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JEL Classification: D14, H55, I31, J14

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Portfolio Composition and Financial Security in Retirement*

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Abstract

This paper examines how the composition of financial resources relates to financial hardship and financial satisfaction among retired households. Using 23 waves of a nationally representative Australian panel, we distinguish between government pensions, private income, liquid financial assets, housing wealth, and debt. In fixed-effects models that exploit within-individual changes over time, liquid financial assets are strongly associated with lower financial hardship and higher financial satisfaction, while other forms of wealth show little independent association. We additionally examine responses to health shocks and find that liquid assets significantly attenuate their adverse financial effects, providing direct evidence of a buffering role. These results indicate that retirees with similar total wealth may experience different financial outcomes depending on portfolio composition, and suggest that adequacy assessments based on aggregate wealth or income replacement rates alone may overlook an important source of financial vulnerability.

JEL classification: D14; H55; I31; J14

Keywords: Retirement adequacy; Financial resilience; Financial hardship; Liquidity; Precautionary saving; Age pension; Health shocks

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1 Introduction

In ageing societies, the adequacy of retirees' financial resources is a central concern for households and governments (Scholz et al., 2006; Amaglobeli et al., 2019). Adequacy in retirement is important not just for sustaining consumption, but for ensuring dignity, security, and independence in later life. When financial resources prove insufficient, the consequences can be severe: older adults may struggle to pay for housing, food, or healthcare, and many are left reliant on family support or community aid (Brown et al., 2020; Gajda and Jeżewska-Zychowicz, 2021; Marshall et al., 2022). Experiences of financial hardship in later life are particularly damaging because opportunities to re-enter the labour market are limited, health needs are rising, and accumulated resources cannot easily be replenished (De Nardi et al., 2010). These challenges have become more pressing in recent years as many retirees have faced the combined pressures of rising costs of living, volatile asset markets, and growing health and long-term care expenditures. For these reasons, governments invest heavily in pension programs and encourage private saving, while households orient many of their financial and employment decisions toward the goal of a secure retirement. Yet despite this attention, there remains significant uncertainty about which forms of financial resources matter most for ensuring financial wellbeing and preventing hardship across the retirement years.[1]

According to the life-cycle model, individuals save during their working years and then draw down those savings in retirement in order to smooth consumption across their lifetime (Browning and Crossley, 2001; Chen et al., 2024). In practice, however, retirees face considerable uncertainty about longevity, health, and economic conditions, which gives rise to a precautionary motive to hold savings as insurance against unexpected expenses (Lugilde et al., 2019). Therefore, the ability to smooth consumption depends not only on the overall level of wealth, but also on its composition, liquidity and indebtedness (Poterba et al., 2011; Dogra and Gorbachev, 2016; Horneff et al., 2025). Income flows from pensions and private sources provide predictable support for day-to-day needs, while liquid assets such as bank accounts and financial investments enable households to respond flexibly to shocks. Housing wealth, by contrast, is often the largest component of retirement resources and provides ongoing housing consumption, but it is illiquid and difficult to access without downsizing or taking on debt. The implication is that two retirees with the same total wealth may experience different levels of financial security depending on the form of their resources. These considerations imply that evaluating adequacy requires going beyond aggregate wealth or replacement-rate measures to understand how different resource types contribute to resilience and wellbeing during retirement.

In this paper we ask a straightforward but under-explored question: which financial resources are most salient for sustaining wellbeing in retirement? We distinguish between government pensions, private income, investment assets, housing wealth, and debt, which together represent the main financial dimensions of retirement portfolios in many high-income countries. This disaggregation is important because some resources provide regular flows, while others function as liquid buffers or liabilities that can amplify vulnerability. These differences shape how effectively each resource protects retirees against financial hardship and wellbeing. Beyond estimating their independent associations, we also examine a key potential mechanism: whether financial resources buffer the impact of adverse shocks. In particular, we explore which resources reduce the negative financial effects of serious health events, thereby functioning as a form of protection in retirement.

To address these questions, we draw on the Household, Income and Labour Dynamics in Australia (HILDA) Survey, a nationally representative panel study that has tracked households annually since 2001. The survey's combination of detailed longitudinal income, wealth, and health measures makes it

[1] In this paper, we define financial wellbeing as the ability to meet financial needs and obligations while maintaining resilience to adverse shocks (OECD, 2024).

well-suited for analysing financial adequacy in retirement. We restrict our sample to fully retired individuals aged 65 and over, ensuring that observed financial outcomes reflect post-retirement experiences rather than transitional phases. The analysis proceeds in three steps. First, we present descriptive evidence on two measures of financial wellbeing, financial hardship and financial satisfaction, across groups with different levels of income and wealth. Second, we estimate regression models to quantify how each resource type is associated with the risk of hardship or satisfaction, controlling for household characteristics and individual fixed-effects. Finally, we test whether financial resources buffer the impact of serious health shocks, providing evidence on mechanisms.

Our findings emphasise the central role of liquidity in shaping financial wellbeing during retirement. Retirees with even modest holdings of liquid financial assets exhibit markedly lower risks of financial hardship and higher levels of financial satisfaction than those without such buffers. This association is evident across all specifications, including within-individual models, underscoring that liquid savings provide the most consistent protection. Other forms of income and assets also contribute meaningfully to financial wellbeing, particularly in cross-sectional analyses, although its influence is less robust once individual fixed effects are incorporated. Finally, we find that liquid assets attenuate the adverse financial consequences of serious health shocks, reducing the likelihood that such shocks lead to hardship. Collectively, these results indicate that while multiple resources contribute to financial security in retirement, liquid savings are uniquely important.

This paper contributes to three streams of research within the large body of work on the financial wellbeing of older people. Our findings first contribute to a literature documenting the prevalence and dynamics of financial hardship in older age. Research using the U.S. Health and Retirement Study shows that hardship is both widespread and unevenly distributed. Roughly one in five older adults report at least one hardship such as food insecurity, difficulty paying bills, or cutting back on medications, with poor health strongly associated with financial strain (Levy, 2015). Most hardship episodes are temporary, yet some groups, including those in poor health, unmarried, or with fewer years of education, are more likely to experience persistent difficulties (Marshall et al., 2022). Broader analyses highlight structural risks, such as local labour markets, rising debt burdens, declining pension coverage, and widening racial wealth gaps (Brown et al., 2014, 2020; Miller et al., 2025). Together, these studies show that hardship in retirement is not confined to the poor, often coincides with health shocks, and reflects both individual resources and institutional context. Our study adds to this literature by providing evidence from Australia, where the pension and retirement income system differs markedly from the U.S.

The second relevant literature examines how adverse health events affect the financial wellbeing of older households. Evidence shows that such shocks frequently strain household finances, and that resilience depends on available resources. In the U.S., older households reallocate wealth following shocks, moving away from housing and vehicles toward more liquid holdings (Coile and Milligan, 2009). European evidence shows that major health events reduce safe assets held, while not affecting the holding of risky assets (D'albis et al., 2023). In Singapore, the financial costs of health shocks fall disproportionately on less-educated households, while the better educated are largely protected (Cheng et al., 2024). Taken together, these studies highlight that the financial impact of health shocks depends on the resources households can mobilise.[2] Our findings are consistent with this literature, showing that in the Australian context, liquid wealth is the key resource that protects retirees from hardship when serious health events occur.

Finally, our study relates to the large literature on the adequacy of retirement resources. Traditionally,

[2]Hambel et al. (2023) develop a life-cycle model with housing and borrowing constraints and show that unexpected health shocks increase demand for reverse mortgages, particularly among cash-poor, housing-rich retirees. Their results illustrate how the financial impact of health shocks depends on the accessibility of resources that can be mobilised to meet unexpected expenses.

adequacy has been assessed using replacement rates that compare retirement income to pre-retirement income (Whiteford, 1995). This benchmark remains influential in policy debates, but recent studies highlight its limitations. Research shows that replacement rates can misrepresent adequacy across income groups and are only weakly correlated with broader indicators of financial wellbeing (Brady, 2010; Burnett et al., 2018). Other work has emphasised the value of a multi-pillar perspective that recognises the combined role of public pensions, private savings, and housing wealth (Knoef et al., 2016). Moreover, replacement rates capture only the consumption-smoothing dimension of adequacy, while an equally important concern is protection against poverty and hardship in old age (Chybalski and Marcinkiewicz, 2016). Our study is not an adequacy measurement exercise, as we do not set or test benchmark ratios. Rather, we complement this literature by focusing on whether different resource types are sufficient to prevent financial hardship and support higher wellbeing in retirement. Our results suggest that both policy makers and financial planners should take into account the importance of liquid savings, which provide a buffer against unexpected shocks and are therefore crucial for resilience in retirement.

