



Residential mobility and mental health

Gavin A. Wood^{a,c,*}, William A.V. Clark^b, Rachel Ong Viforj^c, Susan J. Smith^d,
N.T. Khuong Truong^c

^a School of Global, Urban and Social Sciences, RMIT University, Melbourne, Victoria, 3000, Australia

^b Department of Geography, University of California LA, Los Angeles, CA, 90095, USA

^c School of Accounting, Economics and Finance, Curtin University, Perth, Western Australia, 6102, Australia

^d Girton College and Department of Geography, Cambridge University, Cambridge, CB3 1AQ, UK

ARTICLE INFO

Keywords:

Ownership
Tenure
Mobility
Mental health
Wellbeing

ABSTRACT

We examine the extent to which residential relocation within and between tenure types is associated with changes in mental health. We focus on four types of housing transition – rent-to-own, own-to-rent, own-to-own, and rent-to-rent – using Australian and UK panel data sets from 2001 to 2017. In both countries, transitions into homeownership and moves away from the mortgaged edges toward the unburdened mainstream of outright ownership are positively associated with mental health. On the other hand, shifts by mortgagors towards more precarious positions on the edges of ownership precipitate dips in mental health when there is exposure to high levels of payment and investment risks. Clearly, residential moves can both alleviate and introduce different kinds of risks that affect affordability. Moreover, tenure transitions have impacts on mental health beyond the impacts of payment and investment risks. However, we observe some cross-national differences in findings. In Australia, loss of homeownership has a negative impact on mental health that outweighs the mental health impacts of attaining ownership. In the UK, these findings are reversed. Acute housing affordability problems following moves in Australia, but not in the UK, are a significant driver of mental health outcomes. These differences have institutional explanations.

'A lot of people in this city are living in a very precarious position, unsure about their income, unsure about their housing situation, and that eats away at their mental health all the time' Andy Burnham, Greater Manchester Mayor quoted in [Payne, 2021](#), p291 – 292.

1. Introduction

Residential mobility in general, and housing tenure change in particular, are known to be associated with variations in subjective wellbeing and mental health ([Diaz-Serrano, 2009](#); [Morris et al., 2017, 2018](#); [Zumbro, 2014](#); [Foye, 2018](#)). However, the literature on housing and health is dominated more by work on the impacts of tenure outcomes, than with the effects of housing transitions (which may or may not imply tenure change). [Mason et al. \(2013\)](#) and [Arundel et al. \(2022\)](#), for example, find that renters are more exposed to the adverse mental health effects of unaffordable housing than owners, while [Li et al. \(2022\)](#)

highlight the mental health effects of instability within the private rental sector. This approach has generated a large literature on whether tenure, context or composition matter most, while raising methodological questions about the impact of unobserved personal characteristics that are correlated with tenure. None of this, however, casts light on the effects of residential relocation.

At the same time, research that establishes synchronicity between life course events and mobility tends to neglect health outcomes ([Clark, 2016](#)), often assuming that mobility is voluntary – a product of positive life course events that raise aspirations ([Duncan & Newman, 1976](#)), and improve socio-economic status ([Clark et al., 2014](#)). This has dovetailed neatly with a literature that typically links homeownership to lower levels of psychological distress than renting. It is only in the last decade that housing's volatility and precarity in contemporary debt-funded, ownership-centred housing systems have prompted researchers to focus on the adverse circumstances that can precipitate forced moves ([Kang, 2019](#)), exacerbating housing precarity and neighbourhood

* Corresponding author. School of Global, Urban and Social Sciences, RMIT University, Melbourne, Victoria, 3000, Australia.

E-mail addresses: gavin.wood@rmit.edu.au (G.A. Wood), wclark@geog.ucla.edu (W.A.V. Clark), rachel.viforj@curtin.edu.au (R. Ong Viforj), ss915@cam.ac.uk (S.J. Smith), khuong.truong@curtin.edu.au (N.T.K. Truong).

<https://doi.org/10.1016/j.ssmph.2022.101321>

Received 20 September 2022; Received in revised form 14 December 2022; Accepted 15 December 2022

Available online 23 December 2022

2352-8273/© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

deprivation (Desmond & Shollenberger, 2015), and impacting on mental health, including depression, anxiety, psychological distress and suicides (Vásquez-Vera et al., 2017). Households may be increasingly vulnerable to involuntary moves prompted by exogenous shocks – amplified by stagnant wages and biographical disruption (Clark, 2016) – precipitating tenure change, encouraging churn across the tenure divide (Haffner et al., 2017; Ong ViforJ et al., 2021) and in extreme circumstances triggering homelessness. So far, however, few studies examine how residential mobility across the life course intersects with tenure transitions and mental health outcomes, and we address that gap.

Those intersections resonate at a time when the linear housing career in which households smoothly transition into outright (mainstream) ownership has been disrupted thanks to waves of over-expansion in a volatile housing economy. In our work, we prefer to conceptualise contemporary housing systems in terms of transitions back and forth across the edges of ownership, a precarious, permeable, and contested border zone. That is, the edges of ownership are “complex, comprising: spaces which new entrants seek to vacate, as they establish their housing asset-base; positions to which those who struggle with housing costs may be forced to return; and locations wherein households actively juggle their savings, spending and debt as they attempt to retain a foot on the housing ladder” (Wood et al., 2017, pp. 202–203). The edges of ownership are then stressful, risky spaces where wellbeing is likely compromised.

We focus on mental rather than general health because we are primarily concerned with the extent to which housing systems impact on wellbeing – an important measure of the success of public policy (Bloze & Skak, 2012). The extent to which housing systems accommodate general health needs is also apposite, but that raises a different set of questions around health selectivity and discrimination, that is addressed elsewhere.

There are myriad drivers of residential relocation, and where health is concerned, the drivers of tenure change have been a key focus (Felici, 2022). However, all residential shifts imply important decisions about housing assets and outlays that can expose households to payment and investment risk, as well as to credit constraints, and are then potentially a source of affordability stress that can be hard to escape (Bentley et al., 2022). This paper therefore explores the extent to which moving home, whether within or between tenure sectors, and into and out of specific clusters of risk, is associated with positive and negative changes in mental health.

By combining measures of tenure change with measures of financial stress we can explore the way residential relocation sifts and sorts households relative to the edges of ownership and the margins of renting. This helps enlarge an established literature that recognizes the independent impact on mental health of housing finance as well as tenure, but has been anchored primarily on the effects of mortgage debt, building on the pioneering work of Nettleton and Burrows (1998). Recognising that other financial risks have been relatively neglected, we add in other financial variables that have a bearing across all tenure types. Rental payment difficulties can trigger tenant fears of eviction, for example, which may be as stressful as foreclosure following mortgage default. Both hazards pose a threat to mental health because loss of a family home is not just disruptive and damaging to households, but can stigmatise victims, prompting feelings of shame. Contemporary work in psychology indeed suggests that shame and its avoidance is central to subjective wellbeing because of its strong links with mental ill-health and depression (Clapham et al., 2018).

In housing markets there is also investment risk: that is, the possibility that prices might fall, or that housing investments may not perform as well as other assets. The risks of house price volatility affect owners in ways that tenants avoid, because tenants do not have access to the investment returns on their home, or to equity borrowing that enables housing wealth to operate so effectively as a financial buffer (Benito, 2009; Wood et al., 2013). Owners, therefore, are uniquely exposed to price declines which, by eroding housing equity may reduce

the self-insurance function of housing wealth, both directly and by eroding collateral for additional borrowing, thereby potentially multiplying the impact of other financial shocks. An increase in loan-to-value ratios following a move may also eat into outstanding assets (where added leverage reduces the value of unmortgaged housing assets) and constrain additional borrowing. In any of these events, homeowners lacking collateral may, like renters, find it difficult to access credit from other formal sources (e.g., credit cards, personal bank loans), potentially cutting whole families off from the lines of credit they need to secure financial recovery. Binding borrowing constraints, together with investment risks, may thus have as many implications for mental health as mortgage stress.

To explore all this empirically we use Australian and UK panel data sets to provide an important cross-national dimension to highlight the institutional context within which people make their relocation decisions. Both jurisdictions have relatively high ownership rates (60–70%), as well as relatively high levels of mortgage debt and residential mobility (Bernard et al., 2017, Fig. 1). While indebtedness is a greater burden among north Europeans, particularly Netherlands, Norway, and Denmark,¹ and ownership rates are higher in Eastern European countries where large-scale stock transfers have boosted rates, what distinguishes Australia, and the UK, is their position within an English-speaking world which formed the crest of a wave of mortgaged owner-occupation sweeping through the more developed economies in the late 20th century. Their governments also achieved some success in restoring ‘business as usual’ after the Global Financial Crisis (GFC), and all have subsequently witnessed a steady if modest decline in rates of owner-occupation, especially among younger age groups (Arundel & Ronald, 2021; Smith et al., 2022, Fig. 1). These countries are, then, above all, a litmus test for the fortunes of households navigating pathways through ownership-centred housing systems that exhibit an entrenched tenure divide as an important and shared institutional feature. There are, of course, some important institutional differences between them. The most salient are the size and structure of their rented sectors and the support offered by social security systems to tenants and home buyers. Australia has a large private rental sector, to ‘oil the wheels’ of tenure transitions, whereas the UK has a well-established tradition of social renting, which could cushion wellbeing for those who drop out of ownership. The UK also provides more comprehensive support to tenants with high housing costs, and also differs from Australia in offering assistance with mortgage interest payments to those suffering major income shocks. Finally, Australia’s mandatory occupational pension wealth inserts itself into this equation by providing lump sums that can be brought forward, or held in reserve to manage housing investment and payment risks if needed.

