

Housing liquidation and financial adequacy of divorced and widowed retirees in New Zealand

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ABSTRACT

This study investigates the role of housing and asset liquidation for the financial adequacy of older Divorced/Separated/Widowed (DW) New Zealanders who have asset transfer complexity issues associated with union dissolutions. Using eight waves of the SoFIE panel dataset from Statistics NZ for the period 2002 to 2009, we analyse the effect of liquidation of non-housing assets and five alternative housing liquidation scenarios on the financial adequacy of DW retirees. After accounting for housing liquidation and rent payments, divorced females, widowed Māori/Pacific Islanders, DW non-homeowners, and DW living in multi-dwellings are the most vulnerable to financial inadequacy. We report that both DW males and females experience significantly lower financial adequacy when choosing to liquidate their assets and live in rental accommodation. DW financial adequacy in retirement also varies by ethnicity. The results identify needs for housing option advice and affordable suitable housing for financially vulnerable DW retirees.

JEL: J12, J14, R21

KEYWORDS: Financial adequacy, Divorced and widowed, Retirement, Housing wealth, Home ownership

1. Introduction

New Zealanders' "Kiwi dream" has been to own one's own home. Like its nearest neighbour Australia, New Zealand is a liberal welfare state in which a high proportion of the population are owner-occupiers (Colic-Peisker *et al.*, 2015) but social spending on retirement pensions is low (Stebbing & Spies-Butcher, 2016). But over the past thirty years, housing affordability and homeownership rates have been decreasing with a subsequent increase in private renting (Allen, 2019), reflecting trends seen in other English-speaking countries such as Australia (Colic-Peisker *et al.*, 2015) and the United Kingdom (Preece *et al.*, 2019). Home ownership has fallen to its lowest level in sixty years and is significantly lower among Pacific Islanders and the indigenous Māori (Johnson *et al.*, 2018). These housing trends impact on individual well-being and financial vulnerability and societal inequality (Colic-Peisker *et al.*, 2015). One strong contributor to moving out of or not moving into homeownership is a relationship dissolution such as separation, divorce or widowhood (Allen, 2019; Clark & Lisowski, 2017).

This study investigates the role of housing and asset liquidation in the financial adequacy (see definition on page 16) of divorced/separated¹ and widowed (DW) New Zealanders in retirement. Like many other developed countries (OECD, 2015), New Zealand (NZ) is facing the challenge of an ageing population (Law & Scobie, 2014; Noviarini *et al.*, 2019) together with a greater need for self-sufficiency in retirement (Bardasi *et al.*, 2002). The Stats NZ Census (NZA) 2001-2013 data documents a rise in the proportion of individuals aged 65 and over from 15.58% in 2001 to 17.98% in 2013.² More specifically, a greater share of the 65 and over population is attributed to the rise of the divorced/separated group from 8.5% in 2001 to 11.21% in 2013. While the proportion of widow/ers³ aged 65 and over has decreased from 30.62% in 2001 to 22.9% in 2013, the number of individuals (including singles) living

¹ In this paper "Divorced" includes "divorced and separated individuals".

² Authors' calculation using Statistics NZC data from 2001, 2006, and 2013.

³ In this paper "widow/ers" means "female widows and male widowers".

alone has risen substantially from 20,000 in 1986 to 355,000 (11% of population) in 2013 (Stats NZ 2016). Of these 355,000, 30% are widowed, 24% divorced and 9% separated. Compared to people who live with others, those living alone in NZ are also less likely to have lower incomes, but similar median incomes and are more likely to own/partly own their home than those who live with others (Stats NZ, 2016). They are also more likely to be older than the general population, female and of NZ European ethnicity. Further, numbers of older, single, female Europeans are projected to increase (Stats NZ, 2016). Findings in the US (Salagean *et al.*, 2015), Belgium (Haider *et al.*, 2003), and Germany (Leopold, 2018) show that DW 65 and older are more likely to sell their home than their married counterparts, are more vulnerable to old-age poverty, and women are more prone to these concerns than men.

NZ retirees rely on a universal public pension provision, NZ Superannuation (NZS), that pays NZ\$384.46 and NZ\$506.64 gross per week to married individuals and single persons living alone, respectively.⁴ Despite its attractiveness of being paid to all qualifying citizens regardless of their work history, NZS only covers a no-frills lifestyle in a non-metro area (Retirement Commission, 2022) and is one of the lowest retirement payments in the OECD (OECD, 2015). Renters typically lag behind homeowners in many forms of wealth accumulation, suffer from higher levels of anxiety due to less home environment security (“ontological security”), do not have the options for equity release in retirement such as house downsizing or reverse mortgages (Colic-Peisker *et al.*, 2015) and therefore are less able to help their adult children with attaining home ownership,⁵ increasing societal inequality (Preece, 2019). Noviarini *et al.*, (2019) found that NZ non-homeowners and renters are less financially adequate than homeowners in retirement. Reduced availability of social housing, and rising housing and rental prices (Johnson *et al.*, 2018) mean that NZ retirees with

⁴ As of 1 April 2021 (<https://www.workandincome.govt.nz/products/benefit-rates/benefit-rates-april-2021.html#null>)

⁵ Younger New Zealanders are finding it increasingly difficult to get into the housing market (Martin, 2018).

mortgage obligations or in rental accommodation must commit more of their pension income to accommodation costs, reducing the amount of money available for other living expenses.⁶

However, Noviarini *et al.*, (2019) also found that older New Zealanders are financially adequate in retirement if they liquidate their non-housing assets and their homes (at least partly) to provide additional income in retirement and do not pay rent. But their study focuses on single and married New Zealanders over 65, ignoring the DW population because of their asset transfer complexity issues associated with union dissolutions (Noviarini *et al.*, 2019). Meanwhile, Statistics NZC data from 2006 to 2018 shows that the mean average annual income gap for individuals 65 and over between married and divorced has doubled, and between married and widowed has tripled.⁷ Therefore ignoring the financial adequacy of the DW population may result in an overoptimistic conclusion about the level of financial wellbeing for retirees in NZ. Evidence from previous studies of the DW population show that they are more susceptible to old age-poverty, have a higher chance of leaving home ownership in the event of a divorce or a spousal death (Haider *et al.*, 2003; Leopold, 2018; Salagean *et al.*, 2015; Clark & Lisowski, 2017), and that divorces have a more adverse effect on homeowners than renters, especially among women (André *et al.*, 2019).

This study aims to bridge the gap in the DW literature concerning financial adequacy and homeownership of retirees. Studies examining the DW population have examined the general wellbeing impact (i.e. social, financial, and mental) of separation events (the divorce or the death of a spouse) (e.g. Haider *et al.*, 2003; Weaver, 2010), the impact of divorces or widowhood on homeownership (e.g. Lichtenstein & Johnson, 2019; André *et al.*, 2019), or both wellbeing and homeownership due to divorces (André *et al.*, 2019). However, there is

⁶ Median house prices across NZ rose 20% from NZ\$605,000 (October 2019) to NZ\$725,000 (October 2020) (<https://www.interest.co.nz/charts/real-estate/median-price-reinz>) (Real Estate Institute of New Zealand, 2020) and the weekly median rental price of a house rose 6% from \$445 to \$470 in the same period (<https://www.interest.co.nz/charts/real-estate/median-rents-nz>).

⁷ Authors' calculation using Statistics NZC income data from 2006, 2013, and 2018 by marital status and age.

limited literature on the financial adequacy of DW retirees. Colic- Peisker *et al.*, (2015) argue that two main routes to old age asset poverty are life-long renting and tenure churning (transitioning between home-ownership and renting). Tenure churn is more common with changes in relationship status such as separation, divorce and widowhood (Allen, 2019; Clark & Lisowski, 2017). Dewilde & Stier (2014) also suggest that individuals who have experienced a divorce at some point in their lives are associated with a lower likelihood of homeownership in later life. Their findings point to a general concern about the financial wellbeing of retired divorced individuals, given that most findings on financial adequacy in retirement suggest the need to liquidate assets and housing for retirement provision (Crawford & O'Dea, 2016; Noviarini *et al.*, 2019).