The remainder of the paper is structured as follows. Section 2 provides background on the Australian retirement income system, outlining the key institutional features that shape the financial resources of older households. Section 3 describes the HILDA Survey and the construction of our measures of financial hardship, financial satisfaction, and retirement resources. Section 4 outlines our empirical strategy. Section 5 presents the results on the associations between different resource types and financial wellbeing, and examines how these relationships evolve in the presence of health shocks. Section 6 concludes.

2 Background

In Australia, the retirement system is underpinned by a three-pillar framework that shapes the income landscape for older individuals (Commonwealth of Australia, 2020). The first pillar is the Age Pension, a publicly funded, means-tested payment designed to provide a minimum standard of living for retirees with limited assets (ARC Centre of Excellence in Population Ageing Research, 2018). As of 2024, eligibility requires individuals to be aged 67 or older, satisfy residency criteria, and pass both income and assets tests.[3] The maximum fortnightly pension including supplements is $1,178.70 for a single person and $888.50 for each member of a couple. Around 62% of Australians aged 65 and over receive the full or part Age Pension, making it the most common income source in retirement (Australian Institute of Health and Welfare, 2025).

The second pillar is compulsory superannuation. Employers are required to contribute a mandatory share of employees' ordinary earnings into individual defined-contribution accounts.[4] These funds, accumulated over a working life, can be accessed from age 60 onwards (subject to conditions of release) and have become a central pillar of retirement income, particularly for younger and middle-income cohorts. As of March 2023, superannuation assets totalled AUD 3.9 trillion, equivalent to approximately 150% of GDP, making Australia's retirement savings pool one of the largest globally (Australian Prudential Regulation Authority, 2024).[5]

[3]The qualifying age for the Age Pension has gradually increased over the period 2001-2023. It was 65 years for men and 62 years for women when the HILDA Survey began in 2001. The qualifying age for women was raised by six months every 18 months until reaching 65 years in July 2013, after which the age for both sexes increased incrementally to 67 years by July 2023. More details can be found on the Australian Government Social Security Guide website: https://guides.dss.gov.au/social-security-guide/3/4/1/10

[4]Over the period covered by our analysis, the contribution rate increased gradually, rising from 9% in the early 2000s to 11% by 2023.

[5]Once retirees have access to superannuation, they can either: (i) withdraw their accumulation balance as a lump sum; (ii) convert part or all of it into an account-based pension (income stream) while leaving the remainder invested; or (iii) leave it invested in the accumulation phase and withdraw later. Most default fund members shift into a retirement income product rather than annuities, given that the Australian market has relatively limited traditional annuity uptake.

The third pillar consists of voluntary savings and household assets, including bank deposits, shares, managed funds, and housing wealth. These resources are not subject to contribution mandates but can significantly shape financial wellbeing in retirement. Owner-occupied housing plays a dual role by providing shelter and serving as a store of wealth. In 2018, three-quarters (74%) of Australians aged 65 owned their homes, often mortgage-free, compared with around 8 in 10 (79%) in early 2000s (Australian Bureau of Statistics, 2019). Policy settings such as capital gains tax exemptions and exclusion of the primary residence from Age Pension means tests have further encouraged homeownership among older Australians. In addition to housing, retirees often hold other forms financial wealth, including bank deposits, listed shares, and managed funds. While less emphasised in policy debates, these assets can provide critical liquidity in later life, enabling households to smooth consumption and absorb unexpected expenses such as medical costs or home repairs. Table A1 (Appendix) shows that bank accounts constitute the largest share of financial assets among retirees, accounting for around 46% of total financial assets, followed by superannuation (29%) and equity investments (15%).

3 Data

HILDA is a nationally representative, household-based panel study that began in 2001. Each year, the survey collects detailed information on the economic, health, work, and family circumstances of all household members aged 15 and above. In wave 1, interviews were obtained from 13,969 individuals in 7,682 households, with a further 2,153 households (4,009 respondents) added in wave 11. Response rates are high, with annual re-interview rates averaging over 95% (Summerfield et al., 2023). In addition to the annual core content, HILDA collects detailed wealth information every four waves (2002, 2006, 2010, 2014, 2018, and 2022), providing data on household assets and liabilities that we use to construct measures of financial resources.

The sample used in the empirical analysis consists of men and women aged 65 and above at the time of interview, comprising 7,344 unique individuals (63,387 person-year observations). From this group we exclude respondents living in non-private dwellings (e.g., nursing homes or other institutional settings) to ensure comparability in financial and living arrangements. We also focus on individuals who are fully retired, which we define as those whose last observed spell in the panel is at least five consecutive years out of the labour force. For respondents with a partner, we further require that the partner is also fully retired. This definition ensures that the analysis is restricted to households that have permanently exited the labour market, rather than those in temporary or partial retirement. Finally, we focus on the five waves of HILDA that include detailed wealth information. These restrictions leave us with a sample of 3,645 individuals, and 10,063 person-year observations in the largest estimation sample.

3.1 Financial Wellbeing Outcomes

Our first outcome variable is financial hardship. This is constructed from a series of questions about whether any of the following had happened in the past 12 months because of a shortage of money: (1) could not pay electricity, gas, or telephone bills on time; (2) could not pay the mortgage or rent on time; (3) pawned or sold something; (4) went without meals; (5) were unable to heat their home; (6) asked for financial help from friends or family; and (7) asked for help from welfare or community organisations. The financial hardship variable is defined as experiencing at least one of these events. Table 1 shows that about 10% of respondents in our sample report experiencing financial hardship in the past 12 months.

In practice, the super funds remain invested in managed portfolios, allowing retirees to draw down gradually according to need while keeping their assets invested, thereby providing both investment return and liquidity.

Our second outcome variable is financial satisfaction, which is based on the respondent's self-assessed satisfaction with their financial situation reported on a scale from 0 ("totally dissatisfied") to 10 ("totally satisfied"). The average financial satisfaction score for our sample equals 7.4.[6]

3.2 Wealth and Income Variables

To construct the financial factors, we draw on the rich information in HILDA and its special wealth modules to construct five key binary indicators, defined below. These indicator variables provide an intuitive and policy-relevant classification that distinguishes retirees with and without access to key income sources or asset buffers, regardless of the exact dollar value. This distinction aligns with evidence that financial resilience often hinges on threshold effects – for example, having some liquid savings to draw upon or avoiding debt exposure – rather than on continuous increases in wealth or income (Kaplan et al., 2014). In extension analyses, we assess the robustness of our results in two ways. First, we replace the binary indicators with quintile-based categorical measures of each financial factor, confirming that differences are concentrated between the lowest quintile and all higher groups, consistent with the binary formulation. Second, we add continuous measures alongside the binary indicators to test whether the magnitude of financial resources matters once access to them is established. Across these specifications, the binary indicators capture the primary sources of variation in retirees' financial wellbeing.

The first factor, pension, is based on the annual question "Do you currently receive the Age Pension from the Australian federal government?" and is defined as a binary indicator equal to one if the respondent reports receiving no pension (i.e., pension = \$0). In our sample, the vast majority of respondents reported receiving some pension, with only 17.1% receiving none.

The second factor is private income, defined as the sum of wages and salaries, business income, investment income, regular private pensions, and regular private transfers.[7] Appendix Table A2 shows that investment income and private pensions are the dominant components, accounting for 52% and 37% of total private income, respectively. We construct a binary indicator for private income equal to one if the respondent reports any private income (i.e., private income > \$0). Based on this definition, 76.3% of respondents report having some private income (Table 1).

