted annually since 2001. In this paper, we use Wave 20 of the HILDA Survey. Wave 20 was conducted in 2020 and is used because it is the first, and to date only, wave of HILDA to include the financial wellbeing scale that is central to our analysis.

Using information on respondents who completed the self-completion questionnaire that contains the financial wellbeing and mental health items. Because HAS status is determined via household income, whereas mental health and financial wellbeing are individual-level outcomes, the analysis focuses only on responses from the household head. Beginning with 8796 respondents. We exclude 5520 respondents who were in the top 60% of the national income distribution in 2020, given our focus on HAS, which can only apply to persons in the bottom 40% of the national income distribution. We further exclude 259 people living in social housing because this group accounts for a tiny proportion of observations (also see Mason et al., 2013). We also exclude 1305 people owning a home outright without a mortgage because their housing payments are affordable due to not having payments. Because we only focus on individuals 18 years and older, we drop 16 people aged 15–17. From the remaining 1696 total observations, we excluded 203 individuals with incomplete information on the outcome and explanatory variables. This subsequently leaves us with a final analysis sample of 1493 individuals, of which 1121 are renters and 372 are homeowners paying a mortgage.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

2.2 | Mental health

As a measure of mental health, we use the Mental Health Inventory (MHI-5) sub-scale derived from the SF-36 instrument (Ware, 2000). The MHI-5 is a widely used measure of mental health and ranges from 0 (*poor mental health*) to 100 (*excellent mental health*). Figure 1 shows the MHI-5 distribution in this sample.

2.3 | Financial wellbeing

We use the 5-item perceived financial wellbeing scale (see Table 1) developed and validated by Botha et al. (2020) and used in applied academic work as well (Botha et al., 2021; Botha & de New, 2022). The items are intended to capture different temporal dimensions of financial wellbeing. Items 1, 3 and 4 capture everyday outcomes, Item 2 reflects outcomes related to unexpected events and Item 5 captures outcomes related to provision for the future. The financial wellbeing scale is constructed from a simple summation of the responses to each of the five items. This is then multiplied by 5 to obtain a score ranging from 0 (*low financial wellbeing*) to 100 (*high financial wellbeing*). The correlation between the financial wellbeing scale obtained from summing the scores and a latent financial wellbeing score derived from item response theory analyses is 0.993. The simple summation scale is, therefore, sufficient to capture the entire distribution of financial wellbeing. Cronbach alpha of the financial wellbeing scale in this sample is excellent at .90. Figure 2 displays the financial wellbeing distribution, reflecting that levels of financial wellbeing vary widely across individuals in the lowest 40% of the national income distribution.

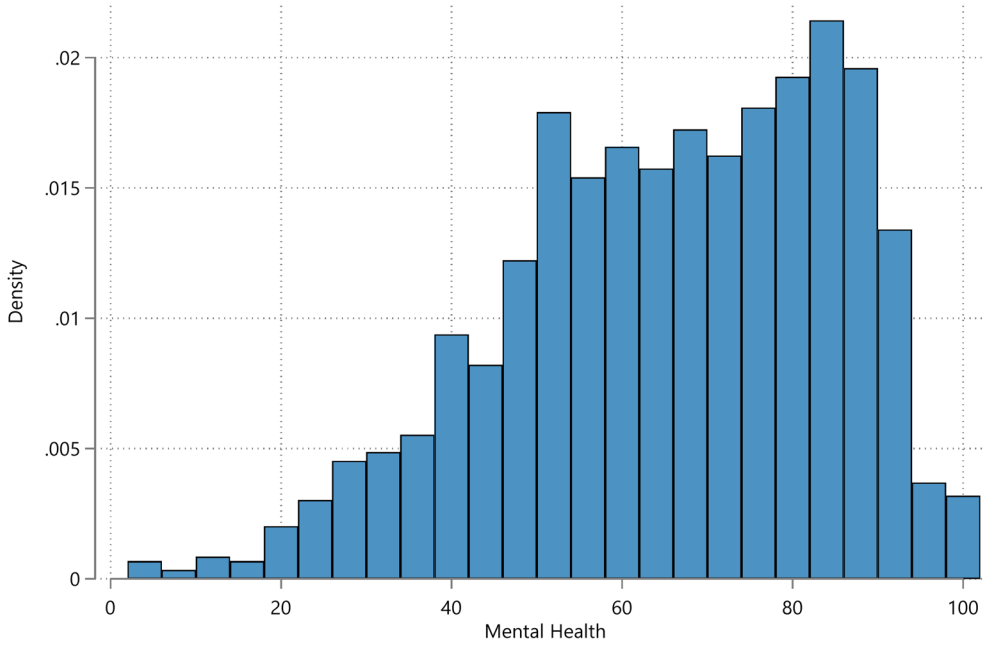


FIGURE 1 Distribution of mental health. [Color figure can be viewed at wileyonlinelibrary.com]

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 Financial wellbeing items.

Question	Responses
How well do the following statements describe you or your situation?	0—*Not at all*
1. I can enjoy life because of the way I'm managing my money.	1—*Very little*
	2—*Somewhat*
2. I could handle a major unexpected expense.	3—*Very well*
	4—*Completely*
When it comes to how you think and feel about your finances, please indicate the extent to which you agree or disagree with the following statements	0—*Disagree strongly*
	1—*Disagree*
3. I feel on top of my day-to-day finances.	2—*Neither agree nor disagree*
4. I am comfortable with my current levels of spending relative to the funds I have coming in.	3—*Agree*
5. I am on track to have enough money to provide for my financial needs in the future.	4—*Agree strongly*

Source: Botha et al. (2020).

