

Slymaker, Rachel; Roantree, Barra; Nolan, Anne; O'Toole, Conor

Research Report

Future trends in housing tenure and the adequacy of retirement income

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FUTURE TRENDS IN HOUSING TENURE AND THE ADEQUACY OF RETIREMENT INCOME

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CONOR O'TOOLE



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ABBREVIATIONS

AHC	After housing cost
AROP	At risk of poverty
AT-HOME	Affordability and Tenure Housing Microsimulation Engine
BHC	Before housing cost
CSO	Central Statistics Office
HAP	Housing Assistance Payment
PRSI	Pay Related Social Insurance
RAS	Rental Assistance Scheme
RS	Rent Supplement
SILC	Survey on Income and Living Conditions
SPA	State Pension Age
TILDA	The Irish Longitudinal Study on Ageing
TRIAM	TILDA Retirement Income Adequacy Model

EXECUTIVE SUMMARY

CONTEXT AND RESEARCH RATIONALE

In recent years, Ireland has experienced a notable decline in homeownership and a rise in the proportion of households in private rental accommodation. Concurrently, the cost of both rents and house prices have risen markedly and affordability challenges in terms of meeting housing costs have been well documented. While these challenges are immediate in terms of the housing costs burden, a longer-term issue arises as to how renting households will manage the financial adjustment to retirement with ongoing rent payments. This transition historically in Ireland has been smoothed by high homeownership rates and mortgage amortisation which lowered the cost of housing payments and increased financial assets. Indeed, existing international evidence suggests that being a homeowner can provide a 'double dividend' of lowering housing costs and increasing assets in retirement. This can help manage changes to income in retirement and allow households to maintain their standard of living.

The continued requirement to cover housing costs for renters in retirement can be seen as an additional vulnerability in terms of retirement income adequacy in Ireland, over and above the general concern of sufficient pension income. While considerable research to date has documented this well-known challenge of providing a sufficient standard of living in retirement for many households in Ireland, the drop in the homeownership rate layers an additional complication in terms of the policy challenge.

To address these related issues, this report explores indicative future paths for homeownership rates in Ireland and explores the impact in terms of income poverty in retirement. Using data from the Survey on Income and Living Conditions (SILC) and the Irish Longitudinal Study on Ageing (TILDA), we consider a number of scenarios to assess the possibility of renting households becoming homeowners, and then test the impact on income poverty rates if households were to continue to have rental costs into retirement.

SUMMARY OF MAIN FINDINGS

A number of key findings emerge from this research:

Findings on homeownership rates

- Ireland has experienced a marked drop in homeownership rates in recent years. This has been particularly acute for younger-aged households, with the share of 25-34s who owned their own home halving between 2004 and 2015, falling from 60 per cent to just 30 per cent. This has continued to fall for

households aged 25-34 and 35-44 since 2015. For these age groups, the predominant tenure for non-homeowners is private rental with no policy support (such as HAP, RAS etc).

- At present the share of households with high housing costs¹ clearly falls with age. Over 1-in-5 households aged 25-34 face high housing costs, compared to around 1-in-17 aged 55-64 and only 1-in-100 of those currently aged 65+. For all age cohorts the incidence of high housing costs is notably higher for non-homeowners.
- We undertake a range of simulations that vary income, credit, savings and house prices to explore the possible transition of current renters to homeownership. The results indicate a likely, and considerable, drop in the achievable rate of homeownership relative to previous generations (and current retirees) across all age groups;
 - Homeownership rates are around 10 percentage points lower (approximately 80 per cent) for those currently aged 55-64 and 45-54 compared with current retirees (approximately 90 per cent); this differential is unlikely to close substantially for these groups given their position in the lifecycle;
 - The homeownership rate for those aged 35-44 is currently 58 per cent. Our scenarios indicate that this age cohort could, at a maximum, reach a homeownership rate of 71 per cent through home purchases in the open market;
 - There is likely greater uncertainty over the 25-34 age group given their age and lifecycle earnings prospects. However, while alternative scenarios (e.g. down-payment supports) would boost this cohorts' homeownership rates, they remain significantly below those of previous cohorts, and this is unlikely to change considerably unless their income growth outpaces house price growth for a sustained period;
 - As a result, the simulated rate of homeownership is lower again for the youngest aged group, 25-34, with approximately one-in-two households becoming homeowners in the majority of scenarios explored.
- Multiple factors are likely causing the drop in homeownership rates including labour market dynamics, the relative growth of house prices and incomes, supply bottlenecks and credit availability. Using a static model, we do not formally test for the drivers of homeownership in this report, nor do we take

¹ High housing costs is defined as a housing cost-to-income ratio greater than 30 per cent.

account of possible demographic changes (e.g. migration) that would change the demand for housing.

Findings on income adequacy of future cohorts

- We explore the likely impact of lower rates of homeownership on measures of income poverty for Irish individuals approaching retirement. Using data on the group who are due to retire over the next five years (92 per cent of whom own their home), we estimate that income poverty² in retirement rises from 9 per cent on a before housing costs basis to 14 per cent on an after housing costs basis.
- Lower rates of homeownership are likely to lead to substantially higher after housing costs income poverty rates. To demonstrate the impact of changes in homeownership on income adequacy, and linking to our research above on lower homeownership for younger households, we simulate income poverty rates for those approaching retirement would reach 31 per cent under a low homeownership scenario of 63 per cent, 28 per cent under a medium homeownership scenario of 70 per cent, and 21 per cent under a high homeownership scenario of 78 per cent, compared to 14 per cent under the baseline homeownership rate of 92 per cent.
- Our analysis suggests that women, those with lower levels of education and those living alone during working life are particularly vulnerable to income poverty in retirement after housing costs are taken into account.

POLICY CONSIDERATIONS

A number of considerations for policy arise from our research:

- Ireland's pension system (both public and private) has to date leveraged the 'double dividend' associated with homeownership – lower housing costs and higher assets in retirement. It is unlikely that homeownership rates will be as high in future and therefore consideration will have to be given to the most appropriate policy response. This could include policies aimed at addressing the housing costs element, the income adequacy element, or both.
- Policies could be targeted to improve incomes of older households or to incentivise renting households to build up more resources earlier in their lifecycle while in employment.
- Income-based support for older households could come in the form of targeted supports to those groups of households most at risk of income poverty. This would be more efficient in deadweight terms than blanket measures to raise state pension rates which would also be fiscally expensive.

² This is based on the official at risk of poverty threshold and a 'broad' definition of income. The 'broad' definition of income includes income from state and supplementary pensions, as well as the annuitised value of net financial assets (i.e. savings, stocks/shares, investment property, etc., minus any outstanding non-mortgage debt).

Indeed, the latter approach may not be fiscally sustainable in the context of the broader demographic pressures.

- The second area of intervention that shifts the housing costs risk in retirement is to directly intervene for households with housing costs challenges. The availability of a targeted instrument such as an income supplement or rent subsidy to directly cover housing costs for those households who are proven to be in housing costs distress could feature as part of the future policy architecture.
- However, the availability of, and even the signalling of, such instruments could alter the incentives for households to sufficiently accumulate resources earlier in their working lives. Furthermore, such extensive subsidy supports for those living in private sector accommodation risks adding to rental inflation and the costs are likely to be prohibitively expensive for the State given the scale of the projected fall in homeownership for future retirement cohorts.
- More generally in terms of broader housing policy, interventions at earlier stages of the lifecycle are critical to help lower the housing costs future cohorts will face in retirement. Instruments targeting increased supply which impact the share of homeowners, increased direct provision of social housing or which develop alternative, non-market renting cohorts such as cost rental and expanded social housing can all help to lower the cost of housing at retirement.
- It is however worth noting that while the scenarios in this report attempt to provide an indicative range for future homeownership rates and the impact on households' income adequacy, any assessment that extrapolates across such a long horizon is subject to considerable uncertainty. In particular, the current 25-34 age cohort may be expected to experience further career progression and income growth, which leads to considerable uncertainty in projecting their likely homeownership rates in retirement.
- In addition, there is also uncertainty about the extent to which current (and future) housing policy initiatives may increase the share of future homeowners and/or ensure lower and more stable housing costs for future cohorts of retirees. Therefore, there is certainly time for policies to influence the outcomes of this research from both a housing tenure and income support perspective.
- However, given future demographic projections and associated sustainability challenges, it is unlikely the State will also be able to fully carry the cost burden for the challenge of higher housing costs in retirement. Therefore, developing a policy strategy which mixes lifetime incentives to accumulate retirement assets during employment with an adequate safety net is most likely to be required.

CHAPTER 1

Introduction

1.1 CONTEXT

A key area of policy concern is the extent to which those who are retired will have adequate resources to fund their consumption in retirement (European Commission, 2021; Government of Ireland, 2018; Mulligan et al., 2019). Assessing the adequacy of incomes in retirement is not a straightforward task, particularly for those who have not yet retired. A number of assumptions are required to simulate the level of retirement income, while there are multiple definitions of what one may want to consider as retirement income. In this report, we consider adequacy with reference to some fixed level of income deemed sufficient to buy essential goods and services: the so-called ‘poverty-line’ approach.³

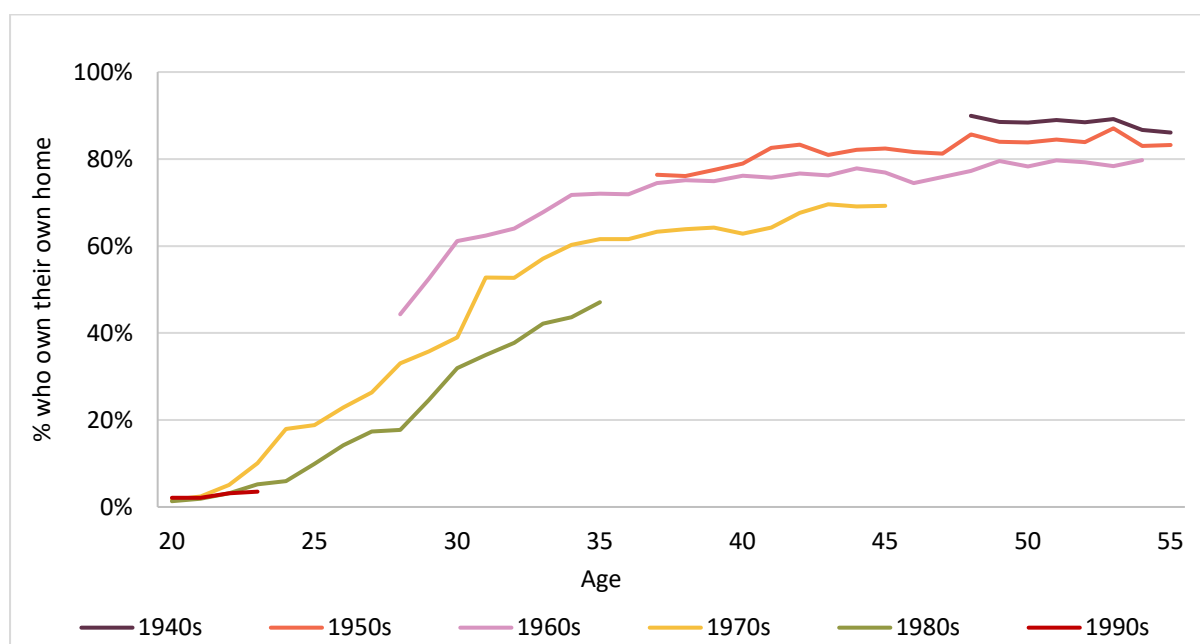
Much of the existing work in this area in the Irish context has focused on the extent to which those who are either already retired or very close to retirement are at risk of inadequate incomes in retirement (Beirne et al., 2020; Bercholz et al., 2019; Nivakoski, 2014; Nivakoski and Barrett, 2019). While assessments of retirement income adequacy are sensitive to the measure of adequacy adopted, and the definition of retirement income, the most recent Irish estimates suggest that approximately 9 per cent of those approaching the state pension age (SPA) over the period 2022-2027 would be at risk of poverty using the 60 per cent of median household disposable income poverty threshold, based on a definition of retirement income that includes state and supplementary pension income, as well as non-primary residence asset income (Beirne et al., 2020).

However, demographic, social and economic changes over recent decades mean that future cohorts of retirees are likely to look very different to the current cohort of retirees. One of the most important of these dimensions is housing tenure and costs. According to the 2016 Census of Population, over 85 per cent of those aged 65+ owned their own home, the vast majority outright (Central Statistics Office, 2017). In addition, most of those aged 65+ renting do so from a local authority or voluntary body, and thus may expect to have low and relatively stable housing costs in retirement (Doolan et al., 2022). However, the age at which two-thirds of the cohort own their own home (with or without a mortgage) has been increasing steadily over time, from 28 years of age in 1991 to 41 in 2016 (Central Statistics Office, 2017). This implies substantial differences in the projected tenure and housing costs of younger cohorts.

³ See (Beirne et al., 2020) and (Crawford and O’Dea, 2012) for more detailed discussions of the conceptual and measurement issues involved in assessing retirement income adequacy.

These cohort-level changes in housing tenure can be illustrated in greater detail in Figure 1.1. While more than 60 per cent of those born in the 1960s lived in a home they or their partner owned by age 30, this proportion had fallen to 39 per cent for those born in the 1970s and 32 per cent for those born in the early 1980s. While there may be some catch-up at later ages (in part due to changing patterns of family formation), the figure shows that rates of homeownership for previous cohorts tend to level off after age 45 (Roantree et al., 2021).

FIGURE 1.1 HOMEOWNERSHIP RATES BY DECADE OF BIRTH COHORT



Source: Reproduced from Roantree et al. (2021) using the Survey of Income Distribution, Poverty and Usage of State Services; the Living in Ireland survey; and the Survey on Income and Living Conditions.

Notes: Homeownership defined as being the head – or the partner of the head – of a household that lives in an owner-occupied dwelling (i.e. adult children of owner-occupiers not counted as owning their own home).

The drop in homeownership documented above is likely caused by a range of factors. As discussed in McQuinn et al. (2021), the tightening of credit access rules following the onset of the financial crisis, coupled with historically low housing supply and rising demographic demand, have led to rapidly rising house prices and rents in Ireland. These factors have led to an increasingly evident housing affordability challenge, in particular for young, urban renting households who have faced rapidly increasing rental prices (Corrigan et al., 2019). While these problems are currently acute, the longer-term implications for these households of how to cover housing costs in retirement (in lower expected homeownership contexts) has received less attention in the policy or research literature.

1.2 EXISTING EVIDENCE

1.2.1 Retirement income adequacy

Most assessments of retirement income adequacy in an Irish context have tended to focus on those already retired, or close to retirement. For example, using data from the Irish Longitudinal Study on Ageing (TILDA), Nivakoski (2014) and Nivakoski and Barrett (2019) found that income replacement rates⁴ were highest for women and those at the bottom of the earnings distribution, more reflecting the lower earnings of these groups immediately prior to retirement than high levels of resources available in retirement. As replacement rates are sensitive to how income (both pre- and post-retirement) is defined, and generally do not take into account the wider resources of the household (e.g. from other family members and/or from assets), or future risks to longevity, investments and healthcare needs (Knoff et al., 2016), alternative benchmarks are required. An alternative approach assesses the adequacy of retirement income by determining whether it is sufficient to meet basic needs (i.e. having enough income to be able to purchase necessities such as housing, food and clothing). This is assessed in terms of whether retirement resources are below some benchmark of income poverty, typically the at-risk-of-poverty threshold.

In this context, a recent study attempted to move beyond a single replacement rate to consider multiple indicators of retirement income adequacy, varying not only the definition of income, but also the benchmarks used to assess adequacy. Beirne et al. (2020) used data from TILDA on the cohort of people born between 1955 and 1960 (and therefore expected to reach the state pension age over the period 2022-2027) to assess the adequacy of their projected income in retirement, using a variety of different benchmarks and definitions of retirement income.⁵ The analysis found that assessments of income adequacy in retirement were very sensitive to the benchmark used. Even small changes in the benchmark resulted in large changes in the proportion assessed as having inadequate resources in retirement. For example, moving from a poverty-line benchmark of 60 per cent of median household disposable income (the current at-risk-of-poverty threshold) to a 50 per cent of median household disposable income benchmark (the OECD at-risk-of-poverty threshold) resulted in a sharp fall in those with inadequate levels of income in retirement (from 9.2 per cent to 3.0 per cent using a broad definition of income that includes non-primary residence asset income in addition to state and

⁴ The retirement income replacement rate is defined as the ratio of post-retirement income (from pensions, annuitised wealth holdings, etc.) to pre-retirement income. The current Pensions Roadmap 2018-2023 aims to ensure that the state pension, in combination with supplementary pensions, replaces a sufficient proportion (between 50 and 60 per cent) of an individual's pre-retirement earnings so as to enable them to maintain a reasonable standard of living after retirement (Government of Ireland, 2018).

