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Modelling landlord behaviour and its impact on rental affordability: Insights across two decades

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Acronyms and abbreviations used in this report

ABS	Australian Bureau of Statistics
AHURI	Australian Housing and Urban Research Institute Limited
ATO	Australian Taxation Office
CGT	Capital gains tax
CRA	Commonwealth Rent Assistance
GFC	Global Financial Crisis
HILDA	Household Income and Labour Dynamics in Australia Survey
MITR	Marginal income tax rate
RBA	Reserve Bank of Australia
SEIFA	Socio-Economic Indexes for Areas

Glossary

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Executive summary

Key points

- This report builds on findings from previous AHURI research by offering insights into the decision to buy, sell or retain rental investments during the years 2001–2021.
- This study has strong relevance to forward-looking policy planning for the private rental sector, as the share of private renters in the population is projected to continue rising, and there is ongoing concern about affordability stress among private renters.
- We apply panel data modelling methods and policy simulations that model factors affecting the supply of rental housing to measure potential flow-on effects to tenant affordability.
- The median rental-investment period is two years, whereas the mean rental investment is 3.9 years. Approximately 22 per cent of rental investments are disposed of after the first year. However, around 28 per cent of rental-investment spells are still ongoing after 20 years.
- Individuals who buy or retain rental investments are in stronger economic positions than those who sell rental investment properties. People who buy or retain are more likely to be full-time employed and high-income individuals.

- **Our three simulations—focusing on the capital gains tax (CGT) discount rate, the stage 3 tax cuts, and home-loan interest rates—found that the two fiscal policy measures would produce more equitable outcomes than the monetary policy measure:**
    - Halving the CGT discount would negatively impact high-income landlords more than low-income landlords but have negligible impacts on rental affordability.
    - The stage 3 tax cuts, were they in place in 2001–21, would have had little effect on landlord rental investment retention, but low-income tenants would benefit more from rental cost burden relief than higher-income tenants.
    - Applying tighter monetary policy measures would negatively impact low-income landlords and low-income renters more than their high-income counterparts.
- **Had home-loan interest rates been held constant at 2018 levels over 2019–2021, rather than falling, low-income landlords would have been more likely to sell rental investments than high-income landlords; this would have meant an 18 per cent increase in average rents and a 14 per cent increase in rental cost burdens for low-income renters.**

Key findings

This report updates and expands on earlier AHURI research by Wood and Ong (2010) that modelled factors shaping rental-property investment behaviour by residential landlords during the period 2001–2006.

The share of individuals investing in rental investment properties has been on a mild upward trend in the period 2001–2021. In 2021, 2.2 million Australians were landlords, which amounts to 8.7 per cent of the population. The median rental investment spell lasts two years; the mean rental investment spell lasts 3.9 years. Approximately 22 per cent of rental investments are disposed of after the first year. However, around 28 per cent of rental investment spells are still ongoing after 20 years.

Individuals who buy or retain rental investments typically have stronger economic positions than individuals who sell rental investment properties. People who buy or retain are more likely to be full-time employed and high-income individuals.

Individuals who hold their rental investments for longer durations typically have strong economic positions than those who hold their rental investments for shorter terms, or those who churn in and out of rental investments. Those who hold are more likely to be full-time employed and high-income individuals.

The odds of purchasing a rental investment property are raised among younger groups aged 25–34, those who are married, employed, have post-school educational qualifications, higher incomes, and lower personal mortgage burdens (relative to outright owning). In other words, individuals are more likely to buy a residential investment property if they have the above characteristics.

The odds of selling a rental investment property in the short-term are raised among pre-retirement landlords aged 45-54 years, by marital separation, unemployment, the absence of post-school qualifications, lower incomes and personal mortgage burdens.

The duration of rental investment is shortened among younger landlords aged under 35, by marital separation, the absence of post-school qualifications, lower incomes and personal mortgage burdens.

Negative gearing provisions provide significant incentives that discourage sale of rental investment properties and lengthen the duration of rental investments. An increase in the after-tax economic cost of holding a rental property will reduce the duration of rental investment by landlords. Similarly, an increase in the gross rental yield of holding a rental property will increase the duration of rental investment by landlords.

The probability of buying a rental investment property appears to be highest during periods when economic conditions are strong—for example, before the global financial crisis (GFC). However, government policy interventions that buffered rental investments during periods of economic uncertainty—such as the COVID-19 pandemic—protected landlords against the financial shocks imposed by COVID-19.

During periods of economic shocks—such as the GFC and COVID-19—landlords' after-tax economic cost of supplying rental housing fell on average. This can be attributed to government intervention through the reduction of interest rates.

Using the modelling results, three microsimulation analyses were conducted to assess the impact of policy changes relating to interest rates, capital gains tax and personal income tax rates.

Microsimulation 1: If home-loan interest rates were held constant at 2018 levels during 2019–2021 instead of being allowed to fall, then:

- landlords' mean user cost would have increased from 3.9 per cent to 4.6 per cent. The probability of landlords selling their rental investment over time would have risen the most among low-income landlords.
- average rents would have risen by 18 per cent, the mean rent-to-income ratio would rise the most among low-income renters by 14 percentage points, and the share of low-income renters who pay more than 30 per cent of income in rent would rise the most by 14 percentage points.

Microsimulation 2: If the CGT discount were halved to 25 per cent over the period 2001–2021 instead of retaining the present 50 per cent discount, then:

- landlords' mean user cost would increase from 5.5 per cent to 5.7 per cent. The probability of landlords selling their rental investment property over time would rise the most among high-income landlords.
- average rents would rise by 3 per cent, and rental cost burdens would rise slightly across all income groups.