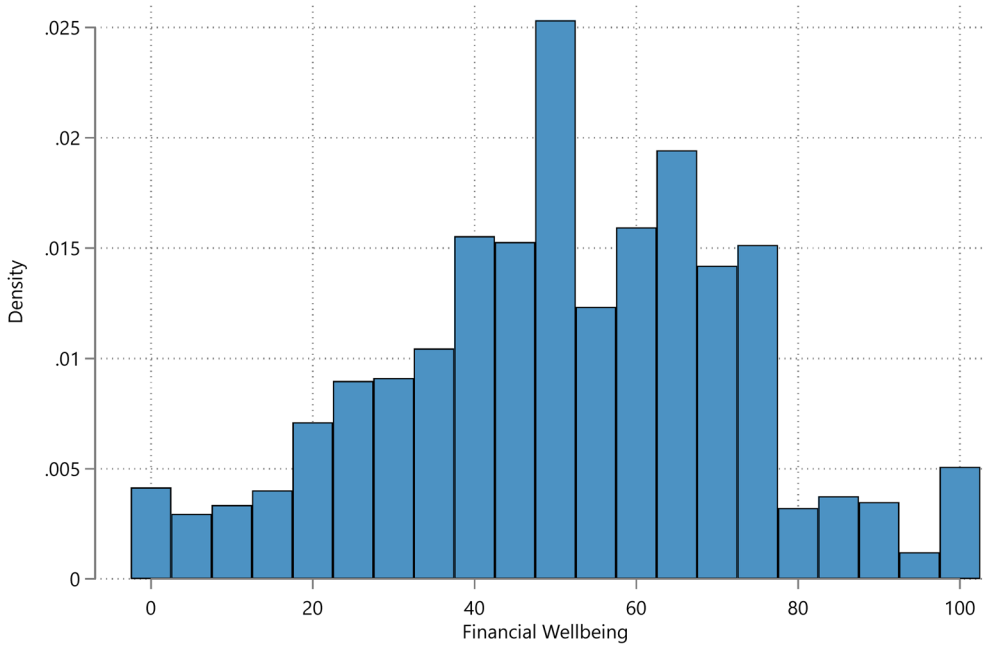


FIGURE 2 Distribution of financial wellbeing. [Color figure can be viewed at wileyonlinelibrary.com]

2.4 | Housing affordability stress

The measure of HAS is constructed according to the '30/40-rule' (Baker et al., 2020; Bentley et al., 2019; Mason et al., 2013). A respondent is in HAS if their household income falls in the lowest 40% of the national income distribution and their housing payments exceed 30% of their household income.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

3 | METHOD

We are primarily interested in testing whether financial wellbeing is a mediating factor in the association between mental health and HAS. We use a structural equation modelling (SEM) framework, which allows us to model all the main hypothesised relationships and enables observation of direct and indirect relationships between variables of interest. In addition to specifying a path from financial wellbeing to mental health, we also recognise that poor mental health can negatively affect financial wellbeing—via reductions in productivity or income (Babiarz & Yilmazer, 2017) or increased risk of unemployment (Bubonya et al., 2019), for example—and therefore allow for a path from mental health to financial wellbeing. Thus, within a non-recursive SEM framework, we assume the following relationships:

$$\mathrm{MH} = f(\mathrm{HAS}, \mathrm{FWB}, X_{\mathrm{m}}), \tag{1}$$

$$\mathrm{FWB} = f(\mathrm{HAS}, \mathrm{MH}, \mathrm{X}_f), \tag{2}$$

where mental health (MH) is a function of HAS, financial wellbeing (FWB) and a set of explanatory variables (X_{m}) that explain mental health. Financial wellbeing is, in turn, a function of HAS, mental health and relevant explanatory variables (X_{f}) that explain financial wellbeing.

In addition to standard demographic indicators like age and gender, we also include a mortgage holder indicator in both equations, as we expect mortgage holders to have better financial wellbeing and mental health than renters. In the mental health equation, we also control for labour market status, whether a person resides in a rural or urban area, and real household equivalised disposable income, as previous research (Bentley et al., 2019; Botha et al., 2022; Kiely & Butterworth, 2013) has demonstrated the importance of these factors in explaining mental health. The selection of additional covariates in the financial wellbeing equation is informed by existing research (Botha et al., 2020; Comerton-Forde et al., 2022) that has demonstrated the importance of education as an important personal characteristic, household income as an economic resource input, as well as adequate financial behaviours, in our case savings and time preferences. Table A1 discusses all variable definitions.

Figure 3 displays the main hypothesised relationships of interest. HAS directly affects financial wellbeing and mental health, and mental health and financial wellbeing directly affect each other. There is also an indirect effect of interest, which is the effect of HAS on mental health that operates via financial wellbeing. We expect HAS to be related to lower financial wellbeing and poorer mental health, whereas there should be positive relationships between financial wellbeing and mental health. The extent to which financial wellbeing mediates the relationship between HAS and mental health is determined by the estimated indirect effect of HAS on mental health.

Our system of equations takes the form:

$$\mathrm{MH}_i = \alpha_i + \beta_i \mathrm{HAS}_i + \varphi_i \mathrm{FWB}_i + \gamma_i X_{\mathrm{m}} + \varepsilon_i, \tag{3}$$

$$\mathrm{FWB}_i = \omega_i + \phi_i \mathrm{HAS}_{\mathrm{i}} + \delta_i \mathrm{MH}_i + \eta_i X_{\mathrm{f}} + \nu_i. \tag{4}$$

As goodness-of-fit statistics, we use the model chi-squared statistic, root mean squared error of approximation (RMSEA), comparative fit index (CFI) and standardised root mean square

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

residual (SRMR). For an acceptable model fit, RMSEA ≤0.06, CFI ≥0.90 and SRMR ≤0.08 (Hu & Bentler, 1999). Model stability is an additional consideration in non-recursive models. For this purpose, we also report the stability index (SI), which, for a stable model, requires that SI < 1 (Acock, 2013).