Studies investigating the role of housing on financial adequacy have not considered the potentially greater risk of poverty facing the DW population (Haider *et al.*, 2003; Salagean *et al.*, 2015) when compared to married or single retirees. This is especially important in retirement because of the lower homeownership rates (Dewilde & Stier, 2014), and with homeownership among divorcees, females are more adversely affected by the divorce than males due to the financial burden of homeownership (André *et al.*, 2019) and mortgage payments relative to income (Mulder & Wagner, 2010). Older single females (DW) favour smaller stable affordable housing providing them with privacy, autonomy, and sense of purpose, regardless of ownership (Darab *et al.*, 2018). Widowhood increases preferences for rental properties in larger municipalities (Bonnet *et al.*, 2010). Over 30% of renters are aged 65 and over, and with rent (particularly private rentals) rising at a higher rate than wages in NZ (Stats NZ, 2020), added to a lack of affordable housing to purchase (Stats NZ, 2020) and reduced social housing (Johnson *et al.*, 2018), the older population's options to liquidate may not even be available. Particularly vulnerable DW may be the indigenous Māori and Pacific Islanders living in NZ. These ethnic groups have much lower rates of homeownership and

lower median personal income levels than the NZ averages (Johnson *et al.*, 2018) and suffer a larger gender pay gap (Pacheco *et al.*, 2017).

The findings from this research will give a better understanding of the financial adequacy of DW retirees in NZ.

This study extends the previous literature in the following ways. First, our study is the first to assess the financial adequacy of older DW New Zealanders. Second, it is the first to apply the five housing liquidation options and incorporate imputed rent as proposed by Noviarini *et al.*, (2019) to the DW population and analyse the outcomes. Third, our findings emphasise the need for affordable suitable housing for retirees in NZ, especially for the DW population who may require higher quality, smaller and lower maintenance homes close to amenities because they are more financially vulnerable and require more affordably priced housing (Darab *et al.*, 2018). Fourth, our DW population analysis identifies the most vulnerable groups and the potential need for DW social housing.

Our study uses eight waves of data from Survey of Family, Income and Employment (SoFIE) 2002-2009 to examine the financial adequacy of older DW New Zealanders after considering the effect of imputed rent and five possible housing liquidation scenarios (Noviarini *et al.*, 2019) that have not been previously considered in the DW literature. Noviarini *et al.*, (2019) excludes the DW population due to asset transfer estimation complexities. Our findings suggest that financial adequacy is reduced considerably under the option of full liquidation of housing assets meaning individuals may have to or choose to live in rental accommodation during retirement. After accounting for housing liquidation and rent payments divorced females, widowed Māori/Pacific Islanders, DW non-homeowners, and DW living in multi-dwellings are the most vulnerable to financial inadequacy. In contrast, widowed males, widowed Pākehā (European descent)/Asian, divorced homeowners and DW living in single-dwellings have some of the highest financial adequacy rates.

The paper is organised as follows. Section 2 discusses the literature on DW wellbeing and housing and the role of housing in financial adequacy. Section 3 presents the data and method. The final two sections present and discuss the results and make recommendations for NZ policy-makers.

2. Literature review

2.1. Wellbeing and housing of the divorced and widowed population

Bonnet *et al.*, (2019) report that marital histories play a significant role in wealth accumulation of senior French individuals. Using a household survey from France of individuals aged 50 and over, for 2004, 2009, 2014, Bonnet *et al.*, (2019) find wealth disparities across marital history. They document the advantages of married individuals in wealth accumulation. First, there is a “marriage premium or couple premium” (Bonnet *et al.*, 2019, p. 13) due to the combination of income and higher savings propensity through the economies of scale of a couple (Lersch, 2017). Couples are better able to save via higher investment returns through resource pooling and long-term commitments. Second, married or coupled individuals benefit more from domestic human rights laws compared to unmarried individuals. Couples, versus cohabitants, enjoy benefits from intra-household and intra-couple transfer through their legal rights such as savings from joint taxation or tax incentives for families (Bonnet *et al.*, 2019). Similar findings are reported by Wilmoth & Koso (2002). They find that marital history explains the wealth inequality of Americans aged 55-61. Conversely, individuals in a continuous marriage have higher wealth throughout their life course (Wilmoth & Koso, 2002). Wealth disparities of seniors are found to be more prominent for women than men over the age of 50 (Bonnet *et al.*, 2019; Zissimopoulos *et al.*, 2015), especially when considering non-housing wealth (Lersch, 2017). Separation or divorce are associated with lower wealth

consequences for older individuals and are more substantial among women than men (Bonnet *et al.*, 2019).

The extant literature suggests that union dissolution may result in changes to living arrangements. Clark & Lisowski, (2017) and Herbers *et al.*, (2014) find that the likelihood of leaving homeownership is highest directly after separation or widowhood and is persistent even 10 years after the event. Divorced European men and women are associated with a lower likelihood of being a homeowner in later life (Dewilde & Stier, 2014). Even after 10 years since separation/widowhood the likelihood of relinquishing homeownership is still higher for female divorcees and widows than for married individuals, more so for women than men (Herbers *et al.*, 2014). They suggest different reasons for moving out between divorcees and widows. Divorced women are more likely to give up homeownership than men. This may be due to lower employment rates or lower income,⁸ greater reliance on welfare and financial anxiety due to buying out an ex-spouse's share and continuing with home ownership (André *et al.*, 2019). Divorced women staying in homeownership after a divorce are found to experience greater distress than divorced men and even compared to divorced women who rent (André *et al.*, 2019). Divorced women (especially mothers) experience greater difficulty in covering homeownership maintenance and costs than divorced men due to a general weaker stance in the labour market such as lower income than men (André *et al.*, 2019), even compared to married women (Haider *et al.*, 2003).

Divorcees and widow/ers potentially move out of home ownership due to excess space and difficulties and cost of housing maintenance (Colic-Peisker *et al.*, 2015), creating a desire to downsize. Divorced women are less likely to move out when they have children, but men are more likely to stay in overall as it provides them with greater happiness and security (André

⁸ Despite pay equity legislation, NZ women are paid on average 13% less than men due to differences in employment sector and work experience (particularly because of family responsibility breaks) but predominantly because of less measurable factors such as attitudes and unconscious bias (Pacheco *et al.*, 2017).

et al., 2019). When there are limited resources and moving out of the family home is no longer an option, divorced women are more likely to end up in social renting, while men end up in private renting or stay in owner-occupied housing (André *et al.*, 2019; Mikolai & Kulu, 2019). Renters, however, suffer more ontological insecurity than homeowners over their lack of control of their home environment (Colic-Peisker *et al.*, 2015). Divorced women are less likely to enter homeownership than men (Vignoli *et al.*, 2016), and even if they manage to be homeowners, they are likely to have smaller housing wealth (Wind & Dewilde, 2018) and are more likely to live alone ((Vignoli *et al.*, 2016). Older single females (DW) emphasise the quality of housing rather than ownership. Darab *et al.* (2018) find that these females favour smaller stable affordable housing providing them with privacy, autonomy, and sense of purpose, regardless of ownership. However, with rent rising at a higher rate than wages in NZ (Stats NZ, 2020), decreasing stocks of social housing (Johnson *et al.*, 2018) and a lack of affordable housing to purchase (Stats NZ, 2020), the older population's options for housing are limited.