⁵ In this report, we use this model, the TILDA Retirement Income Adequacy Model (TRIAM) developed in Beirne et al. (2020), to assess the retirement income adequacy of current and future cohorts of retirees on an after housing costs basis.

supplementary pension income). In addition, across all benchmarks, broadening the definition of income in retirement to include financial assets, and further still to include half the value of owner-occupied housing wealth, substantially reduced the proportions of those who were considered at risk of having inadequate resources in retirement. While the issue of whether individuals should draw on wealth in the form of primary residences to support living standards in retirement is contentious, less so is that individuals should draw on other forms of wealth. These results suggested that private non-pension, non-primary residence assets play an important role in individuals' preparedness for retirement.

1.2.2 Housing costs and retirement income adequacy

While the general literature on retirement income adequacy is considerable, few assessments of retirement income adequacy consider explicitly the role of housing. Housing can refer to a service (the accommodation that housing provides) and a capital asset (the dwelling that produces the service) (Fahey and Norris, 2010). One strand of the literature considers housing from the latter perspective, i.e. as an asset that can be considered as a source of income in retirement. Fahey (2003) notes that housing is a valuable asset in retirement which, in principle at least, can be drawn upon to provide cash income later in life should the need arise (e.g. by downsizing, equity release, or through family arrangements whereby younger family members provide support to older family members in return for an explicit or implicit promise of an eventual bequest). Banks et al. (2005), Crawford and O'Dea (2012) and Beirne et al. (2020) all considered the role of owner-occupied housing wealth in their assessments of retirement income adequacy in England and Ireland, by examining the extent to which these assessments were affected by the inclusion of half the annuitised value of owner-occupied housing wealth in the definition of retirement income.

Dewilde and Raeymaeckers (2008) used data from the 2001 European Community Household Panel (ECHP) to test the idea that housing policies can reduce poverty in later life by promoting outright ownership, which in turn provides a 'hidden' source of income (also addressed using earlier data by Fahey et al., 2004a). Across the ten Member States included in the ECHP (including Ireland), they found that neither generous pensions nor high ownership rates had the strongest poverty-reducing potential; lower poverty rates in older age were most strongly associated with the provision of social housing for older people. Furthermore, they identified a group of older people who were faced with a double disadvantage, in the sense that in high homeownership countries, those who did not possess their own homes also tended to receive low pension benefits.

In a comparative analysis of a selection of countries with differing housing and pension systems in the early 2000s, Delfani et al. (2014) found little support for the hypothesis that housing and pensions in older age were to some extent

interchangeable; the exception was in countries such as Ireland with high rates of homeownership, and no mandatory earnings-related pension scheme. A detailed analysis of the homeownership-pension trade-off in four European countries (Belgium, Germany, Ireland and the Netherlands) using Survey on Income and Living Condition (SILC) data for 2009 showed that outright homeownership among the income-poor older population played a significant role in reducing poverty (both income poverty and deprivation)⁶ in old age (Delfani et al., 2015). In Ireland, outright homeownership had a particularly strong effect on reducing deprivation in older age.

Focusing on housing costs, a recent paper used data from the German Socio-Economic Panel (GSOEP) to examine how rising housing costs over the period 1996-2017 have affected income poverty among the older population (aged 65+) (Lozano Alcántara and Vogel, 2021). The German case is of particular interest as it has one of the highest percentages of tenants (48.9 per cent in 2019) in Europe. They found that the share of tenants aged 65+ at income poverty risk after housing costs rose from 23.9 per cent in 1996 to 33.9 per cent in 2017, while for homeowners the share remained broadly stable (and much lower) throughout the period (at approximately 6-8 per cent). A Blinder-Oaxaca decomposition showed that changes in housing costs between 1996 and 2017 explained most of the increase in the old-age income poverty rate over the period.

Using data from Australia for 2017-2018, Bradbury and Saunders (2021) compared before and after housing costs poverty rates across different population groups. They hypothesised that the before housing costs measure would over-estimate poverty among older people who often have low (mainly pension) incomes but also face low housing costs because many of them own their homes outright. In contrast, they found that the after housing costs poverty rate for single older people was substantially higher than the before housing costs rate (23.4 per cent vs. 15.9 per cent), and largely the same on a before and after housing costs basis for older couples (at approximately 9 per cent). Examining trends over time since 2007, they found that the sharp increase in house prices that has left many Australians with unpaid mortgages when they reach pension age, and the growing number of both young and old Australians who are unable to gain access to homeownership and forced to rely on the private rental market, explained these patterns.

In the Irish context, Fahey (2003) calculated before and after housing costs at risk of poverty rates by age cohort using data from 1998. He found that while the after housing costs poverty rate among older households was 10 percentage points

⁶ I.e. inability to afford social activities, healthy food, clothing etc.

lower than the before housing costs poverty rate, it was still high in absolute terms (at 30 per cent) and was the highest of any age group. This reflected the relatively low mortgage costs across the age cohorts observed at this time. Updating the analysis using data for 2000, Fahey et al. (2004b) found that the contrast between before and after housing costs income poverty measures was largest for those aged over 65: the percentage of persons aged 65+ below the before housing costs income poverty threshold was 43 per cent, in comparison to 34 per cent when using the after housing costs measure. These figures have to be interpreted in the light of the patterns of income poverty across age cohorts at that time; in contrast to now, older adults (aged 65+) were at the highest risk of (before housing cost) poverty in the early 2000s, with 43.3 per cent in income poverty in 2000, compared with 16.9 per cent of the population aged 18-64, and 24.9 per cent of children aged under 18 (Fahey et al., 2004b).⁷ To our knowledge, there has been no research of after housing costs income poverty in Ireland since the early 2000s, though the CSO has recently begun to publish such estimates as a supplement to the official estimates of poverty and deprivation (Central Statistics Office, 2021b).⁸

A particularly important aspect in the homeownership debate, and one which has focused research where younger adults are considered, is the extent to which saving for homeownership and/or rental payments affects how younger adults save for retirement. For example, Crawford and Simpson (2020) found that higher house prices reduced the probability that young adults (aged 21-35) in England, particularly those working in the public sector and in the middle of the earnings distribution, enrolled in a private pension, although the magnitude of the effect was small. Yates and Bradbury (2010) examined the potential for asset-based welfare⁹ to protect households from poverty after retirement by focusing on the role of homeownership in preventing poverty among older Australians and on likely future trends in asset accumulation. They found that although asset-based welfare has the potential to ease the fiscal constraints faced by the state, it may well lead to poorer social insurance outcomes for households with limited saving capacity over their lifetime. Using data for Australia (which has high rates of homeownership), they showed that older households who 'missed out' on homeownership were multiply disadvantaged: they had lower non-housing wealth, lower disposable incomes and higher housing costs in retirement than homeowners and they had significantly higher after housing poverty rates.

⁷ In 2020, children (aged 0-17) had the highest income poverty rate (16.4 per cent) across the age groups, while those aged 65+ had the lowest (9.8 per cent) (CSO, 2021b).

⁸ The indicator of after housing costs income is calculated based on an alternative measure of equivalised income, excluding the total rent paid and mortgage interest. The total rent paid includes housing supports such as the Housing Assistance Payment (HAP), Rent Supplement, Rental Assistance Scheme (RAS) which were included in the household income. Any person with an equivalised income after rent and mortgage interest of less than 60 per cent of the median before rent and mortgage interest is considered at risk of poverty after rent and mortgage interest (i.e. the same threshold is used for calculating the rate before and after rent and mortgage interest is deducted) (CSO, 2021b).

⁹ Asset-based welfare refers to the use of policies to incentivise accumulation of asset wealth (including homeownership) in working life, in order to fund consumption in retirement.

Projections suggested that this group will grow in size in the coming decades (see also Yates et al., 2008).

1.3 CONTRIBUTION AND REPORT STRUCTURE

Given the existing literature, both internationally and for Ireland, there is a clear gap in terms of research covering the intersection of the changing nature of housing costs and tenure and the adequacy of income in retirement. The purpose of this report is to address this gap and to explore the following research questions:

- What is the expected proportion of homeowners and renters in Ireland going forward?
- What is the typical housing costs burden for these households?
- What implications do projected tenure patterns have for the adequacy of retirement income, in particular for renters?

More specifically, our contribution is as follows. We build on an existing model of retirement income adequacy developed at the ESRI to assess the impact of housing costs on retirement income adequacy. This model, TRIAM, uses data from the Irish Longitudinal Study on Ageing (TILDA) to simulate the incomes in retirement of a cohort of individuals born between 1955 and 1960 (who can expect to reach the state pension age (SPA) of 67 between 2022 and 2027) (Beirne et al., 2020).¹⁰ The model uses similar data and methods to those used in the UK to assess retirement income adequacy (Banks et al., 2005; Crawford and O’Dea, 2012). In this model, the adequacy of retirement income is assessed against a number of poverty line benchmarks of adequacy. Different definitions of income (i.e. state and supplementary pension income, adding financial assets, etc.) are also examined.

Cohort-level scenarios of tenure and housing costs are developed using the ESRI’s micro-simulation tool for assessing housing affordability and tenure (AT-HOME). This tool considers tenure transitions by households and provides a number of different scenarios for savings, house prices and incomes to provide housing tenure proportions. This provides an age-cohort based projection of the share of renters and homeowners as well as an exploration of the factors that act as the major barrier to homeownership (for example insufficient savings or income).

These tenure-share projections are incorporated into the TRIAM, coupled with housing costs estimates for future renters, in a number of stages. In the first stage, the sensitivity of estimates of retirement income adequacy for the 1955-1960 cohort to the inclusion of housing costs is assessed (i.e. before and after housing

¹⁰ When the model was developed (2019), the SPA was expected to increase to 67 from 2021.

costs measures of poverty are calculated). In the second stage, we assess the broader implications of projected cohort-level differences in housing tenure and costs (based on simulations from the AT-HOME model) for before and after housing costs estimates of poverty. Three estimates of projected homeownership rates (high, medium and low – based on the AT-HOME modelling results) are used to illustrate the impact on retirement income adequacy estimates.

The report is structured as follows. Chapter 2 provides a brief overview of the institutional background and policy context, summarising the current system of pension payments in Ireland, as well as the key features of the Irish housing market. Chapter 3 outlines the results of the modelling to derive cohort-specific tenure and housing costs (from the AT-HOME model), while Chapter 4 presents the results incorporating these projections into assessments of retirement income adequacy using TRIAM. The final chapter, Chapter 5, of the report discusses the findings, drawing out implications for policy.

CHAPTER 2

Policy context

2.1 THE IRISH PENSION SYSTEM

In common with many other OECD countries, the Irish pension system comprises three main pillars: state, occupational and private pensions (Government of Ireland, 2018; OECD, 2014; 2021). Data from the 2015 and 2016 Survey on Income and Living Conditions (SILC) show that nearly 75 per cent of the gross income of those aged 66+ comes from these sources (Nolan et al., 2019). The latest official figures show that just under two-thirds of those aged 20 to 69 in employment in 2020 were covered by an occupational or private pension (Central Statistics Office, 2021a).

The first pillar comprises the state (contributory or non-contributory) pension, which is a largely flat-rate payment (i.e. not earnings-related), payable from age 66. Entitlement to the state pension (contributory) is based on a complex set of rules, and depends on when the individual first entered employment, the number of pay-related social insurance (PRSI) contributions, and the average number of contributions per year.¹¹ To qualify for the non-contributory state welfare pension, a person must pass a means test based on both income and wealth, and must be habitually resident in Ireland (Nivakoski and Barrett, 2019).¹²

The State Pension Age (SPA) in Ireland is currently 66, with no provision to defer any entitlement or to claim it earlier. Prior to 2014, the state pension (transition) in Ireland was payable at age 65 to individuals who retired from insurable employment and satisfied certain social insurance contribution conditions. The state pension (transition) was abolished in 2014. In February 2021, a benefit payment for those aged 65 who have ceased regular employment or self-employment and who have the required PRSI contributions was introduced. The benefit is paid at the same rate as the standard rate of Jobseeker's Benefit (€208 per week) and stops once the person reaches the SPA of 66.¹³

¹¹ It is proposed to move to a new 'total contributions approach' (TCA) for determining the level of contributory pension received by an individual. Under this system, the amount of pensions will be directly proportionate to the number of social insurance contributions made by a person over his or her working life, rather than the average (Government of Ireland, 2018). While this was initially intended to be fully rolled out for those retiring in 2020 onwards, those reaching the SPA are currently being assessed under the existing and TCA systems and given an entitlement corresponding to the higher of the two.

¹² The maximum contributory state pension payable is currently €253.30 per week. The non-contributory state pension is means-tested and is payable at a maximum rate of €242 for those aged less than 80, and €252 for those aged 80+. See https://www.citizensinformation.ie/en/social_welfare/social_welfare_payments/older_and_retired_people/ for further details.

¹³ See https://www.citizensinformation.ie/en/social_welfare/social_welfare_payments/older_and_retired_people/payment_for_people_retired_at_65.html for further details.

For both the contributory and non-contributory state pensions, it was announced in 2010 that the SPA would further increase to 67 in 2021 and to 68 in 2028 (Government of Ireland, 2010; 2018). However, the planned increase to 67 was suspended in 2020. The Government established a Commission on Pensions to examine various issues around the sustainability of the state pension, including the SPA. The report of the Commission, published in October 2021, recommended that the SPA increase by three months per year starting from 2028 to reach 67 years in 2031, and at a slower pace (by three months every two years from 2033) to reach 68 in 2039 (Government of Ireland, 2021).

The second pillar comprises occupational pensions, which cover a broad section of the population.¹⁴ Tax relief at the marginal rate is available for contributions to approved occupational pension schemes. It is generally not possible to contribute to an occupational pension scheme after the normal age of retirement. There is no legal obligation for employers to provide occupational pension schemes, but those who do not must provide access to at least one Personal Retirement Savings Account (PRSA). However, public service occupational pension schemes are in place for staff across the civil service, local authorities, Garda Síochána (Irish police), the Defence Forces, the health and education sectors and non-commercial state bodies. In order to increase supplementary pension coverage, particularly in the private sector, in 2019 the Government announced its intention to introduce a system of automatic enrolment (OECD, 2021). The details of this Automatic Enrolment Retirement Savings System were announced in March 2022. From January 2024, all employees not already in an occupational pension scheme, aged between 23 and 60 and earning over €20,000 across all of their employments, will be automatically enrolled. Employer and employee contributions will initially be 1.5 per cent of gross income each (with an additional 0.5 per cent provided by the State), increasing every three years by 1.5 per cent until they eventually reach 6 per cent for both employee and employer (and 2 per cent by the State) in year ten (2034) (Department of Social Protection, 2022).

Finally, the third pillar is a voluntary savings pillar, typically comprised of long-term personal savings and financial investments used to fund retirement over and above first and second-pillar arrangements. Private pension schemes are voluntary and include Retirement Annuity Contracts (RACs), commonly used by the self-employed, and PRSAs, which were introduced in 2002 as an attempt to increase the pension coverage among low-coverage employee groups (Nolan et al., 2019).

¹⁴ In 2020, two-thirds of workers had an occupational and/or private pension. Of those workers who had an occupational and/or private pension in 2020, 69.7 per cent had occupational pension cover only (from current or previous employment), 12.3 per cent had personal pension coverage only and 18 per cent had both (Central Statistics Office, 2021a).