In addition to estimating the model for the pooled sample, we also split the analysis by tenure type. This is informed by previous literature that has demonstrated that the effect of HAS on mental health tends to differ between mortgage holders and renters (Mason et al., 2013).

4 | RESULTS

4.1 | Summary statistics

Table 2 reports the summary statistics of our variables. The mean and median financial wellbeing scores in this sample are 50.88 and 50, respectively, on the 0–100 scale. For renters, the mean score is 49.7 and for mortgage holders, the mean score is 54.05. These average scores are low compared to other research (e.g., Botha & de New, 2022), but of course is not surprising given we here only focus on individuals in the lowest 40% of the income distribution, for whom we would, on average, expect lower levels of financial wellbeing.

Three-quarters of the sample are in HAS, including 68% of those who rent and 80% of those with a mortgage. The average mental health score is 66.2 on the 0–100 scale, with the mental health of mortgage holders (67.9), on average, better than that of renters (65.6).

4.2 | Regression results

Table 3 reports the main regression results for the overall sample and by housing tenure (see Table A2 for the full estimation results). Goodness-of-fit statistics for all models are excellent and satisfy all recommended thresholds for the entire sample ($\chi^2_{(4)} = 3.3$, $p = .504$; RMSEA = 0.000; CFI = 1.000; SRMR = 0.003; SI = 0.384), renters ($\chi^2_{(4)} = 1.47$, $p = .832$; RMSEA = 0.000; CFI = 0.998; SRMR = 0.003; SI = 0.352) and mortgage holders ($\chi^2_{(4)} = 2.4$, $p = .660$; RMSEA = 0.000; CFI = 1.000; SRMR = 0.005; SI = 0.415).

There is no evidence of a significant direct relationship between HAS and mental health in the aggregate sample or among renters, though there is weak evidence that mortgage holders in HAS report better mental health than mortgage holders not in HAS. Higher financial wellbeing scores are associated with significantly better mental health scores. The estimates suggest that each one-point increase in the financial wellbeing score is related to improved mental health of about 0.29 points for the overall sample, and this estimate is 0.26 points for renters and 0.39 points for mortgage holders.

In the financial wellbeing equation, the relationship between HAS and financial wellbeing depends on housing tenure status. Whereas in the overall sample, they share no significant relationship, renters in HAS report, on average, 2.5-point lower financial wellbeing than renters not in HAS. In contrast, for mortgage holders, there is no significant association between HAS and financial wellbeing. As expected, there is also evidence that better mental health is associated with higher financial wellbeing, with a 0.5-point improvement in financial wellbeing for every one-point improvement in the mental health score.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12240 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

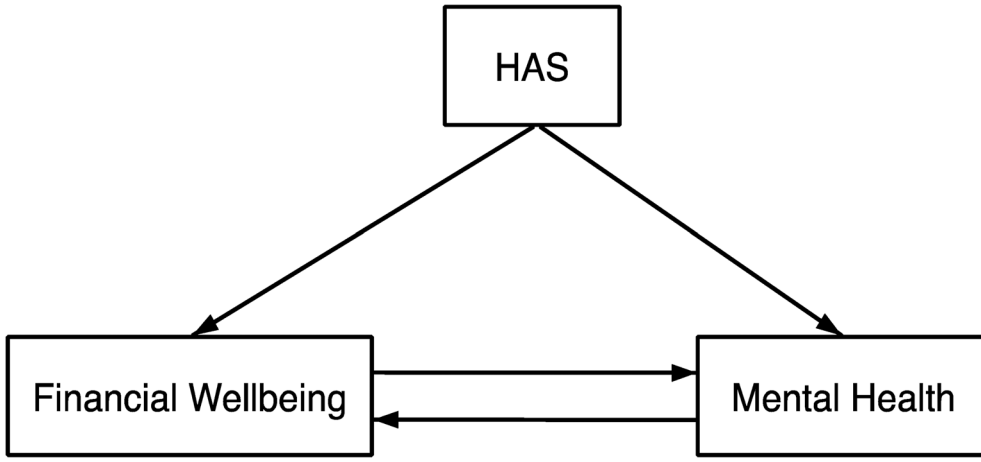


FIGURE 3 Main hypothesised relationship between HAS, financial wellbeing and mental health.

TABLE 2 Sample summary statistics by tenure status.

	All		Renters		Mortgage holders	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Mental health (0–100 score)	66.19	19.72	65.58	20.03	67.90	18.75
Financial wellbeing (0–100 score)	50.88	21.87	49.74	22.28	54.05	20.38
Age	44.62	17.25	43.88	18.54	46.66	12.78
Log household annual disposable income	3.11	0.77	3.02	0.79	3.35	0.63
Share in HAS	0.71		0.68		0.80	
Share male	0.51		0.49		0.58	
Share with a Bachelor degree or higher	18.94		16.65		25.35	
Share saving at least some money	72.19		70.58		76.68	
Share with time preferences next year or longer	40.46		38.79		45.14	
Share rural	0.38		0.38		0.39	
Share employed	0.52		0.45		0.71	
Share unemployed	0.08		0.10		0.03	
Share not in the labour force	0.40		0.45		0.25	
Number of observations	1493		1121		372	

Note: HILDA Wave 20 weighted analysis sample.
Abbreviations: HAS, housing affordability stress; HILDA, Household, Income and Labour Dynamics in Australia.

Table 4 reports the estimated total, direct and indirect effects of HAS on mental health. Here, we are particularly interested in any indirect effects of HAS on mental health through financial wellbeing. We find a significant negative indirect effect for renters and a significant positive indirect effect for mortgage holders. This suggests that, for renters, HAS is associated with poorer mental health because HAS reduces financial wellbeing. For mortgage holders, those in HAS, on average, have better mental health because financial wellbeing tends to be

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

higher among mortgage holders in HAS. Indeed, closer inspection reveals that for renters, average financial wellbeing is lower among people in HAS (48.1) than those not in HAS (53.16), and average mental health is also poorer among people in HAS (64.8) than those not in HAS (67.3). In contrast, among mortgage holders, average financial wellbeing scores are higher among those in HAS (55.2) than those not in HAS (49.7), whereas the average mental health score is better for people in HAS (69.0) than for people not in HAS (63.6).