Microsimulation 3: If the stage 3 tax cuts were applied over the period 2001–2021 instead of actual personal income tax rates:

- Landlords' mean user cost would decrease from 5.5 per cent to 4.9 per cent, and any changes to the probability of sale of their rental investment property would have been negligible.
- If the changes in landlords' user cost were passed on fully to tenants, average rents would fall by 15 per cent and rental cost burdens would decline across all income groups. The decline in rent-to-income ratio would be largest at 10 percentage points among low-income tenants, and the share of low-income renter households who pay more than 30 per cent of their income in rent would fall the most by 13 percentage points.

Policy development options

What do the key findings mean for policy development and practice change?

Our findings suggest value in establishing programs that offer education on property investment retention. This will support landlords' efforts to retain property and promote the supply of long-term rental housing to the rental property market.

Landlords with their own home mortgages have raised odds of selling their rental investment property in the short-term, as well as shorter durations of retention. This reflects the higher financial burden they are under to repay their home mortgages as well as mortgages against their rental investment properties. There should be rigorous financial risk assessments by lenders and appropriate macroprudential regulations so that those who purchase rental investment properties are financially able to retain them.

Both interest-rate changes and the CGT discount affect landlords' after-tax economic cost of supplying a rental property. Any tax reforms that increase landlords' after-tax economic costs should be implemented incrementally to avoid destabilising rental markets (Duncan, Hodgson et al. 2018; Eccleston, Verdouw et al. 2018). This is because negative gearing tax benefits encourage retention of rental investment properties.

Policy changes that apply long-term freezes to rental increases (e.g. The Greens 2023) may negatively impact the supply of housing in the private rental market. This is because landlords only remain in the rental market if they gain sufficient rent relative to their property values.

A comparison across the three simulations suggests that the two fiscal policy measures (halving CGT, and applying the stage 3 tax cuts over the period 2001–2021) would have produced more equitable outcomes than the monetary policy measure (holding home-loan interest rates constant during 2019–2021):

- CGT reform would have negatively impacted high-income landlords more than low-income landlords, with negligible flow-on effects on rental affordability.
- Stage 3 tax cuts (as amended by the Albanese government) would have had minimal impact on landlords' retention of their rental investment. Low-income tenants would have enjoyed greater alleviation of their rental cost burdens than higher-income tenants (although see proviso below bullet points).
- Holding home-loan interest rates constant would have negatively impacted low-income landlords and low-income renters more than their high-income counterparts.

However, our simulations of rental affordability impacts rely on the assumption that landlords would pass on changes in their after-tax economic cost of supplying rental housing fully to tenants. It is reasonable to assume this would be the case when landlords find their after-tax economic cost rising. However, in practice, landlords are unlikely to be compelled to pass on any reductions in their after-tax economic cost to tenants, especially when vacancy rates in the market are low.

The study

Previous AHURI research has highlighted the growing need to increase supply in the private rental sector in Australia. The sector has suffered a long-run decline in housing affordability, with growing numbers of people facing acute rental stress (Ong ViforJ, Pawson et al. 2024). There is widespread agreement that private rental housing in Australia is a more insecure form of tenure than either homeownership or public housing, and studies such as Ong ViforJ, Singh et al. (2022) have highlighted the exposure of private renters to precarious housing conditions, which adversely affect their wellbeing.

From landlords' perspectives, economic models of personal investment decisions highlight the importance of after-tax returns relative to alternative investments (Wood and Ong 2010). In this regard, both fiscal and monetary policies can affect landlords' investment decisions.

This study will address four key research questions:

1. How many persons buy, sell and retain their rental investment property over time? How long do landlords retain their investment property? Do rental investment profiles vary across socio-demographic characteristics, geography and housing market cycles and shocks?
2. What are the factors that influence the purchase, sale and retention of rental investment property?
3. How might policy changes affect landlords' costs of supplying private rental housing and how would this in turn influence affordability outcomes for private renters?
4. How can findings from the first three research questions help promote the supply of private rental housing?

The main dataset used in this study is Australia's nationally representative longitudinal dataset—the HILDA Survey—from waves 1 to 21, covering the period 2001–2021. The HILDA Survey captures comprehensive information on both individuals and households, including data on socio-demographic characteristics, housing, income, labour, wellbeing and financial risk attitudes. Of relevance to this project is the survey's wealth module, which collects information on a range of household assets and debts every four years.

Drawing on the HILDA Survey, we estimate the share of the population that have bought and sold rental investments over the period 2001–2021. We compare the profile of landlords engaging in each buy and sell decision and compare landlords with non-landlords. Based on the survey responses, we are also:

- conduct duration analysis to uncover the duration of landlords' rental investment period.
- compare the profiles of those who retain their rental investment property over extended periods of time against those who tend towards short retention periods.

This project exploits the longitudinal properties of the HILDA Survey over 20 years to differentiate between three types of decision that individuals make regarding rental property investment:

- First, to model the decision to buy rental investment properties, we will select a sample of non-landlords at time *t* and model their propensity to invest in a rental investment property in a subsequent time period as a function of various factors.
- Second, to model the decision to sell rental investment properties, we will select a sample of landlords at time *t* and model their propensity to sell the rental investment property in a subsequent time period as a function of various factors.
- Third, to model the decision to retain a rental investment property, we will select a sample of landlords at time *t* and apply a survival model that predicts the duration of retaining the investment.

All these panel models will draw on a set of characteristics and motivators from the earlier research, including socio-demographic and human capital characteristics, and financial drivers. To further investigate the impact of COVID-19 on rental investment behaviour, we utilise the model results to predict COVID-19-related shifts in landlords' rental yields and their after-tax economic costs of supplying rental housing.