There are more female widows than males due to life expectancy differences (Blaauboer, 2010; Stats NZ, 2016). Widows experience a greater fall in income and wealth than male widowers, but male widowers are more prone to adverse mental and emotional distress despite having financial stability (Streeter, 2020). Widowed women are more likely to stay in homeownership than divorced women (Blaauboer, 2010), but high housing cost and maintenance may not necessarily leave widowed women better off than divorced women who leave homeownership (André *et al.*, 2019). Widows are likely to face financial concerns in general especially when there are high medical costs prior to a spouse's death and funeral costs (Blaauboer, 2010). Widows may choose to move in with family members or into home care in the event of declining physical ability or health (Blaauboer, 2010).

Divorced individuals and widow/ers are at greater risk of lower wellbeing and old age poverty than married individuals (e.g. Salagean *et al.*, 2015). Hendershott *et al.*, (2009) show that divorce leads to a loss of wealth affecting the affordability of owner housing. Leopold (2018) proposed that both men and women face post-divorce decreases in wellbeing (economic, housing and domestic, health and general wellbeing, and social). The strain from divorce is moderate for men but chronic for women and women are more prone to old-age poverty than men (Leopold, 2018). They suggest four risk factors divorced women face. First, women's limited earning capacities due to child rearing and pregnancy; second, insufficient child maintenance; third, income loss that is not fully covered by spousal maintenance; fourth, gender specific labour division during marriage leading to a shortfall of human capital. In addition, bias and attitudes contributing to the gender pay gap are extra factors limiting women's earning potential throughout their working life (Pacheco *et al.*, 2017).

Weaver (2010) reports similar findings among widows. Although the economic status of widows in the US has improved from "extensive adversity to above-poverty" (Weaver 2010, p. 89), their income level barely passes the poverty threshold. DW women are among the most vulnerable group due to low wellbeing levels (Leopold, 2018), old-age poverty risk (Leopold, 2018), the likelihood of social housing accommodation rather than homeownership even in later age (André *et al.*, 2019; Vignoli *et al.*, 2016), and the risk of living longer (Stats NZ, 2000) and living alone (Bonnet *et al.*, 2019; Stats NZ, 2000; Vignoli *et al.*, 2016).

Studies of DW individuals report lower wealth accumulation potential (Bonnet *et al.*, 2019), the possible risk of old-age poverty, the risk of non-homeownership, and the financial burden of homeownership (André *et al.*, 2019). However, the effect of housing liquidity on the financial adequacy of retired divorcees and widow/ers has not been investigated.

2.2. Financial adequacy and the role of housing

Studies examining the financial adequacy of retirees around the world report mixed findings. Some research suggests that retirees are financially prepared for retirement. Crawford & O'Dea (2016) and Blundell & Smith (1999) both propose that British retirees have greater than optimal savings for retirement (Crawford & O'Dea, 2016) or have at least 80% of their pre-retirement income in retirement (Blundell & Smith, 1999). Similar findings are reported for the United States (Scholz *et al.*, 2006; Skinner, 2007). However, De Nardi *et al.*, (2010) note that when accounting for private medical expenses, Americans are not adequately financed in retirement. Studies that suggest financial adequacy all include housing wealth (Blundell & Smith, 1999; Crawford & O'Dea, 2016; Scholz *et al.*, 2006). Contrasting findings by Le *et al.*, (2009) and Enright & Scobie (2010) suggest that retirees are not financially prepared for retirement when housing is excluded. This implication may account for individuals' reluctance to liquidate housing (Clark & Lisowski, 2017) unless in extreme cases such as spousal deaths or sudden poor health (Poterba *et al.*, 2011; Telyukova & Nakajima, 2011). The exclusion of housing as retirement wealth may result in misleading financial adequacy levels given that housing contributes most of the wealth among retirees (Coleman, 1998; Gibson *et al.*, 2010; Noviarini *et al.*, 2019). The variability of findings can be attributed to the range of methods used to measure financial adequacy, assets (non-housing and housing) and income type inclusion when assessing wealth, and household heterogeneity (Aguiar & Hurst, 2013). Certainly, understanding retiree housing options and their implications for wellbeing in retirement are important (Robison & Moen, 2000).

Noviarini *et al.*, (2019) introduce liquidity variations of different asset types into the research field. Their study is the first to include five different housing liquidation options and account for imputed rent. Previous literature has either included only full housing liquidation (Crawford & O'Dea, 2016; Knoef *et al.*, 2016) or excluded housing altogether (Enright & Scobie, 2010, Le *et al.*, 2009). Using eight waves of data from the Survey of Family, Income,

and Employment (SoFIE) 2002-2009 Noviarini *et al.*, (2019) find that the highest share of financially adequate married and single individuals aged 65 and over are those who choose to fully liquidate their homes and live with family. The lowest proportion of financially adequate married and single individuals are the group that fully liquidate their homes and pay rent in retirement. Although reverse mortgages are not a popular option in NZ (and Australia and much of Europe) (Noviarini *et al.*, 2019; Whait *et al.*, 2019), they and downsizing options lead to a moderate share of financially adequate married and single individuals. Unfortunately, the Noviarini *et al.*, (2019) study only includes married and single respondents. Their finding that homeownership (or housing liquidation and then living with family or others) among married and singles is crucial for financial adequacy may not be applicable to the DW population as homeownership cost is perceived as a financial burden among divorced and widowed women (André *et al.*, 2019).

The rising share of older DW individuals (Statis NZ 2016), their vulnerability to old age poverty (Leopold, 2018), lack of homeownership ((Vignoli *et al.*, 2016),⁹ and homeownership considered as a financial burden for women (André *et al.*, 2019) has placed greater attention on their financial adequacy and the effect of housing liquidation on DW financial adequacy. This study examines the role of housing on the financial adequacy of the DW population.

2.2.1. The case of New Zealand

The population of individuals living alone in NZ is characterised as follows: (i) a large number of divorced, separated, or widowed individuals (63%); (ii) a median age of 62 which is higher than 38, the median age of the population; (iii) more women (57%) than men; (iv) has fewer Pacific Island and Asian people compared to other ethnicities; (v) associated with 62% owning/partly owning their home; (vi) less likely to report a high score for overall life

⁹ While Vignoli *et al.*, (2016) find that lack of home ownership affects DW financial adequacy, evidence from the NZ Statistics (2016) study finds that individuals living alone are more likely to own their own homes than those living with others and 63% of the sample are DW.

satisfaction level, but at ages greater than 65, proportions satisfied were similar to those living with others; (vii) less likely to report feeling lonely (Stats NZ, 2016).

NZ resident retirees receive the basic state pension, NZS which covers about 38-40% of the median population income, one of the lowest among OECD countries (OECD, 2015). The potential threat of financial inadequacy in retirement (Retirement Commission 2022) means that ageing New Zealanders have a great responsibility to plan for additional retirement provision. Unlike most other OECD countries NZ does not have a mandatory contributory retirement savings scheme (OECD, 2015) but prior to retiring, individuals can choose to participate in a voluntary contributory savings scheme, KiwiSaver, to provide non-housing retirement income (Noviarini *et al.*, 2021). KiwiSaver is like employer -related schemes in other English-speaking countries, in that it is relatively illiquid before retirement age (Besheares *et al.*, 2017) only allowing withdrawals for first home ownership and severe financial hardship. Most New Zealanders have most of their wealth in housing and they use housing for retirement support (Noviarini *et al.*, 2019). The overinvestment in housing may be due to the absence of residential capital gains tax¹⁰ whereas retirement contributions in NZ are taxed (Coleman, 1998). More recently, NZ has experienced some of the highest house price increases in the world (The Economist, 2017) together with falling homeownership rates among younger New Zealanders (Martin, 2018). Like the UK, adult children are increasingly relying on co-residence with their parents to save for housing deposits, or on wealth transfers from parents for deposits (“the bank of Mum and Dad”) (Preece, 2019; Consumer, 2022). Funding from parents can assist transition into home ownership but inflates social inequality (Preece, 2019; Consumer, 2022) as less financially adequate parents cannot assist their adult children. Also, current New Zealanders may be financially adequate in retirement when they

¹⁰ Although this is changing in principle if not in name for investment properties, with increasingly stringent “bright-line” tests for tax payments (Inland Revenue, 2021).

rely on housing liquidation (Noviarini *et al.*, 2019) but the rising unaffordability of housing for younger generations may compromise their financial adequacy. Rising rent prices at rates higher than wages (Stats NZ, 2020) have even made renting a more impossible choice for homeowners when needing to liquidate.