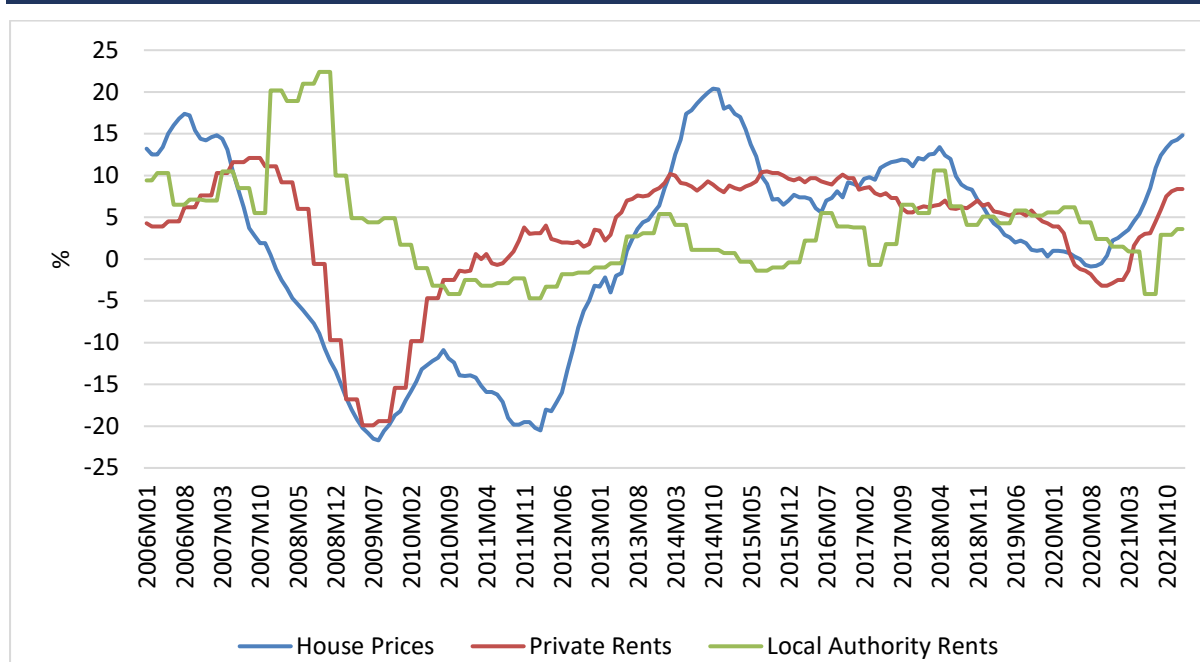
The Pensions Roadmap 2018-2023 sets out Government policy in relation to six key strands of pensions policy, including state pension reform and automatic enrolment (Government of Ireland, 2018). It recognises that while the state pension provides basic protection against income poverty in old age, it is not designed to ensure a high level of retirement income adequacy. Therefore, the state pension should, in most cases, be combined with supplementary pension arrangements in the form of occupational and personal pension products. While international assessments of Ireland's pension system highlight future sustainability challenges, particularly if increases to the SPA are deferred (European Commission, 2021; OECD, 2021), there has been little or no discussion of the potential impact of cohort-specific changes in housing costs on the retirement income adequacy of future cohorts.¹⁵ However, in recognition of the growing importance of housing costs in household budgets, the CSO started to publish both before and after housing costs measures of income poverty in 2020 (Central Statistics Office, 2021b).

2.2 THE IRISH HOUSING MARKET

Affordability of, and access to, housing has become one of the critical policy issues in Ireland in the past number of years. This is due to the culmination of worsening affordability in both rental and house purchase markets as chronic supply shortages and rising prices have persisted.

Figure 2.1 documents the trend in housing and rental price changes for the period 2006 to 2022. In the immediate aftermath of the financial crisis, both house prices and rents dropped considerably reflecting the general economic turmoil of the period. As the economy began to rebound in 2013/2014, the inflation rate for housing and rental prices began to recover. In the home purchase market, prices began to rapidly increase but cooled somewhat in 2015 as the Central Bank of Ireland introduced a suite of macroprudential mortgage measures which capped the loan-to-income and loan-to-value ratios for borrowers. The aim of these measures was to build bank and borrower resilience as well as break the procyclicality in credit cycles between housing and credit markets (Grace et al., 2015). House prices began to increase in 2016 and 2017 but tapered off before the COVID-19 pandemic. Inflationary pressures rebounded in 2021.

¹⁵ The European Commission notes that the housing costs overburden rate (1.5 per cent) for the current cohort of over 65s in Ireland is considerably below the EU average (9.8 per cent). The housing costs overburden rate is the share of older people living in households where the total housing costs represent more than 40 per cent of the total disposable household income (European Commission, 2021).

FIGURE 2.1 TRENDS IN HOUSING COSTS (YEAR-ON-YEAR CHANGE, %)

Source: CSO House Price Index and CPI data (rental indicators).

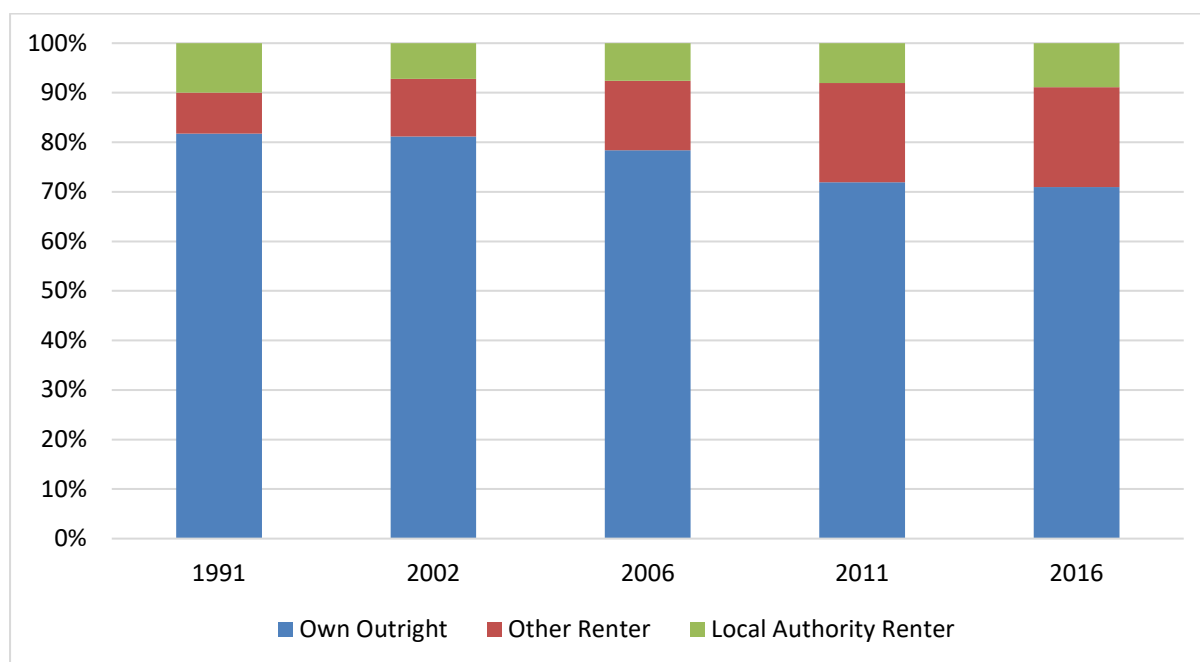
Notes: Percentage change in index over 12 months reported.

While the macroprudential mortgage measures act to limit feedback loops between credit and house prices,¹⁶ these policies can lead to other externalities such as tighter access to credit for first time homebuyers. Recent research suggests that Irish households do face credit access constraints from a lack of sufficient equity accumulation as well as tight income leverage limits (McQuinn et al., 2021; Kelly and Mazza, 2019). To attempt to deal with these externalities, a number of policy supports were introduced into the market such as the Help-to-Buy scheme which provides for a tax rebate towards house purchase of new homes by first time buyers and the Rebuilding Ireland Home Loan, a direct local authority loan product (O’Toole and Slaymaker, 2020). Further measures to deal with credit and leverage access (in the form of general and local authority specific shared-equity schemes) are forthcoming as part of the ‘Housing for All’ plan announced in 2021.¹⁷

In the rental sector, prices have also risen rapidly in recent years. The sector has been accommodating a larger and larger share of the population relative to historical norms (see Figure 2.2) and this has led to considerable rises in the average level of rents in the period since 2014. To counteract the rapid inflationary impulses, rent control policies have been introduced to put a cap on inflation. These ‘Rent Pressure Zones’ placed limits on the allowable inflation rates per property for rental tenancies in specific geographic zones (see Coffey et al., 2022).

¹⁶ Research has shown that the macroprudential rules have limited house price inflation in Ireland (McQuinn, 2021).

¹⁷ See De Burca et al. (2021) for a review of the First Home shared equity scheme.

FIGURE 2.2 TENURE SHARES IRELAND

Source: CSO Census of Population, various years.

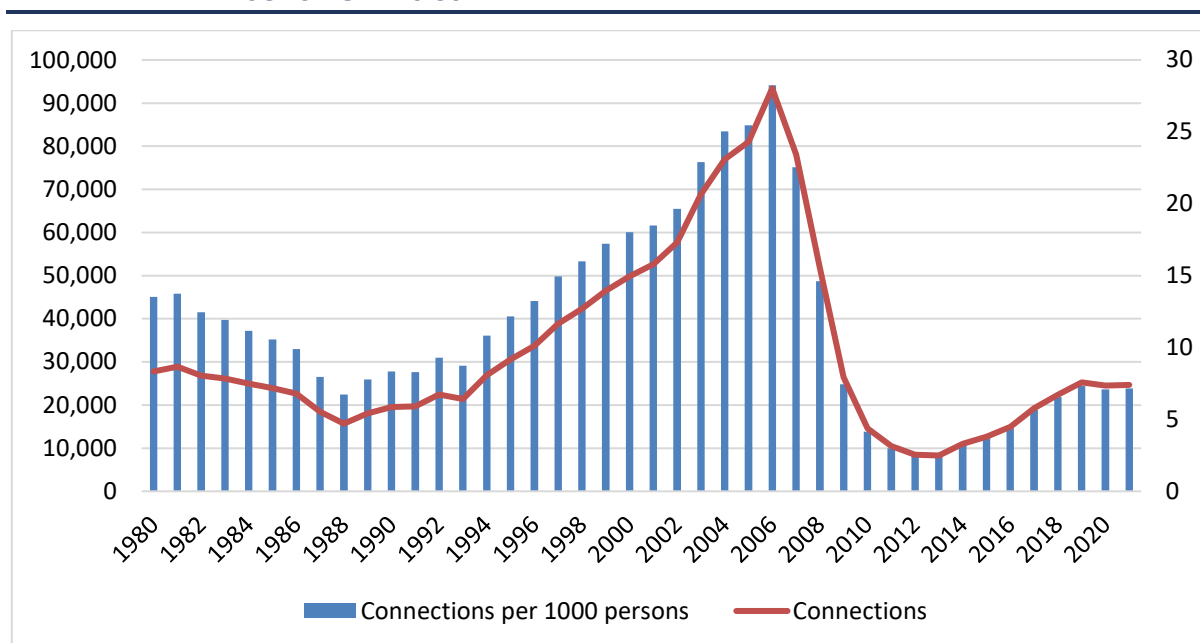
The inflationary conditions in both the house purchase and rental sectors have given rise to serious concerns about housing affordability, with a number of research studies pointing to affordability challenges for subgroups of the population (low income, urban, private renters) (Corrigan et al., 2019; O'Toole et al., 2020).

One of the oft-cited reasons behind the rapid price escalation is chronic shortage of available properties and that new housing completions are well below estimates of demographic demand (Bergin and Garcia-Rodriguez, 2020). Following the financial crisis, new housing production in Ireland fell dramatically and has been slow to recover as the economy has rebounded. Figure 2.3 displays the total number of electricity connections in Ireland per year, a proxy for the number of new housing units (left hand bar). The figure also displays (in red) the number of completions per 1,000 persons aged 20-50 in the population. Given that this age bracket is the most likely to provide new forming households, it is a useful proxy for the demographic pressures coming from this group. Current new supply is well below the historical levels shown in the data.

A range of policy supports have been introduced in recent years to attempt to alleviate supply bottlenecks. These policies typically fall into three broad policy groups: a) those that attempt to deal with the cost of construction such as the site services fund and the local housing infrastructure activation fund (LIHAF);

b) policies to provide financing for building projects such as the establishment of the Land Development Agency (LDA) and Home Building Finance Ireland (HBFI); and c) policies to lessen time frictions in the planning process. While the number of housing commencements has recovered in 2021, actual completions continue to remain below any reasonable estimates of demographic demand.

FIGURE 2.3 HOUSING SUPPLY CHANGES – ESB CONNECTIONS – OVERALL AND PER 1,000 PERSONS AGED 20-50



Source: CSO NDA04 – ESB Connections dataset.

Given these housing challenges, there are a number of more recent and long-standing policies to deal with affordability for lower-income renters outside the suite of supports that are aimed at the homeownership transition. The bulk of the policy support is aimed towards those low-income households whose circumstances are such that they qualify for social housing provision. For this population cohort a number of supports are available. First, local authorities provide accommodation directly to social housing tenants who pay an income-based differential rent. Subsidies are also provided through the Rental Accommodation Scheme (RAS) and the Housing Assistance Payment (HAP) whereby the tenant occupies a property in the private rental sector, but the local authority pays a top-up to the landlord above the differential rent level (paid by the tenant). Short-term income support is also available for households through the Rent Supplement (RS) scheme. A more thorough overview of these schemes and the mechanisms by which they operate can be found in Doolan et al. (2022) while a documentation of their evolution overtime is contained in Corrigan and Watson (2019).

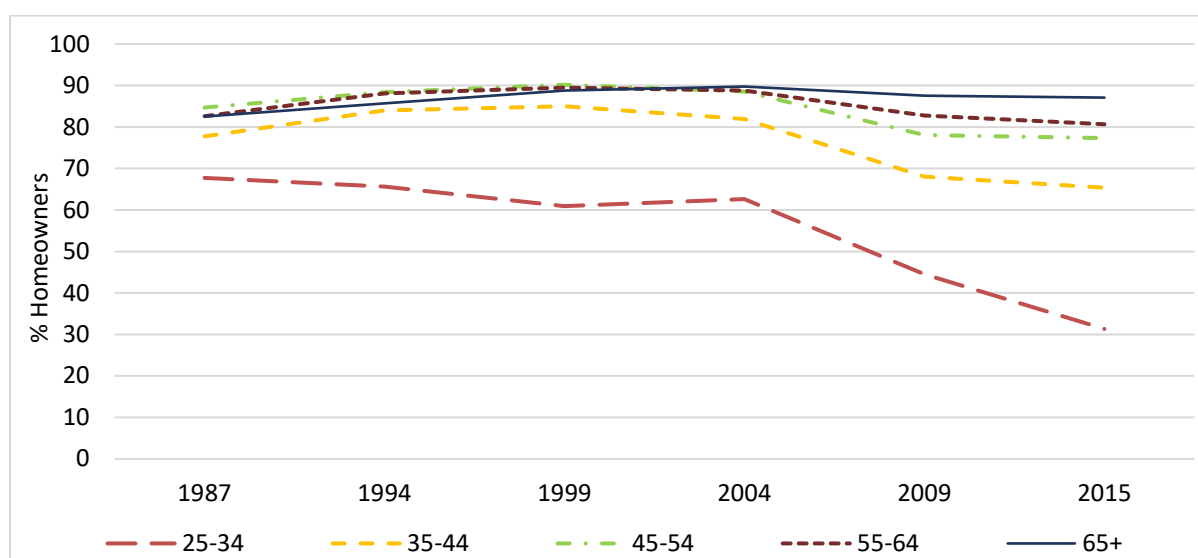
CHAPTER 3

Housing tenure and cost scenarios

Given the housing market context, and the observed lowering of the homeownership rate in Ireland, consideration must be given as how persistent this pattern may remain and what the likely implications are for income adequacy in retirement. Within this context, the purpose of this chapter is threefold. First, we examine current housing tenure patterns for different age cohorts and how these have changed over time. Second, we analyse how the proportion of income spent on housing costs varies across tenures and age groups. Third, we use the ESRI's Affordability and Tenure Housing Microsimulation Engine (AT-HOME) tool to simulate a series of scenarios for homeownership rates for different age cohorts based on various assumptions around credit access, house prices, incomes and rental prices. While homeownership may not be the appropriate tenure for certain households and high levels of homeownership are not necessarily desirable, homeownership in retirement provides security in the form of low and stable housing costs, as well as an asset that can be drawn upon as a potential source of income (Fahey, 2003; Fahey and Norris, 2010). It must be noted that our assessment of the rate of homeownership focuses on the ability of households to become homeowners through house purchase and not channels such as whole (or part) home inheritance. The findings from this chapter will then be used to examine how housing costs are likely to impact retirement income adequacy for different age cohorts in Chapter 4.

3.1 HOUSING TENURE

As noted in Chapter 2, the share of homeowners in Ireland has been declining since 2006. To explore this issue in more detail, using data from the Household Budget Surveys, Figure 3.1 presents the share of homeowners in different age cohorts and how this has varied over time. Between 1987 and 2004 ownership rates were fairly stable across the different age groups; rising slightly over the period for the over 35s but falling around 5 percentage points for 25-34s. However, between 2004 and 2015 there was a notable decline in homeownership across those aged 25-64. The share of 55-64 year olds owning their own home fell nearly 10 percentage points over this period, while for those aged 35-44, by 2015 it had fallen to 65 per cent, having fluctuated between 80-85 per cent between 1987 and 2004. The starkest decline was for the youngest households in our analysis with the share of 25-34s who owned their own home halving between 2004 and 2015, falling from 60 per cent to just 30 per cent.