Finally, we conduct simulation exercises that capture pertinent policy changes on landlords' after-tax economic costs of supplying rental housing and their rental yields and assess how this is likely to affect affordability outcomes for tenants.

1. Introduction

- **This report updates and expands on earlier AHURI research by Wood and Ong (2010) that modelled factors shaping rental property investment behaviour by residential landlords during the period 2001–2006.**
- **The present report builds on findings from the previous research, and offers up-to-date estimates on the decision to buy, sell and retain rental investments for the years 2001–2021.**
- **We apply panel data modelling methods and policy simulations that model factors affecting the supply of rental housing and potential flow-on effects to tenant affordability.**
- **This study has strong relevance to forward-looking policy planning for the private rental sector, as the share of private renters in the population is projected to continue rising, and there are ongoing concerns about affordability stress among private renters.**

This report updates and expands on earlier AHURI research by Wood and Ong (2010) that modelled factors shaping rental property investment behaviour by residential landlords. The earlier research tracked patterns of rental property investment behaviour over the period 2001–2006. It also uncovered drivers that help shape whether a person will become a landlord and, once a person has decided to become a landlord, the duration of their investment in the private rental housing market. The key data source was the Household, Income and Labour Dynamics in Australia (HILDA) survey.

The present report is designed to build on findings from the previous research by offering up-to-date estimates up to the year 2021 using the same data source. We will also extend the previous analysis via new modelling methods and policy simulations that reflect current affordability concerns. Our focus remains on individual landlords who engage in rental property investment—in other words, our study does not cover institutional landlords.

The present study will therefore overcome limitations of the earlier research in two ways.

- First, it will offer a longer-run two-decade analysis of trends in landlord behaviour and subsequent rental market impacts.
- Second, 2001–2006 was a short period marked largely by a sustained housing market boom in Australia. Since then, the housing market has been subject to landscape-changing shocks—in particular a global financial crisis (GFC; 2008–2009) and a global public-health pandemic COVID-19 (2020–2021)—that have undoubtedly shifted the economic and social context within which households make decisions to invest in property and other assets.

This project will address four key research questions:

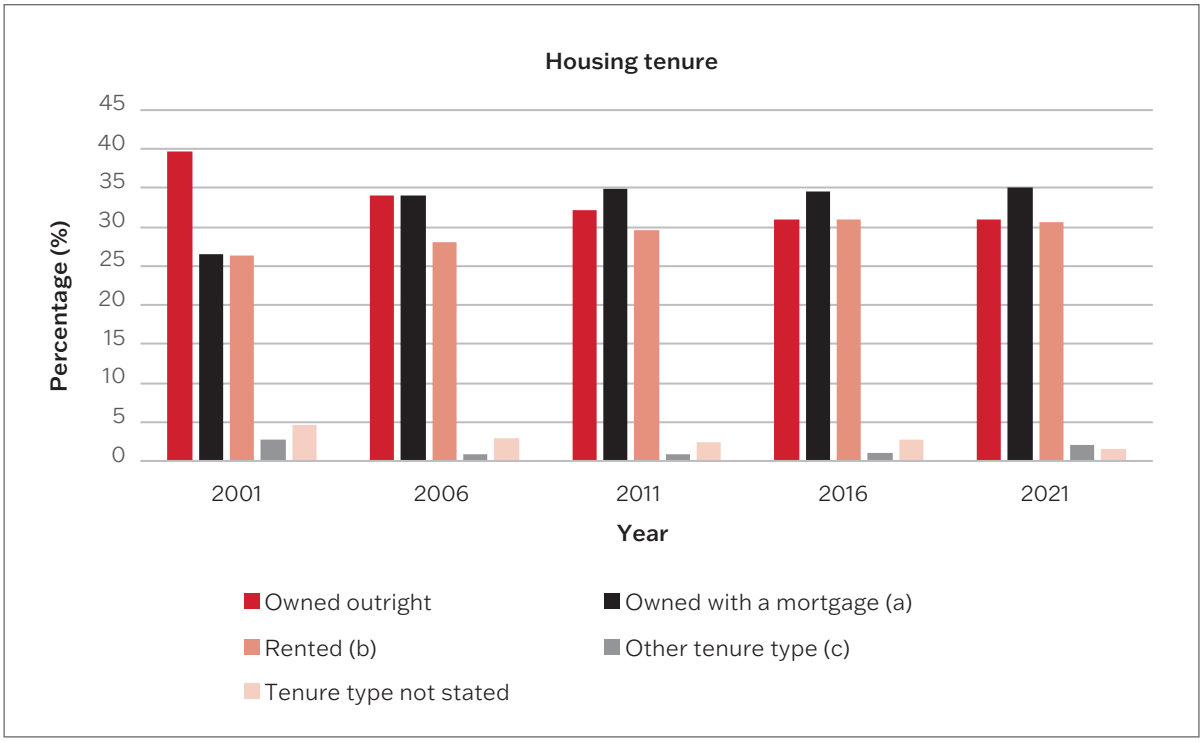
1. How many persons buy, sell and retain their rental investment property over time? How long do landlords retain their investment property? Do rental investment profiles vary across socio-demographic characteristics, geography and housing market cycles and shocks?
2. What are the factors that influence the purchase, sale and retention of rental investment property?
3. How might policy changes affect landlords' costs of supplying private rental housing and how would this in turn influence affordability outcomes for private renters?
4. How can findings from the first three research questions help promote the supply of private rental housing?