Investment assets are defined as the sum of balances in bank accounts, superannuation holdings, equity investments, other property assets, and other financial investments (cash, trust funds, life insurance, and outstanding loans made to others), which are considered liquid assets (i.e., can be converted to spendable cash relatively quickly). We construct a binary indicator equal to one if investment assets exceed \$10,000, a threshold corresponding approximately to the 20^{th} percentile of the distribution (see Appendix Table A3). Table 1 shows that 81.2% of respondents have investment assets above this threshold.

Homeownership is measured as a separate asset category, based on respondents' reports of whether they own their home (either outright or are currently paying off a mortgage).[8] As shown in Table 1, approximately 81% of the sample are homeowners. Finally, we examine debt, including personal and property-related liabilities. We construct an indicator equal to one if total household debt is less than \$10,000, a threshold capturing roughly 90% of respondents in the sample. Descriptions and summary statistics for all variables are presented in Table 1.

[6] In the HILDA Survey, financial satisfaction is collected in the face-to-face Person/Continuing Person Questionnaire, whereas the financial-hardship items are collected in the Self-Completion Questionnaire (SCQ). Because the SCQ has a slightly lower completion rate, the financial satisfaction measure has more observations than the hardship measure.

[7] We measure income at the household level to align with wealth (also household-level). Accordingly, the private income aggregate may include wages or business income earned by other household members (e.g., adult children), even when the respondent and partner are fully retired.

[8] Among homeowners in our sample, 74.6% own their homes outright, while the remainder are still paying off a mortgage.

4 Empirical strategy

To investigate the role of financial resources in shaping financial hardship and financial satisfaction, we first estimate between-individual regressions that compare outcomes across retirees with different financial resource profiles. These models capture average differences in financial wellbeing associated with each resource and are specified as follows:

$$y_{i,t} = \alpha_0 + \alpha_1 PS_{i,t} + \alpha_2 PI_{i,t} + \alpha_3 IA_{i,t} + \alpha_4 HO_{i,t} + \alpha_5 D_{i,t} + \beta X_{i,t} + \gamma_b + \mu_a + \lambda_t + \varepsilon_{i,t} \tag{1}$$

where y_{it} denotes the outcome for individual i in survey year t. The coefficients of interest, α_1-α_5, measure the association between the outcomes and five binary indicators: Age Pension receipt ($PS_{i,t}$), private income ($PI_{i,t}$), investment assets ($IA_{i,t}$), homeownership ($HO_{i,t}$), and debt ($D_{i,t}$). These indicators are defined in Section 3. The vector $X_{i,t}$ includes demographic controls such as gender and a set of age dummies to flexibly capture non-linear age effects. We include birth-year fixed effects (γ_b, 46 categories) to control for cohort differences, area fixed effects (μ_a, 87 categories) to control for time-invariant regional characteristics such as cost-of-living differences, and year fixed effects (λ_t, 5 categories) to capture macroeconomic and policy changes common to all individuals.[9] Standard errors are clustered at the household level.

We also estimate several alternative versions of Equation (1). First, to mitigate concerns about reverse causality, such as financial hardship inducing asset drawdowns, new borrowing, or portfolio reallocation, we replace contemporaneous financial indicators with baseline indicators fixed at the first wave in which the respondent is observed to be fully retired (typically between ages 65 and 70). Second, while our main specification uses binary indicators to capture the presence or absence of key financial buffers, we re-estimate models using quintile indicators for each factor to examine distributional gradients. Third, we augment the binary specifications with the corresponding continuous measures to assess whether the magnitude of resources matter once minimum levels are established. All variants include the same set of controls and fixed effects as Equation (1).

The between-individual specification is informative in this context because some financial resources, particularly home ownership, are relatively stable over time. However, between-individual comparisons may be confounded by time-invariant traits (e.g., risk preferences, financial literacy, and savings norms) that jointly influence portfolio composition and financial wellbeing outcomes (Hu et al., 2024). We therefore estimate panel models with individual fixed effects that difference out all time-invariant heterogeneity, identifying coefficients from within-person changes over time, such as crossing a liquid-asset threshold, paying down debt, or commencing or ceasing private income. The fixed-effects specification is:

$$y_{i,t} = \beta_0 + \beta_1 PS_{i,t} + \beta_2 PI_{i,t} + \beta_3 IA_{i,t} + \beta_4 HO_{i,t} + \beta_5 D_{i,t} + \beta X_{i,t} + \delta_i + \mu_a + \lambda_t + \epsilon_{i,t} \tag{2}$$

where δ_i denotes individual fixed effects. Birth-cohort fixed effects are subsumed by γ_b and are therefore omitted in this specification.

To assess whether financial resources buffer the effects of adverse events, we extend Equation (2) by adding an indicator for health shocks ($H_{i,t}$), equal to 1 if the respondent or a family member experienced a serious illness or injury in the past 12 months, and by interacting this indicator with each financial

[9] Our area variable corresponds to Statistical Area Level 4 (SA4) regions defined by the Australian Bureau of Statistics. SA4s are large regional divisions used for labour-market and policy analysis, each typically covering populations between 100,000 and 500,000 people and representing major metropolitan or regional zones.

resource. The estimating equation is:

$$\begin{aligned} y_{i,t} = \beta_0 &+ \beta_1 PS_{i,t} + \beta_2 PI_{i,t} + \beta_3 IA_{i,t} + \beta_4 HO_{i,t} + \beta_5 D_{i,t} \\ &+ \eta H_{i,t} + \theta_1\big(H_{i,t} \times PS_{i,t}\big) + \theta_2\big(H_{i,t} \times PI_{i,t}\big) \\ &+ \theta_3\big(H_{i,t} \times IA_{i,t}\big) + \theta_4\big(H_{i,t} \times HO_{i,t}\big) + \theta_5\big(H_{i,t} \times D_{i,t}\big) \\ &+ \beta X_{i,t} + \delta_i + \mu_a + \lambda_t + \upsilon_{i,t} \end{aligned} \tag{3}$$

In this specification, η captures the average effect of a health shock for individual-years in which none of the financial buffers are present, while the interaction coefficients θ_k (k=1,. . . , 5) indicate how the effect of a shock is attenuated or amplified when a given resource is available.

For the health-shock analysis, we construct annual series for wealth and debt by interpolating between wealth-module years using the nearest available observations. This approach reflects the fact that shocks and outcomes are observed annually, whereas wealth information is collected every four years.

5 Results

5.1 Descriptive analysis

Before presenting regression results, we first describe how financial wellbeing varies across retirees' financial circumstances. Figure 1 presents two bar graphs displaying rates of financial hardship and mean financial satisfaction by the five financial factors: Age Pension receipt, private income, investment assets, home ownership, and debt.

There are significant differences in financial hardship rates between people with and without each income source, asset or debt. Retirees without private income, investment assets (> \$10,000), or their own home have particularly high likelihoods of financial hardship, with estimates equalling 20.8%, 25.8% and 19.4%, respectively, compared to the overall sample mean of 10.1%. These differences are consistent with the idea that income and asset buffers play an important role in preventing deprivation.[10]

Patterns for financial satisfaction are qualitatively similar, but smaller in magnitude. Mean financial satisfaction scores equal 6.5, 6.1, and 6.7, for those without private income, investment assets (> \$10,000) or their own home, respectively, and equals 6.7 for people with significant debt (> \$10,000). These averages are significantly lower than the overall sample mean of 7.4.

Retirees who do not receive the Age Pension report the highest financial satisfaction (8.2) and the lowest rate of financial hardship (4.6). This reflects the means-tested nature of the Australian pension system: households with substantial private resources are ineligible for the payment and tend to occupy the upper end of the income and wealth distributions. Their higher wellbeing therefore does not imply that the absence of the pension causes better outcomes, but rather that they are financially independent of government support.