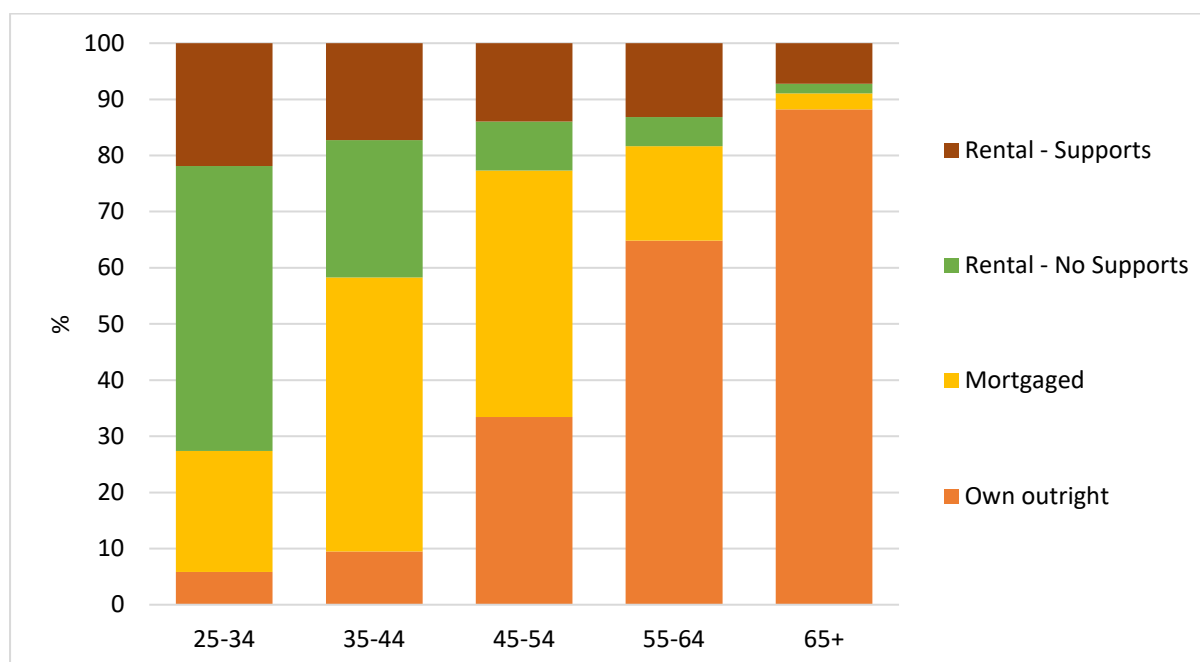
FIGURE 3.1 % HOMEOWNERS BY AGE COHORT 1987-2015

Source: Authors' calculations using Household Budget Surveys 1987-2015.

Notes: Homeowners includes both outright owners and owners with a mortgage.

The Household Budget Survey figures presented in Figure 3.1 are only available for the period up to 2015. The period from 2015 onwards has seen tighter access to credit with the introduction of macroprudential mortgage regulations, as well as significant growth in house prices, as shown in Chapter 2. From Figure 3.2, which uses Survey on Income and Living Conditions (SILC) data for 2018-2019, we see that the shares of households aged 25-34 and 35-44 who are homeowners have continued to fall further since 2015, standing at 27 per cent and 58 per cent respectively for 2018-2019. Ownership rates for those aged 45 and over have remained similar since 2015.

Regarding the levels of homeownership, Figure 3.2 shows that around 90 per cent of those in or approaching retirement age (65+) own their own homes. The vast majority own outright, with fewer than 3 per cent of this age group still making mortgage payments. Among those who are renting, the majority are in receipt of some form of housing supports (either living in local authority provided accommodation or in private sector accommodation with state housing supports). Fewer than 2 per cent of this cohort live in the private rental sector without supports. For the subsequent cohort, those currently aged 55-64, the homeownership rate is around 80 per cent, 10 percentage points lower than the 65+ group. Again, the majority of renters are in receipt of supports, but 5 per cent of this cohort do live unaided in the private rental sector. The ownership rate for those aged 45-54 is just under 80 per cent, slightly lower but similar to the 55-64 group. By contrast, far fewer of the subsequent 35-44 cohort are currently homeowners, with the rate standing at a much lower 58 per cent. For the youngest cohort (25-34), only 27 per cent currently own their own home, with just over half of this age group renting unsupported in the private sector.

FIGURE 3.2 % HOUSEHOLDS IN HOUSING TENURES BY AGE COHORT 2018-2019

Source: Authors' calculations from Survey on Income and Living Conditions (SILC) 2018 and 2019.

Notes: The group 'rental – with supports' includes households in in the private rental sector who also report paying rent to a local authority i.e. HAP or Rental Accommodation Scheme recipients, as well as those living in local authority owned properties. Households who responded that they are living in their property 'rent free' are omitted.

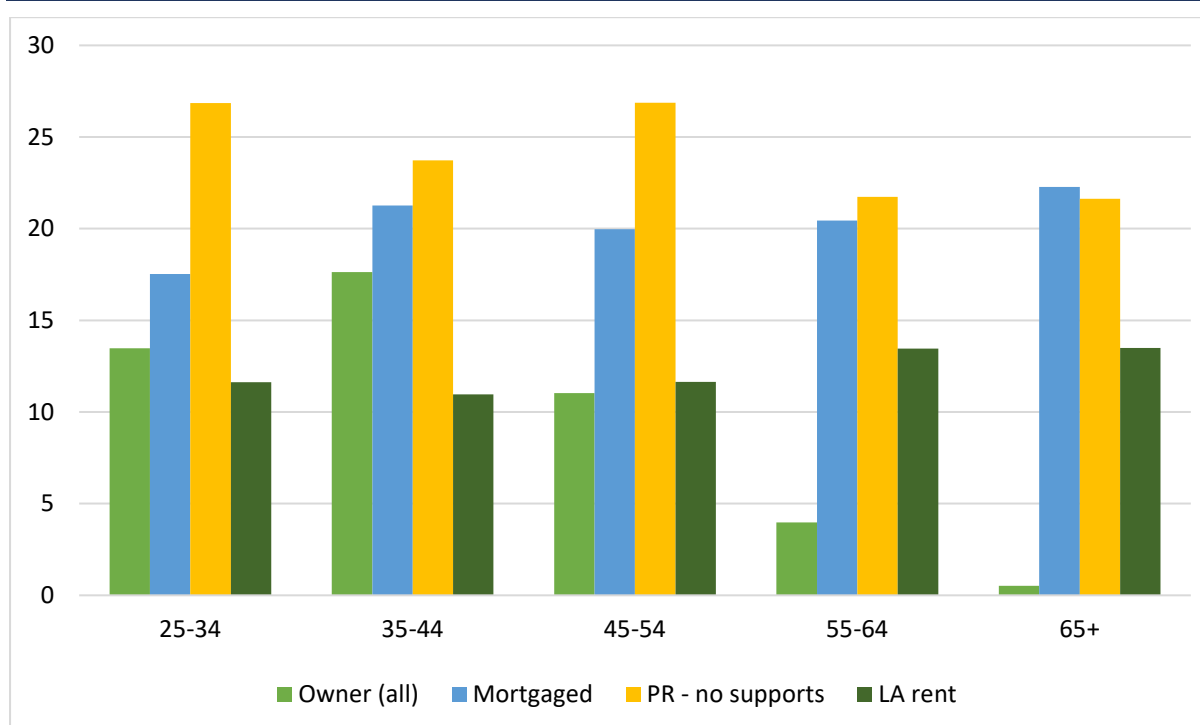
While there may be some degree of homeownership catch-up at later ages, particularly regarding the youngest age group (in part reflecting increased education, delayed entry into the workforce and delayed patterns of household formation), ownership rates for previous birth cohorts have tended to level off by 40-45 (see Figure 1.1). Corlett and Judge (2017) find a similar tapering off of homeownership rates after 40 in the UK. These findings are consistent with the fact that banks are typically only willing to offer a mortgage term up to retirement age and therefore the maximum permissible mortgage term begins to decline after this point, rendering ownership more challenging.

Corlett and Judge (2017) also find that in the UK both levels and the growth rates in homeownership between the ages of 30-40 are lower for younger age cohorts. They conclude the fall in homeownership rates among younger families observed in the wake of the financial crisis is therefore not likely to fully reverse. Similarly, Stebbing and Spies-Butcher (2016) find that the rate of catch-up is declining in Australia and also conclude that falls in homeownership for younger cohorts are unlikely to be fully reversed in time. These findings are consistent with Arundel and Doling (2017) who argue that declines in homeownership are not solely due to the financial crisis, but that this merely accelerated pre-existing labour market dynamics such as increased labour market insecurity and are therefore not likely to be reversed. For Ireland, such a large gap between the ownership rates of the 44-54 and 35-44 groups therefore raises the question of how much this gap is likely to narrow. We return to this in Section 3.3.1.

3.2 CURRENT HOUSING COSTS

A critical issue in the policy considerations around the Irish housing market is the issue of high housing costs for particular cohorts of the population. Figure 3.3 presents the mean share of net income spent on housing payment costs by tenure and age cohort. We define housing payment costs as either rental or mortgage payments. It does not therefore take into account maintenance, insurance and other costs associated with housing (such as utilities). The high levels of outright homeownership for those aged 65+, documented above, mean that on average these homeowners are currently only paying 0.5 per cent of their income on mortgage costs, as the vast majority have no housing payment costs. The roughly 3 per cent still with a mortgage are paying an average of 22 per cent of net income on payments, similar to the 21.6 per cent paid by private renters not in receipt of housing supports. For all other age groups, non-supported private renters are clearly paying a higher share of income on their housing costs than other tenures. While mortgaged households typically pay no more than 20-21 per cent on average, private renters not in receipt of housing supports in the youngest cohort (25-34), as well as those aged 45-54, are on average paying 27 per cent of their incomes on rent. In contrast, the housing payment-to-income ratios of local authority renters are much lower and fairly consistent regardless of age, ranging from 11-13.5 per cent on average.

FIGURE 3.3 MEAN HOUSING COST-TO-INCOME RATIO (HCTI) % BY TENURE AND AGE COHORT

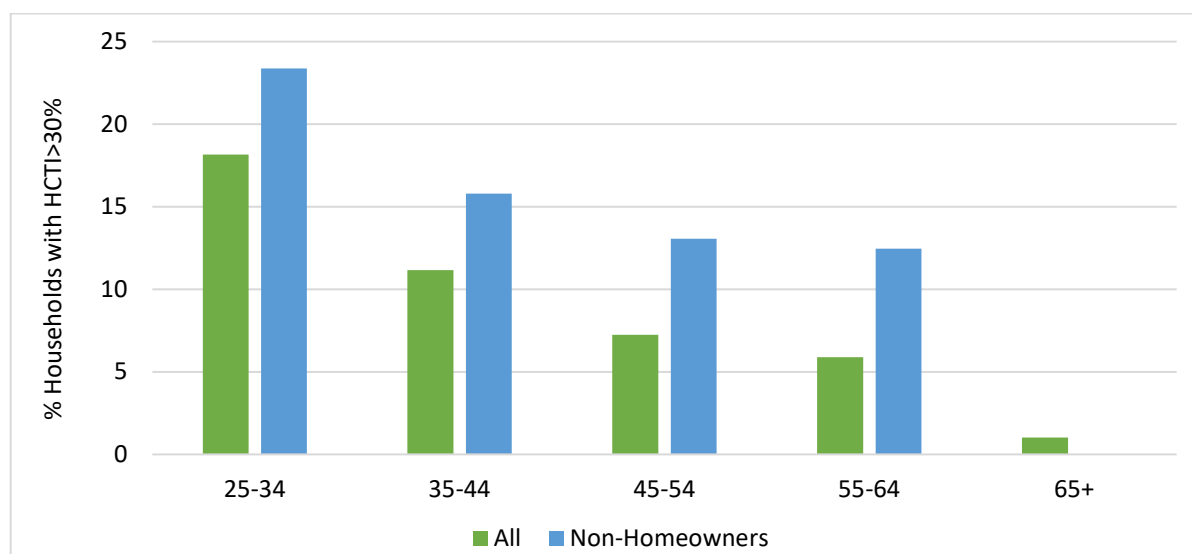


Source: Authors' calculations from Survey on Income and Living Conditions (SILC) 2018 and 2019.

Notes: Owner (all) includes both those who own outright and those who are mortgaged homeowners. We omit housing cost-to-income ratios for supported renters living in private rental sector accommodation due to the difficulties associated with capturing the rents actually paid by these tenants in SILC (see Doolan et al., 2022, for more information).

Figure 3.4 presents the share of households in each age cohort faced with high housing costs. We define high housing costs as having a housing cost-to-income ratio (HCTI) greater than 30 per cent, a commonly used benchmark for high housing costs (Corrigan et al., 2019). At present the share of households with high housing costs clearly falls with age. Just over 1-in-5 households aged 25-34 face high housing costs under this definition, compared to around 1-in-17 aged 55-64 and only 1-in-100 of those currently aged 65+. For all age cohorts the incidence of high housing costs is notably higher for non-homeowners.

FIGURE 3.4 % HOUSEHOLDS WITH HIGH HOUSING COSTS (HCTI>30%) BY AGE COHORT



Source: Survey on Income and Living Conditions (SILC) 2018 and 2019.

Notes: Insufficient observations to report share of non-homeowner households aged 65+ with HCTI>30 per cent. Includes all households with housing payment costs i.e. all but outright owners.

Figures 3.3 and 3.4 highlight the challenges associated with declining homeownership rates. As noted, while homeownership may not be the appropriate tenure for certain households and high levels of homeownership are not necessarily desirable, homeownership in retirement provides security in the form of low and stable housing costs, as well as an asset that can be drawn upon as a potential source of income in retirement. Indeed, as highlighted in Section 1.2, in the literature homeownership and public pensions are often framed as substitutes in countries with high rates of homeownership (Delfani et al., 2014). Additionally, Norris (2016) notes how the Irish welfare system has traditionally focused on property redistribution, with income redistribution and provision of state services relegated to a secondary objective. As such, high homeownership in Ireland may have allowed these households to counteract low public or private income sources in retirement. If the trends of reduced homeownership outlined above persist into retirement, a substantial portion of future retirement cohorts will be faced with housing payment costs in their retirement. We now turn to modelling the likelihood that current renters in different age groups will be able to transition into homeownership.

3.3 HOMEOWNERSHIP SIMULATION SCENARIOS

3.3.1 Overview: Affordability and Tenure Housing Microsimulation Engine (AT-HOME)

Having observed the current tenure structure of Irish households, in this section we use the Affordability and Tenure Housing Microsimulation Engine (AT-HOME) outlined in McQuinn et al. (2021) to simulate the likelihood of current rental households in different age cohorts being able to transition to homeownership under a prudent credit risk assessment policy and current market conditions and regulations. This assessment has two stages: (i) determining whether a household is inherently high credit risk and (ii) an assessment of whether a household could pass the current credit requirements (such as the macroprudential mortgage regulations) regarding wealth, income and affordability. For this analysis we combine the 2018 and 2019 waves of the nationally representative Survey on Income and Living Conditions (SILC). A diagrammatic overview of our AT-HOME simulation model is presented in Figure 3.5.