The growing proportion of the DW population in NZ over the past few decades,¹¹ the diverging income gap between DW and married individuals,¹² and the rising number of retirees living alone (Stats NZ, 2016) are all factors that contribute to the DW population being more vulnerable to old-age poverty (Leopold, 2018). They are also more vulnerable to potential homelessness or having a greater reliance on social housing (Vignoli *et al.*, 2016) if they cannot afford to pay rent,¹³ or shoulder the financial burden of homeownership (André *et al.*, 2019). This study investigates the importance of homeownership among the older DW population and its effect on financial adequacy in retirement.

3. Method

3.1. Data

We follow Noviarini *et al.*, (2019) and use eight waves of the panel dataset SoFIE from Statistics NZC during 2002 to 2009 to examine the role of housing liquidation on the financial adequacy of the DW population. SoFIE includes information on wealth composition, income, family composition and demographic factors. In 2002 the survey contained 29,791 individuals from 12,244 households representing 3,934,500 New Zealanders. The rate of individuals taking part in the survey over all multiple waves is 63%. Our sample size from SoFIE is 1,341 individuals made up of 2,553 observations representing 16,856 weighted observations. Individuals who reach the age of 65 between years 2002 to 2008 are included in the sample. Participants must have at least one pre-retirement income and one post-retirement income

¹¹ Authors' calculation using Statistics NZC data 2001, 2006, and 2013.

¹² Authors' calculation using Statistics NZC data 2006, 2013, and 2018.

¹³ In 2020 NZS provision for a single living alone was \$490.73, compared to median house rental of \$470 in the same period (<https://www.interest.co.nz/charts/real-estate/median-rents-nz>).

disclosure, and report asset ownership. Personal income in SoFIE includes employment and non-employment income. Life expectancy estimates are provided by Statistics New Zealand data according to gender and ethnicity. The findings are presented for the years 2005, 2007, 2009 because the survey income and wealth module is conducted every other year since 2005.

[Insert Table 1]

The study splits the sample into two subsamples: divorced/separated (D/S) and widowed (W). D/S and W are treated as separate subsamples as they are associated with different types of asset transfers. D/S individuals entail the splitting of assets and income. These individuals were combined into one group to enable sufficient sample size for analysis. W individuals are associated with the transfer of assets from the spouse to the widowed partner and potential loss of income from the spouse.

Table 1 summarises the sample distribution for the periods of the study according to gender, homeownership, ethnicity, living arrangement, and region. Panel A documents the rising proportion of D/S males and the increasing proportion of W females. There is a marked decline in the fraction of D/S and W homeowners, which is offset by the higher percentage of renters. Panel B highlights the notable increase in the proportion of D/S within the Pākehā/Asian ethnic group. D/S and W also display a decrease in the fraction living in single dwelling units and a rise in the prevalence of double dwelling living arrangements.¹⁴ From Panel C, the proportion of W living in Auckland has decreased corresponding to an increase in the fraction living in the rest of the North Island during 2005-2009. The D/S sample shows a falling share in Auckland, Rest of North Island, and Rest of South Island and an increase in the fraction living in Waikato over time.

3.2. Method

¹⁴ House sharing or living with family, but not a partner.

Like Noviarini *et al.*, (2019), our study uses the standard income replacement rate, relative replacement rate, and poverty line to measure financial adequacy.

Following Noviarini *et al.*, (2019), the standard income replacement rate method is calculated as follows.

$$\text{Replacement Rate} = \frac{\text{Post} - \text{Retirement annual income before tax}}{\text{Pre} - \text{Retirement annual income before tax}} * 100\%$$

The commonly acceptable income replacement rate ranges between 65% - 85% (Binswanger & Schunk, 2012). We use a 70% standard income replacement (70RR) (Noviarini *et al.*, 2019). Our study also applies a relative replacement rate and poverty line to mitigate the limitations of a standard income replacement rate (Crawford & O'Dea, 2016). In the relative adequacy (RA) replacement rate method, individuals in the lowest quartile qualify by requiring a 100% replacement rate; those between the 25th and 75th percentile require a 70% replacement rate; and the top quartile only require a 50% replacement rate (Noviarini *et al.*, 2019). Individuals must pass their corresponding threshold according to their relevant income group to be considered financially adequate. The Poverty Line (PL) method is defined as the half of the population's median income in each year of the study as suggested by OECD standards (OECD, 2018). The poverty line explores the minimum threshold for financial adequacy. According to OECD standards, individuals who are above the poverty line are viewed as adequately fulfilling the minimum living standard (OECD, 2018). RR, PL, and RA are different measures of financial adequacy. RR shows financial adequacy compared to pre-retirement income, PL shows financial adequacy based on fulfilling very basic minimum living standards, and RA shows adequacy of individuals compared to others in the same income cohorts.

We follow Noviarini *et al.*, (2019) in our assumptions for different asset types and likelihood of liquidation. The types of income and assets included in our categories for non-housing income are consistent with Noviarini *et al.*, (2019). There are three types of asset

categories: (i) non-housing; (ii) investment housing; (iii) residential housing. All wealth within the three categories is annuitised according to the number of years in retirement from gender and ethnicity specific life expectancy levels (Noviarini *et al.*, 2019).

We follow Noviarini *et al.*, (2019) in our estimation for imputed rent,¹⁵ housing growth,¹⁶ house price data,¹⁷ Consumer Price Index,¹⁸ and Housing Price Index.¹⁹ Imputed rent accounts for the benefits from owning a home and forgoing rent payment (Noviarini *et al.*, 2019).²⁰ The housing liquidation options are (Noviarini *et al.*, 2019): (i) full liquidation and live with family members; (ii) full liquidation and move to a rental home; (iii) downsizing and stay in the same area;²¹ (iv) downsizing and move to a cheaper area;²² (v) take up reverse mortgage.²³

4. Results and discussion

Comparing the different housing asset options for each subsample in Tables 2 and 3 shows that full liquidation presents the highest share of financial adequacy across all DW subsamples by gender and ethnicity for each of 70RR, PL and RA. This is because the full liquidation option liquidates all assets and individuals live with family. The likelihood of exercising this option is dependent on ethnicity (and culture) and is only available for homeowners. Full liquidation with rent reports the lowest rate of financial adequacy. The finding suggests that without supplementary rent payments, full liquidation and renting is the worst option for all DW subsamples. Full liquidation with rent measures the resilience level to meet basic housing

¹⁵ Imputed rent is estimated from the regional median rental value information from the Ministry of Business, Innovation and Employment for the period.

¹⁶ Housing growth rates are estimated from changes in the Housing Price Index (XXXX).

¹⁷ House price data uses information from the Real Estate Institute of New Zealand 2002-2009.

¹⁸ Information on Consumer Price Index (Statistics New Zealand) is used to account for non-housing asset and income adjustments.

¹⁹ 10-year NZ government bond rates are used as annuitisation rates for non-housing wealth. Investment and residential housing annuitisation uses the compounded effective mortgage rates 2001-2016 (XXXXX).

²⁰ Imputed rent accounts for the income difference between a homeowner and a renter.