Given that higher financial wellbeing is related to better mental health, and higher financial wellbeing protects renters' mental health against HAS, we also briefly discuss the results with respect to factors that can enhance financial wellbeing (see Table A1). Mortgage holders have, on average, roughly 2.79 points higher financial wellbeing compared to renters. Individuals with a university degree, particularly among renters, have significantly higher financial wellbeing than those without a university degree. Sound financial behaviours and financial attitudes are especially important for good financial wellbeing. For example, the financial wellbeing score is, on average, between 15.1 and 17 points (on the 0–100 scale) higher for individuals who report saving regularly as compared to those who do not save at all; a very large association was observed regardless of tenure status. Moreover, longer time preferences in terms of savings and investment horizons are also strongly associated with higher financial wellbeing for all respondents. Among mortgage holders, for instance, people who view the next year or more as most important have financial wellbeing scores roughly 8 points higher than those who only view the next few months as the most crucial time consideration with respect to investment and savings decisions.

TABLE 3 Regression results for overall sample and by tenure type.

	Overall sample	Renters	Mortgage holders
Mental health			
HAS	1.237 (1.010)	−0.014 (1.188)	4.184* (2.132)
Financial wellbeing	0.286*** (0.044)	0.255*** (0.053)	0.389*** (0.084)
Financial wellbeing			
HAS	−1.555 (1.043)	−2.494** (1.184)	2.321 (2.357)
Mental health	0.515*** (0.129)	0.486*** (0.168)	0.443*** (0.160)
Observations	1493	1121	372
$\chi^2_{(4)}$	3.33 ($p = .504$)	1.47 ($p = .832$)	2.42 ($p = .660$)
RMSEA	0.000 [90% CI: 0.000; 0.036]	0.000 [90% CI: 0.000; 0.026]	0.000 [90% CI: 0.000; 0.062]
p-close (RMSEA $\leq$ 0.05)	.995	.998	.900
CFI	1.000	1.000	1.000
SRMR	0.003	0.003	0.005
Stability index	0.384	0.352	0.415

Note: Standard errors are in round brackets. Estimates are unstandardised coefficients. Full results, including standardised coefficients, are reported in Table A1.

Abbreviations: CFI, comparative fit index; HAS, housing affordability stress; RMSEA, root mean squared error of approximation; SRMR, standardised root mean square residual.

***$p < .01$; **$p < .05$; *$p < .10$.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 4 Total, direct and indirect effects of HAS on mental health.

	Estimate	95% CI
Overall		
Total effect	0.929	−1.139; 2.997
Direct effect	1.237	−0.743; 3.217
Indirect effect	−0.308	−0.910; 0.293
Renters		
Total effect	−0.741	−3.125; 1.644
Direct effect	−0.014	−2.342; 2.314
Indirect effect	*−0.727*	*−1.394; −0.059*
Mortgage holders		
Total effect	*6.146*	*1.929; 10.363*
Direct effect	4.184	0.005; 8.362
Indirect effect	*1.962*	*0.027; 3.898*

Note: Total effect is the direct and indirect effect of HAS on mental health. Direct effect is the direct association between HAS and mental health. Indirect effect is the indirect association between HAS and mental health, via financial wellbeing. Italics suggest an estimate is significantly different from zero at the 95% confidence level.
Abbreviations: CI, confidence interval; HAS, housing affordability stress.

4.3 | Robustness checks

We conducted several robustness checks to investigate the sensitivity of the main results. First, we examined whether the effects of HAS differ depending on mortgage holders' loan to value ratio (LVR) (see Atalay et al., 2021). For the mortgage holder sample, we re-estimated two models, one for respondents with LVR ≤50% and one for respondents with LVR >50%. The results are similar to the main results for all mortgage holders, in that greater financial wellbeing is associated with better mental health, and better mental health is, in turn, also associated with higher financial wellbeing. These are similar regardless of the LVR group considered, and the effect of HAS on mental health and financial wellbeing is not significant in both LVR groups (results available upon request). Second, the traditional definition of HAS is that of spending more than 30% of household income on housing payments while also being in the bottom 40% of the national income distribution. To examine whether the relationship HAS with financial wellbeing and mental health varies depending on how HAS is defined, we also experimented with alternative cut-offs other than the 30% threshold, that is, housing payments exceeding (i) 20% of household income, (ii) 40% of household income and (iii) 50% of household income. The results in Table 5 are similar to the main results, with the direct association between HAS and mental health being mostly insignificant across all thresholds. In addition, for renters, the significant negative relationship of HAS with financial wellbeing remains irrespective of the HAS threshold considered.

Finally, from the models reported in Table 5 we also examined the sensitivity of the indirect effects of HAS on mental health to the different HAS cut-offs (see Table 6). For renters, the negative indirect effect of HAS on mental health (via financial wellbeing) remains negative and is significant for the 20% threshold and weakly significant (at the 10% level) for the 40% threshold.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12240 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 5 Regression results for alternative HAS thresholds.