Our study has strong relevance to forward-looking housing policy planning because boosting the supply of rental housing will grow in importance as the population of private renters grow. Figure 1 depicts the distribution of housing tenure across multiple Census years for occupied private dwellings. As expected, the trends show a growth in the occupied rental stock. The figure points to an increase in private renting. Although the rented stock includes both private and public rental stock, the number of public rental dwellings has not grown over the past decades, so the overall increase can only be attributed to an increase in demand for renting.[1]

The rise in the share of private renters is naturally accompanied by a decline in the homeownership rate, especially for younger generations. Data from the Australian Bureau of Statistics (ABS) Surveys of Income and Housing show that the share of young adults aged 25–34 who are owners has plunged since 1990, from over 50 per cent to around 30 per cent. However, this trend is not confined to young adults alone, though the homeownership rate declines are most dramatic among the young. Over the past three decades, homeownership rates have also dipped among those aged in their 30s, 40s and 50s. Given demographic and tenure changes, AHURI projections suggest that the number of older private renters aged 55+ will grow from 648,000 in 2016 to 1.1 million in 2031 (Ong, Wood et al. 2019). Thus, there are justifiable concerns that the supply of private renting may not be able to cope with demand pressures from growing numbers of private renters across all age groups.

1 Please refer to Table A2 in the appendix for a figure containing actual number of units on the y-axis.

Figure 1: ABS Census: changes in tenure over time



Source: Authors' own calculations from ABS censuses.

Given the rapid growth of the private rental sector, this study makes a timely contribution to contemporary policy debates on the supply of rental housing by unearthing new evidence on patterns and drivers of rental property investment behaviour. It does this by:

- generating an up to date long-run national evidence-base on rental investment behaviour 2001–2021 to guide supply-side policy development that is sensitive to changes in the economic and social landscape.
- charting how landlord behaviour and its drivers change as the housing market cycle enters upswings and downswings, and when it is subject to global shocks.
- highlighting the ways in which policy levers might be effectively used to boost the supply of private rental housing.

1.1 Policy context

Previous AHURI research has highlighted the growing need to increase supply in the private rental sector in Australia. The sector has suffered a long-run decline in housing affordability, with growing numbers facing acute rental stress (Ong ViforJ, Pawson et al. 2024). There is widespread agreement that private rental housing in Australia is a more insecure form of tenure than either homeownership or public housing, and studies such as Ong ViforJ, Singh et al. (2022) have highlighted the exposure of private renters to precarious housing conditions that adversely affect their wellbeing.

From renters' perspectives, Commonwealth Rent Assistance (CRA) is the primary form of housing assistance to assist low-income private renters with their housing costs. Previous research has found that there are considerable shortfalls within the CRA program, as:

- over one-third of low-income recipients remain in housing affordability stress after CRA is deducted from their rents.
- severe targeting errors mean that 41 per cent of low-income private renters either:
  - receive CRA despite not being in housing stress.
  - do not receive CRA despite being in housing stress (Ong, Pawson et al. 2020).
- increases in CRA may be partially capitalised into higher rents, especially in severely disadvantaged locations where rental housing supply may be more inelastic (Ong ViforJ, Pawson et al. 2024).

From landlords' perspectives, economic models of personal investment decisions highlight the importance of after-tax returns relative to alternative investments (Wood and Ong 2010). In this regard, both fiscal and monetary policies can affect landlords' investment decisions.

Fiscal policy

Negative gearing and capital gains tax (CGT) discounts are key federal income-tax-related policies that affect landlords' after-tax returns from rental property investment. When the cost of owning a rental investment property outweighs the income that property generates, it creates a taxable loss for landlords. This loss can be offset against income from other sources—such as wages—and therefore provide tax shelter benefits for landlords. At the same time, landlords who sell their rental investment property can expect to receive a 50 per cent CGT discount on the gains from the sale of their property if they have owned it for more than 12 months (The Treasury n.d.). State taxes can also influence landlords' after-tax returns. Specifically, state governments levy land taxes on investment properties, while owner-occupied land is exempt (ANU Tax and Transfer Policy Institute 2020). Land tax on investment properties is calculated from the aggregate value of all land holdings by the landlord—which can discourage landlords from holding multiple properties (Wood and Ong 2010).

Monetary policy

Interest-rate changes can have significant influence on landlords' costs by increasing the interest repayment on mortgages owed on rental investment properties. Interest rates were held at historically low levels throughout the COVID-19 pandemic but increased rapidly from May 2022. Over the 20 months between May 2022 and December 2023, the Reserve Bank of Australia (RBA) increased interest rates 13 times from 0.15 per cent to 4.35 per cent (RBA 2023).

These interest-rate rises would have added to the financial strain of mortgaged property owners—both owner-occupiers and landlords. However, interest repayments from investment properties that earn a rental income are tax deductible—as per federal income tax rules—but they are not tax deductible if the property is owner-occupied (Australian Taxation Office [ATO] 2023). Landlords can also pass on increases in interest payments to tenants in the form of rent increases, which can exacerbate rental stress—especially among low-income tenants.

Regulations

Regulations governing the private rental sector affect both tenants and landlords. The stricter the regulations, the more protections they afford tenants. The weaker the regulations, the more flexibility they afford landlords.

It is generally agreed in the housing literature that Australia's private rental market is lightly regulated, especially compared to European countries such as Germany and the Netherlands (Martin, Hulse et al. 2018). However, recent reforms have improved tenants' security and rights—for instance, a reduction in the frequency of rent increases by landlords. New South Wales and Queensland implemented changes in 2020 and 2023, respectively, which limit rent increases to every 12 months rather than every six months (Fair Trading n.d.; Residential Tenancies Authority n.d.). From July 2024, rent increases in Western Australia have been limited to every 12 months instead of every six months (Department of Energy, Mines, Industry Regulation and Safety 2023). Victoria, South Australia, the ACT and Tasmania already had these policies in place prior to 2020 (Consumer Affairs Victoria n.d.; Justice and Community Safety Directorate n.d.; Rent my estate n.d.; Tenants Union of Tasmania 2014). Various states and territories have also increasingly moved towards abolishing no-grounds evictions to improve tenant security (Tenants Union of New South Wales 2024).