²¹ Downsizing is only available if the value of the liquidated house is greater than the regional median house price (Noviarini *et al.*, 2019).

²² Downsizing and moving is only available for those living in more expensive regions such as Auckland and Wellington (Noviarini *et al.*, 2019).

²³ Reverse mortgage allows the release of 25% of the house value (Noviarini *et al.*, 2019).

needs when having to liquidate all resources to support living. Financial adequacy according to downsizing and reverse mortgage options is (i) lower than financial adequacy with full liquidation; and (ii) higher than full liquidation with rent.

[Insert Table 2 and 3]

Our findings suggest that male and females have different financial adequacy within the marital status categories. Comparing 70RR financial adequacy rates in Table 2 shows that more divorced males have better financial adequacy than widowed males, whereas more divorced females have lower financial adequacy than widowed females. The difference could be attributed to the wealth split for D/S and wealth transfer to widows (Haider, Jacknowitz, and Schoeni 2003). It might be the case that W females have inherited full rights to property whereas D settlement awards half the value of jointly owned assets. When accounting for rent, less DW females are financially adequate than DW males in 2009. The difference in results between divorced males and females could be due to the more prominent wealth disparities of females aged over 50 compared to males aged over 50 or that separation is associated with substantially lower wealth in older females (Bonnet *et al.*, 2019; Zissimopoulos *et al.*, 2015), that women have disadvantaged earning capabilities throughout their lives due to the gender pay gap (Pacheco *et al.*, 2017) and that divorced females are considered among the most vulnerable group (Leopold, 2018). In more recent years, the share of financially adequate divorced males has fallen, and more widowed males are financially adequate. This may be explained by survival of those with higher wealth/income (Delavande & Rohwedder, 2011). In 2009, more divorced females have significantly higher financial adequacy excluding selling and renting than divorced males. Conversely, there were significantly fewer financially adequate widowed females for the downsizing and reverse mortgage scenarios in 2005 and 2007.

From Table 3, after accounting for full liquidation of housing assets and rental costs, DW Māori and DW Pacific Islanders report very low proportions of financial adequacy. Overall, the analysis shows that if these groups had to resort to liquidating and renting, the likelihood of maintaining financial adequacy are much smaller. However, Māori and Pacific Island individuals are more likely to live with families than Pākehā, yielding greater chance for full liquidation (Noviarini *et al.*, 2019). DW Pacific Islanders have the lowest rate of financial adequacy relative to other ethnicities, especially for the full liquidation with the rent option.²⁴ DW Pacific Islanders report the largest decrease in adequacy when going from 70RR to PL, suggesting that their pre-retirement income is lower than the minimum poverty line standard, leaving them most vulnerable to old age poverty.

[Insert Table 4]

Table 4 reports increasing proportions of financially adequate divorced individuals living in Rest of South Island from 2005 to 2009 but falling adequacy rates in other parts of NZ. Canterbury, the rest of the South Island, and Waikato have experienced a decreasing percentage of financially adequate widow/ers while Auckland and Wellington have seen this proportion increase. The highest rates of financial adequacy are reported by divorcees living in Wellington and Waikato, and widow/ers living in the rest of North Island and Canterbury. When accounting for rent payments, Auckland and Canterbury divorcees, and Waikato, Rest of North Island and Rest of South Island widow/ers, are less likely to be financially adequate in more recent years. The fall in rental affordability may be due to the increase in rent relative to wages in most parts of NZ especially Auckland (Stats NZ, 2020). The option of downsizing and moving to a cheaper region is only available to divorcees and widow/ers living in Auckland. This is probably due to higher house prices in Auckland compared to the rest of

²⁴ Noviarini *et al.*, (2019) find that Māori and Pacific Island Married and Single individuals are more vulnerable to financial inadequacy than Pākehā or Asian New Zealanders.

NZ (Real Estate Institute of New Zealand 2020).²⁵ Finally, after accounting for imputed rent, we note that for the 2009 D/S sample that Wellington and the rest of North Island report much lower rates of financial adequacy. Imputed rent benefits homeowners. The decrease in adequacy may reflect those divorced individuals who do not remain in the family home.

[Insert Table 5 and 6]

Table 5 reports greater financial adequacy (70RR, PL and RA) for DW homeowners than DW non-homeowners. When accounting for rent, divorced homeowners are more resilient to paying rent than widowed homeowners. When accounting for rent after full liquidation, the financial adequacy of DW non-homeowners is much lower compared to homeowners. These differences are statistically significant. In 2009 widowed non-homeowners experience the largest fall in financial adequacy (70RR, PL, and RA) when choosing to liquidate and rent and divorced homeowners have significant higher financial adequacy for the downsizing and reverse mortgage options. Table 6 shows that more divorcees and widow/ers living in single dwellings are financially adequate than living in double and multi-dwellings, and they experience the least drop when allowing for full liquidation and paying rent. Widow/ers living in multi-dwelling arrangements in 2005 and 2007 had the lowest share of financially adequate individuals. This trend reverses in 2009. Widow/ers in multi-dwelling settings in 2009 report significantly higher 70RR financial adequacy compared to those in single-dwellings.

5. Conclusion and implications

Our study finds that financial adequacy rates vary with differing housing liquidation options for DW individuals. Full liquidation presents the highest level of liquidated wealth and financial adequacy and is commonly used in previous studies (e.g. Crawford & O’Dea, 2016). However, assuming full liquidation without a more realistic setting, for example full

²⁵ Similar findings are observed by Noviarini *et al.*, (2019) within the Married and Single population of NZ.

liquidation and moving in with family or then moving to renting (André *et al.*, 2019), questions the applicability of the findings (Noviarini *et al.*, 2019). This study applies the method of Noviarini *et al.*, (2019) by investigating the financial adequacy of New Zealanders with housing liquidation options of full liquidation and living with family or renting, downsizing, and reverse mortgage, and applying the 70% replacement rate, poverty line, and relative adequacy methods. Extending the work of Noviarini *et al.*, (2019) that focuses on only Married and Single individuals, this study aims to bridge the literature gap between the financial wellbeing and housing of the divorced, separated and widowed population, financial adequacy and the role of housing.

We find that after accounting for housing liquidation and rent payments divorced females, widowed Māori/Pacific Islanders, DW non-homeowners, and DW living in multi-dwellings are the most vulnerable to financial inadequacy. Meanwhile, widowed males, widowed Pākehā/Asian, divorced homeowners, and DW living in Single Dwellings, report some of the highest financial adequacy rates. Māori/Pacific Island report a high likelihood of financial inadequacy when paying rent. Our findings overlap with Noviarini *et al.*, (2019) that Māori, renters, living in multi-dwelling houses are more vulnerable to financial inadequacy than Pākehā/Asian homeowners and the difference in adequacy increases after adjusting for imputed rent. In addition, our findings present the potential financial vulnerability and homeownership issues related to divorcees (Dewilde & Stier, 2014) and widow/ers (Weaver 2010), especially among divorced females (Vignoli *et al.*, 2016; Bonnet *et al.*, 2019), and the risk of living longer (Stats NZ, 2000), alone ((Vignoli *et al.*, 2016), and at lower levels of wellbeing (Leopold, 2018). From the single and multi-dwelling housing options results the real issue affecting financial adequacy pertains to lower home ownership rates for these individuals.

The finding that divorced females are among the most vulnerable to financial adequacy is particularly concerning given that females are more adversely affected by the divorce than males due to the financial burden of homeownership (Colic-Peisker *et al.*, 2015; André *et al.*, 2019) and mortgage payments relative to income (Mulder & Wagner, 2010). Divorced females have a greater likelihood of leaving homeownership (André *et al.*, 2019), and based on our findings, there is a high chance that they would not be able to afford to rent. André *et al.*, (2019) find that divorced women who move to renting find greater happiness than as a homeowner. Older single females (DW) favour smaller, stable, affordable housing providing them with privacy, autonomy, and sense of purpose, regardless of ownership (Darab *et al.*, 2018). Our findings suggest that divorced women may have to trade off between happiness and financial wellbeing as they are forced to liquidate their homes and move into renting. Alternatively, they would need to liquidate and live with family members, although this may be more common among Māori/Pacific Islanders than Pākehā as females are more likely to end up having to resort to social housing compared to males (Dewilde, 2008).