We focus on movers drawn from three longitudinal surveys in these two countries to explore how residential relocation, mediated by tenure change and changes in financial risk, impact on movers’ mental health. Causality is a challenge (Baker et al., 2013), but this longitudinal empirical strategy has been endorsed in the literature as having the potential to facilitate better understanding of the links between mobility processes and health (Clark, 2017; Morris et al., 2018). The analysis provides four distinct contributions to the literature.

First, by framing a sample based on residential movers and modelling changes in mental health, the empirical approach alleviates endogeneity concerns as we need not worry about unmeasured variables that cannot change. Our sample frame also allows us to examine whether different kinds of financial risks – specifically investment and payment risks – are alleviated or augmented during residential moves.

Second, we examine four types of housing transition within one study – rent-to-own, own-to-rent, own-to-own, and rent-to-rent. Existing studies have tended to focus on the wellbeing impacts of one type of transition, e.g., the positive influence of a shift from renting to owning

¹ See <https://data.oecd.org/hha/household-debt.htm>.

(Foye et al., 2018; Popham et al., 2015), or the negative impacts of own-to-rent transitions (Ong et al., 2015; Smith et al., 2017; Wood et al., 2017), not forgetting that there is an older literature showing some positive mental health effects of re-housing, albeit only in relation to the social sector (Smith et al., 1997). Moreover, we show that tenure transitions have mental health impacts beyond the impacts of payment and investment risks.

Third, we introduce payment risk measures, that allow us to observe the mental health impacts of rent and mortgage stress, credit constraints that tap into the flexibility households have to use borrowing as a financial buffer, and, for owner occupiers, measures of a shift towards or away from the edges of ownership through exposure to mortgage stress and investment risks. This extends studies like Smith et al. (2017) which focus on risks associated with owners only and not renters.

Fourth, our findings uncover important cross-national differences in the nexus linking tenure, housing related risks, mobility, and mental health. In our concluding section we speculate on institutional idiosyncrasies that could account for cross-national divergence in these relationships.

2. Data and sample design

A sample of adults that have changed their residential address on at least one occasion is drawn from the 2001–2017 Household, Income and Labour Dynamics in Australia (HILDA) Survey, and 2001–2008 British Household Panel Survey (BHPS) and 2012–2017 UK Household Longitudinal Study (UKHLS) for Australia and the UK. Individuals below 18 years are excluded from the analyses. The UK sample also excludes dependent children, while the Australian sample excludes both dependent children and dependent students. The sample for the UK omits data from 2009 to 2011 due to the absence of mortgage debt variables.

Observations from both waves adjacent to a move are included resulting in sample sizes of 7543 (Australia) and 5044 (UK). The mover-based empirical approach draws on past studies using changes in residence to separate effects of individual characteristics from geographical and institutional factors. Finkelstein et al. (2016, p1687) cite a number of studies that use movers to understand how health measures change around patient moves, neighbourhood effects on children and the cultural assimilation of immigrants in those survey years.

The sample design has two advantages. First, when regression models are estimated using the difference in mental health across waves adjacent to residential re-locations (as the dependent variable) the unwelcome influence of unmeasured time invariant variables is set aside. Second, by focusing on housing transitions more broadly our models examine how mental health is affected as some households approach mainstream ownership, while others navigate the uncertain edges of ownership and the rest steer a course through rental housing that is often precarious.

3. Modelling approach

We begin with the following linear model specification for the level of mental health (H_{it})

$$H_{it} = \beta_0 + \beta_1 W_{it} + \beta_2 O_{it} + V_{it} + F_i + \beta_5 H_{it-1} + a_i + u_{it} \quad (1)$$

where the subscript $t = 1, 2$ with $t = 1$ representing the wave preceding a change in address and $t = 2$ representing the wave in which i 's residential address has changed. The move variable W_{it} equals 0 if $t = 1$ and equals 1 if $t = 2$ and captures the effect that residential moves have on mental health given housing tenure, and other controls. O_{it} is the owner indicator that equals 1 if the individual is a homeowner, zero if in rental housing. V_{it} are the effects of a vector of time-varying control variables while F_i is the effects of a vector of time invariant controls. The lagged mental health dependent variable enters because mental health measures are bounded from above and below (see the [Supplementary](#)

[Material Table S1](#)), and are therefore prone to reversion to the mean effects. This specification is also a feature of the mental health models reported in Black et al. (2022) as well as those employed to investigate general health outcomes (Disney et al., 2006; Bockerman et al., 2009).² Its inclusion can also address bias due to reverse causation, an issue that has been raised as a concern in Clapham et al. (2018, p271). u_{it} represents unobserved person specific characteristics that can bias estimates if correlated with one or more measured variables entering model specifications. u_{it} is the random disturbance.

On specifying the difference in mental health indices across adjacent waves over which residential addresses have changed both F_i and a_i are set aside, as is the constant β_0 . The tenure transition term ΔO_i now equals +1 when i moves from renting to ownership, -1 when i moves from ownership to renting, and zero for moves in which there is no change of tenure (see also note 3, [Table 2](#)). The first difference of W_{it} always equals one,³ and so β_1 becomes the constant in the following model specification.

$$\Delta H_i = \beta_1 + \beta_2 \Delta O_i + \Delta V_i + \beta_4 \Delta H_{itlag} + \Delta u_i \quad (2)$$

Where

$$\Delta H_i = (H_{it} - H_{it-1}), \Delta V_i = (V_{it} - V_{it-1}), \Delta H_{itlag} = (H_{it-1} - H_{it-2}) \text{ and}$$

$$\Delta u_i = u_{it} - u_{it-1}$$

In this specification, coefficients of interest can be interpreted as follows:

- β_1 captures the net effect of mobility for those whose moves leave tenure unchanged,
- $\beta_1 + \beta_2$ captures the net effect of mobility for those who move from rental housing into owner occupation,
- and $\beta_1 - \beta_2$ captures the net effect of mobility for those who move from owner occupied housing into rental housing.

Just over one half (51%) of moves are the second or more moves made by the same individual. Error terms in the observations belonging to the moves of serial movers might be correlated. A simple expedient is to introduce (into (2)) a vector of indicator variables with the reference representing first moves, and then a series of dummies to represent second, third and n th moves. These variables proved to be insignificant in all model specifications and estimates are not therefore reported.

3.1. Key variables

Life satisfaction is a commonly used single metric of subjective well-being, which is generally measured by asking individuals to place an evaluation of how satisfied they are with their life on an ordinal scale. It is widely accepted as valid and reliable. We acknowledge, however, that subjective wellbeing is complex and varied, and that in addition to life satisfaction there are at least two other components of interest: positive affect (joy, elation, contentment, pride, affection, ecstasy), and negative affect (guilt, shame, anxiety, stress, sadness, depression) (Clapham et al., 2018). The impacts of residential mobility and tenure on self-evaluations of life satisfaction are likely to differ from their impacts on positive and negative affect. Consider, for example, the studies of

² Wilkins (2018, p393) conducts Monte Carlo simulations which document how invalid exclusion of lagged dependent variables can result in severe bias in coefficient estimates.

³ The move variable W_{it} equals 0 pre-move when $t = 1$, and equals 1 post-move when $t = 2$. The change variable ΔW_{it} calculated by subtracting its value in pre-move waves from its value in post-move waves must then always equal 1. The combination $\beta_1 \Delta W_{it}$ in equation (2) is equivalent to β_1 while β_0 drops out of the difference equation (2) because it is a constant that takes the same value in waves 1 and 2.

Table 1

Summary statistics on tenure and mental health in Australia and the UK, by tenure transition between t-1 and t.