Renters vs landlords

Importantly, COVID-19 has reignited intense debates that have pitted renters against landlords and vice versa. On the one hand, there are justifiable concerns about the plight of renters at risk of eviction and acute rental stress through and beyond the pandemic. On the other hand, government moratoriums in the rental markets plunged 'mum and dad' landlords into financial stress (Oswald, Moore et al. 2020; Property Council of Australia n.d.), as did the rapid interest-rate increases since mid-2022 (Hannam 2023).

Given the global shifts that are likely to have changed the context for households' rental investment decisions since the early 2000s, now is an opportune time to update our understanding of this topic.

1.2 Existing research

Studies of decisions to invest in residential property were conducted using both quantitative and qualitative approaches. The literature highlighted the importance of socio-demographic characteristics, financial drivers, and investor attitudes in influencing decisions to invest in residential property.

Socio-demographic characteristics

The literature highlights particular socio-demographic characteristics that are correlated with a higher propensity to invest in residential property. Age and retirement status are especially important, with rental investment featuring as a part of an overall wealth-creation plan that builds an asset base to support retirement (Brown, Schwann et al. 2008; Kohler and Rossiter 2005; Seelig, Thompson et al. 2009). This finding is grounded in the lifecycle model of consumption and saving, which theorises that individuals will save and accumulate assets during their working lives, which they can draw down in old age (Kohler and Rossiter 2005; Skinner 1996).

Family relationships are also an important driver. Married status is positively associated with the propensity to hold a residential investment property (e.g. Brown, Schwann et al. 2008). On the other hand, singles are less likely to be able to access residential property investment (Soaita, Searle et al. 2017). This is because the pooling of two income streams through marriage can support investment in residential investment property that is not possible through a single income stream (Kohler and Rossiter 2005). Similarly, bereavement can result in inheritances that create 'accidental' landlords (Kemp and Rhodes 1997; Wood and Ong 2010: 8) who rent out inherited property that was previously not part of their wealth-creation plan.

Seelig, Thompson et al. (2009) suggest that as children reach adulthood, parents may be prompted to sell their residential investment property to tap into the equity stored in the property to assist their children into homeownership. Others may transfer their residential investment property directly to their children. However, Wood and Ong (2013) find that children are not a significant driver of the decision to invest in residential property.

Financial drivers

Studies generally agree that financial factors are important drivers of the decision to invest in residential property. Economic models have highlighted the importance of the after-tax returns of a property investment relative to alternative investments. The level of a person's income and net wealth are also positively related to the propensity to invest in residential property (Ioannides and Rosenthal 1994; Shroder 2001). Investors tend to hold residential investment property in anticipation of capital gains or rental returns (Anastasia, Memarista et al. 2017; Morris, Hulse et al. 2021; Seelig, Thompson et al. 2009). On the other hand, other researchers suggest that residential property investment is driven by financial insecurity or employment insecurity (Garboden 2021), while full-time employment can deter residential property investment (Brown, Schwann et al. 2008).

Econometric models of the propensity to invest in residential property typically include the investor's user cost of capital, which is the hurdle rate that gross rental yields must at least match to achieve a competitive return on the residential investment property:

- Follain, Leavens et al. (1993) find that user cost is a significant determinant of multi-family rental housing construction.
- Wood and Ong (2013) show that a one standard deviation increase in user cost (equivalent to 0.461 percentage points) reduces the probability of retaining a residential investment property by 4.4 percentage points.
- Blackley and Follain (1996) estimate that around half of any change in user cost is passed on to tenants in the form of a rent increase—though such rent adjustments can take a long time.

In Australia, the availability of negative gearing provisions can be expected to impact decisions to invest in residential property. However, there is little empirical evidence of its impact on rental markets. Babcock and Browett (1991) find that following the 1985 quarantining of negative gearing in Australia, a downturn in residential property investment ensued, which was reversed after the full reinstatement of negative gearing provisions in 1987. However, the authors argue that these rental supply responses were largely due to factors other than negative gearing and contend that negative gearing has a marginal influence on rental supply. Seelig, Thompson et al. (2009) find that residential investment property investors are evenly divided on whether they would have invested in residential investment property in the absence of negative gearing. However, they suggest that negative gearing is a deliberate strategy for some property investors, who churn in and out of residential property investments to remain negatively geared. Wood and Ong (2013) lend some support to this finding and show that negatively geared investors are 11.5 percentage points more likely to sell their residential investment property than those who are not negatively geared, holding other factors constant.

Attitudes

Some studies have investigated the importance of investor attitudes as drivers of the decision to invest in residential property. Kemp and Rhodes (1997) suggest that landlords are typically cautious and risk-averse investors who prefer depositing their savings in property rather than shares or bonds. Property investment is typically viewed as a low-risk investment in a tangible asset that can be a hedge against inflation. It also does not require the same level of financial sophistication as investment in shares and bonds (Seelig, Thompson et al. 2009). However, this finding is contested in other studies. For instance, studies such as Shroder (2001) and Wood and Ong (2013) have found risk aversion to be statistically insignificant in their residential property investment models.