Widowed males receive less wealth transfer upon widowhood than females due to the substantially lower wealth of older females (Bonnet *et al.*, 2019; Zissimopoulos *et al.*, 2015). Our results show that the financial adequacy of these individuals has improved over 2005 - 2009 consistent with higher levels of wealth accumulation. André *et al.*, (2019) find that males who are forced to leave their home show a lower level of happiness than females. A potential explanation for the higher financial adequacy might be that widowed males rent out rooms in their homes²⁶ rather than liquidating their home to avoid the trade-off between the risk of financial inadequacy and poor happiness levels.

²⁶ Maalsen (2019) refers to the widening demographic of share housing primarily motivated by economic factors and resulting in multi-dwelling households.

Māori/Pacific homeownership rates in NZ of 28% and 19% respectively (Statistics New Zealand 2013) limits the possibility of liquidating assets to provide for retirement. Our findings show that, on the surface, DW Māori/Pacific, are financially adequate according to the 70RR method. However, this is mostly because Māori/Pacific have lower incomes than Pākehā/Asian (Stats NZ, 2013). When we include renting, less Māori/Pacific are financially adequate, requiring support from family members in retirement.

The findings of this study have some key implications for those individuals facing high financial vulnerability. First, we see a greater need for the legal profession and financial advisers to inform women selling houses. The choice to stay in the family home or sell and rent has long-term consequences that are rooted in financial adequacy. Second, corrections to the gender pay gap will contribute to divorced women being more able to retain or achieve home ownership and to alleviate the exposure of widowed males to financial vulnerability if their spouse dies. Third, we identify a need for affordable suitable housing for retirees and for the DW population, in particular this means energy efficient, smaller homes, close to amenities. Fourth, a solution to the detrimental effect of rising rental housing costs on financial adequacy is to increase the provision of affordable long-term social housing for DW that reduces the burden of rental costs during their working lives to enable contributions to retirement savings.

The small sample size for the Māori/Pacific respondents is a limitation of our study. Future work should use a larger survey of respondents over the most recent period to better understand how rising property and rental prices are impacting financial adequacy for DW cohorts. More information about the nature of double- and multi-dwelling living arrangements and the economic impact of these on retirees would also be insightful. Finally, more in-depth knowledge using interviews can help to better understand the differences in financial adequacy across gender, ethnicity, and living arrangement and can better inform the literature

on retiree wellbeing and the factors most critical to supporting dignity and choice following life-course changes in relationships.

Table 1. Sample distribution

Panel A: Sample distribution by gender and home ownership								
	Divorced/Separated		Widowed		Divorced/Separated		Widowed	
	Male	Female	Male	Female	Homeowner	Renter	Homeowner	Renter
2005	31%	69%	22%	78%	51%	49%	58%	42%
2007	43%	57%	19%	81%	43%	57%	46%	54%
2009	46%	54%	15%	85%	36%	64%	49%	51%

Panel B: Sample distribution by ethnicity and living arrangement												
	Divorced/Separated			Widowed			Divorced/Separated			Widowed		
	Pākehā/ Asian	Māori	Pacific Island	Pākehā/ Asian	Māori	Pacific Island	Single Dwelling	Double Dwelling	Multiple Dwelling	Single Dwelling	Double Dwelling	Multiple Dwelling
2005	83%	10%	8%	86%	4%	11%	84%	6%	10%	76%	9%	15%
2007	85%	3%	11%	86%	8%	6%	62%	17%	22%	74%	19%	8%
2009	93%	2%	4%	84%	10%	6%	69%	23%	8%	71%	19%	10%

Panel C: Sample distribution by region												
	Divorced/Separated						Widowed					
	Auckland	Waikato	Wellington	Rest of North Island	Canterbury	Rest of South Island	Auckland	Waikato	Wellington	Rest of North Island	Canterbury	Rest of South Island
2005	35%	3%	8%	26%	13%	15%	40%	6%	4%	24%	15%	11%
2007	36%	6%	16%	18%	11%	14%	33%	12%	5%	29%	14%	8%
2009	31%	11%	13%	19%	15%	10%	29%	9%	7%	34%	13%	8%

Note. This table reports the weighted distribution for the sample of individuals aged 65 or over from SoFIE during the period 2002 - 2009. There are 1,341 individuals with 2,553 observations representing 16,856 weighted individual-year observations.

Table 2. Retirement financial adequacy for divorced and widowed by gender

Housing Asset Options		Male Divorced			Female Divorced			Male Widowed			Female Widowed			Male vs Female	
		70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR p Values	
														Divorced	Widowed
2005	Baseline wealth	80%	90%	100%	75%	73%	71%	54%	97%	33%	81%	78%	59%		
	Baseline wealth with imputed rent	96%	100%	96%	76%	80%	69%	54%	100%	68%	89%	87%	82%		
	Full liquidation and live with family	96%	100%	80%	80%	86%	70%	86%	100%	85%	91%	87%	86%	0.133	0.451
	Full liquidation with rent	47%	67%	47%	54%	65%	51%	19%	76%	69%	51%	68%	55%	0.736	0.092
	Downsize and stay in same region	80%	89%	80%	75%	73%	64%	54%	97%	32%	81%	78%	70%	0.669	0.083
	Downsize and move to cheaper region	86%	96%	86%	75%	73%	64%	54%	97%	68%	81%	81%	74%	0.372	0.083
	Reverse mortgage	80%	100%	89%	75%	77%	68%	54%	100%	32%	81%	84%	76%	0.669	0.083
2007	Baseline wealth	82%	86%	76%	80%	85%	82%	57%	89%	46%	75%	77%	70%		
	Baseline wealth with imputed rent	88%	70%	79%	86%	95%	86%	57%	89%	62%	84%	83%	78%		
	Full liquidation and live with family	92%	95%	80%	93%	95%	84%	75%	89%	62%	92%	87%	75%	0.703	0.007
	Full liquidation with rent	37%	57%	36%	45%	74%	47%	37%	45%	40%	50%	63%	54%	0.794	0.242
	Downsize and stay in same region	87%	94%	78%	82%	86%	78%	57%	89%	60%	83%	81%	71%	0.504	0.010
	Downsize and move to cheaper region	87%	94%	78%	82%	86%	78%	75%	89%	60%	86%	81%	72%	0.504	0.100
	Reverse mortgage	87%	95%	81%	82%	93%	83%	57%	89%	62%	83%	86%	80%	0.504	0.010
2009	Baseline wealth	62%	77%	60%	71%	84%	73%	76%	91%	84%	78%	90%	71%		
	Baseline wealth with imputed rent	64%	85%	55%	74%	87%	68%	77%	91%	73%	87%	93%	80%		
	Full liquidation and live with family	70%	91%	68%	78%	87%	68%	85%	91%	79%	89%	91%	76%	0.017	0.147
	Full liquidation with rent	42%	67%	47%	39%	56%	40%	65%	77%	68%	44%	65%	46%	0.211	0.167
	Downsize and stay in same region	67%	87%	68%	73%	86%	64%	76%	91%	75%	80%	89%	69%	0.046	0.290
	Downsize and move to cheaper region	67%	87%	67%	73%	86%	64%	76%	91%	75%	81%	89%	71%	0.046	0.219
	Reverse mortgage	67%	88%	71%	73%	86%	65%	89%	91%	75%	80%	89%	75%	0.046	0.298