Characteristics ¹	Australia					UK				
	All transitions	Rent-to-rent	Own-to-own	Own-to-rent	Rent-to-rent	All transitions	Rent-to-rent	Own-to-own	Own-to-rent	Rent-to-rent
Change in tenure (proportion)										
Rent-to-rent	0.50					0.45				
Own-to-own	0.22					0.35				
Own-to-rent	0.12					0.08				
Rent-to-own	0.15					0.11				
Change in mental health (proportion)										
Improved	0.44	0.45	0.45	0.42	0.44	0.45	0.45	0.45	0.45	0.46
Unchanged	0.16	0.14	0.19	0.17	0.17	0.13	0.11	0.15	0.09	0.12
Worsened	0.40	0.41	0.36	0.41	0.39	0.42	0.43	0.40	0.46	0.42
Average change in level of mental health										
Mean	0.66	0.76	0.93	-0.45	0.81	0.31	0.19	0.38	0.50	0.47
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average level of mental health at t-1										
Mean	72.39	70.02	75.71	73.39	74.61	24.19	23.52	24.96	23.29	25.19
Median	76.00	75.00	80.00	76.00	80.00	25.00	25.00	26.00	25.00	26.00
Average level of mental health at t										
Mean	73.05	70.77	76.64	72.94	75.42	24.51	23.71	25.34	23.78	25.65
Median	76.00	76.00	80.00	80.00	80.00	26.00	25.00	26.00	25.00	27.00

Notes: 1. Change variables are measured between t-1 and t. In Australia the mental health measure ranges from 0 to 100 and in the UK from 0 to 36.

Source: Authors' own calculations from the 2001–2017 HILDA Survey, 2001–2008 BHPS and 2012–2017 UKHLS.

Lindqvist et al. (2020) and Clark and Georgellis (2013) where wealth and important life events (e.g., marriage and divorce) are found to have different effects on life satisfaction and mental health measures.

Thus, we apply mental health measures that capture both positive and negative affects using the *_ghmh* (SF-36 transformed) mental health variable in HILDA and *scghq1_dv* (GHQ12) mental health variable in BHPS/UKHLS. In Australia the mental health measure ranges from 0 (the worst) to 100 (the best), and in the UK from 0 (least distressed) to 36 (most distressed). The UK mental health measure was reversed to be consistent in meaning with that in Australia. The variables are described in detail in the supplementary material.

The literature suggests that tenure change *per se* is but one dimension of residential mobility relevant to mental health. Moves are almost invariably accompanied by changing housing payment burdens that can leave households in a financially precarious predicament and exposed to mental stress. We experiment with two measures of payment risk; difficulty meeting housing payments on time in the last year, and a real equivalised gross household income measure that is measured net of housing costs.

Moves in which at least one wave is spent in owner-occupied housing also expose households to investment risk. Investment risk is captured by a leverage multiplier measure (Mian & Sufi, 2014, 22–23); its formula (see the Supplementary Material Table S1) calculates the percent decline in homeowner's equity (self-reported home value less self-reported mortgage debt) when house prices fall by 1 per cent. It therefore measures the degree to which a homeowner's financial buffer is at risk when their home's value declines. We trial various combinations of the payment and investment risk variables the results of which are reported in Tables 2–4 below.

Finally, binding borrowing constraints in the Australian data is measured according to survey respondent answers to a question asking respondents whether they would experience difficulty in raising (waves 1–8) \$2000 (or) (waves 9–19) \$3000 for an emergency. Measurement of binding borrowing constraints is impossible in the UK data because respondents are not asked about access to finance in equivalent circumstances.

3.2. Controls

The models control for change in employment status, partnership status, age, number of children and number of rooms in the dwelling. In Australian models, the following variables were also accounted for: a

physical strength indicator (to proxy long term health), dwelling type, urban residence, a neighbourhood measure of socio-economic status (SEIFA index), club membership and volunteered hours. Full definitions of all variables are reported in the Supplementary Material Table S1.

4. Results

4.1. Descriptives

Mental health has a mean value of 73.1 in Australia (from a 0–100 scale) and 24.5 in the UK (from a 0–36 scale); just under half of each country's movers show subsequent mental health gains, which, in the UK occur irrespective of destination, though Australians do better when they move within-tenure (Table 1). Half of all Australian moves, and just under half in the UK, are within rental tenures, reflecting higher rates of residential mobility in those sectors. Cross-tenure transitions are more common in Australia, however, where the rental sector is larger with a more diverse range of properties, locations, and landlords, and thus arguably offers greater flexibility of entry and exit for those right at the edges of ownership. Further summary statistics are provided in the Supplementary Material Tables S2 and S3. They show similar overall age profiles for each country, though with variability across types of moves. In all just over two-thirds sustained or gained employment on relocating; while the median change in equivalised real household income is positive in the Australian sample and negative for the UK, on an after-housing cost basis these gains are reversed for Australians.

Notably, transitions across tenure boundaries precipitate large changes in mortgage debt in both countries. Roughly one in four Australian and UK owners de-leverage on moving. However, sizeable increases in mortgage debt occur for over two in five (41%) of Australian and (46%) of UK homeowners who typically add \$54,000 and £41,000, respectively, to their outstanding loans. Moves into or within owner occupation generally result in larger homes, with trading up especially important in the UK, with its smaller private rental sector, less oriented to single-family dwellings. In both countries loss of ownership implies smaller homes; Australians typically trade detached housing for apartments or town houses. Less than five per cent found it difficult to meet housing payments following a move.

4.2. Model findings

Columns 1 and 2 in Table 2 report Australian findings from model

Table 2
First difference model estimates of mental health for Australia and the UK.¹

	Australia		UK	
	(1)	(2)	(3)	(4)
Key Predictors				
Change in ownership status (-1, 0, 1) ²	0.867** (0.392)	0.885** (0.393)	0.597** (0.252)	0.600** (0.251)
Change in leverage multiplier	-0.176** (0.0811)	-0.173** (0.0812)	-0.133** (0.0583)	-0.132** (0.0583)
Change in difficulty paying mortgage/rent on time (-1, 0, 1)	-1.792*** (0.576)		-0.202 (0.318)	
Change in real equivalised after-housing cost income/10,000		0.0695* (0.0372)		0.0124 (0.0407)
Change in borrowing constraints (-1, 0, 1)	-1.220*** (0.361)	-1.254*** (0.360)		
Change in real equivalised income/10,000	0.0535 (0.0372)		-0.00637 (0.0399)	
Controls				
Change in mental health at t-1	-0.436*** (0.0134)	-0.436*** (0.0134)	-0.467*** (0.0170)	-0.468*** (0.0170)
Change in physical strength	0.0653*** (0.0113)	0.0648*** (0.0113)		
Aged 35-54 at t-1 ³	0.669* (0.356)	0.697* (0.356)	0.413** (0.185)	0.416** (0.185)
Aged 55+ at t-1 ³	1.362*** (0.422)	1.379*** (0.423)	0.799*** (0.196)	0.801*** (0.196)
Change in partnership status (-1, 0, 1)	1.776*** (0.556)	1.809*** (0.557)	0.523** (0.235)	0.517** (0.235)
Change in number of children	0.662* (0.363)	0.700* (0.362)	0.164 (0.225)	0.172 (0.225)
Change in employment status (-1, 0, 1)	1.706*** (0.497)	1.775*** (0.495)	0.966*** (0.283)	0.957*** (0.283)
Change in number of rooms in the dwelling	0.0500 (0.142)	0.0530 (0.142)	-0.0522 (0.0342)	-0.0526 (0.0341)
Change in dwelling type (-1, 0, 1)	-0.317 (0.326)	-0.332 (0.325)		
Change in urban status (-1, 0, 1)	-0.843* (0.477)	-0.820* (0.478)		
Change in SEIFA decile of index of relative socio-economic advantage/disadvantage	-0.003 (0.057)	-0.001 (0.057)		
Change in club membership status (-1, 0, 1)	0.934*** (0.344)	0.971*** (0.345)		
Change in volunteered hours	0.0841 (0.0528)	0.0826 (0.0530)		
Constant	-0.118 (0.244)	-0.104 (0.243)	-0.108 (0.118)	-0.107 (0.118)
Observations	7543	7543	5044	5044
R ²	0.204	0.203	0.218	0.218
Tenure Status in time t				
		$O_{it} = 1$	$O_{it} = 2$	ΔO_i
Rental Housing in t = 1, Rental Housing in t = 2		0	0	0
Rental Housing in t = 1, Home Ownership in t = 2		0	1	1
Home Ownership in t = 1, Home Ownership in t = 2		1	1	0
Home Ownership in t = 1, Rental Housing in t = 2		1	0	-1

Notes:

- Standard errors in parenthesis; *p < 0.1, **p < 0.05, ***p < 0.01. The full regression results including controls are reported in the [Supplementary Material Table S4](#).
- The change in ownership variable is constructed from the indicator O_{it} that equals 1 if the individual is a homeowner, zero if in rental housing in wave t. The subscript t = 1,2 with t = 1 representing the wave preceding a change in address and t = 2 representing the wave in which i's residential address has changed. $\Delta O_i = O_{i2} - O_{i1}$ is calculated from its value in t = 2 (post-move) minus its value in t = 1 (pre-move). There are 4 possible permutations of tenure status before and after moves, and these are set out above with their corresponding ΔO_i values. Hence, for tenure transitions, the value 1 indicates a switch from renting to ownership and the coefficient estimate (that this value of 1 is multiplied by)

implies that mental health improves by 0.867 (0.597) in Australia (UK). The value -1 indicates a switch from ownership to renting and so the coefficient estimate (when multiplied by -1) implies that mental health deteriorates by -0.867 (-0.597) in Australia (UK). The same principles apply when interpreting the change in payment difficulty and borrowing constraint indicator variables. 3. Life cycle effects are accounted for by indicators representing age under 35 at t-1 (reference), age 35-54 and age 55+.