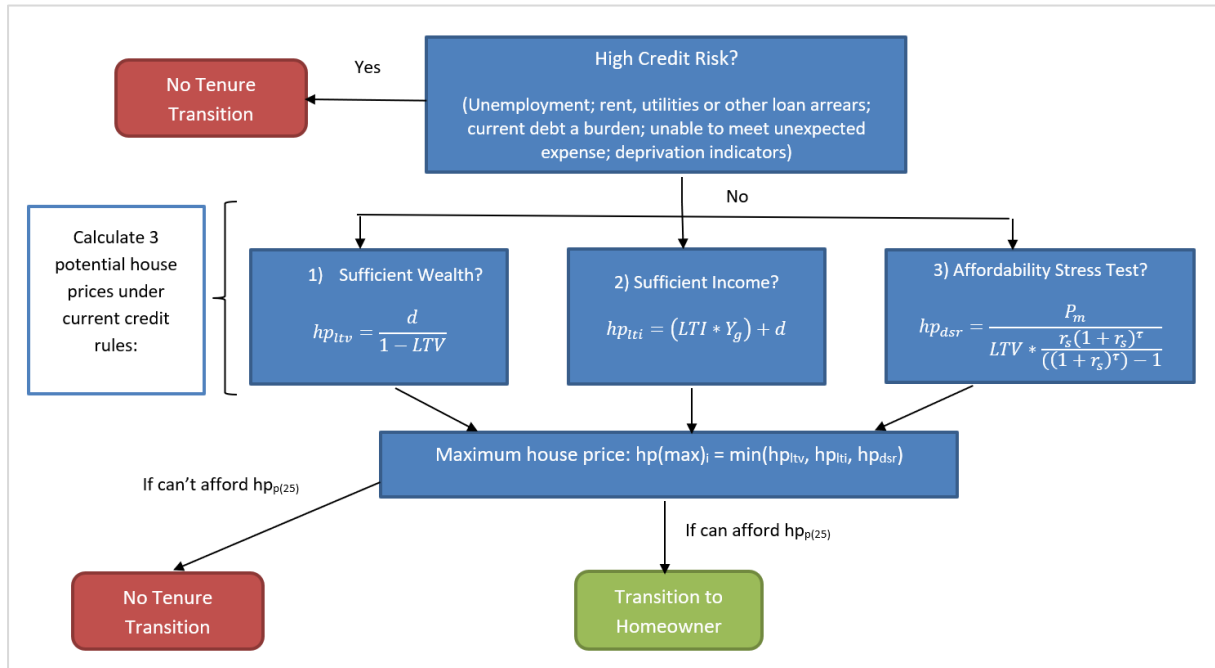
Broadly this can be considered a static style modelling approach in that it uses data on the incomes, employment characteristics, expenditures and housing costs of existing households and therefore does not focus on household formation or more dynamic demographic changes (e.g. migration and birth rates) that will undoubtedly impact the housing market over time. While these aspects are important, they are not the focus of this work. Our analysis can therefore be thought of as assessing the proportion of current households in each age cohort that are: a) currently homeowners and b) likely to be able to become homeowners. We focus on five age bands: 25-34; 35-44; 45-54; 55-64; and 65+. We only include cohorts aged 25 and over in our analysis as we do not model the household formation process specifically. When interpreting our findings, particularly for this youngest group aged 25-34, it must however be kept in mind that we are only able to consider those in each age cohort living independently and not those who remain in their family home. Eurostat figures suggest around one-in-four 25-34 year olds in Ireland live with their parents.¹⁸

It is important to note that the homeownership simulations presented here are based on the current market and regulatory conditions. In practice future homeownership rates could be affected by various policy levers, a greater provision of social and affordable housing, changes in the availability of policy supports for homeownership, regulatory changes to private rental sector and macroprudential regulations, as well as future economic conditions. It must also be noted that the homeownership transitions that we model in this paper are

¹⁸ Available at: https://ec.europa.eu/eurostat/databrowser/view/ILC_LVPS08__custom_2353321/default/table?lang=en.

concerned solely with those relating to home purchase in the open market. We do not consider any changes in tenure status that come about due to the inheritance of whole (or substantial part) properties.

FIGURE 3.5 OVERVIEW OF STATIC TENURE ASSIGNMENT METHOD



Source: Authors' analysis.
Notes: We set LTV=90 per cent and LTI=3.5 in line with current macroprudential regulations for first-time buyers. *d* is down-payment; *Y_g* is gross household income; *P_m* is the maximum potential monthly repayment (net income minus necessary expenditure); *r_s* is the prevailing interest rate for new mortgage loans plus 2 per cent; *τ* is the mortgage term set at the lower of either 30 years or the number of years until the household head reaches retirement age.

In the first stage of our assessment, we determine whether a household is high credit-risk, and therefore unlikely to be able to pass a credit check and obtain a mortgage at present. First, if the household head has been unemployed or inactive in the labour market during the past 12 months. Second, we utilise a series of indicators as a proxy for whether a household has a poor credit record. We determine a household to be high credit risk if they had any rent, utilities or consumer loan arrears in the past 12 months due to financial difficulties; state that their existing debt¹⁹ is a burden or that they are unable to meet an unexpected expense; and also either face at least one deprivation indicator in SILC. Combining these subjective measures of burden with more objective measures such as deprivation indicators aims to capture those facing material difficulties because of these burdens.

¹⁹ These households are in the rental sector and have no mortgage debt. Existing debt therefore refers to items such as car loans, credit cards and other consumer loans.

In the second stage of our assessment, we use data on household income, estimated savings that could be used as a down-payment, and expenditure to assess whether they could pass the current regulatory hurdles regarding income, wealth and affordability. Our methodology draws on the framework outlined in Kelly et al. (2018) and McQuinn et al. (2021) by calculating three potential house prices that a household could obtain given their gross income, estimated savings and an affordability stress test.

Wealth

First-time buyers face a maximum Loan-to-Value (LTV) ratio of 90 per cent under the current macroprudential mortgage regulations. The maximum house price permissible under this LTV constraint is therefore $d/1-LTV$ where d is the deposit. We utilise detailed information on current income and expenditures to determine what a household could reasonably be expected to accrue as a deposit. Specifically, we allow a household to save three years' worth²⁰ of any remainder from their net monthly income after current rent and other minimum necessary expenditure. We also model the likelihood a household receives an intergenerational wealth transfer or gift. We allow 25 per cent of households to receive a €10,000 gift. This choice of parameters is based on evidence on the prevalence and value of gift giving from TILDA participants to their non-homeowning children (see Appendix Table A.1). The findings from TILDA are consistent with evidence from the Department of Housing, Local Government and Heritage's survey of mature homeowners (Corrigan, 2019) which found for mature homeowners providing gifts to their children, the modal gift value was €10,000.²¹

Income

First-time buyers face a maximum Loan-to-Income (LTI) ratio of 3.5²² under the current macroprudential mortgage regulations. Under this LTI constraint the maximum house price is therefore 3.5 times gross income (i.e. maximum loan size) plus deposit.

Affordability

Mortgage lenders perform a so-called affordability stress test on prospective borrowers to ensure they would be able to continue to afford their mortgage payments in the face of an interest rate rise. We therefore calculate the maximum house price a household could afford in order to have sufficient residual income after making mortgage payments to attain their minimum required expenditure if they were faced with a 2 percentage point increase in the interest rate. We do so using the amortisation formula outlined in Figure 3.5.

²⁰ We choose three years based on the findings of Kelly and McCann (2016). The sensitivity of this choice is examined further in Corrigan et al. (2020) Table 12.

²¹ The issue of more substantial inheritances is discussed in Section 3.3.3.

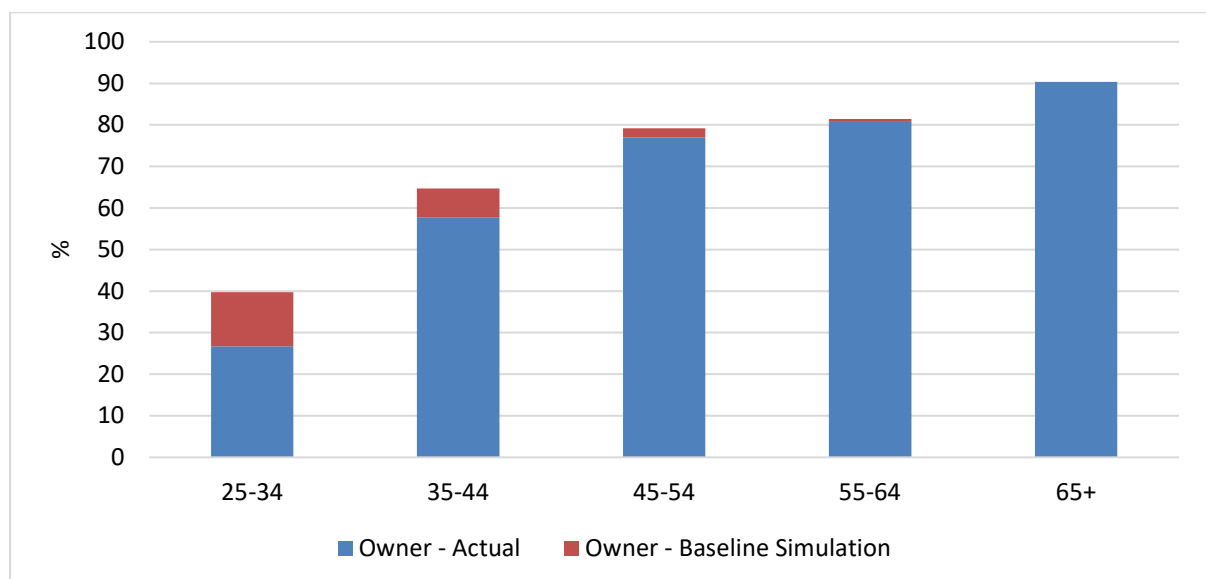
²² Up to 20 per cent of the value of FTB lending is permitted to be above this 3.5 LTI (Kinghan, 2018). In our sensitivity analysis presented later in Table 3.1 we therefore increase the maximum permissible LTI to 4.5.

If the lowest of these three house prices (i. wealth; ii. Income and iii. affordability) is above the 25th percentile of the actual transacted house price distribution in the household's broad NUTS 3 region, then we determine they are likely to be able to become homeowners. We choose the 25th percentile because Gaffney (2018) finds that below this point the majority of transactions are by investors and cash buyers rather than first-time buyers (see Table A.2 in Appendix II for further details).

3.3.2 Tenure simulation results

Figure 3.6 presents the baseline results from our tenure simulations. The blue bars correspond to the current percentage of each age band who are homeowners (either outright or with a mortgage), while the red bars show the additional proportion of each age group likely to be able to transition into homeownership under the simulation methods outlined in Section 3.3.1. Homeownership rates for those currently aged 65+ sit at 90 per cent. By definition we see no increase in ownership rates for this group as the model does not permit mortgage borrowing beyond retirement age. The findings from our simulations indicate that ownership rates for the subsequent cohort, those aged 55-64, are 10 percentage points lower and unlikely to rise any further. Ownership rates for the 45-54 cohort are expected to be similar but marginally lower than for the 55-64 group, with simulations suggesting an additional 2 per cent of this group could become owners, resulting in an overall ownership rate of 79 per cent.

FIGURE 3.6 % HOMEOWNERS AFTER STATIC TENURE TRANSITION, BY AGE COHORT



Source: Authors' calculations using SILC 2018-2019.

There is a marked fall in homeownership rates for the 35-44 cohort relative to the 45-54 group, with simulations suggesting a 65 per cent ownership rate for this cohort, 14 percentage points below that of the previous age cohort. It is likely many of this cohort will have been badly affected by the global financial crisis and resulting changed credit access, as well as by the rapid house price and rental growth observed since the mid-2010s. Focusing on our final group, those aged 25-34, we see a further substantial reduction, with the simulated homeownership rate reaching just under 40 per cent. However, given the ages of this group, this near-term assessment of their likelihood of being able to transition by home purchase into homeownership is likely to significantly underestimate ownership rates for this cohort across their lifetimes. We will return to this in Section 3.3.3.

Table 3.1 explores the constraints faced by current renters that do not transition into homeownership in our simulations. At least two-thirds of these households in each age cohort are determined to be high credit risk, suggesting they are unlikely to be able to pass a credit check and obtain mortgage credit. The share of high credit risk households rises with age, reaching nearly 84 per cent of non-homeowners in the 55-64 cohort. More than half of these households in each age cohort are unable to save any of their monthly income after paying their rent and other essential expenditures. This inability to save is further highlighted by the fact that more than 80 per cent of those unable to transition in the 25-34 and 35-44 cohorts have insufficient savings for the required down-payment (LTV constrained).

TABLE 3.1 WHAT % OF NON-TRANSITIONERS ARE CONSTRAINED BY DIFFERENT FACTORS?

Constraining Factor	25-34	35-44	45-54	55-64
High credit risk	64.9	76.0	82.0	83.6
Zero or negative monthly savings	54.3	62.5	57.6	59.0
LTV constrained	81.2	81.6	71.8	71.3
LTI constrained	41.5	37.3	48.5	57.5
Affordability constrained	56.1	62.7	60.4	68.7

Source: Authors' calculations using SILC 2018-2019.

Note: Negative monthly savings refers to a situation where minimum necessary expenditure on essential goods exceeds the household's monthly disposable income.

Scenarios for potential credit access supports

The simulation modelling framework outlined in Section 3.3.1 applies strict credit conditions based on current macroprudential regulations (see baseline scenario 1 in Table 3.2). As Table 3.1 shows, the majority of those unable to transition into homeownership face insufficient down-payment constraints, while around two-in-five are also constrained by the loan size relative to their income. Given the importance of credit access conditions for household transitions, there is potential

scope for policy support (both on the income and down-payment side) to potentially aide households to become homeowners.

To explore the potential impact of easier credit access conditions, in addition to our baseline scenario (scenario 1), we also deploy a number of illustrative scenarios in Table 3.2 which attempt to capture the possible range of options that could be used by Irish policymakers (such as instruments that would increase the income-leverage ratio like local authority loans or shared-equity or deposit support arrangements). We do not attempt to model any specific Irish policy instruments, rather we attempt to deploy illustrative scenarios that capture the mechanisms by which these measures would work. We deploy the following scenarios:

1. On the income side, we loosen the maximum LTI from 3.5 to 4.5 (scenario 2);
2. On the wealth side, we allow an equity, or down-payment support of €20,000 for all households²³ (scenario 3); and
3. Combine both (1) and (2) above (scenario 4).

Implicitly these scenarios assume an elastic housing supply i.e. that this additional credit in the market would have no impact on house prices because housing supply would adjust. In reality, in such a supply constrained housing market as the Irish market, this is an unrealistic assumption. In scenarios 5-7 we therefore account for the feedback loops between credit and house prices i.e. in each of the scenarios deployed we take the estimated increase in credit extended and increase house prices proportionately given an illustrative elasticity. We apply an elasticity of 0.15, meaning that a one per cent increase in credit is associated with a 0.15 per cent increase in house prices. This parameter is consistent with the international findings of Favara and Imbs (2015), as well as McQuinn et al. (2021) who find elasticities in the range 0.143-0.179 for Ireland (depending on the model specification).

²³ Note this is a simplified, illustrative exercise and, while its impact targets a similar channel, is not intended to mirror current equity supports such as the Help-to-Buy scheme which is restricted to new build properties only and is only available to those with sufficient prior tax contributions.

TABLE 3.2 HOMEOWNERSHIP RATE SIMULATIONS BY AGE COHORT (%) – ADDITIONAL SCENARIOS

Scenario	25-34	35-44	45-54	55-64	>65	Change from Baseline Scenario (1)
1	39.7	64.7	79.2	81.4	90.3	-
2	39.9	64.7	79.3	81.4	90.3	LTI
3	52.2	72.5	84.2	82.9	90.3	Equity support
4	54.8	73.7	85.0	83.3	90.3	LTI & equity support
5	39.9	64.7	79.3	81.4	90.3	LTI & feedback to house prices
6	48.8	70.5	83.0	82.7	90.3	Equity support & feedback to house prices
7	51.4	71.0	83.3	82.8	90.3	LTI & equity support & feedback to house prices

Source: Authors' calculations using SILC 2018 and 2019.

Note: Sensitivity scenario parameters: LTI – increased from 3.5 to 4.5 for all; Equity support – €20,000 towards savings for down-payment (note this is a flat rate payment for all, not dependent on household's tax contribution as current Help-to-Buy scheme); scenarios 5-7 take account of the impact increased credit has on house prices. To do so we use an elasticity of 0.15. This is consistent with the findings for McQuinn et al. (2021) for Ireland who find the elasticity for Ireland ranges between 0.143-0.179 depending on the model specification.

Homeownership rates in these additional scenarios remain similar to those presented in Figure 3.6 for households aged 45 and over. This is consistent with previous findings that homeownership rates level off after 40-45 (Corlett and Judge, 2017; Roantree et al., 2021). Unsurprisingly there is more variation for the 35-44 and 25-34 cohorts. Focusing on scenarios 5-7, we see that providing households with this significant down-payment support could raise the ownership rates by 9 and 6 percentage points respectively for the 25-34 and 35-44 cohorts (scenario 6). Solely increasing the multiple of income households can borrow has minimal impact on the homeownership rate (scenario 5). This is not to say that LTI constraints are not binding, but rather that LTV or wealth constraints are more prevalent. Indeed, this is evident from scenario 7 where combining income and down-payment supports further raises the homeownership rates, particularly for the youngest 25-34 cohort. Nevertheless, even in the face of significant supports, the homeownership rate for the 35-44 cohort would be expected to reach a maximum of 71 per cent, remaining around 12 percentage points below that of the previous 44-54 cohort under the same supports.

Even with these significant supports, ownership rates for the youngest cohort remain substantially lower still at just over 50 per cent. However, given the ages of this group, this near-term assessment of their likelihood of being able to transition into homeownership is likely to underestimate ownership rates for this cohort across their lifetimes. We will now examine this further.

3.3.3 25-34 cohort

The median age of first-time buyers in Ireland in 2019 was 34 (Gaffney and Kinghan, 2021). Many in their mid to late 20s and early 30s may therefore expect to see significant career progression and therefore income growth before they attempt to purchase a home. The near-term modelling approach outlined in Section 3.3.1

is therefore arguably not suitable for the youngest cohort in our analysis. To address this, in this section we transition households in the 25-34 age cohort forwards ten years based on a series of growth rates outlined below. As above, when interpreting our findings, it must be kept in mind that we are only able to consider those in this age cohort living independently and not those who remain in their family home.