5.2 Financial indicators and well-being

In this subsection, we assess the presented descriptive relationships using regression models that include all financial indicators simultaneously, while also controlling for demographic characteristics and fixed effects to account for unobserved heterogeneity. Table 2 presents the main results examining how financial indicators are associated with financial hardship (columns 1 and 3) and financial satisfaction (columns 2 and 4). We report estimates from two specifications: (1) contemporaneous-condition models, which relate wellbeing to financial circumstances observed in the same survey year (columns 1 and 2); and (2)

[10] We find a similar pattern when using material deprivation as the outcome (see Appendix Figure A1).

initial-condition models, which link wellbeing outcomes to financial circumstances measured at the start of retirement, defined as the first wave in which the respondent is fully retired (columns 3 and 4). While model (1) serves as our baseline specification, model (2) is informative because it captures the resources individuals bring into retirement, which shape budgets, precautionary buffers, and portfolio choices in subsequent years, and also mitigates concerns that current hardship or satisfaction may influence reported financial conditions.

Across both models, we find consistent evidence that access to financial resources is a key determinant of retirees' financial wellbeing. Among these, investment assets emerge as the most prominent factor in terms of magnitude. For example, in the model using contemporaneous measures, retirees with investment assets exceeding $10,000 are 13.6 percentage points less likely to report financial hardship and score 1.02 points higher in financial satisfaction than those with fewer investment assets. Both estimates are statistically significant at the 1% level. These are sizable effects, given a baseline hardship rate of 10% and an average satisfaction score of 7.4 (Table 1). When financial measures are fixed at the beginning of retirement, the estimates remain comparable, with the probability of hardship falling by 12.1 percentage points and satisfaction rising by 0.99 points for households with investment assets exceeding $10,000.

Turning to the other financial indicators, private income is positively associated with financial wellbeing, with retirees who report any private income experiencing lower hardship and higher satisfaction. A similar pattern is observed for homeownership and for having debt below $10,000, both of which are linked to better financial outcomes. Likewise, not relying on the Age Pension is associated with higher satisfaction and a reduced likelihood of hardship, reflecting the greater financial autonomy of retirees with sufficient private means. However, the magnitudes of these effects are smaller than those observed for investment assets, underscoring the importance of liquid financial buffers. This pattern suggests that while broader financial stability contributes to wellbeing, accessible savings and readily available assets play a particularly critical role in shielding retirees from financial stress.

Given the strong relationship between financial indicators and retirees' wellbeing observed in Table 2, we further examine how these associations vary across the distribution of each resource. In Figure 2, rather than using binary indicators, we group each financial factor into quintiles and plot estimates using the lowest quintile as the reference category. Debt is an exception, because most respondents report zero debt. For debt, the figure reports the estimate for the highest debt group relative to those with little or no debt. The figure reaffirms the baseline results and shows clear gradients for liquid assets. Higher quintiles of investment assets are associated with progressively lower financial hardship and progressively higher financial satisfaction, with the largest gains concentrated in the top quintile. By comparison, the gradients for other indicators are relatively flat. Alternatively, we re-estimate the models using the financial indicators in real terms and obtain similar conclusions for both the binary indicators and their continuous forms (see Appendix Table A4).

The baseline estimates in Table 2 may be subject to bias if unobserved, time-invariant individual traits such as risk preferences, financial literacy, or saving norms influence both financial resources and wellbeing. To address this concern, we estimate individual fixed-effects models, presented in Table 3, which exploit within-person changes over time to remove such unobserved heterogeneity. The results again show strong evidence that having investment assets exceeding $10,000 is associated with lower hardship and higher satisfaction. In terms of magnitude, the probability of hardship falls by 3.5 percentage points and satisfaction rises by 0.65 points in years when the household holds investment assets above this threshold. These effects correspond to reductions of approximately 35% and improvements of 8.7%, respectively, relative to their sample means. Unlike in the baseline model, we find little evidence that other financial indicators remain significant once fixed effects are included. The main exception is reporting lower debt levels, which continues to be associated with higher financial satisfaction. The

fact that most effects diminish after accounting for individual fixed effects suggests that unobserved characteristics may drive some of the cross-sectional correlations reported in Table 2.[11]

Overall, our results highlight the importance of investment assets in shaping financial wellbeing in later life. Among all financial indicators examined, liquid financial assets consistently predict both lower financial hardship and higher financial satisfaction. This finding suggests that even modest holdings of accessible financial buffers play a critical role in enhancing financial security during retirement.

5.3 Components of investment assets

Given the significant role of investment assets in shaping financial wellbeing, a natural follow-up question is which types of assets matter most. In Table 4, we decompose total investment assets to examine whether specific components are more closely associated with financial outcomes. Specifically, we distinguish between bank accounts, superannuation, equity investments, other property assets, and other investment assets. For each component, we continue to apply the $10,000 threshold and construct binary indicators for whether the component exceeds that value. The reference group comprises retirees with total investment assets below $10,000.

Across both outcomes and model types, most components are positively associated with financial wellbeing relative to the reference group, though the magnitudes differ in economically meaningful ways. Bank accounts, in particular, show the largest associations with both outcomes. Having bank balances exceeding $10,000 is associated with a 9.3 percentage-point lower probability of hardship and a 0.81 point higher financial satisfaction score in the between-individual model (Columns 1-2). Similar patterns emerge in the within-individual model, although the estimates are smaller in magnitude, with hardship falling by 2.0 percentage points and satisfaction rising by 0.44 points (Columns 3-4). Superannuation and equity holdings also exhibit statistically significant but more moderate relationships with wellbeing, while other property and miscellaneous investment assets show little or no association. Overall, these results indicate that portfolios containing a substantial liquid component, such as bank deposits, are more strongly linked to higher financial wellbeing in retirement. This pattern reinforces the earlier finding that liquidity, rather than total wealth alone, plays a central role in protecting retirees from financial stress.

5.4 Robustness checks

We conduct several additional analyses to support the main findings. In the main analysis, we control only for age and gender to minimise concerns about endogenous covariates. Appendix Table A5 shows that our estimates remain comparable when we additionally control for chronic health conditions, physical and mental health, marital status, and education. To further address concerns that persistent pre-retirement factors may drive both financial resources and post-retirement outcomes, we also re-estimate the baseline models controlling for pre-retirement levels of financial hardship and financial satisfaction. As shown in Appendix Table A6, the results are highly consistent with the baseline estimates. We also examine alternative outcomes. Specifically, we construct an indicator of material deprivation, defined as a binary indicator equal to one if the respondent reports being unable to afford any item listed in Appendix Table A7. We also consider general life satisfaction is measured on a 0 to 10 scale. Appendix Table A8 shows that the main patterns persist, supporting the conclusion that liquid assets are central to financial wellbeing in later life.

[11] In Appendix Figure A2, we observe similar patterns when grouping each financial factor into quintiles rather than using binary indicators.

5.5 Effects of health shocks on financial well-being

In this section, we examine whether financial resources buffer the effects of adverse health shocks among retirees. Health shocks are identified using HILDA questions on major life events experienced in the previous 12 months, focusing on reports of serious personal injury or illness affecting the respondent or a family member. Although Australia has a universal public health system, such events may still entail significant out-of-pocket costs, increased care needs, and expenditures on aids or home modifications, creating short-run financial pressure. As shown in Table 1, 27.3% of individuals in our sample experience such a shock, making it the most common adverse event observed.

Panel A of Table 5 reports within-individual estimates controlling for the full set of financial indicators and fixed effects.[12] Health shocks are associated with a statistically significant increase in financial hardship and a reduction in financial satisfaction. These estimates indicate that, on average, adverse health events place meaningful strain on retirees' financial circumstances.

Panel B extends this analysis by interacting health shocks with each financial resource indicator, allowing the effect of a shock to vary by portfolio composition. The coefficient on the health shock now reflects the effect for retirees without the relevant financial buffer. For financial hardship, a health shock increases the probability of hardship by 4.0 percentage points among retirees without liquid investment assets above $10,000. The interaction term with liquid assets is -3.1 percentage points and statistically significant, implying that for retirees with liquid assets, the hardship effect of a shock falls to around 0.9 percentage points. Relative to a mean hardship rate of 9.4%, this represents a substantial attenuation of the adverse effect.

A similar pattern emerges for financial satisfaction. Among retirees without liquid assets, health shocks are associated with a large decline in satisfaction, although the estimate is imprecise once interactions are included. The interaction with liquid assets is positive and statistically significant, and nearly equal in magnitude to the baseline effect. Taken together, the coefficients imply that health shocks have little to no effect on financial satisfaction for retirees with liquid buffers, while substantially reducing satisfaction among those without accessible assets.