Note. This table summarises the retirement financial adequacy rate of older divorced and widowed New Zealanders across gender and marital status. Pre-retirement income is calculated as the inflation adjusted income five years prior to the retirement age of 65. Post-retirement income is the sum of non-employment income and the annuitized income from non-housing assets, investment housing plus residential housing based on five different options (baseline wealth, baseline wealth with imputed rent, full liquidation, full liquidation with rent, downsize, downsize and move to cheaper region, or reverse mortgage). Income replacement rate is the ratio between post-retirement income and pre-retirement income. Adequacy is determined at an income replacement rate value of 70% and above (70RR). Poverty line (PL) is defined as half the median income for each year, respectively. Relative Adequacy (RA) refers to achievement of a certain proportion of pre-retirement income based on population quartile. An individual whose pre-retirement income is in the lowest quartile must achieve 100% of this amount post-retirement; an individual with a pre-retirement income between the 25th and 75th percentile must achieve 70% of this amount post-retirement; an individual whose pre-retirement income is in the upper quartile must achieve 50% of this amount post-retirement. Adequacy rate is the proportion of individuals fulfilling the adequacy retirement. Significant gender differences for 70RR are shown by p values in the last two columns.

Table 3. Retirement financial adequacy for divorced and widowed by ethnicity

Housing Asset Options		Pākehā/Asian Divorced			Māori Divorced			Pacific Island Divorced			Pākehā/Asian Widowed			Māori Widowed			Pacific Island Widowed			Pākehā vs Non-Pākehā	
		70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR p values	
																				Divorced	Widowed
2005	Baseline wealth	71%	74%	74%	100%	100%	100%	100%	75%	100%	75%	85%	62%	44%	44%	44%	91%	53%	0%	0.147	0.613
	Baseline wealth with imputed rent	79%	84%	75%	100%	100%	100%	100%	100%	100%	80%	94%	91%	44%	100%	44%	100%	53%	0%		
	Full liquidation and live with family	81%	88%	67%	100%	100%	100%	100%	100%	100%	90%	94%	91%	44%	100%	4%	100%	53%	100%		
	Full liquidation with rent	48%	64%	45%	100%	100%	100%	30%	37%	37%	50%	78%	50%	0%	56%	0%	9%	9%	9%		
	Downsize and stay in same region	71%	74%	65%	100%	100%	100%	100%	100%	100%	74%	85%	71%	44%	44%	44%	91%	53%	0%		
	Downsize and move to cheaper region	74%	76%	68%	100%	100%	100%	100%	100%	100%	74%	85%	84%	44%	100%	44%	91%	53%	0%		
	Reverse mortgage	71%	81%	72%	100%	100%	100%	100%	100%	100%	74%	94%	77%	44%	44%	44%	91%	53%	0%		
2007	Baseline wealth	79%	83%	66%	100%	100%	100%	100%	100%	100%	71%	86%	71%	98%	27%	44%	100%	47%	18%	0.462	0.092
	Baseline wealth with imputed rent	84%	90%	80%	100%	100%	100%	100%	100%	100%	79%	90%	81%	61%	51%	51%	100%	47%	18%		
	Full liquidation and live with family	91%	94%	79%	100%	100%	100%	100%	100%	100%	87%	90%	87%	100%	90%	100%	100%	47%	100%		
	Full liquidation with rent	48%	72%	50%	0%	83%	0%	0%	19%	0%	48%	62%	48%	70%	70%	70%	0%	0%	0%		
	Downsize and stay in same region	82%	88%	74%	100%	100%	100%	100%	100%	100%	74%	86%	71%	100%	65%	82%	100%	47%	18%		
	Downsize and move to cheaper region	82%	88%	74%	100%	100%	100%	100%	100%	100%	81%	86%	72%	100%	65%	82%	100%	47%	18%		
	Reverse mortgage	82%	93%	79%	100%	100%	100%	100%	100%	100%	74%	89%	80%	100%	89%	89%	100%	47%	18%		
2009	Baseline wealth	65%	80%	67%	80%	80%	47%	100%	100%	75%	76%	95%	77%	81%	65%	72%	88%	61%	12%	0.440	0.930
	Baseline wealth with imputed rent	68%	85%	62%	80%	80%	81%	100%	100%	75%	86%	96%	85%	81%	84%	75%	88%	61%	84%		
	Full liquidation and live with family	74%	88%	68%	80%	80%	81%	100%	100%	75%	89%	96%	89%	81%	72%	81%	88%	61%	88%		
	Full liquidation with rent	41%	78%	45%	3%	34%	33%	17%	39%	17%	51%	74%	51%	38%	45%	38%	11%	11%	11%		
	Downsize and stay in same region	69%	86%	65%	80%	80%	47%	100%	100%	75%	81%	95%	76%	63%	59%	57%	88%	61%	11%		
	Downsize and move to cheaper region	69%	86%	66%	80%	80%	47%	100%	100%	75%	82%	95%	78%	63%	59%	57%	88%	61%	11%		
	Reverse mortgage	69%	87%	68%	80%	80%	81%	100%	100%	75%	81%	95%	82%	63%	59%	57%	89%	61%	11%		

Note. This table summarises the retirement financial adequacy rate of older New Zealanders across gender and marital status. See the table description provided in Table 2.

Table 4. Retirement financial adequacy or divorced and widowed by region

Housing Asset Options		Divorced						Widowed					
		Auckland	Waikato	Wellington	Rest of North Island	Canterbury	Rest of South Island	Auckland	Waikato	Wellington	Rest of North Island	Canterbury	Rest of South Island
2005	Baseline wealth	74%	100%	81%	79%	100%	66%	45%	0%	0%	68%	74%	71%
	Baseline wealth with imputed rent	83%	48%	81%	72%	100%	58%	75%	27%	19%	88%	100%	86%
	Full liquidation and live with family	77%	48%	81%	72%	84%	54%	80%	100%	19%	96%	100%	86%
	Full liquidation with rent	61%	0%	14%	47%	89%	21%	48%	100%	0%	76%	48%	76%
	Downsize and stay in same region	69%	48%	81%	72%	84%	44%	44%	0%	0%	88%	100%	70%
	Downsize and move to cheaper region	75%	48%	81%	72%	84%	44%	68%	0%	0%	88%	100%	70%
	Reverse mortgage	83%	48%	81%	72%	92%	44%	48%	27%	19%	88%	100%	76%
2007	Baseline wealth	86%	78%	94%	79%	48%	61%	66%	83%	43%	60%	67%	72%
	Baseline wealth with imputed rent	90%	89%	88%	80%	66%	71%	80%	78%	50%	73%	80%	59%
	Full liquidation and live with family	91%	89%	88%	80%	67%	63%	67%	78%	50%	85%	80%	51%
	Full liquidation with rent	41%	46%	37%	36%	49%	59%	50%	60%	34%	69%	34%	19%
	Downsize and stay in same region	91%	72%	86%	77%	56%	57%	76%	74%	38%	67%	65%	64%
	Downsize and move to cheaper region	91%	72%	86%	77%	56%	57%	82%	74%	38%	64%	65%	64%
	Reverse mortgage	93%	72%	88%	77%	67%	76%	80%	78%	50%	84%	74%	74%
2009	Baseline wealth	62%	83%	84%	64%	44%	79%	67%	53%	69%	79%	81%	71%
	Baseline wealth with imputed rent	61%	82%	74%	52%	45%	76%	71%	78%	67%	88%	85%	76%
	Full liquidation and live with family	78%	82%	74%	47%	54%	78%	61%	88%	84%	84%	85%	65%
	Full liquidation with rent	35%	69%	50%	33%	44%	52%	46%	57%	48%	58%	33%	39%
	Downsize and stay in same region	79%	78%	70%	40%	52%	70%	66%	57%	61%	80%	73%	63%
	Downsize and move to cheaper region	81%	78%	70%	40%	52%	66%	71%	57%	61%	80%	73%	63%
	Reverse mortgage	79%	82%	70%	50%	55%	76%	71%	65%	67%	82%	81%	70%

Note. This table summarises the retirement financial adequacy rate of older divorced and widowed New Zealanders by region. See the table description provided in Table 2.