In our baseline dynamic scenario we grow each household's income forward based on a sector-age-education growth rate matrix. Essentially this grows forward a 25-34 aged household's income to the level of those with similar employment sector and education profiles in the current 35-44 cohort.²⁴ In addition, we allow house prices to grow at 5 per cent per year over this ten-year period (broadly in line with long-run average house price growth), rental growth is capped at 2 per cent annually as per current regulations in Rent Pressure Zones, and households' minimum necessary expenditures on other goods and services are assumed to grow at 2 per cent per year, as are incomes (over and above the transformation described above). We will examine the sensitivity of these parameter assumptions below. In addition, we remove the current credit risk assessment outlined in Section 3.3.1 as it is based on the current situation of the household and may therefore not be relevant ten years into the future. Assumptions around the time to accumulate a down-payment, the parameterisation of intergenerational wealth transfers (gifts) and LTV/LTI requirements under the macroprudential measures for first-time buyers remain unchanged from the framework outlined in Section 3.3.1.

We present the results of these simulations in Table 3.3. We do so both under current macroprudential conditions (Baseline) and in the case of income and down-payment supports, accounting for the likely impact of this on house prices (LTI and equity support and feedback to house prices). Under these baseline dynamic assumptions, our simulations suggest that 52 per cent of the 25-34 cohort would be able to transition into homeownership in ten years' time (Table 3.3, scenario 2). This is significantly higher than the 39.7 per cent suggested by the near-term static simulations for this cohort presented in Section 3.3.2 (also shown in Table 3.3, scenario 1), but still notably lower than for previous age cohorts. Combining income and down-payment supports whilst accounting for their likely impact on house prices would further raise the homeownership rate to just over 55 per cent, 4 percentage points higher than for the equivalent near term static scenario for this cohort (Table 3.2, scenario 7).

²⁴ Specifically, we take the difference between the median income level for workers aged 25-34 and those aged 35-44 in each NACE sector-education grouping. We then uprate household incomes for the 25-34 group by this difference to bring their income levels in line with similar households in the 35-44 age group. On top of this, we allow their incomes to grow 2 per cent per year over this ten-year period.

TABLE 3.3 HOMEOWNERSHIP RATE SIMULATIONS FOR 25-34 COHORT (%)

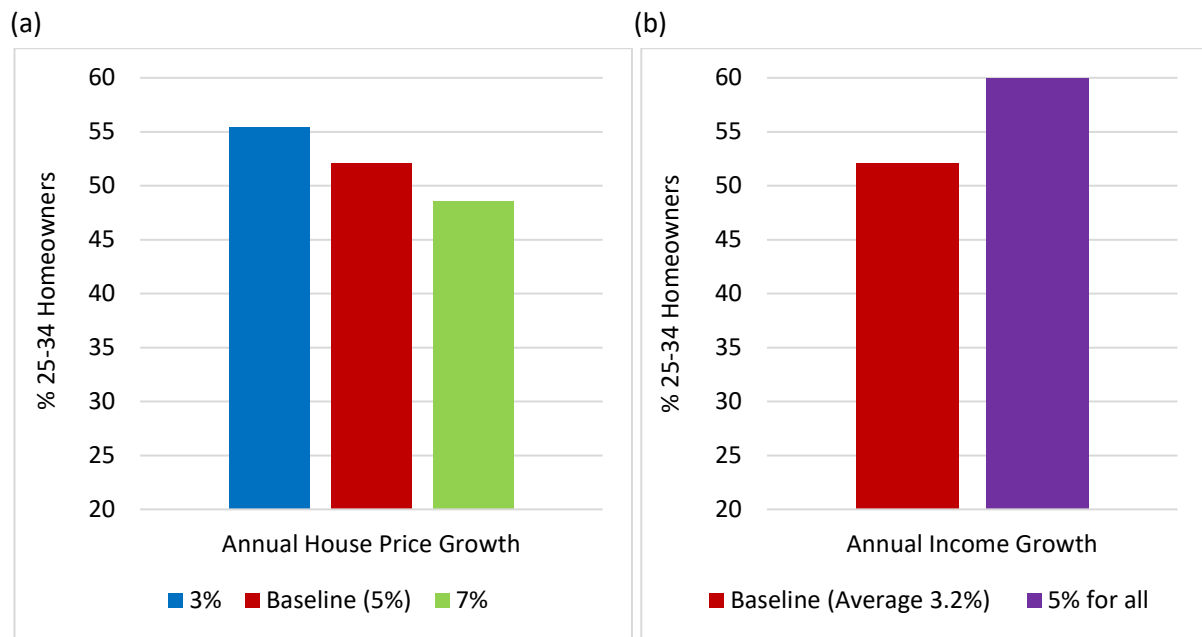
Scenario	Baseline	LTI & equity support & feedback to house prices	Scenario Notes
1	39.7	51.4	Static (taken from Table 3.2 scenarios 1 (baseline) and 7 (LTI & equity support & feedback to house prices))
2	52.0	55.3	Dynamic
<i>Sensitivity:</i>			
3	55.4	59.3	3% annual house price growth
4	48.6	52.5	House prices growing faster than incomes (7% annual house price growth)
5	60.0	64.3	Uniform house price and income growth (5% annual income growth for all)
6	51.7	55.3	4% annual rental price growth
7	48.5	51.8	8% annual rental price growth
8	52.0	55.4	Increase retirement age to 70

Source: Authors' calculations using SILC 2018-2019.

Note: Baseline: LTI 3.5; three years to save deposit; 25 per cent get €10,000 gift towards deposit; no current high credit risk filter; implicit 3.2 per cent average annual income growth; 2 per cent annual rental price growth; 5 per cent annual house price growth – using the 25th percentile (p(25)) house price sold in NUTS 3 area as threshold; minimum expenditures 2 per cent annual growth. In each scenario we change one of these parameters from its baseline level. Scenarios 3-8 should be compared against scenario 2.

It must be noted that these figures should not be seen as maximum possible achievable rates of homeownership for a number of reasons. This includes the considerable uncertainty around projections concerning long-term income and housing market dynamics, the impact of whole home inheritances and other policy measures. Rather our scenarios should be seen as illustrative possible transition likelihoods given the current household structure and different scenarios for incomes, house prices and credit access. In the medium- to long-term, all of these aspects can be impacted by policy changes.

Given the considerable uncertainty around the future paths of incomes, house prices and rents used for projecting these households' situation ten years into the future, it is useful to understand how changing key parameters (and therefore the relativities between them) would affect the likelihood of homeownership for households currently aged 25-34.

FIGURE 3.7 % HOMEOWNERS 25-34 COHORT – DIFFERENT HOUSE PRICE AND INCOME GROWTH SCENARIOS

Source: Authors' calculations using SILC 2018-2019.

Note: Red bars represent baseline scenario (Table 3.3 Baseline column, scenario 2); blue bar represents Table 3.3 Baseline column, scenario 3; green bar represents Table 3.3 Baseline column, scenario 4; purple bar represents Table 3.3 Baseline column, scenario 5.

Figure 3.7a explores how the likelihood of homeownership changes when we alter the rate of annual house price growth over the ten-year period, holding all other parameters constant. In the blue bar we lower the annual house price growth to 3 per cent (down from 5 per cent in the baseline scenario). This results in the homeownership rate rising by 3 percentage points to 55 per cent relative to the baseline scenario. In the green bar we instead increase annual house price growth to 7 per cent. This highlights the case where house price growth is significantly more rapid than income growth. In this instance the ownership rate falls by 4 percentage points from the baseline scenario to 48 per cent.

In Figure 3.7b the purple bar illustrates a scenario where we instead allow all incomes to grow at 5 per cent per year, in line with the 5 per cent annual house price growth assumption. This contrasts to the baseline scenario where households' income growth paths are determined individually depending on their employment sector and education levels. Instead, here we see that if incomes and house prices were to grow in line with each other for all households, the ownership rate would increase by almost 8 percentage points to around 60 per cent. The simulations presented in Figure 3.7 demonstrate the importance of the relative growth rates of incomes and house prices (as well as how income growth is distributed across households) in determining the homeownership rate for this cohort.

The remainder of our sensitivity checks are presented in scenarios 6-8 in Table 3.3. Increasing the annual rental price growth from 2 per cent to 4 per cent only has a small negative impact on the ownership rate (scenario 6). This finding is likely explained by the high level of rents relative to incomes for many households that may prevent them from saving sufficiently for a deposit. Indeed, in the SILC data we find just over one-in-three of the age 25-34 households are not currently able to save anything on a monthly basis once they have paid their housing costs and other essential expenditures. Significantly higher rental growth of 8 per cent per year (scenario 7) would however have a more notable negative impact on ownership rates. Increasing the retirement age for this cohort to 70 also has little effect on the overall ownership rate (scenario 8). Increasing the retirement age affects the affordability stress test by lengthening the available mortgage term. However, as the majority of households are constrained by insufficient wealth or income to overcome the LTV and LTI conditions, rather than solely by the affordability stress test, this has a negligible effect on the overall homeownership rate.

Regardless of the specific parameters chosen, the results in Table 3.3 clearly show that the 25-34 cohort are likely to see significantly lower homeownership rates relative to previous age cohorts. It is however important to keep in mind a number of caveats when modelling homeownership rates for this youngest cohort. We are only able to model households living independently with the required income, housing costs and expenditure data, meaning that those living with parents or family members are not included in the analysis.²⁵ Furthermore, given the dynamic nature of this analysis and uncertainty around both how household incomes and house prices are likely to develop, there is more uncertainty around the estimates for this age group.

One major barrier to homeownership for younger age cohorts is the lack of long-term job and earnings security (Lersch and Dewilde, 2015; Akdogan et al., 2019). While we do not explicitly model this, analysis of the type of employment contract for those we find could transition into homeownership confirms that this is largely being captured implicitly in our simulation modelling framework.

One often mentioned potential mitigating factor for the fall in homeownership rates observed for younger age cohorts is that of future inheritance (see above). In

²⁵ It is unclear whether we would expect those remaining in the family home to have a higher or lower likelihood of becoming homeowners relative to those living independently that we are able to model. On the one hand those living with family may have more opportunities to save due to not making rent payments (or making smaller contributions to the family) which could increase their likelihood of transition into homeownership. On the other hand, it could be the case that many of those remaining in the family home do so because they have lower incomes and cannot afford to live independently, which could make them less likely to transition.

our model we parameterise parental gifts towards a deposit. However, we do not model the inheritance of whole homes.²⁶ Rather our framework only estimates the transitions related to market home purchases as noted above. The role future inheritance will play in ownership rates for younger age groups is unclear. While some households will benefit from inheriting an entire home, in practice there are a number of reasons why we may not expect this to significantly counteract the observed fall in homeownership in younger age cohorts. First, international evidence suggests that inheritance tends to amplify inequality within generations, i.e. between those with richer and those with poorer parents (Bourquin et al., 2021). This suggests that many of those in a position to inherit a family home will have already received parental gifts towards a deposit. In contrast, those who remain non-homeowners at a later age are those less likely to receive a substantial inheritance. Second, given current life expectancy, it is quite likely that many recipients may inherit in their 50s and 60s, past the age at which mortgaged homeownership is typically feasible. If any inheritance was therefore insufficient to purchase a home outright, such as in the case of several siblings receiving an equal share, these households would likely struggle to obtain mortgage credit and transition into homeownership at that point. Despite these caveats, it is possible that the homeownership rate for renters would rise if explicit modelling of this potential inheritance channel were to be conducted.

3.4 SUMMARY

The aims of this chapter were to examine current housing tenure and cost patterns for different age cohorts and to simulate the likelihood that households will become homeowners. To do so we used the ESRI's Affordability and Tenure Housing Microsimulation Engine (AT-HOME) tool to simulate the likelihood of current rental households in different age cohorts being able to transition to homeownership under a prudent credit risk assessment policy and current market conditions and regulations.

Our findings show the current retirement cohort have very high rates of homeownership (90 per cent) and therefore very low levels of housing costs. In addition, the majority of non-homeowners in this cohort are in the supported rental sector, either living in local authority provided accommodation or housed in private sector accommodation and in receipt of housing supports. On average housing cost-to-income ratios are significantly higher in the private rental sector than other tenures. For those below the age of 55, while mortgaged households typically pay no more than 20-21 per cent on average, private renters not in receipt of housing supports in the youngest cohort (25-34) as well as those aged 45-54 are on average paying 27 per cent of their incomes on rent.

²⁶ Future research which can incorporate this into the framework would be a natural extension to this research.

Relative to current pensioners, homeownership rates are around 10 percentage points lower for the subsequent 55-64 and 45-54 age cohorts and are unlikely to rise further for these groups. Moreover, our simulations based on current market and regulatory conditions would suggest a further significant decline in homeownership rates for younger cohorts. Our baseline estimates suggest around two-thirds of those aged 35-44 are likely to become homeowners and only 52 per cent of those aged 25-34. While combining an equity support towards a down-payment and loosening the amount households can borrow relative to their incomes would boost these cohorts' homeownership rates, they remain significantly below those of previous cohorts.

A number of caveats must be kept in mind when interpreting these findings. Our simulations are based on current market and regulatory conditions. Ownership rates for younger cohorts are sensitive to future economic and regulatory conditions. In particular, we show that estimates are most sensitive to future house price and income growth and the relativities between them. Furthermore, there are levers which could help to alleviate such stark declines in homeownership rates for younger cohorts, particularly a large-scale increase in the supply of affordable housing both in the owner occupation sector and the rental sector which could facilitate the accrual of deposits.

One limitation of our model is that households are assessed on their ability to purchase a home within their current NUTS 3 region. For those in Dublin facing the highest house prices, this could be a restrictive assumption as in practice they may be able to purchase in a neighbouring area. However, while this may on the one hand work to increase homeownership, it could also likely drive up prices in those areas, which could then crowd out those currently living in those areas.

CHAPTER 4

Income adequacy in retirement

4.1 INTRODUCTION

The previous chapter clearly outlined the expected fall in homeownership in younger age cohorts for Ireland over the coming years. The lower rate of homeownership will naturally lead to a greater share of the population paying housing costs into retirement (relative to the natural mortgage amortisation process that occurs for homeowners). The critical question remains as to the extent to which these households will face income inadequacy given that housing costs remain part of their monthly expenditure.

Previous research by Beirne et al. (2020) assessed the income adequacy of those who were approaching retirement (born 1955-1960) by calculating income poverty rates on a before housing costs basis. The analysis identified a number of groups who were already vulnerable to income poverty on this basis, and it is likely that these and additional groups may face additional challenges if potential housing costs in retirement are taken into account.

The aim of this chapter is to attempt to assess the scale of this challenge. We use an augmented version of TRIAM (the ESRI model of income adequacy in retirement developed by Beirne et al. (2020) based on TILDA, the Irish Longitudinal Study on Ageing) to calculate after housing costs measures of income poverty for a) the current cohort of those approaching retirement (i.e. those born 1955-1960) and b) future cohorts of retirees (by adjusting the homeownership rates of the current cohort of retirees to reflect projected homeownership rates of future cohorts with reference to the range of homeownership scenarios outlined in Chapter 3).

4.2 DATA AND METHODOLOGY

For this analysis, we follow Beirne et al. (2020) in using the main TILDA dataset; a nationally representative survey of community-dwelling individuals aged 50 years and over, and their spouses or partners of any age (i.e. individuals living in nursing homes or other institutions were excluded at baseline). The survey is harmonised with other international longitudinal studies of ageing – such as the US Health and Retirement Study (HRS), the Survey of Health, Ageing and Retirement in Europe (SHARE) and the English Longitudinal Study on Ageing (ELSA) – and contains rich information on the demographic, health and socio-economic circumstances of older people in Ireland. Data are collected primarily via computer-aided personal interviewing (CAPI). Data collection for the first wave took place over the period

October 2009 to February 2011, when 8,504 individuals were sampled, of whom 8,175 were aged 50+ years (Barrett et al., 2011).²⁷

TRIAM simulates future disposable – after tax and welfare payments, but before housing costs (BHC) – income in retirement for the sample who were born between 1955 and 1960 (i.e. those aged between 50 and 55 at TILDA Wave 1, who are expected to reach the state pension age between 2022 and 2027).²⁸ The model is described in detail by Beirne et al. (2020). We use detailed information on employment history, income, wealth, pension cover and family status, collected in TILDA Wave 1 in 2010, along with assumptions about likely income and asset growth rates,²⁹ to simulate future disposable income at the point of retirement. In this report, we augment these simulations by incorporating an after housing costs (AHC) measure of disposable income in retirement. The housing costs we deduct from disposable income are zero for those who own their house outright, which is the vast majority of the sample, and equal to rents – private or social – for renters. The TILDA data do not allow us to distinguish mortgage capital and interest repayments, so for the very small share of homeowners who do not expect to own their dwelling outright at the point of retirement we include both payments.³⁰

Following the approach of Crawford and O’Dea (2012), we consider alternate definitions of income which differ in their treatment of assets accumulated before retirement. Our first definition, which we refer to as ‘narrow income’, is that derived from the public and private pensions of household members and market income of spouses who are still in work, less applicable direct taxes. The second adds to this income from financial assets, or more specifically the annuitised value of net financial assets (excluding owner-occupied but including holiday or investment property). Where the individual is a member of a couple, incomes of both partners are considered and total household income is adjusted (equivalised) for household size.³¹

To assess the adequacy of income in retirement we adopt a poverty-line approach that conceives of income adequacy as related to the surpassing the minimum

²⁷ Further information on the sample design is available elsewhere (e.g. Whelan and Savva, 2013).