In contrast, interactions between health shocks and other financial indicators, such as pension income, private income, homeownership, or low debt, are small and statistically insignificant. This suggests that while these resources contribute to financial wellbeing on average, they do not provide the same degree of protection against sudden financial strain.

6 Conclusion

Retirement portfolio choice involves managing uncertainty over expenses, longevity, and access to financial resources. In frictionless life-cycle models, households can smooth consumption by borrowing and saving freely, implying that the form in which wealth is held is largely irrelevant. In practice, however, retirees face borrowing constraints, transaction costs, and uncertainty about future needs, making the accessibility of resources an important determinant of financial security. This study shows that the composition of retirement resources matters for financial outcomes in later life. Using longitudinal data on Australian retirees, we find that liquid financial assets are the resource most consistently associated with lower financial hardship and higher financial satisfaction, both across individuals and within individuals over time. Other resources, including housing wealth and income streams, are more weakly related to financial outcomes in cross-section, and their associations weaken further once unobserved individual characteristics are taken into account.

[12] We present the full results in Appendix Table A9.

The results are consistent with a precautionary savings interpretation in which accessible assets provide a buffer against financial risk. Retirees with similar levels of total wealth can experience markedly different financial outcomes depending on how their assets are allocated and how readily they can be accessed when large or unexpected expenses arise. We illustrate this mechanism using serious health events as an example of an unexpected financial shock, but the underlying logic is more general and applies to a wide range of shocks that require timely access to funds, such as housing repairs, care needs, or other unanticipated costs.

These findings have implications for how retirement preparedness is assessed and how retirement resources are managed. In many settings, planning and policy place substantial emphasis on total wealth accumulation and home ownership, with less attention to the availability of liquid buffers once retirement begins. Our results suggest that this focus may overlook an important dimension of financial vulnerability. Ensuring access to modest liquid reserves, through portfolio allocation choices, superannuation design, or withdrawal flexibility, may play an important role in supporting financial security throughout retirement. Financial advice and retirement planning frameworks may therefore benefit from greater emphasis on asset accessibility and short-run financial resilience, alongside longer-term income adequacy.

At the same time, greater access to liquid resources may involve trade-offs. Easily accessible funds can increase exposure to financial mismanagement, poor timing of withdrawals, or financial exploitation, including elder abuse. These risks highlight the importance of institutional design, safeguards, and financial advice in shaping how liquidity is accessed and used in retirement. Future research that exploits reforms or institutional changes affecting asset accessibility, withdrawal flexibility, or protective mechanisms could provide evidence directly relevant for the design of retirement systems that balance flexibility with financial security.

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Figures

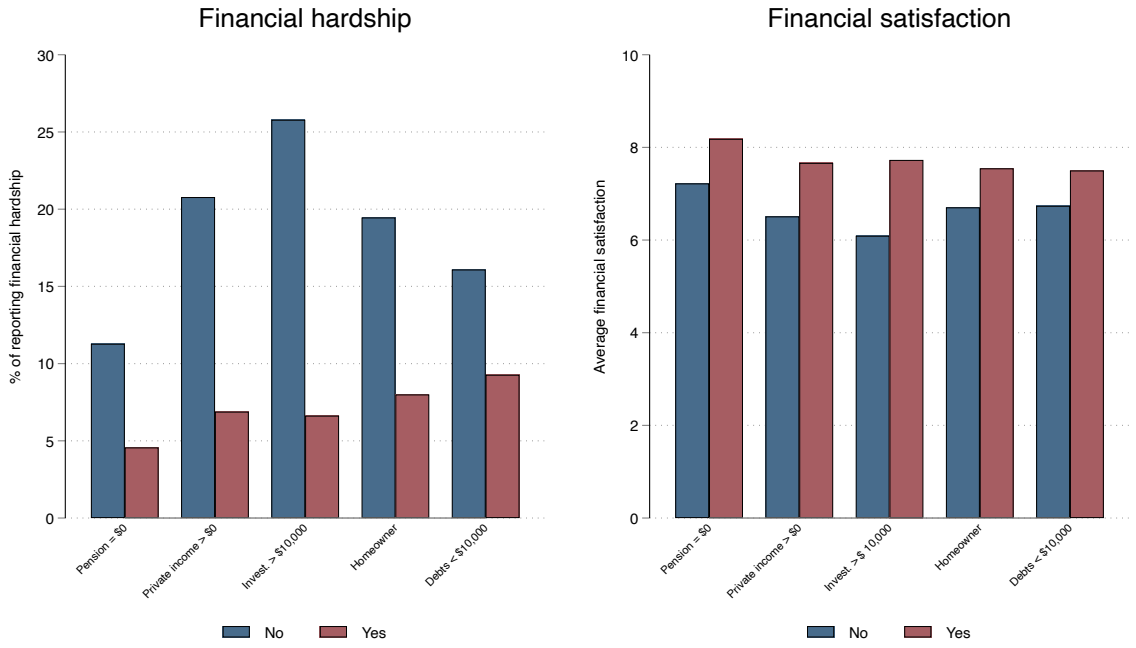

Figure 1: Financial hardship and satisfaction by financial factors

Notes: Data are from HILDA Waves 1–23. The figures report the share of individuals experiencing financial hardship (left) and the average level of financial satisfaction (right). Financial hardship is coded as 1 if the respondent reported any of the following experiences in the past year: could not pay electricity, gas, or telephone bills on time; could not pay mortgage or rent on time; pawned or sold something; went without meals; was unable to heat the home; asked for financial help from friends or family; or sought help from welfare or community organisations. Financial satisfaction is measured on a 0–10 scale based on the question, "How satisfied are you with your financial situation?" Higher values indicate greater satisfaction. The sample is restricted to individuals aged 65 and over who are fully retired.

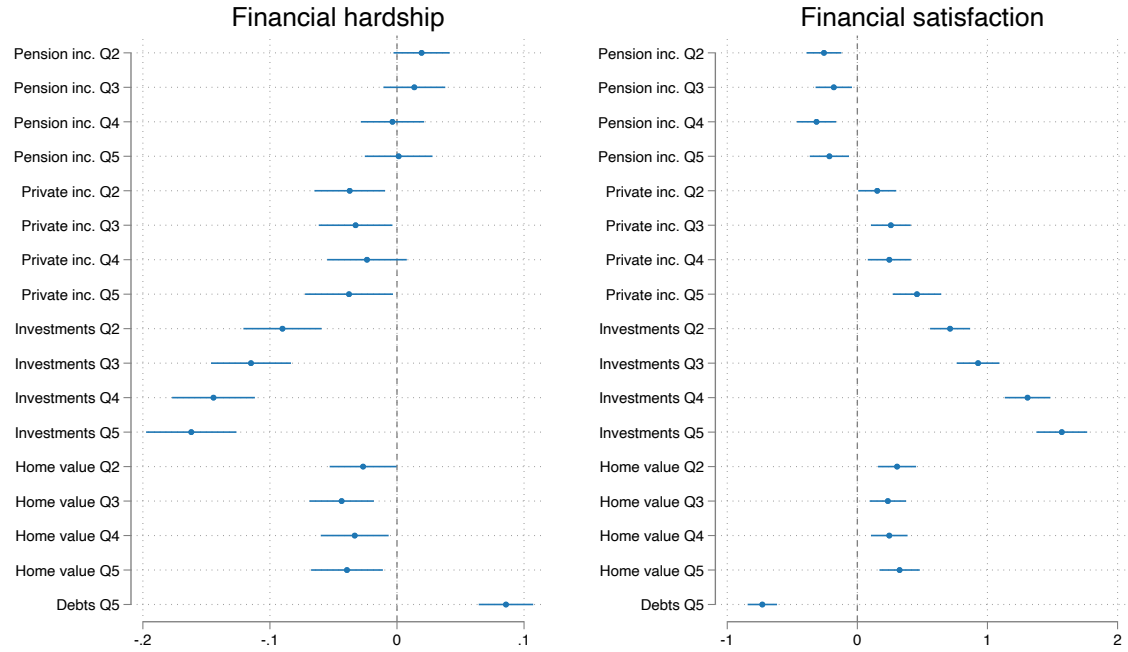

Figure 2: Estimated coefficients on indicators of quintiles

Notes: Data are from HILDA Waves 1–23. The figures show coefficient estimates and 95% confidence intervals from between-individual regressions. Control variables include gender, age dummies, birth cohort, and SA4 fixed effects. Financial indicators are measured in quintiles, with the bottom quintile using as the reference category. Financial hardship is coded as 1 if the respondent reported any of the following experiences in the past year: could not pay electricity, gas, or telephone bills on time; could not pay mortgage or rent on time; pawned or sold something; went without meals; was unable to heat the home; asked for financial help from friends or family; or sought help from welfare or community organisations. Financial satisfaction is measured on a 0–10 scale based on the question, "How satisfied are you with your financial situation?" Higher values indicate greater satisfaction. The sample is restricted to individuals aged 65 and over who are fully retired.