Table 5. Retirement financial adequacy measured for divorced and widowed by ownership status

Housing Asset Options		Non-Homeowner Divorced			Homeowner Divorced			Non-Homeowner Widowed			Homeowner Widowed			Homeowner vs Non-Homeowner	
		70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR p Values	
														Divorced	Widowed
2005	Baseline wealth	74%	80%	69%	78%	76%	90%	90%	75%	68%	64%	88%	45%	0.136 0.001 0.672 0.928 0.672	0.843 0.000 0.080 0.080 0.080
	Baseline wealth with imputed rent	74%	80%	69%	90%	100%	90%	90%	75%	68%	75%	100%	89%		
	Full liquidation and live with family	74%	80%	69%	95%	100%	81%	90%	75%	68%	89%	100%	100%		
	Full liquidation with rent	22%	38%	22%	81%	92%	68%	9%	32%	15%	69%	97%	87%		
	Downsize and stay in same region	74%	80%	69%	78%	76%	73%	90%	75%	68%	64%	88%	61%		
	Downsize and move to cheaper region	74%	80%	69%	82%*	80%	73%	90%	75%	68%	64%	91%	79%		
	Reverse mortgage	74%	80%	69%	78%*	88%	74%	90%	75%	68%	64%	97%	64%		
2007	Baseline wealth	90%	85%	83%	68%	86%	74%	74%	71%	63%	70%	89%	69%	0.074 0.000 0.034 0.034 0.034	0.000 0.000 0.354 0.036 0.377
	Baseline wealth with imputed rent	90%	85%	83%	82%	100%	86%	74%	71%	63%	86%	100%	91%		
	Full liquidation and live with family	91%	85%	83%	95%	100%	82%	74%	71%	63%	99%	100%	77%		
	Full liquidation with rent	9%	43%	13%	85%	99%	64%	10%	27%	18%	91%	97%	90%		
	Downsize and stay in same region	91%	85%	83%	75%	87%	71%	74%	71%	63%	76%	89%	73%		
	Downsize and move to cheaper region	91%	85%	83%	75%	87%	71%	74%	71%	63%	89%	89%	74%		
	Reverse mortgage	91%	85%	83%	75%	97%	81%	74%	71%	63%	76%	99%	90%		
2009	Baseline wealth	63%	80%	65%	72%	82%	70%	83%	85%	76%	72%	95%	68%	0.000 0.000 0.006 0.006 0.006	0.019 0.000 0.158 0.268 0.148
	Baseline wealth with imputed rent	63%	80%	65%	79%	100%	82%	83%	85%	76%	88%	100%	89%		
	Full liquidation and live with family	63%	80%	65%	96%	100%	92%	83%	85%	76%	94%	98%	83%		
	Full liquidation with rent	12%	39%	17%	91%	100%	78%	12%	39%	17%	83%	96%	83%		
	Downsize and stay in same region	63%	80%	65%	86%	94%	79%	83%	85%	76%	76%	89%	70%		
	Downsize and move to cheaper region	63%	80%	65%	86%	94%	79%	83%	85%	76%	78%	89%	73%		
	Reverse mortgage	63%	80%	65%	84%	96%	89%	83%	85%	76%	76%	94%	81%		

Note. This table summarises the retirement financial adequacy rate of older divorced and widowed New Zealanders across home ownership status. See the table description provided in Table 2.

Table 6. Retirement financial adequacy measured for divorced and widowed by residence type

Housing Asset Options		Single Dwelling Divorced			Double Dwelling Divorced			Multi-dwelling Divorced			Single Dwelling Widowed			Double Dwelling Widowed			Multi-dwelling Widowed			Single vs Multidwelling	
		70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR	PL	RA	70RR p values	
																				Divorced	Widowed
2005	Baseline wealth	79%	81%	83%	0%	0%	0%	100%	100%	100%	78%	86%	60%	89%	77%	87%	100%	69%	6%	0.580	0.159
	Baseline wealth with imputed rent	86%	91%	81%	0%	0%	0%	100%	100%	100%	86%	93%	82%	89%	100%	100%	100%	66%	54%		
	Full liquidation and live with family	89%	95%	75%	0%	0%	0%	100%	100%	100%	88%	93%	90%	89%	100%	100%	100%	66%	54%		
	Full liquidation with rent	50%	66%	47%	0%	0%	0%	100%	100%	100%	51%	71%	61%	54%	79%	48%	0%	54%	48%		
	Downsize and stay in same region	79%	81%	70%	0%	0%	0%	100%	100%	100%	78%	86%	70%	89%	77%	87%	52%	69%	64%		
	Downsize and move to cheaper region	81%	84%	72%	0%	0%	0%	100%	100%	100%	78%	89%	75%	89%	77%	87%	52%	69%	64%		
	Reverse mortgage	79%	88%	77%	0%	0%	0%	100%	100%	100%	78%	90%	77%	89%	100%	87%	52%	69%	64%		
2007	Baseline wealth	73%	85%	70%	84%	83%	84%	100%	90%	100%	72%	83%	69%	77%	72%	77%	54%	60%	14%	0.051	0.628
	Baseline wealth with imputed rent	82%	94%	74%	84%	83%	94%	100%	90%	100%	79%	87%	74%	88%	82%	82%	54%	9%	60%		
	Full liquidation and live with family	90%	96%	73%	94%	83%	94%	100%	100%	100%	87%	91%	74%	88%	82%	75%	100%	9%	60%		
	Full liquidation with rent	44%	67%	47%	46%	81%	44%	30%	58%	30%	50%	61%	53%	37%	59%	47%	46%	7%	46%		
	Downsize and stay in same region	76%	87%	69%	94%	83%	87%	100%	100%	100%	78%	87%	67%	88%	72%	79%	54%	60%	60%		
	Downsize and move to cheaper region	76%	87%	69%	94%	83%	87%	100%	100%	100%	81%	87%	68%	88%	72%	79%	100%	60%	60%		
	Reverse mortgage	76%	94%	76%	94%	83%	87%	100%	100%	100%	77%	91%	77%	88%	82%	82%	54%	60%	60%		
2009	Baseline wealth	72%	88%	72%	54%	68%	64%	52%	52%	40%	76%	91%	74%	76%	94%	66%	100%	62%	73%	0.452	0.271
	Baseline wealth with imputed rent	76%	94%	67%	54%	71%	56%	52%	57%	40%	82%	94%	82%	95%	94%	76%	100%	77%	69%		
	Full liquidation and live with family	81%	96%	72%	64%	76%	67%	52%	57%	45%	86%	93%	80%	95%	94%	68%	100%	77%	69%		
	Full liquidation with rent	51%	66%	53%	15%	58%	22%	25%	30%	25%	52%	71%	53%	39%	59%	47%	0%	50%	24%		
	Downsize and stay in same region	75%	94%	67%	62%	74%	70%	52%	52%	40%	78%	91%	73%	80%	90%	61%	91%	62%	69%		
	Downsize and move to cheaper region	75%	94%	67%	62%	74%	70%	52%	52%	40%	78%	91%	73%	86%	90%	67%	91%	62%	69%		
	Reverse mortgage	75%	95%	71%	62%	74%	73%	52%	57%	40%	77%	91%	77%	80%	90%	72%	91%	62%	69%		

Note. This table summarises the retirement financial adequacy rate of older divorced and widowed New Zealanders across living arrangements. See the table description provided in table 2.

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