²⁸ A number of these individuals reported being retired at the time of the 2010 TILDA survey (n=58). We drop these from our sample leaving a final sample size of 1,904.

²⁹ Tables A1.1 and A1.2 in Beirne et al. (2020) detail the various growth rate assumptions used in the model.

³⁰ This differs from the definition of housing costs used by both Eurostat and the CSO, which also includes insurance, light and heat (information on which are not reliably available in TILDA), but excludes capital repayments. Given these represent the bulk of repayments towards the end of a mortgage, their inclusion means that we are likely overstating housing costs in retirement for a very small share of our sample.

³¹ We use the national (CSO) equivalence scale, which gives the first adult in a household a weight of 1, subsequent adults aged 14+ a weight of 0.66 and any children a weight of 0.33.

resources needed to buy essential goods and services.³² What should be considered an essential good or service is ultimately a subjective question and will naturally evolve over time. We therefore examine three related measures that form part of policy discussions both in Ireland and abroad, namely living in a household with less than 60, 50 or 40 per cent of median equivalised disposable household income. These thresholds correspond to those used for the national at-risk-of-poverty (AROP) line (60 per cent), the OECD AROP line (50 per cent), and what is sometimes called the ‘severe’ AROP line (40 per cent).³³

4.3 RESULTS AND EMPIRICAL FINDINGS

Table 4.1 presents these AROP measures on a before (BHC) and after (AHC) housing costs basis for our baseline simulations, i.e. using respondents’ recorded housing tenure, which corresponds to a 92 per cent homeownership rate for our current cohort of TILDA retirees. We also present AROP measures on an AHC basis for the sample given three sets of homeownership scenarios (high, medium and low) of:

- 78 per cent (high scenario);
- 70 per cent (medium scenario); and
- 63 per cent (low scenario).

The calibration of these scenarios is informed by the analysis in Chapter 3. As our approach uses data on the cohort currently approaching retirement, we explore a set of plausible scenarios that attempt to cover a range of likely homeownership rates presented in Chapter 3 (Table 3.2). As there was considerable variation across the age specific cohorts in Chapter 3, we chose a set of parameter values that attempt to provide an informed range of possible homeownership levels that capture the range in the baseline scenario for the groups aged 35-44 and 45-54 of 64.7 and 79 per cent).³⁴ We do not model a scenario lower than 63 per cent (such as those for the youngest age category in Chapter 3) given the considerable uncertainty around this cohort.

The scenarios are modelled by first estimating the relationship between a set of household characteristics and the likelihood of transitioning to homeowner status in AT-HOME. These estimates are then used to predict the probability of homeownership for our TILDA sample given the same set of characteristics. We then simulate rental costs for the 14 per cent (high scenario), 22 per cent (medium

³² There is a large literature in Ireland on the problems with relying on income poverty alone to assess living standards (Fahey et al., 2004b). However, we do not have the required information in TILDA to be able to calculate measures of deprivation, and by extension, consistent poverty.

³³ See, for example, Brewer et al. (2010). These measures are set with reference to population-wide AHC or BHC median income as recorded in the 2017 Survey on Income and Living Conditions, with nominal figures uprated to expected retirement date by the same factor as earnings (forecast wage growth).

³⁴ The scenarios modelled here do not map precisely onto those presented in Table 3.2 due to small discontinuities in the distribution of homeownership probabilities described below. As a result, 78 per cent is the closest calibration to 79 per cent that we can model, and likewise 63 per cent the closest calibration to 64.7 per cent.

scenario) and 29 (low scenario) per cent of respondents with the lowest predicted probability of homeownership, assigning them the median regional rent observed for similarly aged renters in TILDA. We finally deduct these housing costs from disposable BHC income to give our simulated AHC income in retirement.³⁵ Our assessment of after housing costs poverty is based on a definition of housing costs that includes just rent payments (we assume all homeowners in TILDA have repaid their mortgage by the SPA). It therefore does not take into account other maintenance, insurance, etc. costs associated with housing.³⁶

TABLE 4.1 POVERTY LINE (AROP) MEASURES OF INCOME ADEQUACY

	(%)	(%)	(%)
Share with income in retirement that is:	<60% median	<50% median	<40% median
A. Baseline simulations (BHC):			
Narrow	24.4	7.1	3.1
Plus annuitised value of net financial assets	9.2	3.0	1.4
B. Baseline simulations (AHC):			
Narrow	28.1	12.2	6.3
Plus annuitised value of net financial assets	14.1	7.9	3.9
C. High homeownership scenario (AHC):			
Narrow	38.7	20.9	8.2
Plus annuitised value of net financial assets	23.6	14.1	4.6
D. Medium homeownership scenario (AHC):			
Narrow	42.8	24.7	8.9
Plus annuitised value of net financial assets	27.8	16.7	4.6
E. Low homeownership scenario (AHC):			
Narrow	47.2	28.3	9.6
Plus annuitised value of net financial assets	31.4	19.1	4.8

Source: Authors' calculations using data from the Irish Longitudinal Study of Ageing (TILDA).

Note: Median equivalised income for poverty lines taken from 2017 Survey on Income and Living Conditions, uprated to expected retirement date by forecast wage growth.

Panel A in Table 4.1 shows that for our baseline simulation using the narrow definition of income, 24.4 per cent of those approaching the SPA are likely to have income below the 60 per cent AROP line on a BHC basis. This rate falls to 9.2 per cent when one uses the broader measure of income that includes the annuitised value of net financial assets, which Beirne et al. (2020) show play an important role in individuals' preparedness for retirement. The share likely to fall below the 50 and 40 per cent AROP lines is – by definition – lower but substantially so, at 3 per cent and 1.4 per cent respectively using our broader measure of income. This

³⁵ We also examined results using a different approach where rents were set at 20 per cent of (BHC) incomes before retirement and remained at that (real) level into retirement. These provided similar results to those presented in Table 4.1.

³⁶ See Fahey et al. (2004b) for a discussion of the limitations of using before and after housing costs measures to assess income poverty. The after housing costs income poverty measure ignores the fact that people on a similar income may simply make different choices about how much to spend on housing versus other goods and services: higher housing expenditure may be associated with higher-quality housing.

illustrates the sizeable share of individuals in our baseline simulation with incomes of between 50 and 60 per cent of median equivalised income.

Panel B shows the income adequacy measures for this group on an AHC, rather than BHC, basis. The AROP rates are higher in all instances, rising from 9.2 per cent to 14.1 per cent using the broader definition of income under the 60 per cent AROP threshold, and from 1.4 to 3.9 per cent under the 40 per cent threshold. This relatively muted rise in AROP rates reflects the 92 per cent homeownership rate in our baseline simulation, with the vast majority of these facing housing costs of zero.

However, AROP rates are substantially higher on an AHC basis when we incorporate lower expected homeownership rates. Panel C shows that using our broader measure of income, 23.6 per cent are likely to fall below 60 per cent AROP line in retirement under the high-homeownership scenario of 78 per cent compared to 14.1 per cent in our baseline.

Panels D and E show that the medium- and low-homeownership scenarios result in even higher AROP rates – of 27.8 and 31.4 per cent respectively – using the broader definition of income and the 60 per cent AROP line. Both are around double the AROP rate in the baseline (14.1 per cent AROP assuming a 92 per cent homeownership rate) homeownership scenario, and illustrate the potential impacts being exposed to even modest housing costs can have on the adequacy of income in retirement. Similarly, our simulations for AROP rates using the broader definition of income and the 50 per cent threshold are at least double the baseline rate of 7.9 per cent in the medium- and low-homeownership scenarios, and almost double even in the high-homeownership scenario.

While the 'severe' AROP rate is also higher in the simulated homeownership scenarios than the baseline, the increase is much more muted than for the national (60 per cent) and OECD (50 per cent) AROP lines. This is because the distribution of AHC income is particularly dense around 50-60 per cent of the median (i.e. around the national and OECD AROP line), with most households brought beneath the national or OECD AROP line by housing costs not brought significantly below it.

TABLE 4.2 POVERTY GAP FOR VARIOUS MEASURES OF INCOME ADEQUACY

	(%)	(%)	(%)
Poverty gap for:	<60% median	<50% median	<40% median
Baseline Before Housing Costs (BHC) results:			
Narrow	16.5	21.9	25.2
Plus annuitised value of net financial assets	18.7	35.4	59.6
Baseline After Housing Costs (AHC) results:			
Narrow	22.0	27.1	31.2
Plus annuitised value of net financial assets	27.0	30.7	42.6
High homeownership scenario:			
Narrow	22.4	20.9	29.3
Plus annuitised value of net financial assets	24.2	21.5	40.3
Medium homeownership scenario:			
Narrow	22.6	19.0	28.1
Plus annuitised value of net financial assets	22.8	18.3	39.1
Low homeownership scenario:			
Narrow	22.5	17.8	26.5
Plus annuitised value of net financial assets	22.3	16.9	37.6

Source: Authors' calculations using data from the Irish Longitudinal Study of Ageing (TILDA).

Note: Median equivalised income for poverty lines taken from 2017 Survey on Income and Living Conditions, uprated to expected retirement date by forecast wage growth.

This is confirmed by Figure A.1 in the Appendix (which plots the distribution of AHC income in our baseline and simulated homeownership scenarios), and by looking at estimates of the poverty gap (the average distance from the poverty line for those beneath the poverty line, expressed as a percentage of the poverty line). Estimates of the poverty gap are shown in Table 4.2 for the various poverty line measures we consider. The key result to note is that estimates of the poverty gap are almost all smaller in our lower homeownership scenarios than in our baseline AHC simulations. In other words, while the share of the population beneath the poverty line is higher under each of our simulated homeownership rate scenarios, those underneath those lines are beneath by less. Although our focus in this paper is on poverty line measures of income adequacy, Figure A.1 also shows that lower rates of homeownership have a substantial impact on the distribution of AHC income across the distribution. This reflects the fact that lower future rates of homeownership are likely to reduce the level of AHC resources available to households, by exposing those renting to higher levels of housing costs in retirement.

Finally, we turn to look at which groups of individuals are at greater risk of being below the various poverty lines. Table 4.3 displays the odds ratios from logistic regressions of individual characteristics on the probability of having disposable income in retirement below the 60 per cent AROP line on both a BHC basis (Column 1) and an AHC basis (Column 2). These are for our baseline simulations (i.e. correspond to the estimates in Panels A and B of Tables 4.1 and 4.2) using the

more broadly defined measure of income.³⁷ Odds ratios are best explained with an example. An odds ratio of 2 says that an individual in group A faces twice the chance of someone in the excluded group B of having an inadequate income in retirement.³⁸ The key information to take from Table 4.3 is whether the coefficient is above or below 1, indicating that an individual with a certain characteristic (e.g. being a woman) has respectively a greater or lower chance of having inadequate income in retirement than a similar individual in the excluded category (in this example, a man).

The odds ratios show that men, individuals with higher levels of education and those living in a farming household are less likely to have incomes below the 60 per cent AROP line on both a BHC and an AHC basis, though the last of these estimates is not statistically significant on a BHC basis at the 95 per cent level of confidence. Nor is there any statistically significant relationship between the region of residence and the likelihood of being below the AROP line. However, perhaps the most striking result is that while there is no statistically significant association between being single in working life and being below the 60 per cent AROP line in retirement on a BHC basis (conditional on other factors), there is an extremely strong and statistically significant association on an AHC basis. This aligns with the findings of previous research that those living alone are particularly vulnerable to having inadequate resources in retirement, with our results suggesting that such concerns might be even more pronounced after one accounts for housing costs (Nolan et al., 2019; Beirne et al., 2020).

³⁷ Table A.3 in Appendix II presents similar models for the 'narrow' definition of income.

³⁸ These allow us to easily compare the relative chance that someone in each group has of having inadequate income in retirement (which is constant across other covariates), but do not allow the absolute or relative risk of income adequacy to be directly inferred (as these depend on the values taken by other covariates).

TABLE 4.3 LOGISTIC REGRESSION OF THE FACTORS ASSOCIATED WITH AROP STATUS, BASELINE SIMULATIONS, BROADER INCOME MEASURE

	(1)	(2)
Share with income in retirement that is:	< 60% median BHC	< 60% median AHC
Living in		
Dublin (reference)		
Urban area outside Dublin	0.954	0.918
Rural area	1.005	0.760
Household type		
Non-farming household (reference)		
Farming household	0.502	0.447**
Cohabitation status in working life		
Married/cohabitating (reference)		
Single	0.891	5.714***
Gender		
Man (reference)		
Woman	1.531*	1.429**
Education		
Primary or lower (reference)		
Lower secondary	0.779	0.515***
Upper secondary	0.595*	0.321***
Post-secondary < degree	0.438**	0.265***
Post-secondary degree or higher	0.287***	0.132***
Observations	1,904	1,904

Source: Authors' calculations using data from the Irish Longitudinal Study of Ageing (TILDA).

Note: Coefficients show odds ratios from logistic regressions. Stars show statistical significance, indicating a p value of < 0.05 (*), < 0.01 (**) and < 0.001 (***) respectively.

4.4 SUMMARY

The results of this modelling exercise highlight the potential scale of the challenge in ensuring that future cohorts of retirees will have adequate resources for their retirement. The current cohort of those approaching retirement (born 1955-1960) has high homeownership rates (above 90 per cent), which means that the projected increases in the AROP rate for this cohort when housing costs are taken into account are relatively muted. For example, using the broader definition of income and the 60 per cent of median income AROP threshold, the AROP rate rises from 9.2 per cent to 14.1 per cent. However, as detailed in Chapter 3, younger cohorts are likely to have substantially lower homeownership rates. Based on the modelling conducted in Chapter 3, assessments of AROP rates assuming alternative homeownership rates of 78, 70 and 63 per cent results in higher AROP rates. Under the high-homeownership scenario of 78 per cent, 23.6 per cent are likely to fall below the 60 per cent AROP line in retirement. The medium- and low-homeownership scenarios result in even higher AROP rates of 27.8 and 31.4 per cent respectively; around double the AHC rate for those currently approaching retirement.

The results of this research highlight the additional vulnerabilities in terms of poverty risks that are likely to occur in Ireland with lower homeownership rates. As more households have to carry housing costs in the form of rental payments into retirement, this will increase the proportion of households at risk of poverty and pose challenges to the pensions architecture. It is possible that these assessments represent a lower bound on possible effects. The assessments of income poverty using the TRIAM model in this chapter assume that future cohorts of retirees will have similar characteristics to those who are currently approaching retirement (i.e. born 1955-1960). This was done in order to isolate the impact of projected changes in homeownership rates and housing costs on the retirement income adequacy of future cohorts of retirees. However, it is likely that future cohorts of retirees are likely to have different employment histories, savings profiles, living arrangements, etc. than the current cohort, which in turn may affect their risk of income poverty in retirement. For example, higher rental costs in early to mid-adulthood may affect the capacity of future generations to build up the same level of financial assets as the current cohort of retirees. The next chapter draws out the implications of these and related issues for policy.

CHAPTER 5

Conclusions

5.1 SUMMARY OF MAIN FINDINGS

As house prices and rents have risen sharply in recent years, Ireland's housing market has been characterised as having acute affordability challenges for cohorts of the population, particularly low-to-moderate income urban renters. A defining feature of the housing market since 2011 is a declining share of homeowners (in particular mortgaged homeowners). While this of course contributes to affordability challenges at present, the fall in homeownership also has important implications for the provision of pensions and income adequacy in retirement. The existing Irish pension system (and welfare state) has been geared towards high homeownership which both lowers housing costs payments and raises asset values for retirement consumption (Norris, 2016). Lower homeownership naturally means a higher proportion of households in the rental sector and the continuation of rental payments past the income retirement cliff without the security of the family home asset.