Tables

Table 1: Summary statistics

Variable	Description	Mean
Financial hardship	= 1 if respondent reported any of the following experiences in the past 12 months due to lack of money: could not pay electricity, gas, or phone bills on time; could not pay mortgage or rent; pawned or sold something; went without meals; was unable to heat the home; sought financial help from family or friends or welfare or community organisations.	0.100
Financial satisfaction	Self assessed satisfaction with current financial situation, measured on a 0–10 scale (0 = totally dissatisfied, 10 = totally satisfied).	7.424
Pension = $0	= 1 if respondent reports receiving no Age Pension from the government.	0.171
Pension income ($10,000)	Annual Age Pension amount received, measured in units of $10,000 AUD.	2.446
Private income > $0	= 1 if respondent reports any private income (from wages, business, investment, private pensions, or transfers) greater than $0.	0.763
Private income ($10,000)	Total private income per year, including wages, business, investment, private pension, and private transfers, measured in units of $10,000 AUD.	3.297
Investments > $10,000	= 1 if total investment assets (bank accounts, superannuation, and other financial investments) exceed $10,000 AUD.	0.812
Investments ($10,000)	Total value of investment assets (bank accounts, superannuation, cash and equity investments, trust funds, life insurance, loans made to others, and other property assets), measured in units of $10,000 AUD.	52.037
Homeowner	= 1 if respondent owns their home outright or is currently paying off a mortgage.	0.808
Home value ($10,000)	Estimated market value of the respondent's primary residence, measured in units of $10,000 AUD.	57.152
Debts < $10,000	= 1 if total household debt (personal and property related liabilities) is less than $10,000 AUD.	0.899
Debts ($10,000)	Total amount of household debt (personal and property related), measured in units of $10,000 AUD.	1.730
Health shock	= 1 if the respondent or a family member experienced a serious illness or injury in the past 12 months.	0.280
Age	Respondent's age in years at the time of interview.	75.889
Female	= 1 if respondent is female (0 = male).	0.596
Married	= 1 if respondent is married (0 = otherwise).	0.532

Notes: Data are from HILDA Waves 2, 6, 10, 14, 18, and 22. All monetary variables are measured in units of $10,000. The sample corresponds to Column (2) of Table 2 (observations = 10,063).

Table 2: Financial indicators and well being – Baseline results

	Contemporaneous conditions		Initial retirement conditions	
	Financial hardship	Financial satisfaction	Financial hardship	Financial satisfaction
	(1)	(2)	(3)	(4)
Pension = $0	-0.038***	0.758***	-0.025**	0.642***
	(0.008)	(0.053)	(0.010)	(0.066)
Private income > $0	-0.047***	0.445***	-0.079***	0.360***
	(0.013)	(0.063)	(0.020)	(0.094)
Investments > $10,000	-0.136***	1.020***	-0.121***	0.987***
	(0.015)	(0.074)	(0.020)	(0.098)
Homeowner	-0.039***	0.363***	-0.065***	0.384***
	(0.012)	(0.062)	(0.016)	(0.084)
Debts < $10,000	-0.072***	0.727***	-0.071***	0.605***
	(0.014)	(0.077)	(0.015)	(0.084)
Observations	7,806	10,063	5,126	6,491
Mean dep. var	0.100	7.424	0.104	7.320

Notes: Results are from between individual regressions. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, birth cohort, survey year, and SA4 fixed effects. The sample is restricted to individuals aged 65 and over who are fully retired. In columns (3) and (4), financial indicators are measured at the first wave in which the respondent is fully retired. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Financial indicators and well being – Individual fixed effects model

	Financial hardship	Financial satisfaction
	(1)	(2)
Pension = $0	-0.022	0.087
	(0.019)	(0.086)
Private income > $0	0.005	-0.023
	(0.014)	(0.062)
Investments > $10,000	-0.035**	0.646***
	(0.015)	(0.069)
Homeowner	0.029	0.024
	(0.020)	(0.094)
Debts < $10,000	-0.004	0.273***
	(0.017)	(0.079)
Observations	7,806	10,063
Mean dep. var	0.100	7.424

Notes: Results are from within individual regressions. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, birth cohort, survey year, SA4, and individual fixed effects. The sample is restricted to individuals aged 65 and over who are fully retired. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Components of investment assets and financial well being

	Between individuals		Within individuals	
	Financial hardship	Financial satisfaction	Financial hardship	Financial satisfaction
	(1)	(2)	(3)	(4)
Reference group: Investment assets below $10,000				
Bank accounts > $10,000	-0.093***	0.812***	-0.020*	0.440***
	(0.010)	(0.054)	(0.012)	(0.053)
Superannuation > $10,000	-0.033***	0.279***	-0.024*	0.195***
	(0.008)	(0.050)	(0.014)	(0.065)
Equity investments > $10,000	-0.031***	0.236***	-0.026*	0.196***
	(0.007)	(0.047)	(0.013)	(0.062)
Other property assets > $10,000	-0.003	0.033	0.010	0.008
	(0.010)	(0.067)	(0.020)	(0.093)
Other investment assets > $10,000	0.003	0.122*	0.000	0.057
	(0.011)	(0.067)	(0.017)	(0.080)
Observations	7,806	10,063	7,806	10,063
Mean dep. var	0.100	7.424	0.100	7.424
Individual FEs	No	No	Yes	Yes

Notes: Results are from between and within individual regressions. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, birth cohort, survey year, and SA4 fixed effects, and control for other financial indicators including private income, pension income, homeownership, and total debt. The sample is restricted to individuals aged 65 and over who are fully retired. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Effects of health shocks on financial well being

	Financial hardship	Financial satisfaction
	(1)	(2)
Panel A: Main effects of health shocks		
Health shock	0.007**	-0.055***
	(0.004)	(0.018)
Panel B: Health shocks interacted with financial indicators		
Health shock	0.040***	-0.117
	(0.014)	(0.074)
Health shock × Pension = $0	-0.005	-0.017
	(0.009)	(0.048)
Health shock × Private income > $0	0.001	-0.036
	(0.010)	(0.051)
Health shock × Investments > $10,000	-0.031***	0.120**
	(0.011)	(0.057)
Health shock × Homeowner	0.011	-0.039
	(0.010)	(0.049)
Health shock × Debts < $10,000	-0.018	0.027
	(0.011)	(0.057)
Observations	31,095	33,225
Mean dep. var	0.094	7.443

Notes: Results are from within individual regressions. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include individual fixed effects, age dummies, birth cohort, survey year, and SA4 fixed effects, and control for other financial indicators including private income, pension income, investment assets, homeownership, and total debt. Panel A reports the main effects of health shocks controlling for financial indicators. Panel B additionally includes interaction terms between health shocks and financial indicators. The sample is restricted to individuals aged 65 and over who are fully retired. Full regression results are reported in Appendix Table A9. *** p<0.01, ** p<0.05, * p<0.1.