1.3 Research methods

1.3.1 Data

The main dataset used in this study is Australia's only nationally representative longitudinal dataset—the HILDA Survey—from waves 1 to 21, covering the period 2001–2021. The HILDA Survey captures comprehensive information on individuals and households, including data on socio-demographic characteristics, housing, income, labour, wellbeing, and financial risk attitudes. Of relevance to this project is the survey's wealth module, which collects information on a range of household assets and debts every four years.

The information collected in the HILDA surveys allows us to track the rental investment status of each landlord over time. As per the earlier research that we seek to update, our focus is on individual landlords who engage in residential rental property investment, as these currently make up the bulk of the residential rental investor population in Australia. The longitudinal nature of the data provides us with rich information on the timing of the decision to buy or sell rental investment property, as well as the duration of the investment. Note that the identification of a landlord in the dataset is based on whether they received rental income from at least one investment property. As such, it is not possible to observe how many investment properties they own. By modelling the transition from landlord to non-landlord, and vice versa, the emphasis is on first-time landlords. As a result of this, the report's findings do not apply to advanced investors or corporations that own multiple residential investment properties. Based on 2020–21 statistics, approximately 72 per cent of residential investors only own one property.[2]

1.3.2 Analysis

Drawing on the HILDA Survey, we estimate the share of the population that bought and sold rental investment properties over the period 2001–2021. The profile of landlords engaging in each buy and sell decision is compared with one another; we also compare landlords with non-landlords. Based on the survey responses, we conduct duration analysis that uncovers the duration of landlords' rental investment period and compare the profiles of those who tend to retain their rental investment property over long periods of time compared to those who tend towards short retention periods.

We track landlords' history of rental investment retention from 2001 onwards. While the earlier project (Wood and Ong 2010) was only able to track landlords for six years, we offer a more complete analysis on the 'survival' of rental investors in the market over 20 years. This approach will help determine whether rental investments are a transient or persistent state for landlords.

This project will further exploit the longitudinal properties of the HILDA Survey over 20 years to differentiate between three types of decision that individuals make regarding rental property investment:

- First, to model the decision to buy rental investment properties, we will select a sample of non-landlords at time t and model their propensity to invest in a rental investment property in a subsequent time period as a function of various factors.
- Second, to model the decision to sell rental investment properties, we will select a sample of landlords at time t and model their propensity to sell the rental investment property in a subsequent time period as a function of various factors.
- Third, to model the decision to retain a rental investment property, we will select a sample of landlords at time t and apply a survival model that predicts the duration of retaining the investment.

2 https://propertyupdate.com.au/how-many-australians-own-an-investment-property/

All these models draw on a set of characteristics and motivators from the earlier research, including socio-demographic characteristics, human capital characteristics, and financial drivers. To further investigate the impact of COVID-19 on rental investment behaviour, we utilise the model results to predict COVID-19-related shifts in landlords' after-tax economic costs of supplying rental housing and their rental yields.

Finally, we conduct simulation exercises that capture how pertinent policy changes affect landlords' after-tax economic costs of supplying rental housing and their rental yields and assess how this is likely to affect affordability outcomes for tenants. We will use graphs to compare outcomes of simulated scenarios against baseline scenarios.

2. Profiles of rental property investors

- The share of individuals investing in rental investment properties has been on a mild upward trend in the period 2001–2021.
- In 2021, 2.2 million Australians were landlords, about 8.7 per cent of the population.
- The median rental investment spell lasts for two years. The mean rental investment spell lasts for 3.9 years.
- Twenty-two per cent of rental investments are disposed of after the first year. However, around 28 per cent of rental investment spells are still ongoing after 20 years.
- Individuals who buy or retain rental investments typically have stronger economic positions than sellers of rental investment properties. 'Buyers and retainers' are more likely to be employed full-time and have high incomes.
- Individuals who hold their rental investments for longer durations typically have stronger economic positions than those who hold their rental investments for shorter terms, or who churn in and out of rental investments. People that hold for longer durations are more likely to be full-time employed and high-income individuals; those who hold for shorter terms or churn in and out of rental investments are more likely to be unwaged and low-income individuals.

This chapter profiles rental property investors in Australia over the period 2001–2021. Specifically, we address the following research question:

- How many persons buy, sell, and retain their rental investment property over time? How long do landlords retain their investment property? Do rental investment profiles vary across socio-demographic characteristics, geography and housing market cycles and shocks?

In Section 2.1, we describe the sample design and identification of landlords in our analysis. We are primarily interested in three forms of rental investment behaviour: buying, selling and retention of rental investment properties. Section 2.2 compares the key characteristics of those who buy, sell, and retain rental investment properties, and Section 2.3 examines the duration of rental investment property retention by landlords. Section 2.3 also compares landlords who typically hold their rental investment properties for long periods versus those who churn in and out of the rental investment market. This allows us to uncover characteristics that differentiate landlords who are likely to offer longer leases to tenants versus those who are churners and therefore do not contribute to tenure security in the rental sector. Section 2.4 offers some remarks on policy development implications.

2.1 Sample and identification of landlords

This section provides some details on the data preparation and processing that was required before any of the research questions could be addressed. As explained in Chapter 1, the main data source for this study is the HILDA Survey (waves 1 through 21). HILDA is Australia's only nationally representative longitudinal survey containing information about housing consumption and investment. The 20-year period enabled us to study the patterns of rental property investment.

Because most of the analysis is longitudinal in nature, our unit of analysis is the person or individual—and not the household. Not all households can be tracked over time because household characteristics change over time as people enter the household (e.g. through birth, marriage) or leave the household (e.g. through death, divorce). Tracking households would have necessitated selecting a household member as the household reference person. Not only would this result in loss of sample numbers, but we would also lose the richness of variances that exist across individuals. In short, the information at an individual level is much richer than at household level. Previous AHURI longitudinal research using the HILDA Survey also tracked individuals rather than households (see Wood and Ong 2010; Wood, Ong et al. 2014; 2015).