	Overall sample	Renters	Mortgage holders
Panel A: Housing payments exceed 20% of disposable income			
Mental health			
HAS	1.089 (1.186)	0.845 (1.331)	−0.182 (2.835)
Financial wellbeing	0.287*** (0.044)	0.258*** (0.053)	0.407*** (0.082)
Financial wellbeing			
HAS	−2.294* (1.209)	−3.044** (1.318)	2.691 (2.968)
Mental health	0.517*** (0.129)	0.489*** (0.168)	0.427*** (0.162)
Observations	1493	1121	372
$\chi^2_{(4)}$	3.56 ($p = .469$)	1.51 ($p = .825$)	2.79 ($p = .593$)
RMSEA	0.000 [90% CI: 0.000; 0.037]	0.000 [90% CI: 0.000; 0.027]	0.000 [90% CI: 0.000; 0.067]
p-close (RMSEA $\leq$ 0.05)	.994	.998	.871
CFI	1.000	1.000	1.000
SRMR	0.003	0.003	0.006
Stability index	0.386	0.355	0.417
Panel B: Housing payments exceed 40% of disposable income			
Mental health			
HAS	1.050 (0.925)	0.061 (1.110)	2.784 (1.871)
Financial wellbeing	0.282*** (0.044)	0.255*** (0.053)	0.375*** (0.087)
Financial wellbeing			
HAS	−1.421 (0.976)	−2.073* (1.101)	0.877 (1.968)
Mental health	0.601*** (0.135)	0.492*** (0.168)	0.439*** (0.160)
Observations	1493	1121	372
$\chi^2_{(4)}$	8.44 (p = 0.134)	1.38 (p = 0.847)	2.54 (p = 0.638)
RMSEA	0.021 [90% CI: 0.000; 0.046]	0.000 [90% CI: 0.000; 0.025]	0.000 [90% CI: 0.000; 0.064]

(Continues)

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 5 (Continued)

	Overall sample	Renters	Mortgage holders
p-close (RMSEA ≤ 0.05)	.976	.998	.891
CFI	0.996	1.000	1.000
SRMR	0.004	0.003	0.005
Stability index	0.412	0.354	0.405
Panel C: Housing payments exceed than 50% of disposable income			
Mental health			
HAS	2.109** (0.945)	1.556 (1.124)	2.077 (1.898)
Financial wellbeing	0.281*** (0.044)	0.258*** (0.052)	0.389*** (0.087)
Financial wellbeing			
HAS	−1.246 (1.030)	−2.043* (1.142)	2.802 (1.972)
Mental health	0.600*** (0.135)	0.487*** (0.168)	0.433*** (0.162)
Observations	1493	1121	372
$\chi^2_{(4)}$	8.25 (p = 0.143)	1.28 (p = 0.864)	2.61 (p = 0.613)
RMSEA	0.021 [90% CI: 0.000; 0.045]	0.000 [90% CI: 0.000; 0.024]	0.000 [90% CI: 0.000; 0.065]
p-close (RMSEA ≤ 0.05)	.978	.999	.880
CFI	0.996	1.000	1.000
SRMR	0.004	0.002	0.005
Stability index	0.410	0.355	0.410

Note: Standard errors are in round brackets. Estimates are unstandardised coefficients. Control variables are the same as in Table A2. Full results available upon request.
Abbreviations: CFI, comparative fit index; HAS, housing affordability stress; RMSEA, root mean squared error of approximation; SRMR, standardised root mean square residual.
***$p < .01$; **$p < .05$; *$p < .10$.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 6 Total, direct and indirect effects for alternative HAS thresholds.

	Estimate	95% CI
Panel A: Housing payments exceed 20% of disposable income		
Overall		
Total effect	0.493	−1.918; 2.903
Direct effect	1.079	−1.245; 3.402
Indirect effect	−0.586	−1.301; 0.129
Renters		
Total effect	0.068	−2.602; 2.739
Direct effect	0.845	−1.763; 3.453
Indirect effect	*−0.777*	*−1.524; −0.030*
Mortgage holders		
Total effect	3.613	0.276; 6.950
Direct effect	−0.182	−5.739; 5.374
Indirect effect	1.287	−1.246; 3.820
Panel B: Housing payments exceed 40% of disposable income		
Overall		
Total effect	0.782	−1.114; 2.678
Direct effect	1.050	−0.763; 2.864
Indirect effect	−0.268	−0.809; 0.273
Renters		
Total effect	−0.533	−2.764; 1.698
Direct effect	0.061	−2.114; 2.237
Indirect effect	−0.595	−1.203; 0.014
Mortgage holders		
Total effect	3.725	0.006; 7.444
Direct effect	2.784	−0.883; 6.452
Indirect effect	0.941	−0.593; 2.475
Panel C: Housing payments exceed 50% of disposable income		
Overall		
Total effect	2.115	0.173; 4.057
Direct effect	*2.109*	*0.256; 3.962*
Indirect effect	0.006	−0.540; 0.553
Renters		
Total effect	1.176	−1.112; 3.464
Direct effect	1.556	−0.646; 3.759
Indirect effect	−0.380	−0.982; 0.221
Mortgage holders		
Total effect	*3.809*	*0.131; 7.487*

(Continues)

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12240 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 6 (Continued)

	Estimate	95% CI
Direct effect	2.078	−1.643; 5.797
Indirect effect	*1.732*	*0.042; 3.423*

Note: Total effect is the direct and indirect effect of HAS on mental health. Direct effect is the direct association between HAS and mental health. Indirect effect is the indirect association between HAS and mental health, via financial wellbeing. Italics suggest an estimate is significantly different from zero at the 95% confidence level.
Abbreviation: HAS, housing affordability stress.

For mortgage holders, the indirect effect remains positive and is significant in the case where housing payments exceed 50% of household income.

5 | DISCUSSION AND CONCLUSION

We examine financial wellbeing as a possible mediator in the relationship between mental health and HAS in a nationally representative dataset of Australians. We posit that high financial wellbeing—characterised by having good financial outcomes where people meet their financial obligations, having control over finances as well as financial security, with these outcomes in adverse circumstances, presently, and in the future—could assist individuals who find themselves in HAS to better manage their finances despite housing adversity, and hence protect their mental health.