Online Appendix

Portfolio Composition and Financial Security in Retirement

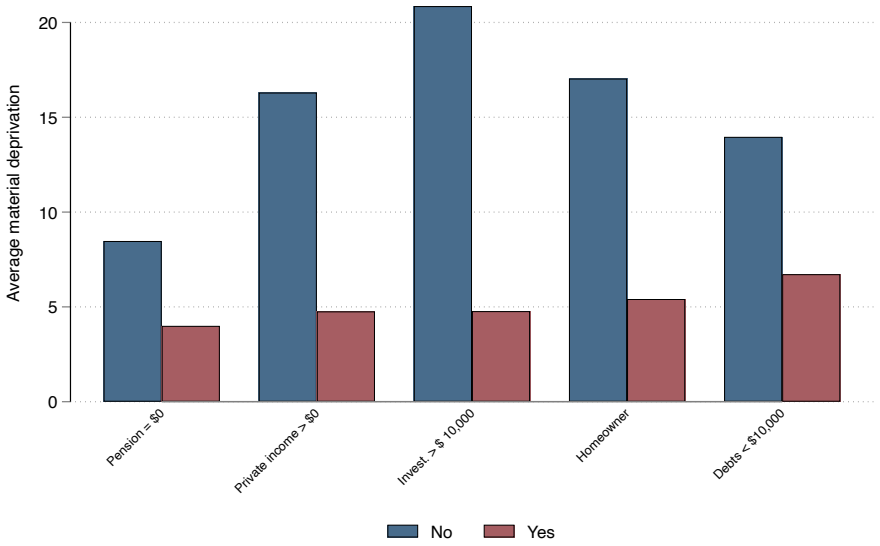

Figure A1: Financial hardship and material deprivation by financial factors

Notes: Data are from HILDA Waves 1–23. The figures report the share of individuals experiencing material deprivation as measured in Appendix Table A7. The sample is restricted to individuals aged 65 and over who are fully retired.

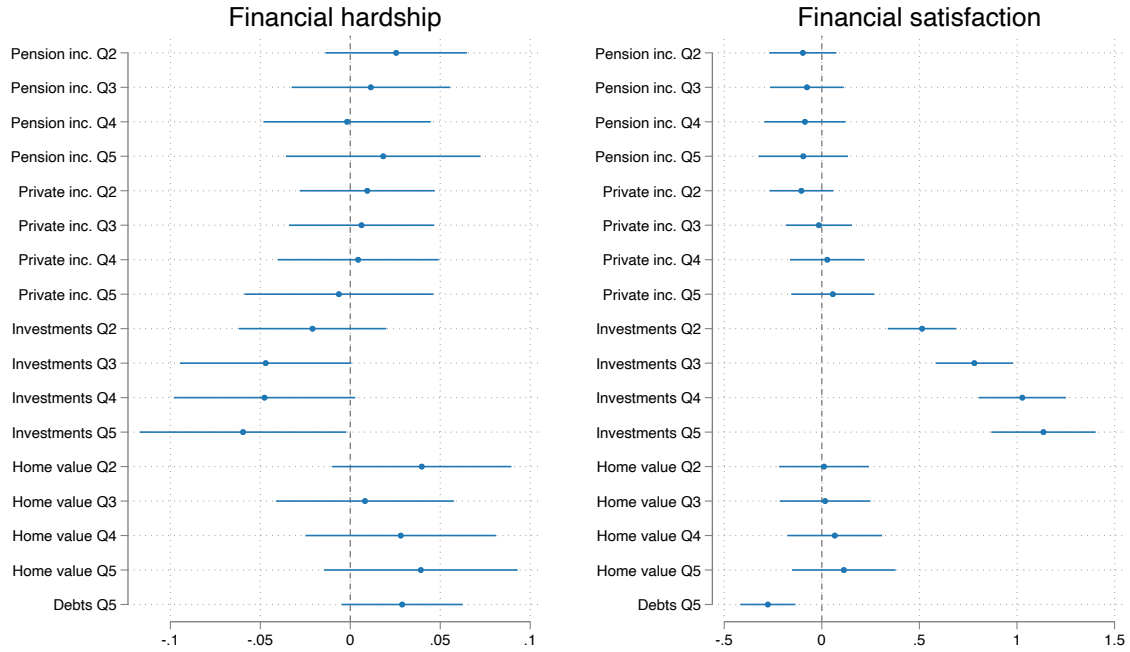

Figure A2: Estimated coefficients on indicators of quintiles – Individual fixed-effects model

Notes: Data are from HILDA Waves 1–23. The figures show coefficient estimates and 95% confidence intervals from between-individual regressions. Control variables include gender, age dummies, birth cohort, individual and SA4 fixed effects. Financial indicators are measured in quintiles, with the bottom quintile using as the reference category. Financial hardship is coded as 1 if the respondent reported any of the following experiences in the past year: could not pay electricity, gas, or telephone bills on time; could not pay mortgage or rent on time; pawned or sold something; went without meals; was unable to heat the home; asked for financial help from friends or family; or sought help from welfare or community organisations. Financial satisfaction is measured on a 0–10 scale based on the question, "How satisfied are you with your financial situation?" Higher values indicate greater satisfaction. The sample is restricted to individuals aged 65 and over who are fully retired.

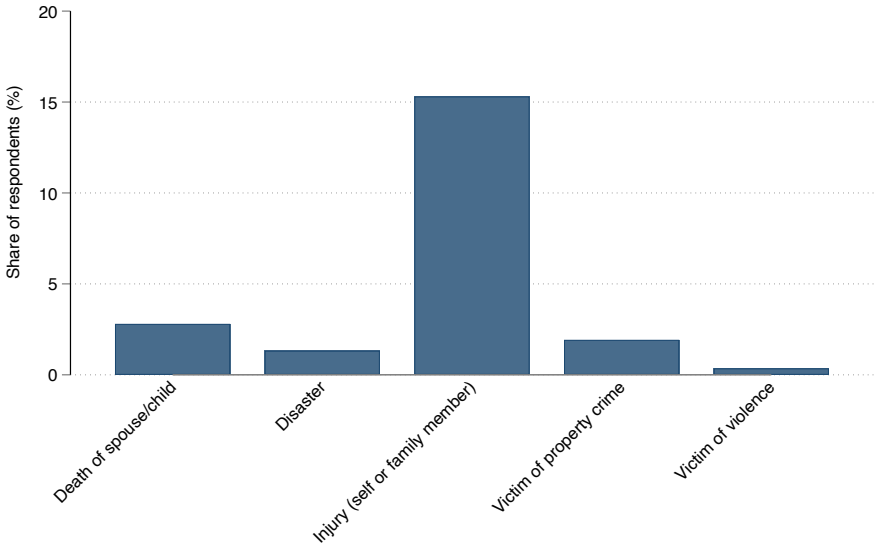

Figure A3: Life events

Notes: Data are from HILDA Waves 1–23. The figure shows the share of individuals who experienced life events in the past 12 years.

Table A1: Components of investments

Variable	Average ($10,000)	Share (%) in investment
Bank accounts	11.69	45.57
Superannuation	24.54	28.73
Equity investments	14.82	15.48
Other property assets	10.62	7.27
Other investments:		
Cash investments	0.73	1.58
Trust funds	1.23	0.54
Life insurance	0.17	0.53
Outstanding loans made to others	0.32	0.51

Notes: Data are from HILDA Waves 2, 6, 10, 14, 18, and 22. Averages are calculated conditional on holding a positive amount of each asset type.

Table A2: Components of private income

Variable	Average ($10,000)	Share (%) in private income
Wages and salary	0.87	9.63
Business income	0.06	0.78
Investment income	1.43	52.23
Private pension	1.83	36.50
Private transfer	0.02	0.86

Notes: Data are from HILDA Waves 2, 6, 10, 14, 18, and 22. Averages are calculated conditional on holding a positive amount of each income component.

Table A3: Income and wealth distributions

Variable	Mean	Sd	p20	p40	p50	p60	p80
Pension income	24,355	16,403	6,241	21,286	25,635	28,001	37,734
Private income	31,994	64,604	0	2,174	6,652	15,628	53,473
Investments	132,707	671,026	11,862	65,695	124,655	222,768	660,731
Home value	571,900	599,942	96,187	391,039	474,493	570,163	874,431
Debts	17,540	112,848	0	0	0	0	1

Notes: Income and wealth are measured in real dollars.