Our analysis tracks the rental investment status for individuals across all waves. Even though there are questions in the HILDA Survey about the value of rental investment assets, these—along with other wealth variables—are only captured every four years in HILDA's wealth module. On the other hand, income variables are included in every wave of HILDA. Hence, to track individuals' rental investment status from year to year, we rely on a key income question in the HILDA Survey that reports whether the individual receives rental income (*_oifrnt*). The two possible responses to this question are:

1. Made profit/loss from renting properties.
2. No

A more targeted question aimed at the population/cohort of landlords in the survey is whether a landlord made a profit, loss or broke even from the rental investment property during the financial year (*_oifrntp*). This question is available across all 21 waves and is only asked to landlords. The three possible responses to this question are:

1. Profit
2. Loss
3. Break-even

Furthermore, the rental income for the financial year (*_oifrnta*) is also collected from the landlord population, and this is also available across all 21 waves.[3]

These three income variables are present for all waves and are collected for all responding persons.

Having reviewed the information collected on rental investments, our preferred approach is to use the responses collected from the population of landlords that are identified by the survey itself—that is, *_oifrntp*. As part of this decision, we compared the responses from *_oifrntp* to *_oifrnt* as a data-validation exercise.

We found that if we applied the criteria of *_oifrntp* = 1, 2 or 3 (representing profit, loss and break-even) to define landlords, we would end up with 33,000 person-period observations. However, if we classified an individual as a landlord based on *_oifrnt* = 1, we would have 36,000 observations. This represents a difference of 3,000 person-period observations. Examining these observations in detail reveals that nearly all of the 3,000 cases do not report legitimate values for the profit/loss or break-even indicator (*_oifrntp*) and rental income (*_oifrnta*) because respondents have indicated they do not know the answer or have refused to answer the questions. Given this evidence, we propose using targeted information collected from the landlord cohort/population, resulting in 33,000 observations across the 21 waves.

A limitation of the information available in the HILDA Survey is that it does not give us the number of rental investment properties owned by the individual. Hence, for the residential landlords in our sample, we can only observe the rental income from their aggregate rental investment portfolio and not from each separate rental investment property.

2.2 Ownership and transaction of rental investment properties

2.2.1 Trends in purchase, sale, and retention

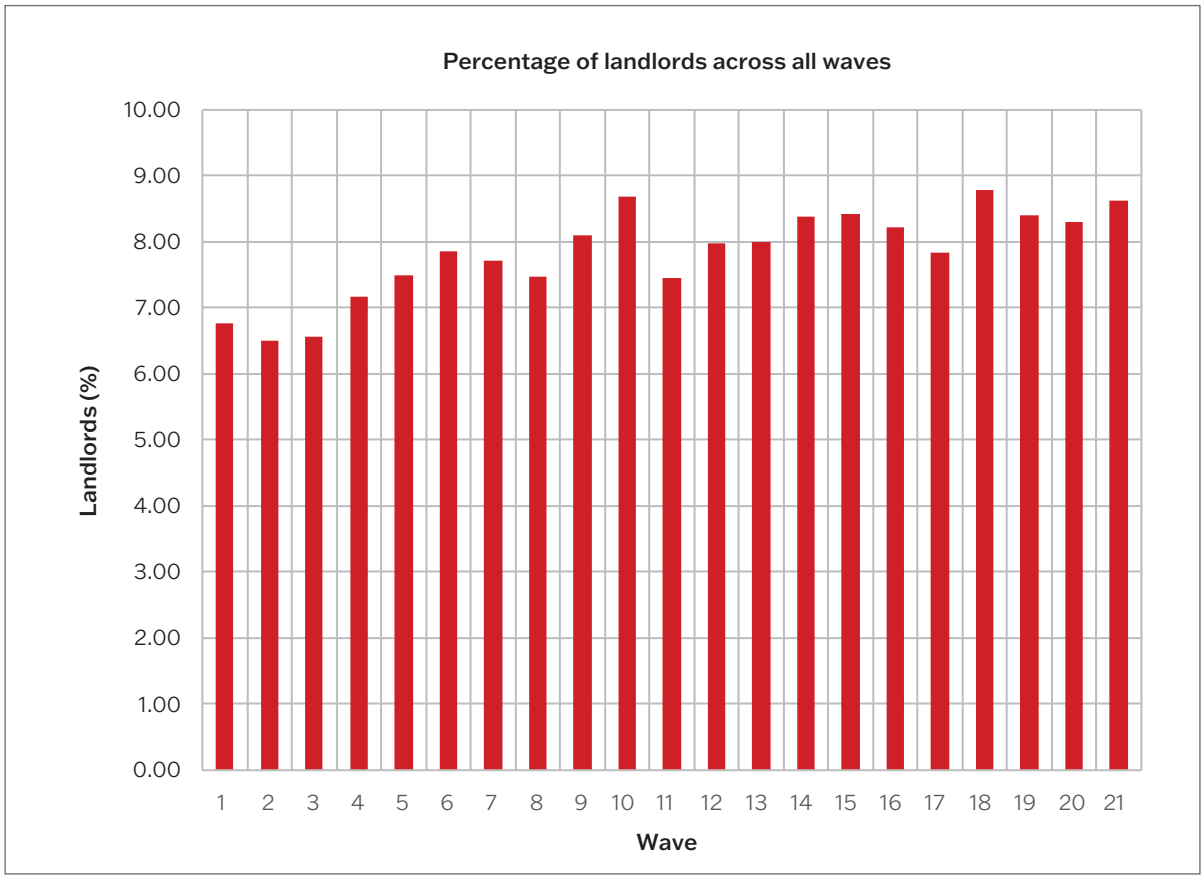
Figure 2 tracks the share of the population who are landlords. On average, approximately 8 per cent of individuals owned at least one rental investment property from 2001 to 2021. Despite the 2008–2009 global financial crisis (GFC)—which impacted financial markets worldwide, including housing markets—there has not been a dip in rental investment rates in Australia over time. As shown in Figure 2, there is a slight upward trend in the proportion of individuals that own at least one rental investment property from around 6.8 per cent in 2001 to 8.7 per cent by the end of the study period. In 2021, the 8.7 per cent translates to 2.22 million landlords.