Source: See [Table 1](#).

specifications that experiment by combining leverage multiplier risk with two alternative payment risk measures. Columns 3 and 4 report UK findings for similar specifications. In columns 1 and 3, the leverage multiplier is paired with the payment risk indicator signaling inability to pay mortgage or rent obligations. In columns 2 and 4 it is paired with equivalised after-housing cost income. Gross equivalised household income is entered into column 1 and 3 regression models.

Tenure transition status appears in all versions and countries, but the binding borrowing constraint indicator only enters the Australian models. All key variables are measured using the change in their values from the wave preceding a move. For those moving within the home-ownership tenure the housing and financial stress related variables signal moves away from or toward the edges of ownership. Estimates

Table 3
Difference model estimates of mental health with unpacked predictor categories for Australia and the UK.¹

Key predictors	Australia		UK	
	(1)	(2)	(3)	(4)
Change in tenure status (Reference: Rent-to-rent)				
Own-to-own	-0.429 (0.466)	-0.401 (0.463)	0.122 (0.201)	0.126 (0.195)
Own-to-rent	-1.301** (0.578)	-1.303** (0.578)	-0.168 (0.356)	-0.172 (0.354)
Rent-to-own	0.317 (0.568)	0.340 (0.569)	0.985*** (0.346)	0.984*** (0.344)
Change in difficulty paying mortgage/rent on time (Reference: Remained able to pay on time)				
Remained difficult to pay on time	0.326 (0.978)		-0.748 (0.814)	
Became able to pay on time	0.969 (0.774)		0.369 (0.448)	
Became difficult to pay on time	-2.802*** (0.937)		0.00724 (0.479)	
Change in leverage multiplier	-0.157* (0.0827)	-0.151* (0.0827)	-0.145** (0.0610)	-0.143** (0.0609)
Change in real equivalised after-housing cost income/10,000		0.0745** (0.0373)		0.0145 (0.0407)
Change in borrowing constraints (Reference: Remained non-binding)				
Remained binding	-0.144 (0.410)	-0.228 (0.396)		
Became non-binding	1.094** (0.539)	1.104** (0.537)		
Became binding	-1.291** (0.580)	-1.365** (0.576)		
Constant	0.356 (0.520)	0.372 (0.520)	-0.00210 (0.192)	0.00101 (0.189)
Observations	7543	7543	5044	5044
R ²	0.207	0.206	0.222	0.221

Notes:

- Standard errors in parenthesis. *p < 0.1, **p < 0.05, ***p < 0.01. The full regression results including controls are reported in the [Supplementary Material Table S5](#).
- Source: See [Table 1](#).

Table 4

First difference model estimates of mental health for Australia and the UK on restricted samples omitting outright owners and households with real equivalised incomes higher than 40th percentile.¹

Key predictors	Australia		UK	
	(1)	(2)	(3)	(4)
Change in ownership status (−1, 0, 1) ²	1.230 (0.794)	1.316* (0.792)	0.610 (0.442)	0.576 (0.444)
Change in leverage multiplier	−0.263 (0.211)	−0.265 (0.210)	−0.199 (0.131)	−0.186 (0.131)
Change in difficulty paying mortgage/rent on time (−1, 0, 1)	−2.157*** (0.781)		−0.152 (0.465)	
Change in real equivalised after-housing cost income/10,000		0.107 (0.0831)		0.110 (0.0943)
Change in borrowing constraints (−1, 0, 1)	−1.486** (0.626)	−1.516** (0.623)		
Constant	0.0771 (0.426)	0.126 (0.427)	−0.178 (0.211)	−0.147 (0.211)
Observations	2791	2791	1820	1820
R-squared	0.228	0.226	0.199	0.199

Notes:

1 Standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The full regression results are reported in the [Supplementary Material Table S7](#).

2. See note 2, [Table 2](#).

Source: See [Table 1](#).

using raw mental health scores are reported in [Table 2](#) with a set of results using standardized mental health scores⁴ made available in the [Supplementary Material Table S4](#).

Consider first the Australian model estimates. Both specifications offer evidence backing the idea that ownership *per se* helps to support mental health. The impacts are statistically significant at 1%, though relatively modest – for example, gaining ownership has less than half the positive impact on mental health of gaining employment or entering a relationship, and approximately the same as joining a club. The construction of each change variable assumes a symmetry to the impacts of change no matter the direction of change. So, the ownership status estimate also implies that loss of ownership adversely impacts mental health to the same degree. These reflect the mental health effects of tenure transitions that extend beyond payment and investment risks.

When tenure transitions are controlled for, the findings confirm that investment risk remains important with a significant negative coefficient estimate for the leverage multiplier variable. This suggests that moves taking mortgagors closer to the edges of ownership undermine mental health, while those approaching outright ownership earn a mental health dividend. The leverage multiplier's non-linearity implies that mental health is particularly affected by moves navigating the edges of ownership where exposure to investment risks is already high. Those 'mortgagor movers' that finance their moves by increasing loan-value ratios shift closer to the edges of ownership. Their average increase in leverage multipliers is 3.446 and therefore responsible for a mental health penalty of 0.6 points. The typical Australian entering ownership sees their leverage multiplier increasing by 4 (see the [Supplementary](#)

⁴ The standardised mental health score takes each observation on the change in mental health and subtracts the mean change in mental health as computed from all observations. This difference is then divided by the standard deviation of the change in mental health variable. The standardised variable gives each observation's deviation from the mean as measured in standard deviation units. When only the dependent variable is standardised, the new regression coefficients can be obtained from the estimates using raw scores by applying the same transformation.

[Material Table S2](#)) and extracting a mental health penalty of 0.7 points.⁵ This offsets much of the 0.9-point gain on achieving ownership status in the first place.

Those who have added to their mortgage debt *in situ* may be skilled in using equity borrowing to raise funds to meet pressing spending needs following adverse shocks; this much is apparent in some other studies (e.g., [Wood et al., 2013](#)). Counterintuitively, this group do not experience the same adverse mental health effect as mortgagors who add to their debt – who leverage up – when they move. This implies that the welfare role – the financial buffering effect – of equity borrowing can, for a while at least, also buffer the mental health effects of debt. Certainly, mortgagors who move without any equity borrowing component (i.e. whose added debt is all rolled into higher house prices) appear to experience the mental stress of their additional investment risk, without enjoying the cushioning effects of equity borrowing.

For those who drop out of homeownership there is a mental health markdown, though this is buffered as ex-owners are no longer exposed to negative equity risks. To illustrate, the 'change in ownership status' predictor has a coefficient of around 0.9, suggesting that typically, the mental health penalty due to loss of ownership status is 0.9 points holding all other factors constant. However, the 'change in leverage multiplier' predictor has a coefficient of -0.2 , indicating a 2.3 decline in the leverage multiplier value among those transitioning out of ownership would reap a mental health dividend of 0.46 points. This 0.46-point dividend offsets about one-half of the 0.9-point penalty experienced by those losing ownership and confirms [Smith et al. \(2017\)](#) where it is found that transitions out of ownership can be followed by a wellbeing rebound.

In the Australian sample there are also large, strongly significant, adverse payment difficulty impacts (at 1.8 points) on mental health. However, changes in the equivalised income after-housing costs variable do not pick up any mental health impacts: it is likely that a large majority of households are able to meet housing costs and pay for necessities thus mental health is largely unaffected by this variable. Adverse impacts are restricted to a minority who cannot cover their mortgage or rent liabilities, and for whom tenure security is at risk.

There are two other key parameters – the constant and the coefficient estimate for binding borrowing constraints. The latter is large and strongly significant with a sign implying that binding borrowing constraints following a move result in mental health markdowns. Maybe it is not just the fact of sustaining high housing costs or vulnerability to investment risk that drags people down mentally, but their associated inability to borrow in order to meet pressing spending needs. The constant captures the disruptive effects of moves, or the positive benefits when moves satisfy residential preferences not captured by other controls. The psychological research suggests that residential mobility evokes excitement, anxiety, loneliness, and stress, a mix of emotions, but generally concludes that it is linked to lower wellbeing levels ([Oishi & Talhelm, 2012](#)). We confirm its negative overall impact, but it is small and statistically insignificant. It is likely that the offsetting impacts of forced and unforced moves account for this finding and reinforces the message that unintended mobility counts ([Clark, 2016](#)).