We find that being in HAS is directly associated with lower financial wellbeing for renters and that for both renters and mortgage holders, a reduction in financial wellbeing is related to poorer mental health. Importantly, among renters, HAS has exhibited a negative indirect effect on mental health (via financial wellbeing), but a positive indirect effect on mental health for mortgage holders. One possible explanation is that mortgaged owners have more flexibility to manage their housing expenditure (e.g., through refinancing their loan or requesting a mortgage holiday) compared to renters. It is also possible that the housing wealth effect of homeownership and increased housing values is protective of mental health and perceived financial wellbeing for mortgaged owners when experiencing HAS. This suggests that the potential adverse mental health impacts of HAS can be partially mitigated if financial wellbeing is relatively good.

An important implication of our findings is that having better financial wellbeing is likely to mitigate a large part of the adverse mental health effects associated with HAS, especially among renters. One of the most effective ways of enhancing financial wellbeing is by having and practising good financial behaviours, such as saving regularly with a set savings plan, having good financial literacy, and having longer investment time horizons. The important role of financial behaviours for financial wellbeing is found in this study as well, and the relative importance of good financial behaviours for greater financial wellbeing has also been confirmed by previous work (Botha & de New, 2022; Comerton-Forde et al., 2022). However, as our findings illustrate, renters as a group and renters in HAS are less likely to have good financial wellbeing, suggesting that there are also structural constraints to the kinds of financial behaviours associated with financial wellbeing.

Although in this analysis, we found little evidence of an association between HAS and mental health, previous studies using longitudinal data from HILDA have consistently found that

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

movements into (out of) HAS led to poorer (better) mental health outcomes (Baker et al., 2020; Bentley et al., 2011). Thus, given the strong relationship we find between financial wellbeing and mental health, over time, we would expect that people moving into HAS, but with good financial wellbeing, are better protected from negative mental health effects. Previous work has found one of the main pathways through which HAS impacts mental health is because of greater financial stress (Singh et al., 2020). Having good financial wellbeing will help in reducing financial stress as well.

Because the financial wellbeing scale was included in only one HILDA wave to date, we were only able to use a single cross-section analysis wave. Our analyses are, therefore, descriptive, and we make no causality claims. Using a longitudinal design, future work should investigate how changes in financial wellbeing can mitigate the mental health effects of moving in and out of HAS. Such an analysis would be possible in future HILDA Survey releases, which will field the financial wellbeing scale every 4 years.

Note also that the financial wellbeing measure used in this paper is a self-reported or perceived measure. This is only one component of financial wellbeing, with observed financial wellbeing—obtained from people's actual bank record information—being the second component (Comerton-Forde et al., 2022). We are, therefore, only able to comment on the self-reported component of financial wellbeing and its relationship with HAS and mental health.

This paper has demonstrated the importance of accounting for financial wellbeing as a way of dealing with the precarity of HAS and, in so doing, mitigating any adverse mental health effects. Having good financial wellbeing makes it easier to deal with everyday financial pressures and to meet financial obligations. While sound financial behaviours, especially having a disciplined savings plan and longer investment horizons, can be very effective ways in which to enhance financial and mental wellbeing for some, our findings also demonstrate these capacities are constrained by structural factors, such as tenure and HAS. Some tangible ways in which financial behaviours could be improved include innovative financial education support programs designed to improve financial planning, budget management, and general financial literacy. Other considerations include finding ways in which households could be provided with adequate levels of income and welfare benefits that would reduce the chances of facing the situation of HAS.

ACKNOWLEDGEMENTS

We thank two anonymous referees for their very helpful comments and suggestions. This research was supported by the Australian Government through the Australian Research Council's Centre of Excellence for Children and Families over the Life Course (Project ID CE200100025) and by a Hallmark Research Initiative for Affordable Housing (HRIAH) Grant from the University of Melbourne. This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey conducted by the Australian Government Department of Social Services (DSS). The findings and views reported in this paper, however, are those of the authors and should not be attributed to the Australian Government, DSS, or any of DSS' contractors or partners. DOI: 10.26193/YP7MNU. Open access publishing facilitated by The University of Melbourne, as part of the Wiley - The University of Melbourne agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Department of Social Services. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from https://dataverse.ada.edu.au/dataset.xhtml?persistentId=doi:10.26193/KXNEBO with the permission of Department of Social Services.

ORCID

Ferdi Botha https://orcid.org/0000-0003-0856-0240

REFERENCES

Acock, A. C. (2013). *Discovering structural equation modelling using Stata*. Stata Press.

Arundel, R., Li, A., Baker, E., & Bentley, R. (2021). *Linking housing affordability stress and mental health across tenure and age cohorts: The case of the Netherlands* (Centre for Urban Studies Working Paper No. 57). University of Amsterdam, Centre for Urban Studies.

Atalay, K., Li, A., & Whelan, S. (2021). Housing wealth, fertility intensions and fertility. *Journal of Housing Economics*, *54*, 101787.

Babiarz, P., & Yilmazer, T. (2017). The impact of adverse health events on consumption: Understanding the mediating effect of income transfers, wealth, and health insurance. *Health Economics*, *26*, 1743–1758.

Baker, E., Lester, L., Mason, K., & Bentley, R. (2020). Mental health and prolonged exposure to unaffordable housing: A longitudinal analysis. *Social Psychiatry and Psychiatric Epidemiology*, *55*, 715–721.

Bentley, R., Baker, E., & Aitken, Z. (2019). The 'double precarity' of employment insecurity and unaffordable housing and its impact on mental health. *Social Science & Medicine*, *225*, 9–16.

Bentley, R., Baker, E., & Mason, K. (2012). Cumulative exposure to poor housing affordability and its association with mental health in men and women. *Journal of Epidemiology & Community Health*, *66*(9), 761–766.

Bentley, R., Baker, E., Mason, K., Subramanian, S. V., & Kavanagh, A. M. (2011). Association between housing affordability and mental health: A longitudinal analysis of a nationally representative household survey in Australia. *American Journal of Epidemiology*, *174*(7), 753–760.