Table A4: Including continuous measures of income, assets, and debts

	Financial hardship	Financial satisfaction
	(1)	(2)
Pension = $0	-0.035***	0.419***
	(0.012)	(0.075)
Private income > $0	-0.047***	0.386***
	(0.013)	(0.064)
Investments > $10,000	-0.134***	0.981***
	(0.015)	(0.074)
Homeowner	-0.032***	0.306***
	(0.012)	(0.067)
Debts < $10,000	-0.083***	0.721***
	(0.016)	(0.088)
Pension income ($10,000)	-0.001	-0.018
	(0.003)	(0.018)
Private income ($10,000)	0.001**	0.010***
	(0.001)	(0.004)
Investments ($10,000)	-0.000***	0.001***
	(0.000)	(0.000)
Home value ($10,000)	-0.000**	0.001
	(0.000)	(0.000)
Debts ($10,000)	-0.001**	-0.003
	(0.000)	(0.003)
Observations	7,806	10,063
Mean dep. var	0.100	7.424

Notes: Results are from between individual regressions using contemporaneous financial indicators. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, birth cohort, survey year, and SA4 fixed effects. The sample is restricted to individuals aged 65 and over who are fully retired. All monetary variables are measured in units of $10,000. *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Robustness test controlling for other demographic characteristics

	Financial hardship	Financial satisfaction
	(1)	(2)
Pension = $0	-0.029***	0.759***
	(0.008)	(0.055)
Private income > $0	-0.038***	0.398***
	(0.012)	(0.066)
Investments > $10,000	-0.136***	1.002***
	(0.015)	(0.078)
Homeowner	-0.031***	0.346***
	(0.012)	(0.066)
Debts < $10,000	-0.066***	0.694***
	(0.014)	(0.079)
Observations	7,585	9,141
Mean dep. var	0.098	7.450

Notes: Results are from between individual regressions using contemporaneous financial indicators. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, educational level, marital status, chronic condition, physical and mental health, birth cohort, survey year, and SA4 fixed effects. The sample is restricted to individuals aged 65 and over who are fully retired. *** p<0.01, ** p<0.05, * p<0.1.

Table A6: Financial indicators and well being – Controlling for baseline outcome

	Financial hardship	Financial satisfaction
	(1)	(2)
Hardship pre retirement	0.335***	
	(0.019)	
Satisfaction pre retirement		0.568***
		(0.011)
Pension = $0	-0.026***	0.305***
	(0.007)	(0.042)
Private income > $0	-0.038***	0.109**
	(0.013)	(0.053)
Investments > $10,000	-0.087***	0.635***
	(0.015)	(0.062)
Homeowner	-0.028**	0.189***
	(0.011)	(0.051)
Debts < $10,000	-0.055***	0.348***
	(0.013)	(0.061)
Observations	7,327	9,929
Mean dep. var	0.098	7.424

Notes: Results are from between individual regressions using contemporaneous financial indicators. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, birth cohort, survey year, and SA4 fixed effects. The sample is restricted to individuals aged 65 and over who are fully retired. *** p<0.01, ** p<0.05, * p<0.1.

Table A7: Material deprivation items

	Number of respondents				% Have				% Cannot afford			
Year	2014	2018	2022	2014–2022	2014	2018	2022	2014–2022	2014	2018	2022	2014–2022
Medical treatment when needed	23,086	23,229	21,687	68,002	98.38	98.63	98.38	98.47	1.16	0.99	0.94	1.03
Furniture in reasonable condition	23,089	23,225	21,684	67,998	99.26	99.07	99.15	99.16	0.44	0.56	0.47	0.49
A decent and secure home	23,088	23,233	21,685	68,006	99.26	99.31	99.17	99.25	0.42	0.44	0.42	0.43
Medicines when prescribed by a doctor	23,081	23,232	21,686	67,999	98.97	99.00	99.32	99.09	0.59	0.66	0.34	0.54
Warm clothes and bedding if it is cold	23,080	23,234	21,690	68,004	99.92	99.88	99.81	99.87	0.08	0.10	0.15	0.11
A substantial meal at least once a day	23,086	23,232	21,689	68,007	99.76	99.68	99.64	99.69	0.13	0.18	0.20	0.17
A roof and gutters that do not leak	23,045	23,183	21,658	67,886	91.71	93.40	93.14	92.75	2.42	1.74	1.68	1.95
A telephone	23,094	23,234	21,688	68,016	99.69	99.70	98.83	99.42	0.13	0.10	0.28	0.17
A washing machine	23,087	23,235	21,689	68,011	98.70	98.68	99.06	98.81	0.33	0.24	0.22	0.26
Access to the internet at home	23,086	23,233	21,687	68,006	91.51	94.80	97.41	94.52	1.96	1.16	0.57	1.24
A motor vehicle	23,065	23,230	21,686	67,981	94.03	94.58	95.31	94.62	2.22	1.81	1.55	1.87
A home with secure doors and windows	23,086	23,233	21,680	67,999	98.11	98.38	98.48	98.32	0.69	0.56	0.46	0.57
Dental treatment when needed	23,080	23,215	21,668	67,963	92.89	93.00	94.53	93.45	5.96	5.86	4.38	5.42
Buying presents at least once a year	23,088	23,214	21,669	67,971	95.08	93.90	94.64	94.54	2.06	2.16	1.74	1.99
Able to keep one room warm when cold	23,093	23,230	21,689	68,012	98.79	98.91	99.00	98.90	0.60	0.59	0.55	0.58

Table A8: Alternative measures of well being

	Material deprivation	Life satisfaction
	(1)	(2)
Pension = \$0	0.004	-0.108**
	(0.009)	(0.042)
Private income > \$0	-0.035**	0.123**
	(0.014)	(0.051)
Investments > \$10,000	-0.098***	0.096*
	(0.017)	(0.057)
Homeowner	-0.064***	0.172***
	(0.012)	(0.047)
Debts < \$10,000	0.070***	-0.200***
	(0.015)	(0.058)
Observations	5,948	10,078
Mean dep. var	0.076	8.286

Notes: Results are from between individual regressions using contemporaneous financial indicators. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include age dummies, birth cohort, survey year, and SA4 fixed effects. Material deprivation is measured as in Appendix Table A7. Life satisfaction is measured on a 0–10 scale based on the question "How satisfied are you with your life?" Higher values indicate greater satisfaction. The sample is restricted to individuals aged 65 and over who are fully retired. *** p<0.01, ** p<0.05, * p<0.1.

Table A9: Effects of health shocks on financial well being

	Main effects		With interactions	
	Financial hardship	Financial satisfaction	Financial hardship	Financial satisfaction
	(1)	(2)	(3)	(4)
Health shock	0.007**	-0.055***	0.040***	-0.117
	(0.004)	(0.018)	(0.014)	(0.074)
Pension = $0	-0.014*	0.022	-0.012	0.027
	(0.007)	(0.038)	(0.008)	(0.041)
Private income > $0	-0.004	0.123***	-0.004	0.133***
	(0.006)	(0.029)	(0.006)	(0.032)
Investments > $10,000	-0.026***	0.341***	-0.017**	0.309***
	(0.007)	(0.035)	(0.007)	(0.038)
Homeowner	0.013	0.006	0.009	0.019
	(0.009)	(0.046)	(0.009)	(0.048)
Debts < $10,000	-0.008	0.100***	-0.004	0.093**
	(0.007)	(0.038)	(0.008)	(0.040)
Health shock × Pension = $0			-0.005	-0.017
			(0.009)	(0.048)
Health shock × Private income > $0			0.001	-0.036
			(0.010)	(0.051)
Health shock × Investments > $10,000			-0.031***	0.120**
			(0.011)	(0.057)
Health shock × Homeowner			0.011	-0.039
			(0.010)	(0.049)
Health shock × Debts < $10,000			-0.018	0.027
			(0.011)	(0.057)
Observations	31,095	33,225	31,095	33,225
Mean dep. var	0.094	7.443	0.094	7.443

Notes: Results are from within individual regressions. Robust standard errors are reported in parentheses and are clustered at the household level. All regressions include individual fixed effects, age dummies, birth cohort, survey year, and SA4 fixed effects. The sample is restricted to individuals aged 65 and over who are fully retired. *** p<0.01, ** p<0.05, * p<0.1.