A comprehensive vector of controls is added because moves are commonly accompanied by changes in property attributes, neighbourhoods, and life events. Both change in number of rooms in the dwelling and change in dwelling type following moves prove insignificant, which may explain why 'churning' is an enduring feature of Australian and UK housing systems despite requiring compromises of this type ([Ong et al., 2021](#)). Meanwhile moves to an urban region have negative, albeit

⁵ The estimates of change in mental health scores in this, and the previous sentence, are arrived at by multiplying the leverage multiplier's estimated coefficient (-0.176) by the pre- and post-move average change in leverage multiplier. So, for example, among those transiting into ownership there is a fall in mental health of $-0.7 (= -0.176 \times 4)$.

insignificant effects, on mental health. Transitions into a region with less or more socio-economic advantage are also unimportant. This is consistent with findings from some US Moving to Opportunity demonstration studies, which fail to detect improvements in *adult* mental health outcomes on transition away from high poverty neighbourhoods (Jackson et al., 2009).

Other control variables' impacts on mental health are largely in step with expectations. Change in partnership and employment status generate mental health dividends (penalties) when flagging formation (breakdown) of a relationship or gaining (losing) employment. Child-birth lifts the mental health of parents (though only weakly significant). Changes in physical strength proves strongly significant and in the anticipated direction. There is mixed support for the role of social capital and participation in the community. Joining (or relinquishing membership of) a club is strongly significant and positive (negative), yet

change in volunteering is insignificant. Fixed effects for stage in the life cycle are important. As compared to under 35s the middle aged (35–54 years) and seniors (55 years and over) typically benefit from statistically significant improvements in mental health after their moves.

The UK results in Table 2, columns 3 and 4 are reported for the same model specifications as in Australia, except that a borrowing constraint variable is unavailable, and the controls are not as comprehensive. There is again confirmation that change in ownership status matters; attaining ownership impacts positively and is larger than in Australia, with standardised (change in) mental health scores boosted by 0.1 (one tenth) of the standardised mental health score's standard deviation while in Australia the equivalent estimate is lower at 0.06 (see the Supplementary Material Table S4 and Fig. 1 below). Relative to other life events the impact is also more important than in Australia; for example, mental health benefits on gaining ownership in the UK are

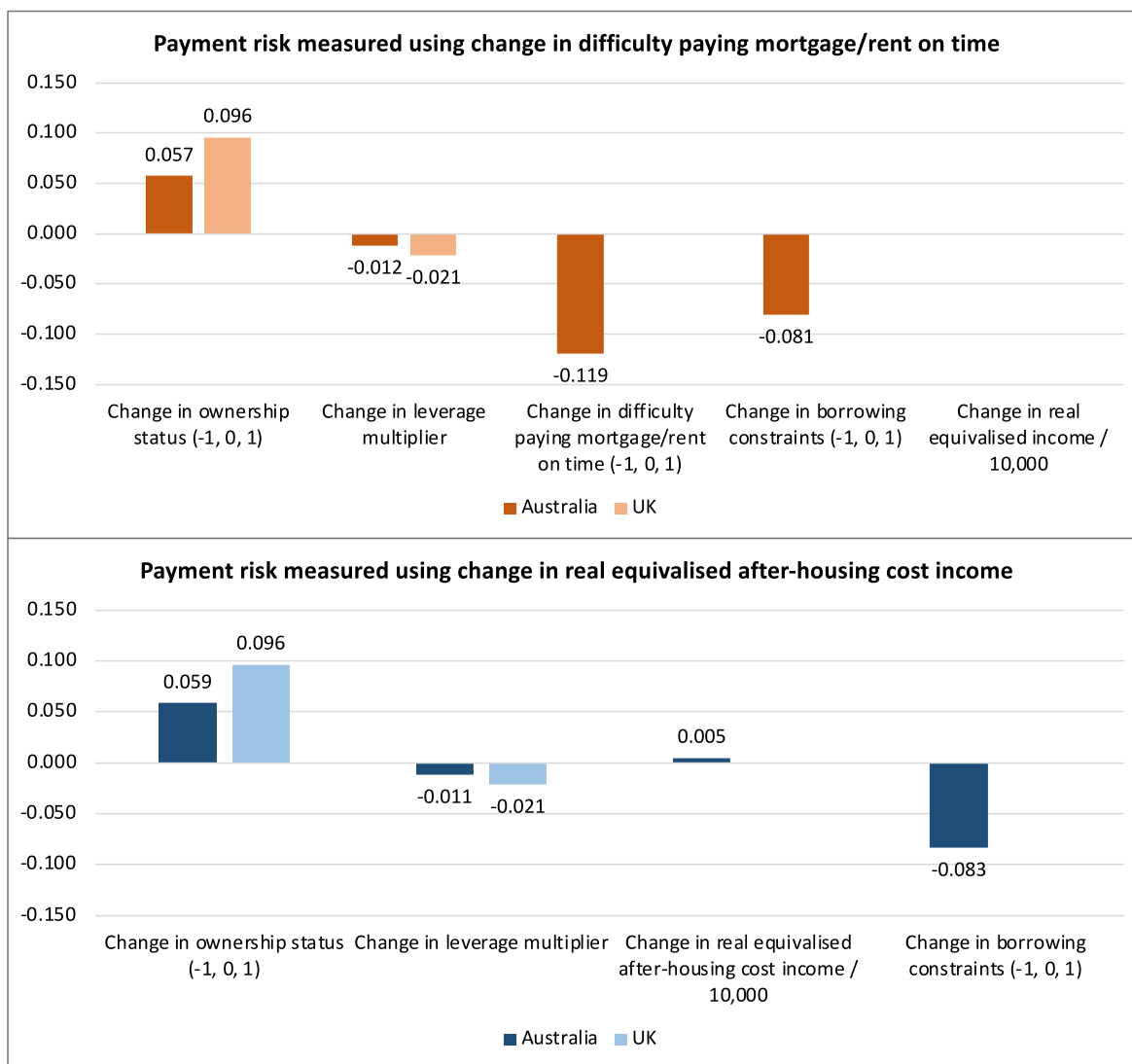


Fig. 1. First difference model estimates of mental health for Australia and the UK using standardized measures^{1,2,3}. Source: See Table 2. 1. Only key estimates that are statistically significant at 1%, 5% or 10% levels are reported. The full regression results including controls are reported in the Supplementary Material Table S4. 2. The upper panel report model estimates that align with columns (1) and (3) of Table 2, while the lower panel report model estimates that align with columns (2) and (4) of Table 2. However, the figure reports estimates using standardized mental health scores instead of raw mental health scores. 3. The standardised mental health score takes each observation on the change in mental health and subtracts the mean change in mental health as computed from all observations. This difference is then divided by the standard deviation of the change in mental health variable. The standardised variable gives each observation's deviation from the mean as measured in standard deviation units. Estimated coefficients measure the relative (to the mean) increase (or decrease) in mental health for a one unit change in the relevant explanatory variable. The units of measurement are standard deviations. For example, a transition into ownership following a move in Australia is estimated (in column 1) to lift the relative change in mental health by 0.06 times the standard deviation of the change in mental health. The effect is much stronger in the UK at 0.1 times (or one tenth of) the standard deviation of the change in mental health.

roughly two-thirds of those from gaining (or losing) employment, while in Australia the mental health benefits are only one half those from gaining (or losing) employment.

Housing investment risk is a significant negative presence for mental health, and again its impact is larger than in Australia. Those transitioning into ownership in UK (Australia) increase leverage multipliers from zero to 3.5 (4). Faced by the prospect of equity erosion soon after adding to debt, there is a mental health penalty of 8% (5%) of the standardised (change in) mental health score's standard deviation in the UK (Australia).⁶ These fears may, of course, have as much to do with credit constraints as equity erosion. Those lacking collateral in the form of home equity have limited scope to use equity borrowing as a financial buffer and are likely to find it difficult to access credit from other formal sources (e.g., credit cards, personal bank loans). The adverse effects of binding borrowing constraints on mental health are partly captured by the leverage multiplier in the British estimates, hence their larger size. In the Australian model (where it is possible to control for binding borrowing constraints) the investment risk variable matters. It captures the shrinking ability of owners to self-insure at high LVRs, and that effect is present regardless of whether it is possible to access other sources of finance.

On the other hand, the stress associated with high housing cost obligations proves unimportant whether represented by the residual after-housing cost income measure, or the dummy signaling difficulties in meeting housing payments. While both representations have negative impacts, they are statistically insignificant. The constant is negative suggesting that the frictions associated with moves could lead to deteriorating mental health, but it is insignificant. The vector of UK controls confirms the importance of gaining or losing employment and stage in the life cycle, but transitions into (or out of) couple relationships are not the important positive (negative) events they seem to be in Australia.

4.3. Model extensions

The construction of each change in status variable implies a symmetry to the impacts of change no matter the direction of change. In [Table 3](#) we represent each change in status by a vector of indicator variables that distinguish between transitions according to their direction (see the [Supplementary Material Table S5](#) for all results). There are three indicator variables flagging own-to-own, own-to-rent and rent-to-own transitions, with rent-to-rent moves the reference category.