Bentley, R., Baker, E., Ronald, R., Reeves, A., Smith, S. J., Simons, K., & Mason, K. (2022). Housing affordability and mental health: An analysis of generational change. *Housing Studies*, *37*(10), 1842–1857.

Botha, F., Butterworth, P., & Wilkins, R. (2022). Protecting mental health during periods of financial stress: Evidence from the Australian Coronavirus Supplement income support payment. *Social Science & Medicine*, *306*, 115158.

Botha, F., & de New, J. (2022). Coping strategies in the face of major life events: New insights into financial wellbeing in Australia. In P. Dawkins & A. A. Payne (Eds.), *Melbourne Institute Compendium 2022. Economic & social policy: Towards evidence-based policy solutions* (pp. 126–137). Melbourne Institute: Applied Economic & Social Research, The University of Melbourne.

Botha, F., de New, J., & Nicastro, A. (2020). *Developing a short form version of the Commonwealth Bank-Melbourne Institute Reported Financial Wellbeing Scale* (Commonwealth Bank of Australia and Melbourne Institute Financial Wellbeing Scales Technical Report No. 5). March 2020. Melbourne Institute: Applied Economic & Social Research, The University of Melbourne.

Botha, F., de New, J. P., de New, S. C., Ribar, D. C., & Salamanca, N. (2021). Implications of COVID-19 labour market shocks for inequality in financial wellbeing. *Journal of Population Economics*, *34*(2), 655–689.

Bubonya, M., Cobb-Clark, D. A., & Ribar, D. C. (2019). The reciprocal relationship between depressive symptoms and employment status. *Economics and Human Biology*, *35*, 96–106.

Chung, R. Y. N., Chung, G. K. K., Gordon, D., Mak, J. K. L., Zhang, L. F., Chan, D., Lai, F. T. T., Wong, H., & Wong, S. Y. S. (2020). Housing affordability effects of physical and mental health: Household survey in a population with the world's greatest housing affordability stress. *Journal of Epidemiology & Community Health*, *74*(2), 164–172.

Clair, A., & Baker, E. (2022). Cold homes and mental health harm: Evidence from the UK Household Longitudinal Study. *Social Science & Medicine*, *314*, 115461.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Comerton-Forde, C., de New, J., Salamanca, N., Ribar, D. C., Nicastro, A., & Ross, J. (2022). Measuring financial wellbeing with self-reported and bank record data. *Economic Record*, *98*(321), 133–151.

Dotsikas, K., Osborn, D., Walters, K., & Dykxhoorn, J. (2023). Trajectories of housing affordability and mental health problems: A population-based cohort study. *Social Psychiatry and Psychiatric Epidemiology*, *58*(5), 769–778.

Howden-Chapman, P., Bennett, J., Edwards, R., Jacobs, D., Nathan, K., & Ormandy, D. (2023). Review of the impact of housing quality on inequalities in health and well-being. *Annual Review of Public Health*, *44*, 233–254.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55.

Kiely, K. M., & Butterworth, P. (2013). Social disadvantage and individual vulnerability: A longitudinal investigation of welfare receipt and mental health in Australia. *Australian and New Zealand Journal of Psychiatry*, *47*(7), 654–666.

Mason, K. E., Baker, E., Blakely, T., & Bentley, R. (2013). Housing affordability and mental health: Does the relationship differ for renters and home purchasers? *Social Science & Medicine*, *94*, 91–97.

Pevalin, D. J., Taylor, M. P., & Todd, J. (2008). The dynamics of unhealthy housing in the UK: A panel data analysis. *Housing Studies*, *23*(5), 679–695.

Ruiz-Tagle, J., & Urria, I. (2022). Household overcrowding trajectories and mental well-being. *Social Science & Medicine*, *296*, 114051.

Singh, A., Aitken, Z., Baker, E., & Bentley, R. (2020). Do financial hardship and social support mediate the effect of unaffordable housing on mental health? *Social Psychiatry and Psychiatric Epidemiology*, *55*, 705–713.

Taylor, M. P., Pevalin, D. J., & Todd, J. (2007). The psychological costs of unsustainable housing commitments. *Psychological Medicine*, *37*(7), 1027–1036.

Ware, J. E., Jr. (2000). SF-36 health survey update. *Spine*, *25*(24), 3130–3139.

Wells, N. M., & Harris, J. D. (2007). Housing quality, psychological distress, and the mediating role of social withdrawal: A longitudinal study of low-income women. *Journal of Environmental Psychology*, *27*(1), 69–78.

How to cite this article: Botha, F., Bentley, R., Li, A., & Wiesel, I. (2024). Housing affordability stress and mental health: The role of financial wellbeing. *Australian Economic Papers*, 1–20. https://doi.org/10.1111/1467-8454.12340

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

APPENDIX A

TABLE A1 Variable definitions.