This research attempts to consider a range of possible scenarios to quantify the likely share of homeowners in the population going forward and then to explore the likely impact of these homeownership rates on income adequacy for retired households. Under a range of scenarios which vary savings levels (down-payments), incomes, house prices, and credit access conditions, we find that the rate of homeownership is likely to be considerably lower for future age cohorts than current retirees. Our results suggest that a considerably higher proportion of households aged under 45 will be renting come retirement than in previous generations. While over 90 per cent of the current cohort of retirees are homeowners, our baseline estimates suggest that around two-thirds of those aged 35-44 are likely to become homeowners through home purchase in the open market and, with much greater uncertainty, we estimate only 52 per cent of those aged 25-34. While combining an equity support towards a down-payment and loosening the amount households can borrow relative to their incomes may boost these cohorts' homeownership rates, they are projected to remain significantly below those of previous cohorts. However, projecting the likely homeownership rates in retirement of the current 25-34 age cohort is particularly difficult as this age cohort may be expected to experience further career progression and income growth in the period during which homeownership typically occurs (up to age 45).

Using the current group of individuals who are nearing retirement as an illustration, our results suggest that these projected falls in homeownership will be associated with a rise in poverty rates on an after housing costs basis given current

income levels. For example, while 14 per cent of current retirees are at risk of poverty on an after housing costs basis (using the official 60 per cent of median income threshold and a broad definition of income), this proportion could be as high as 31 per cent under the lowest homeownership rate scenario examined.

There are a number of limitations to our analysis that are important to point out. First, our housing simulations are based on currently-formed households. Broadly this can be considered a static style modelling approach in that it uses data on the incomes, employment characteristics, expenditures and housing costs of existing households and therefore does not focus on household formation or more dynamic demographic changes that will undoubtedly impact the housing market over time.

Second, while we do allow for intergenerational wealth transfers, we do not model explicitly the inheritance of full homes. If whole homes were to be inherited by renters, this could raise the homeownership rate above the level in our scenarios of home purchase only. However, previous research (e.g. Lawless and Lynch, 2017) shows that the receipt of such inheritances is positively associated with beneficiaries' own level of income. As transitioning to a homeowner in our approach is more likely for higher income households (McQuinn et al., 2021), this evidence suggests the inclusion of whole home inheritances would be unlikely to substantially improve the homeownership prospects of those we model as remaining renters into retirement.

Third, it is important to note that the homeownership simulations presented here are based on the current market and regulatory conditions. In practice future homeownership rates could be affected by various policy levers, a greater provision of social and affordable housing, changes in the availability of policy supports for homeownership, regulatory changes to private rental sector and macroprudential regulations, as well as future economic conditions. The most important economic determinant of our scenarios is the relative growth rate of house prices versus incomes; if real income growth was faster than real house price growth for a period this would facilitate a greater likelihood of homeownership. However, for such a dynamic to occur it would mean demand-side factors (such as income growth and demographics) would have to be outweighed by supply-side influences in the housing market and would require a reversal of supply-demand imbalances that are observed in the market at present.

Finally, the assessments of income poverty using the TRIAM model assume that future cohorts of retirees will have similar characteristics to those who are currently approaching retirement (i.e. born 1955-1960). This was done in order to

isolate the impact of projected changes in homeownership rates and housing costs on the retirement income adequacy of future cohorts of retirees. However, it is likely that future cohorts of retirees are likely to have different employment histories, savings profiles, living arrangements, etc. than the current cohort, which in turn may affect their risk of income poverty in retirement. For example, higher rental costs in early to mid-adulthood may affect the capacity of future generations to build up the same level of financial assets as the current cohort of retirees.

5.2 POLICY IMPLICATIONS

Given the multifaceted nature of the problem of managing housing costs through the income retirement shock, it is important to consider how policy can best adapt to the likely lower structural rate of homeownership for future cohorts of retirees. Policymakers attempting to consider the optimal policy mix to ensure adequate income in retirement might consider the policy options as targeting the housing costs element and the income adequacy element.

On the one hand, policies could be targeted to either improve incomes in older households or to support renting households to build up more retirement resources earlier in their lifecycle while in employment where possible. In the former case, the approach would be to support the incomes of future retirees to a greater extent so that even after accounting for higher expected housing costs, incomes are sufficient to keep most above the poverty line. One way this could be done is through increases in the maximum rates of the state pension above and beyond that needed to keep track with earnings. However, the trade-off between income support and fiscal cost efficiency would need to be considered here as such an approach could be very expensive and would likely have considerable deadweight given its untargeted nature. Furthermore, this approach may not be fiscally sustainable in the context of the broader demographic pressures (Irish Fiscal Advisory Council, 2020).³⁹

Another more targeted option could be to direct the additional income support to those households for whom the income adequacy challenge is most acute. Our results suggest that those living alone (during working life) are at even greater risk of having inadequate income in retirement on an AHC basis than those who are married or cohabiting. This is a group who already experience a much greater risk of poverty, even before housing costs are considered. A bespoke instrument for such a group, for example through an enhanced living alone allowance, offers one more targeted option than broader-based increases in the state pension for all.

³⁹ The population aged 65-79 is projected to grow by 88 per cent and the 80+ population by 240 per cent over the period 2020-2050 (with a consequent increase in the old-age dependency ratio from 22 to 47 per cent). Assuming current policies, public spending on pensions is projected to increase from 7.7 per cent of GNI* to 11.9 per cent of GNI* over the same period (Irish Fiscal Advisory Council, 2020).

However, this approach still may be fiscally costly and shifts the entire risk onto future taxpayers with implications for intergenerational equity.

The second area of intervention that shifts the housing costs risk in retirement is to directly intervene for households with housing costs challenges. At the point of retirement this could be achieved by a targeted instrument such as an income supplement or rent subsidy to directly cover housing costs for those households who are proven to be in housing costs distress. However, the availability of, and even the signalling of, such instruments could alter the incentives for households to accumulate sufficient resources earlier in their working lives and potentially expose the Exchequer to significant cost.

As incomes fall on retirement, many households would likely qualify for existing supports such as HAP. However, Doolan et al. (2022) highlight the challenges associated with this increased reliance on the private rental sector to house those in receipt of housing supports. They show low levels of available properties under scheme rent limits, particularly for high-risk groups such as single adult households. Where rent limits do not keep pace with market rents, tenants face the prospect of making additional top-up payments to landlords thus exposing them to market forces, which is particularly problematic for retirees on fixed incomes. Furthermore, such extensive supports for those living in private sector accommodation risks fuelling rental inflation and the costs are likely to be prohibitively expensive for the State given the scale of the projected fall in homeownership for future retirement cohorts. Over and above the cost implications of renting in retirement, another crucial aspect is the potential for instability of tenure at a vulnerable stage in the lifecycle. This would be a particularly prominent concern for those in private sector rather than local authority accommodation.

Finally, considerations on the rate of homeownership, and implicitly for house prices and rents, going forward are affected by many intertwined macroeconomic and housing market factors. Policy interventions at earlier stages of the lifecycle are critical to help lower the costs of housing that future cohorts will face in retirement. Increased supply and other housing policy interventions can impact the share of homeowners, while increased direct provision of social housing or policies which develop alternative, non-market renting cohorts such as cost rental which can all help to lower the cost of housing at retirement. In particular, if rents in cost rental properties grow at a slower pace than incomes over time, this lowers the affordability burden.

More generally, the uncertainties attached to the timeframe in any longer-term assessment of housing tenure and income adequacy in retirement would suggest that rather than attempting to calibrate individual measures in the short term, a longer-term policy planning exercise should be undertaken. This should consider a suite of options and a range of policy levers that could be initiated depending on the path which homeownership and poverty rates take. Indeed, given the general challenges around ageing and pension provision (Irish Fiscal Advisory Council, 2020), it is unlikely the State will be able to fully carry the cost burden for the challenge of higher housing costs in retirement. Therefore developing a policy strategy which mixes lifetime incentives to accumulate retirement assets during employment with an adequate safety net is most likely to be required. Further research, on the sensitivity of projections of income adequacy to alternative assumptions about work, pension and family structure throughout working life; on the relative costs and benefits of alternative policy responses; and on comparable policy responses in other countries, would help to tease out the appropriate policy mix in the Irish context.

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APPENDIX I SUPPLEMENTARY RESEARCH FOR CHAPTER 3

TABLE A.1 EVIDENCE OF LIKELIHOOD OF RECEIVING GIFT / AMOUNT BY RECIPIENT CHARACTERISTICS

	Overall	Age 16-24	Age 25-49	Age 50+	Homeowner	Non-Homeowner
Gift (%)						
No gift >€5,000	73.3	81.3	70.9	86.6	71.8	75.0
Gift >€5,000	26.7	18.7	29.1	13.4	28.2	25.0
Value of Gift (€)						
Mean	38,681	16,368	40,187	35,954	41,128	34,381
Median	10,000	6,667	10,000	10,000	10,000	10,000

Source: Authors' calculations from TILDA.

Note: Gift amounts conditional on having received a gift. Assumes that all non-resident children of the TILDA participant(s) receive an equal amount.

TABLE A.2 25TH PERCENTILE HOUSE PRICE BY NUTS 3 REGION – 2019

NUTS 3 region	25th percentile house price 2019 (€)
Border	80,000
Midlands	111,000
West	105,000
Dublin	278,000
Mid-East	210,000
Mid-West	113,000
South-East	127,500
South-West	160,000

Source: Authors' calculations from Residential Property Price Register.

APPENDIX II SUPPLEMENTARY RESEARCH FOR CHAPTER 4

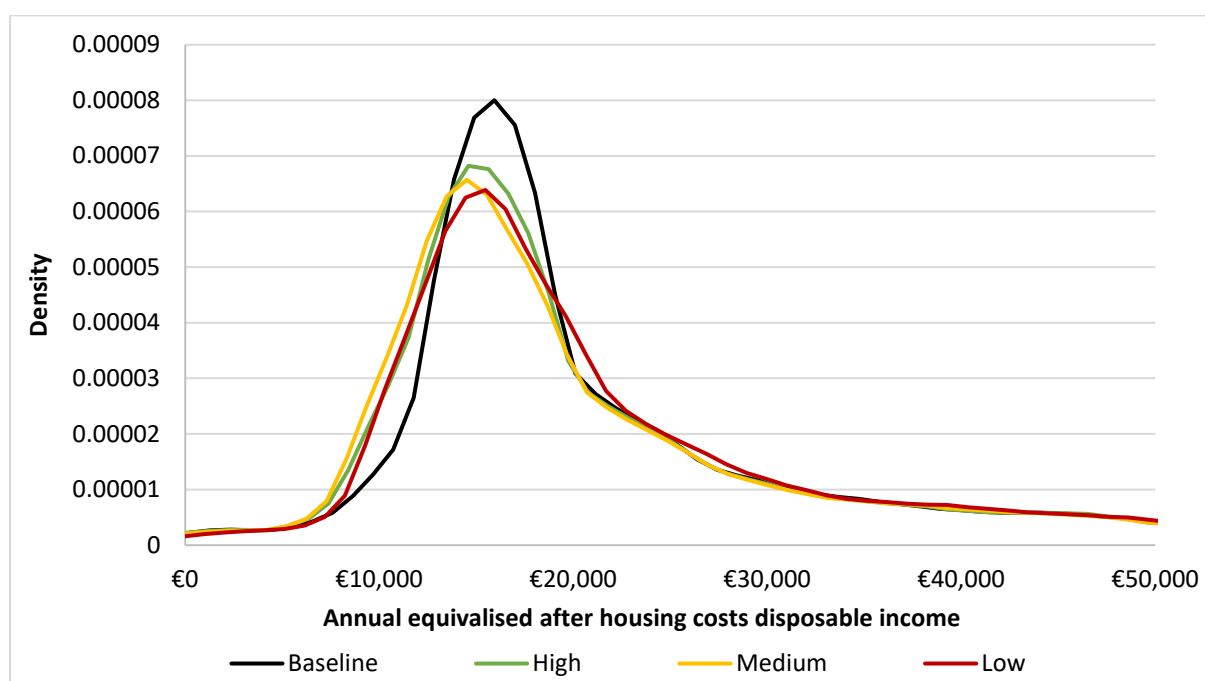
TABLE A.3 LOGISTIC REGRESSION OF THE FACTORS ASSOCIATED WITH AROP, BASELINE SIMULATIONS, NARROW INCOME MEASURE

	(1)	(2)		(3)
	BHC		AHC	
Share with income in retirement that is:	<60% median	<50% median	<60% median	<50% median
Living in				
Dublin (reference)				
Urban area outside Dublin	1.091	0.833	0.883	0.608**
Rural area	1.480**	1.214	0.938	0.671**
Household type				
Non-farming household (reference)				
Farming household	1.365	0.941	1.065	1.228
Cohabitation status in working life				
Married/cohabitating (reference)				
Single	1.387**	0.755	4.824***	3.681***
Gender				
Man (reference)				
Woman	1.252*	1.331	1.514***	1.265*
Education				
Primary or lower (reference)				
Lower secondary	1.146	1.324	0.622**	1.017
Upper secondary	0.928	1.071	0.396***	0.845
Post-secondary < degree	0.736	0.804	0.318***	0.635*
Post-secondary degree or higher	0.686	0.982	0.170***	0.518**
Observations	1,904	1,904	1,904	1,904

Source: Authors' calculations using data from the Irish Longitudinal Study of Ageing (TILDA).

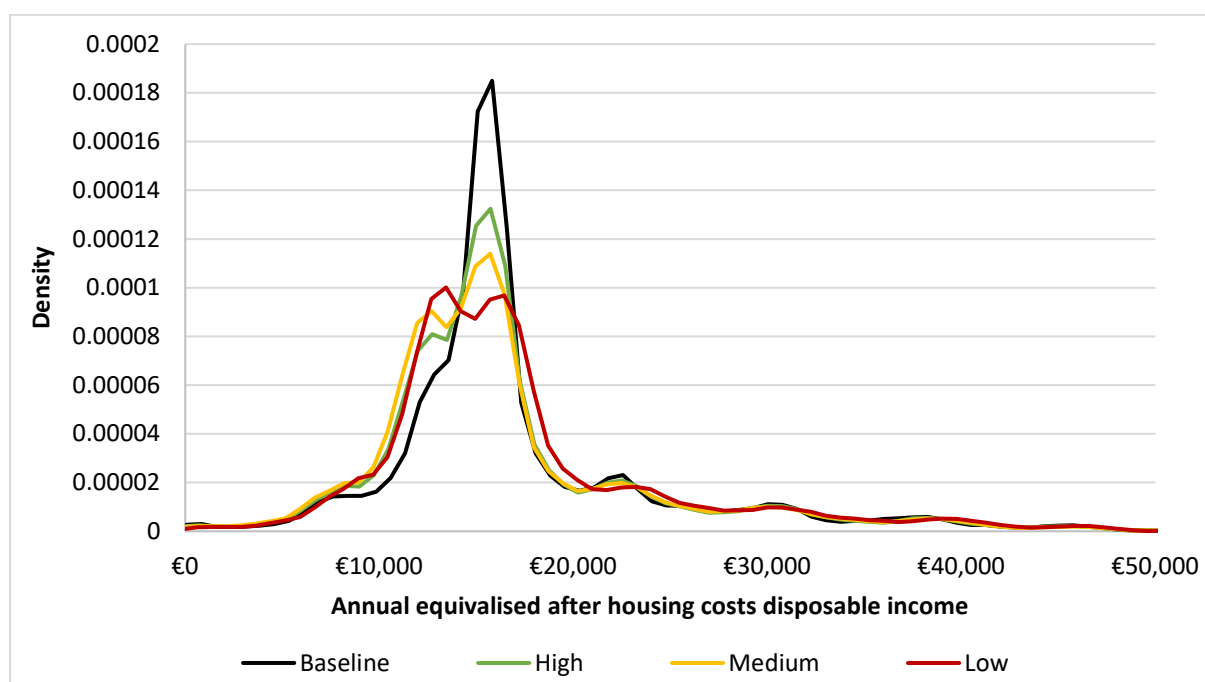
Note: Coefficients show odds ratios from logistic regressions. Stars show statistical significance, indicating a p value of < 0.05 (*), < 0.01 (**) and < 0.001 (***) respectively.

FIGURE A.1 DISTRIBUTION OF AFTER HOUSING COSTS INCOME, BY SCENARIO (BROAD DEFINITION)



Source: Authors’ calculations using data from The Irish Longitudinal Study of Ageing (TILDA).
Notes: After housing costs disposable income constructed as described in Chapter 4, equivalised using the modified OECD equivalence scale. Estimate from kernel density plot with data censored at €50,000 per year for legibility.

FIGURE A.2 DISTRIBUTION OF AFTER HOUSING COSTS INCOME, BY SCENARIO (NARROW DEFINITION)



Source: Authors’ calculations using data from The Irish Longitudinal Study of Ageing (TILDA).
Notes: After housing costs disposable income constructed as described in Chapter 4, equivalised using the modified OECD equivalence scale. Estimate from kernel density plot with data censored at €50,000 per year for legibility.

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