The Australian tenure transition indicator estimates suggest that what really impacts on mental health is the negative effect of leaving homeownership; gaining homeownership is positive but insignificant. In the UK, by contrast, attaining owner-occupation pays off handsomely, securing a mental health dividend that is large, and highly significant.

We also find that housing payment difficulties post-move take a toll on Australians' mental health – much more so than any other adverse event, including losing a partner (see the [Supplementary Material Table S5](#)). Escape from housing payment difficulties yield a small but statistically insignificant mental health dividend. In contrast with consistently non-binding borrowing constraints, there is a statistically significant decline in Australians' mental health when borrowing constraints bind following a move, and a statistically significant and symmetric mental health pay-off if previously binding borrowing constraints are relaxed. Estimates for the leverage multiplier still show a negative investment risk effect, but it is somewhat smaller, and significance is weaker. When the after-housing cost household income measure replaces housing payment difficulties it is significant, and in the expected direction.

UK estimates with respect to housing payment stress measures prove to be less important than in Australia; on the other hand, the leverage

multiplier is again strongly significant (at 1%) and with a somewhat larger estimate signaling important impacts for those shifting closer to (or away from) the edges of ownership, or transitioning into homeownership with high levels of debt relative to house value. So, for example, someone entering ownership with a mortgage that is 80% of house value takes on additional housing investment risk that lowers mental health by 0.73 points.

Thus far, our estimation samples have pooled high-income persons together with those of middle and low income. They have also pooled outright homeowners, who account for 12% (14%) of Australia (UK) observations, with rental tenants and mortgagors. The average effect of housing payment risk on mental health is attenuated because outright homeowners and higher-income individuals are rarely exposed to housing payment risk. While the true effect of exposure to payment risk on the mental health of mortgagors and tenants with modest incomes could be large, it may go undetected in such pooled samples. A similar issue arises with respect to investment risk, as outright owners have little exposure to this type of risk.

Therefore, in a second model extension, we address attenuation issues by omitting outright owners *and* restricting the sample to those in low household income ranges. Findings are reported in [Table 4](#) with respect to key variables in the parsimonious specification that assumes symmetric effects for transition variables (see the [Supplementary Material Table S7](#) for the complete set of estimates). Low-income is defined as those with equivalised household incomes at or below the 40th percentile of the distribution of equivalised household incomes. This tactic has also been employed elsewhere when exploring the impacts of housing affordability on mental health (see [Mason et al., 2013](#)).

Payment difficulties are more important for the mental health of these hard-pressed individuals, though it only comes through at statistically significant levels in the Australian estimates (see [Table 4](#)). Here inability to meet housing payments causes the mental health indicator to fall by 2.2 points (2.7% of the mean). Meanwhile the ownership status indicator becomes insignificant, as does the leverage multiplier, though both retain the same signs as in earlier models. On the other hand, the binding borrowing constraint indicator now becomes larger (and significant at 1%) than in the unrestricted sample. Those with low-incomes and lower housing equity to draw down could be more prone to mental health markdowns when they have no other credit options. The sample size generating these estimates falls, especially so in the UK where observations decline from 5044 in the unrestricted sample to 1820 in the restricted sample. This could account for the statistical insignificance of UK model estimates.

We also estimated the regression models for a sample omitting outright owners but retaining those on middle and higher incomes (estimates are reported in the [Supplementary Material Table S6](#)). The Australian results for the investment risk variable remain significant at the same level and are about the same size, while the payment risk and borrowing constraint variable results also do not change in any material way. Stability in model estimates is again apparent in the UK sample design that omits outright owners but retains those on middle and higher incomes (see the [Supplementary Material Table S6](#)).

5. Discussion

In Australia and the UK transitions from renting into homeownership are associated with positive mental health outcomes, but so too are moves away from the edges of ownership towards the mainstream because investment and payment risks recede as equity stakes increase. Conversely, moves that nudge mortgagors towards precarious positions on the edges of ownership detract from their mental health. We show for both countries that moves resulting in higher investment risks, and for Australia those adding to housing payment difficulties, are substantively associated with poorer mental health outcomes, adding to the evidence that the wellbeing premium attached to homeownership is contingent on financial security (Clapham et al., 2108).

⁶ These projections are arrived at using the standardised mental health score model estimates reported in the [Supplementary Material Table S4](#).

We also find that loss of ownership is associated with deteriorating mental health, especially in Australia. These adverse mental health consequences are cushioned where the move alleviates affordability stress and removes exposure to housing investment risk (as per Smith et al., 2017). However, in Australia, at least, moves within the rental sector that occasion payment difficulties and less secure housing circumstances, are associated with a dip in mental health.

In Australia, there is compelling evidence that when moving cuts people off from lines of credit, whether formal (e.g., binding credit card limits) or informal (cash transfers from friends or relatives), the adverse mental health consequences are magnified. Some moves, however, ease borrowing constraints, for example when moving allows mortgage debt to be paid down, or tenants to lower their rent obligations. The Australian evidence indicates that these moves pay off in terms of a large mental health dividend, of about the same absolute size as the mental health penalty incurred by those whose moves result in binding borrowing constraints.

There are important cross-country differences in model estimates that could signal institutional heterogeneity. Across different model specifications and sample designs we consistently find that while difficulty meeting housing payments following re-location is a significant driver of Australians' mental health outcomes, this effect is largely absent in the UK, which is consistent with Clapham et al.'s (2018) wider review of the evidence (pp.272–273). A likely reason is the stronger and more comprehensive UK welfare safety net that offers greater assistance to those in unaffordable housing.

There are three housing support programmes that contribute to this inter-country divergence in assistance. Firstly, the UK's social housing sector remains a much more important supplier of affordable rental housing than its Australian counterpart. In the final year of our study period (2017), the UKHLS indicates that 15% of its nationally representative unweighted sample had a social housing landlord, compared to only 2% of HILDA's survey respondents in the same year. A key feature of social housing is security of tenure; the benefits this generates for those experiencing difficulties meeting rent payments may include a mental health premium.

Secondly, both countries offer direct subsidies to low-income tenants to help them meet their housing costs. The UK's Housing Benefit programme (succeeded in 2019 by the introduction of Universal Credit) was more comprehensive than its Australian equivalent, Commonwealth Rent Assistance. The UK programme offered assistance to eligible tenants in both private and social rental housing, whereas in Australia public housing tenants are excluded (there is also a *nationally uniform cap* on maximum entitlements so private tenants in relatively high rent locations can be poorly served). In the UK maximum benefits align with regionally sensitive *eligible rents* that included rent paid, as well as service charges: some eligible tenants could thereby meet 100% of housing costs from assistance entitlements, an outcome that is impossible in Australia. The observations in our model estimation sample designs indicate that the incidence of payment difficulties among Australian tenants (at 12.5%) is much higher than among British tenants (7.3%); a plausible explanation is the more generous housing subsidy programme in Britain.

Finally, the UK supports home buyers through major income shocks by offering 'support for mortgage interest' which, over the study period, was – following a waiting period that varied from 13 to 39 weeks – paid as a benefit (Munro et al., 2010), though it now takes the form of a loan. Australian Governments have never offered this benefit to mortgagors, and though there is a mandated superannuation scheme that subscribers can draw down, nearly two-thirds (63%) of Australian mortgagors with payment difficulties are below the eligible age threshold (55). While the UK's support for mortgage interest was limited to those that have lost all their earnings, this is a group that are especially prone to payment risks. It is noteworthy to find in our data that the incidence of payment difficulties among Australian mortgagors (at 3.4%) is roughly double that of their British counterparts (1.6%).

It is not just housing payment difficulties that have different mental health consequences in the two countries. Exposure to housing investment risk is also a point of difference. According to estimates across multiple model specifications and sample designs, British homeowner's mental health is more markedly and adversely affected by exposure to higher risk positions. UK homeowners have, since the 1980s, been exposed to more downside price risks (OECD, 2022), especially in the late 1980s/early 1990s, and through the Global Financial Crisis, 2008–2011, when there were sharp declines in real house prices that eroded housing equity holdings. In contrast Australian homeowners benefited from periods of strong real price growth that were periodically interrupted by intervals during which real prices stagnated, but did not slump. The mental health cost of increased exposure to housing investment risks in the UK could either reflect the stress of loss of equity in a slump (challenging expectations that prices only rise), or new credit constraints as loan-to-value ratios change, reducing the potential to use equity borrowing to meet spending needs.

The mental health impact of transitions into and out of homeownership also vary between jurisdictions. In Australia, the loss of homeownership has large negative effects, while gaining ownership can boost mental health, though the effect is smaller than that of exit. Meanwhile, the reverse is observed in the UK where large, positive mental health payoffs accompany transitions into homeownership, with less certain mental health mark downs when dropping out of the sector.

Asymmetry across the tenure divide in Australia could reflect the wide range of housing options available within a relatively large, diverse, private rental sector; gaining owner occupation may be desirable for many reasons but could add relatively little in terms of housing quality and location. Owner-occupation in Australia does, however, play a critical role in fostering financial security because of the stronger fiscal advantages targeted on homeowners. Australians on the edges of homeownership have a lot to lose if they fail to 'cling on', and this may explain the sharp dip in mental health associated with the shift to renting.