Variable	Definition
Mental health	Mental Health sub-scale (MHI-5) of the SF-36 measure, ranging from 0 (*low*) to 100 (*high*).
Housing affordability stress (HAS)	Equals 1 if a respondent's household income falls in the lowest 40% of the national income distribution and housing payments exceed 30% of their household income.
Financial wellbeing	Summation of responses to the 5-item reported financial wellbeing scale (see Table 1), ranging from 0 (*low financial wellbeing*) to 100 (*high financial wellbeing*).
Male	Equals 1 if a respondent is male, 0 otherwise.
Age	Respondent's age in groups, 18–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65 and older.
Mortgage holder	Equals 1 if a respondent is a mortgage holder, 0 if renting.
Log household income	Log of annual equivalised real disposable household income, in December 2020 prices.
Education	Equals 1 if a respondent's highest level of education achieved is a Bachelor degree or higher, 0 otherwise.
Labour force status	Consists of three categories, namely employed, unemployed, and not in the labour force.
Rural	Equals 1 if a respondent lives in a rural area, 0 otherwise.
Savings	Respondents are asked: "Which of the following statements comes closest to describing your (and your family's) savings habits?" Responses include (i) don't save: usually spend more than income, (ii) don't save: usually spend about as much as income, (iii) save whatever is left over at the end of the month—no regular plan, (iv) spend regular income, save other income, (v) save regularly by putting money aside each month. This indicator equals 1 if a respondent saves at least some money each month (i.e., iii–v), 0 otherwise.
Time preferences	Respondents are asked: "In planning your savings and spending, which of the following time periods is most important to you?" Responses are (i) the next week, (ii) the next few months, (iii) the next year, (iv) the next 2 to 4 years, (v) the next 5 to 10 years, (vi) more than 10 years ahead. This indicator equals 1 if a respondent views the next year or longer as most important, 0 otherwise.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE A2 Full structural model results for overall sample and by tenure type.

	Overall sample		Renters		Mortgage holders	
	Unstand.	**Stand.**	**Unstand.**	**Stand.**	**Unstand.**	**Stand.**
Mental health						
HAS	1.237 (1.010)	0.029	−0.014 (1.188)	−0.000	4.184* (2.132)	0.097
Financial wellbeing	0.286*** (0.044)	0.325	0.255*** (0.053)	0.289	0.389*** (0.084)	0.443
Male	1.676* (0.924)	0.043	0.814 (1.087)	0.021	3.540** (1.716)	0.095
Mortgage holder	−0.461 (1.143)	−0.010				
Age group (ref: 18–24)						
25–34	5.056*** (1.572)	0.113	5.536*** (1.682)	0.126	−4.314 (7.270)	−0.091
35–44	5.111*** (1.675)	0.107	4.680** (1.878)	0.091	−1.335 (7.181)	−0.033
45–54	8.566*** (1.863)	0.152	10.021*** (2.159)	0.161	−0.043 (7.294)	−0.001
55–64	9.546*** (1.865)	0.163	8.386*** (2.120)	0.133	6.554 (7.379)	0.135
65 and over	13.168*** (1.869)	0.242	12.588*** (2.042)	0.237	11.100 (7.721)	0.191
Labour force status (ref: employed)						
Not in labour force	−6.812*** (1.186)	−0.172	−5.905*** (1.336)	−0.150	−11.057*** (2.495)	−0.260
Unemployed	−7.486*** (1.673)	−0.103	−7.360*** (1.901)	−0.110	−7.309* (4.298)	−0.067
Rural	2.273*** (0.802)	0.058	1.551 (0.968)	0.039	5.370*** (1.488)	0.146
Household equivalised income	0.960 (0.646)	0.039	1.115 (0.725)	0.046	0.127 (1.470)	0.004
Constant	42.199*** (3.501)	2.186	44.456*** (4.167)	2.282	41.494*** (9.696)	2.262
Financial wellbeing						
HAS	−1.555 (1.043)	−0.032	−2.494** (1.184)	−0.052	2.321 (2.357)	0.047
Mental health	0.515*** (0.129)	0.454	0.486*** (0.168)	0.428	0.443*** (0.160)	0.389
Male	1.190 (1.023)	0.027	1.046 (1.124)	0.023	1.607 (2.021)	0.038
Mortgage holder	2.785** (1.170)	0.055				

(Continues)

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE A2 (Continued)

	Overall sample		Renters		Mortgage holders	
	Unstand.	**Stand.**	**Unstand.**	**Stand.**	**Unstand.**	**Stand.**
Age group (ref: 18–24)						
25–34	−6.157*** (1.632)	−0.123	−6.530*** (1.767)	−0.131	3.063 (7.766)	0.057
35–44	−6.631*** (1.730)	−0.122	−7.030*** (1.892)	−0.120	1.116 (7.639)	0.025
45–54	−10.699*** (1.985)	−0.167	−11.291*** (2.442)	−0.160	−1.883 (7.740)	−0.037
55–64	−8.184*** (2.068)	−0.123	−6.880*** (2.372)	−0.096	−2.282 (7.827)	−0.041
65 and over	−0.383 (2.262)	−0.006	1.081 (2.676)	0.018	3.371 (8.066)	0.051
Bachelor degree or higher	4.416*** (1.227)	0.076	5.961*** (1.432)	0.097	1.895 (1.809)	0.038
Household equivalised income	−0.545 (0.708)	−0.019	−0.798 (0.803)	−0.029	0.912 (1.529)	0.027
Save regularly	16.823*** (1.313)	0.346	17.045*** (1.432)	0.351	15.151*** (2.277)	0.315
Time preference: Next year or more	5.768*** (0.895)	0.130	4.911*** (1.049)	0.109	8.049*** (1.778)	0.192
Constant	8.990 (6.223)	0.410	12.122 (8.314)	0.548	1.991 (11.882)	0.095
Observations	1493		1121		372	
$\chi^2_{(6)}$	3.33 ($p = .504$)		1.47 ($p = .832$)		2.42 ($p = .660$)	
RMSEA	0.000 [90% CI: 0.000; 0.036]		0.000 [90% CI: 0.000; 0.026]		0.000 [90% CI: 0.000; 0.062]	
p-close (RMSEA ≤ 0.05)	.995		.998		.900	
CFI	1.000		1.000		1.000	
SRMR	0.003		0.003		0.005	
Stability index	0.384		0.352		0.415	

Note: Standard errors are in round brackets.

Abbreviations: CFI, comparative fit index; HAS, housing affordability stress; RMSEA, root mean squared error of approximation; SRMR, standardised root mean square residual.

***$p < .01$; **$p < .05$; *$p < .10$.

14678454, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1467-8454.12340 by National Health And Medical Research Council, Wiley Online Library on [02/06/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License