The opposite asymmetry in the UK may signal the soft landing still available in the social sector for owners seeking to rent, as well as the relief of shedding debts on exit. Previous studies have shown that UK owner occupiers, more so than Australians, tend to cling onto the edges of ownership until financial stress becomes intolerable (Wood et al., 2017). Meanwhile the premium on attaining ownership – for financial security, and as a mark of good citizenship – has been such a central feature of British political discourse since the 1980s, that its psycho-social impacts are unsurprising (Watson, 2010).

These differences between the two jurisdictions may also be connected with more systemic institutional factors. Though both countries grant homeowners similar tax concessions, there are two important pillars of the welfare state – government age pensions and aged care – where homeownership confers important advantages to Australian owners that are not available to British owners. Effectively they mean that the wider stakes of loss of ownership in Australia are higher in Australia than in the UK, as explained below.

Critically, eligibility for Australia's age pensions is governed by age, residency, and assets and income tests, whereas for access to Britain's state pension, only age and residence matter. However, the wealth stored in owner occupied housing is exempt under the Australian assets test, bestowing a significant benefit on those who store assets in their home, but especially on those income-poor but asset-rich seniors that have concentrated wealth in their homes (Chomik & Pigott, 2016). A similarly important concession arises in meeting aged care charges. In the UK all wealth stored in owner occupied homes over a very low threshold is taken into account (provided no partner is living in the primary residence), whereas in Australia only housing wealth up to a modest threshold is assessable, the rest is discounted (Wood et al., 2022).

These are important differences that result in higher financial penalties for Australians who fail to hold on at the edges of ownership as

retirement and old age approaches. Those switching from own to rent in later life may shed debts and release assets, but will also compromise age pension entitlements while facing rising rent payments that are hedged by outright owners. They may also have to pay more for the cost of aged care (whether at home or in institutions) later in life, without having the same social housing opportunities as their British counterparts. British pensioners need not fear these consequences, and so the absence of a significant dip in mental health on leaving ownership in Britain is perhaps unsurprising.

Our study has some limitations. Causality is always a challenge and we have focused on the implications of housing transitions for mental health, rather than the reverse, while acknowledging that health selection or discrimination is nevertheless a feature of most housing systems (Smith, 1990). Woodhead et al. (2015), for example, have shown that individuals with poorer mental health are less likely to achieve their preferred move. Thus, future empirical strategies should consider the bi-directional relationship between residential mobility and mental health. Second, our study has modelled changes in mental health that are linked to *contemporaneous* changes in payment risk, investment risk and binding borrowing constraints. We do not differentiate between risks and borrowing constraints that are chronic as compared to temporary, which is another important area for future research. Finally, we acknowledge with Bentley et al. (2016) that the relationship between tenure and health is dependent on institutional contexts; it cannot be generalised across countries without careful attention to those contexts, and there is more to do in that vein.

Nonetheless, our study presents important new evidence of the complex ways in which residential relocation, whether within or across tenure boundaries impacts on mental health outcomes. Tenure shifts are important in their own right, but associated changes in payment difficulties, investment risks and borrowing constraints are also implicated and have been neglected in the literature. While attaining and sustaining homeownership retains its longstanding allure, a more important future focus for research is the direction of travel of households through the zones of precarity opening up at the edges of ownership and in the margins of renting. Importantly, we have shown that the mental health impacts of these journeys are powerfully shaped by institutions, and therefore that governments can make a difference.

Funding

This research was supported by the Australian Research Council (ARC) Discovery Projects funding scheme (DP190101461). Rachel Ong ViforJ is the recipient of an ARC Future Fellowship (FT200100422).

Financial disclosure statement

None.

Availability of data

Please contact the corresponding author to get more information on how to get access to HILDA, BHPS and UKHLS.

Ethical Statement for Solid State Ionics

- 1) This material is the authors' own original work, which has not been previously published elsewhere.
- 2) The paper is not currently being considered for publication elsewhere.
- 3) The paper reflects the authors' own research and analysis in a truthful and complete manner.
- 4) The paper properly credits the meaningful contributions of co-authors and co-researchers.
- 5) The results are appropriately placed in the context of prior and existing research.

- 6) All sources used are properly disclosed (correct citation). Literally copying of text must be indicated as such by using quotation marks and giving proper reference.
- 7) All authors have been personally and actively involved in substantial work leading to the paper, and will take public responsibility for its content.

The violation of the Ethical Statement rules may result in severe consequences.

To verify originality, your article may be checked by the originality detection software iThenticate. See also <http://www.elsevier.com/editors/plagdetect>.

I agree with the above statements and declare that this submission follows the policies of Solid State Ionics as outlined in the Guide for Authors and in the Ethical Statement.

Author statement

Professor Gavin Wood – Lead Author: Mainly responsible for drafting the papers, conceptualization, methodology and interpretation of the results, drafting responses to reviewers.

Professor William Clark: Responsible for conceptualization and interpretation of the results, and drafting the paper.

Professor Susan Smith: Responsible for conceptualization and interpretation of the results, and drafting the paper.

Professor Rachel Ong ViforJ: Responsible for conceptualization, methodology, and interpretation of the results, and drafting the paper.

Dr N. T. Khuong Truong: Responsible for data curation, formal analysis, methodology, and interpretation of the results, and drafting the paper.

Declaration of competing interest

None.

Data availability

The date used in this paper is confidential and we are not allowed to share the data.

Acknowledgement

This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, British Household Panel Survey (BHPS), UK Household Longitudinal Study (UKHLS) and Panel Study of Income Dynamics (PSID). HILDA was initiated and is funded by the Australian Government Department of Social Services (DSS) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The BHPS and UKHLS are collected by the Institute for Social and Economic Research, University of Essex. The collection of PSID data used in this study was funded by the National Science Foundation under awards SES1157698 and SES1623684. The views expressed herein are those of the authors and should not be attributed to the Australian Government, DSS, Melbourne Institute, University of Essex or the National Science Foundation.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmph.2022.101321>.

References

- Arundel, R., Li, A., Baker, E., & Bentley, R. (2022). Housing unaffordability and mental health: Dynamics across age and tenure. *International Journal of Housing Policy*. <https://doi.org/10.1080/19491247.2022.2106541>

- Arundel, R., & Ronald, R. (2021). The false promise of homeownership: Homeowner societies in an era of declining access and rising inequality. *Urban Studies*, 58(6), 1120–1140.
- Baker, E., Bentley, R., & Mason, K. (2013). The mental health effects of housing tenure: Causal or compositional? *Urban Studies*, 50, 426–442. <https://doi.org/10.1177/0042098012446992>
- Benito, A. (2009). Who withdraws housing equity and why? *Economica*, 76(301), 51–70. <https://doi.org/10.1111/j.1468-0335.2008.00693.x>
- Bentley, E., 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*. <https://doi.org/10.1080/02673037.2022.2108380>
- Bentley, R. J., Pevalin, D., Baker, E., Mason, K., Reeves, A., & Beer, A. (2016). Housing affordability, tenure and mental health in Australia and the United Kingdom: A comparative panel analysis. *Housing Studies*, 31(2), 208–222. <https://doi.org/10.1080/02673037.2015.1070796>
- Bernard, A., Forder, P., Kendig, H., & Byles, J. (2017). Residential mobility in Australia and the United States: A retrospective study. *Australian Population Studies*, 1(1), 41–54.
- Black, N., Jackson, A., & Johnston, D. W. (2022). Whose mental health declines during economic downturns? *Health Economics*, 31(1), 250–257.
- Bloze, G., & Skak, M. (2012). Housing tenure and psychological distress. *International Journal of Housing Policy*, 12(4), 471–488. <https://doi.org/10.1080/14616718.2012.737557>
- Bockerman, P., & Ilmakunnas, P. (2009). Unemployment and self-Assessed health: Evidence from panel data. *Health Economics*, 18, 161–179.
- Chomik, R., & Piggott, J. (2016). A note on the treatment of assets in the Australian age pension means test. CEPAR Working Paper 2016/01. Available at: <https://cepar.edu.au/publications/working-papers/note-treatment-assets-australian-age-pension-means-test>.
- Clapham, D., Foye, C., & Christian, J. (2018). The concept of subjective well-being in housing research. *Housing, Theory and Society*, 35(3), 261–280. <https://doi.org/10.1080/14036096.2017.1348391>
- Clark, W. A. V. (2016). Life events and moves under duress: Disruption in the life course and mobility outcomes. *Longitudinal Life Course Studies*, 7(3), 218–239. <https://doi.org/10.14301/lcs.v7i3.376>
- Clark, W. A. V. (2017). Residential mobility in context: Interpreting behavior in the housing market. *Papers: Revista de Sociologia*, 102(4), 575–605. <https://doi.org/10.5565/rev/papers.2411>
- Clark, A. E., & Georgellis, Y. (2013). Back to Baseline in Britain: Adaptation in the British household panel survey. *Economica*, 80(319), 495–512. <https://doi.org/10.1111/ecca.12007>
- Clark, W. A. V., Van Ham, M., & Coulter, R. (2014). Spatial mobility and social outcomes. *Journal of Housing and the Built Environment*, 29(4), 699–727. <https://doi.org/10.1007/s10901-013-9375-0>
- Desmond, M., & Shollenberger, T. (2015). Forced displacement from rental housing: Prevalence and neighborhood consequences. *Demography*, 52(5), 1751–1772. <https://doi.org/10.1007/s13524-015-0419-9>
- Diaz-Serrano, L. (2009). Disentangling the housing satisfaction puzzle: Does homeownership really matter? *Journal of Economic Psychology*, 30(5), 745–755. <https://doi.org/10.1016/j.joep.2009.06.006>
- Disney, R., Emmerson, C., & Wakefield, M. (2006). Ill health and retirement in Britain: A panel data-based analysis. *Journal of Health Economics*, 25(4), 621–649.
- Duncan, G., & Newman, S. (1976). Expected and Actual residential mobility. *Journal of the American Institute of Planners*, 42(2), 174–186. <https://doi.org/10.1080/01944367608977718>
- Felici, M. (2022). The long view on housing tenure and mental health (April 8, 2022). Available at: <https://doi.org/10.2139/ssrn.4078586>.
- Finkelstein, A., Gentzkow, M., & Williams, H. (2016). Sources of geographic variation in health care: Evidence from patient migration. *Quarterly Journal of Economics*, 131(4), 1681–1726. <https://doi.org/10.1093/qje/qjw023>
- Foye, C., Clapham, D., & Gabrieli, T. (2018). Homeownership as a social norm and positional good: Subjective wellbeing evidence from panel data. *Urban Studies*, 55(6), 1290–1312. <https://doi.org/10.1177/0042098017695478>
- Haffner, M. E. A., Ong, R., Smith, S. J., & Wood, G. (2017). The edges of homeownership—the borders of sustainability. *International Journal of Housing Policy*, 17(2), 169–176. <https://doi.org/10.1080/19491247.2017.1289717>
- Jackson, L., Langille, L., Lyons, R., Hughes, J., Martin, D., & Winstanley, V. (2009). Does moving from a high-poverty to lower-poverty neighborhood improve mental health? A realist review of 'moving to opportunity'. *Health & Place*, 15(4), 961–970. <https://doi.org/10.1016/j.healthplace.2009.03.003>
- Kang, S. (2019). Why low-income households become unstably housed: Evidence from the panel study of income dynamics. *Housing Policy Debate*, 29(4), 559–587. <https://doi.org/10.1080/10511482.2018.1544161>
- Li, A., Baker, E., & Bentley, R. (2022). Understanding the mental health effects of instability in the private rental sector: A longitudinal analysis of a national cohort. *Social Science & Medicine*, 296, Article 114778. <https://doi.org/10.1016/j.socscimed.2022.114778>
- Lindqvist, E., Östling, R., & Cesarini, D. (2020). Long-run effects of lottery wealth on psychological well-being. *The Review of Economic Studies*, 87(6), 2703–2726. <https://doi.org/10.1093/restud/rdaa006>
- Mason, K. E., Baker, E., Blakely, T., & Bentley, R. J. (2013). Housing affordability and mental health: Does the relationship differ for renters and home purchasers? *Social Science & Medicine*, 94, 91–97. <https://doi.org/10.1016/j.socscimed.2013.06.023>
- Mian, A., & Sufi, A. (2014). Chicago, Illinois: House of Debt, University of Chicago Press.
- Morris, Y. T., Manley, D., Northstone, K., & Sabel, C. E. (2017). How do moving and other major life events impact mental health? A longitudinal analysis of UK children. *Health & Place*, 46, 257–266. <https://doi.org/10.1016/j.healthplace.2017.06.004>
- Morris, T., Manley, D., & Sabel, C. E. (2018). Residential mobility: Towards progress in mobility health research. *Progress in Human Geography*, 42(1), 112–133. <https://doi.org/10.1177/0309132516649454>
- Munro, M., Smith, S. J., & Ford, J. (2010). An evaluation of the January 2009 arrangements for support for mortgage interest. Department for Work and Pensions Research Report 711. Available at: <https://eprints.whiterose.ac.uk/73805/1/evaluatingmsmi2011.pdf>.
- Nettleton, S., & Burrows, R. (1998). Mortgage debt, insecure homeownership and health: An exploratory analysis. *Sociology of Health & Illness*, 20(5), 731–753. <https://doi.org/10.1111/1467-9566.00127>
- OECD. (2022). Analytical house prices indicators. Available at: <https://stats.oecd.org/Index.aspx?QueryId=57454#>.
- Oishi, S., & Talhelm, T. (2012). Residential mobility: What psychological research reveals. *Current Directions in Psychological Science*, 21(6), 425–430. <https://doi.org/10.1177/0963721412460675>
- Ong Vifor, R., Clark, W. A. V., Smith, S. J., Wood, G., Lisowski, W., Truong, N. T. K., & Cigdem, M. (2021). Tenure transitions at the edges of ownership: Reinforcing or challenging the status quo? *Environment & Planning A*, 53(8), 1993–2011. <https://doi.org/10.1177/0308518X211038946>
- Ong, R., Wood, G., & Colic-Peisker, V. (2015). Housing older Australians: Loss of homeownership and pathways into housing assistance. *Urban Studies*, 52(16), 2979–3000. <https://doi.org/10.1177/0042098014550955>
- Payne, S. (2021). *Broken heartlands: A journey through labour's lost England*. London: MacMillan.
- Popham, F., Williamson, L., & Whitley, E. (2015). Is changing status through housing tenure associated with changes in mental health? Results from the British household panel survey. *Journal of Epidemiology & Community Health*, 69(1), 6–11. <https://doi.org/10.1136/jech-2014-203990>
- Smith, S. J. (1990). Health status and the housing system. *Social Science & Medicine*, 31(7), 753–762. [https://doi.org/10.1016/0277-9536\(90\)90170-W](https://doi.org/10.1016/0277-9536(90)90170-W)
- Smith, S. J., Alexander, A., & Easterlow, D. (1997). Rehousing as a health intervention: Miracle or mirage. *Health & Place*, 3(4), 203–216. [https://doi.org/10.1016/S1353-8292\(97\)00015-4](https://doi.org/10.1016/S1353-8292(97)00015-4)
- Smith, S. J., Cigdem, M., Ong, R., & Wood, G. (2017). Wellbeing at the edges of ownership. *Environment & Planning A*, 49(5), 1080–1098. <https://doi.org/10.1177/0308518X16688471>
- Smith, S. J., Clark, W. A. V., Ong Vifor, J. R., Wood, G. A., Lisowski, W., & Truong, N. T. K. (2022). Housing and economic inequality in the long run: The retreat of owner occupation. *Economy and Society*, 51(2), 161–186.
- Vásquez-Vera, H., Palència, L., Magna, I., Mena, C., Neira, J., & Borrell, C. (2017). The threat of home eviction and its effects on health through the equity lens: A systematic review. *Social Science & Medicine*, 175, 199–208. <https://doi.org/10.1016/j.socscimed.2017.01.010>
- Watson, M. (2010). House price Keynesianism and the contradictions of the modern investor subject. *Housing Studies*, 25(3), 413–426. <https://doi.org/10.1080/02673031003711550>
- Wilkins, A. S. (2018). To lag or not to lag? Re-evaluating the use of lagged dependent variables in regression analysis. *Political Science Research Methods*, 6(2), 393–411.
- Woodhead, C., Aschan, L., Lynskey, M. T., Polling, C., Goodwin, L., & Hatch, S. L. (2015). Exploring evidence for a prospective relationship between common mental disorder and meeting residential mobility preferences. *Health & Place*, 32, 19–28. <https://doi.org/10.1016/j.healthplace.2014.12.013>
- Wood, G., Ong, R., & Haffner, M. (2022). Housing wealth and aged care: Asset-based welfare in practice in three OECD countries. *Housing Studies*, 37(4), 511–536. <https://doi.org/10.1080/02673037.2020.1819966>
- Wood, G., Parkinson, S., Ong, R., Searle, B. A., & Smith, S. J. (2013). Motivations for equity borrowing: A welfare switching effect. *Urban Studies*, 50(12), 2588–2607. <https://doi.org/10.1177/0042098013477706>
- Wood, G., Smith, S. J., Cigdem, M., & Ong, R. (2017). Life on the edge: A perspective on precarious homeownership in Australia and the UK. *International Journal of Housing Policy*, 17(2), 201–226. <https://doi.org/10.1080/14616718.2015.1115225>
- Zumbo, T. (2014). The relationship between homeownership and life satisfaction in Germany. *Housing Studies*, 29(3), 319–338. <https://doi.org/10.1080/02673037.2013.773583>