Because of the longitudinal nature of the HILDA Survey, it is possible to observe whether everyone in the sample remains a landlord from wave to wave. If an individual is not classified as a landlord (based on the assignment rules set out in the previous section) in wave *t* but is classified as a landlord one year later in wave *t*+1, this would indicate that an individual has bought a rental investment property between waves t and *t*+1. If an individual is classified as a landlord in wave *t* but is not a landlord in wave *t*+1, this would indicate that the individual has sold a rental investment property between waves *t* and *t*+1. Hence, we can use these transitions to measure the rate at which people buy or sell investment properties across all waves. Note that individuals can transition multiple times—in other words, they can make multiple purchases or sales over time.

3 There are other questions in the survey aimed specifically at landlords, such as income range of profit/loss (*_oifrntr*), rental loss or break-even indicator (*_oifeven*) and loss amounts (*_oifloss*), but these are relatively recent additions to the survey and thus not available across all waves. We also note the limited information in the wealth modules collected on non-rental investment property such as commercial property (*_optcomm*), farms (*_optfarm*) and other not classified property types (*_optnone*).

Cross-sectional weights are applied to the sample estimates to ensure a representative sample. The weighted sample is then divided by the actual population (for each year/wave) to obtain the final estimates. These results can be compared to other sources of information such as the Australian Census, the ATO and CoreLogic data. All these entities collect information about the number or proportion of Australians who own at least one investment property. Based on their estimates, approximately 8 per cent of the Australian taxpayers own at least one investment property. In addition, the ATO claims that this figure has been steady over the last two decades (Warren 2024).

Figure 2: Rental investment rate, 2001–2021



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

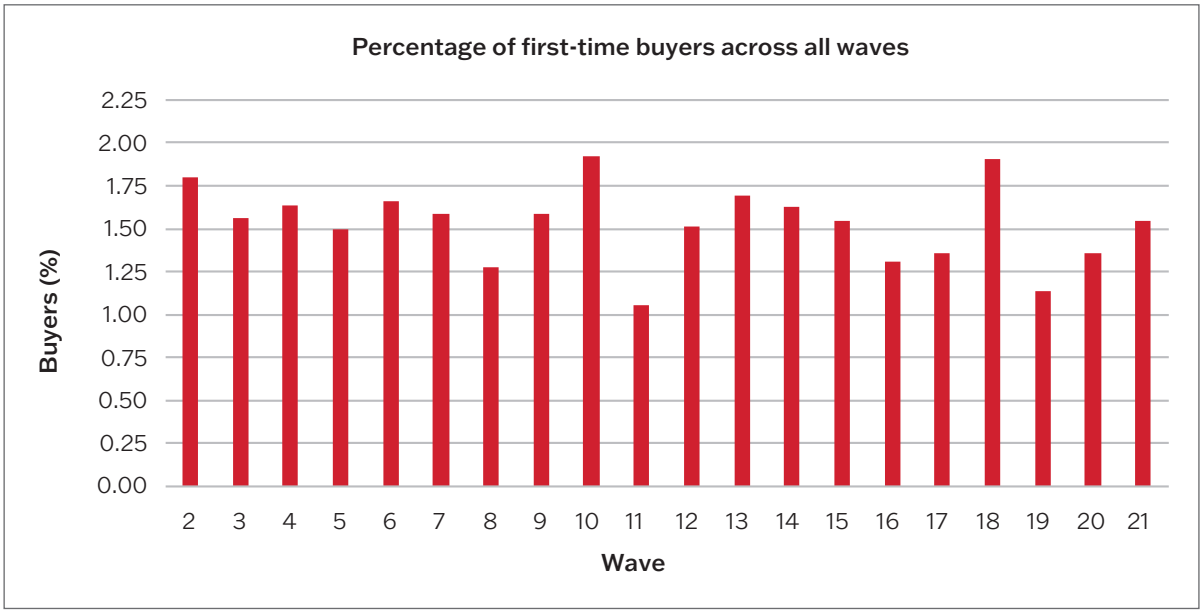
Figure 3 shows the proportion of individuals that bought their first rental investment property from wave to wave. This rental investment property rate ranges from 1 per cent to 2 per cent over the time frame. Given the data limitation that prevents us from accurately observing the number of rental investment properties that individuals own (see Section 2.1), this rate only refers to the proportion of individuals who switch from owning no rental investment property to owning a rental investment property. It is not possible to observe from this figure those who already own a rental investment property in wave t but add another rental investment property in wave t+1. As such, the estimates in the figure likely underestimate the rate of purchase of rental investment property over time.

The figure potentially illustrates peaks and troughs in rental investment property purchase, which may reflect the sensitivity of rental investment property purchase to changes in economic conditions that affect the financial viability of rental investments.

In general, the early years in the run-up to the GFC (2002–2007) featured relatively stable and higher rates of rental property purchase. This may reflect strong economic conditions during a period of extended economic and housing market boom.

A dip in rental property purchase was witnessed at the start of the GFC (2008), when economic uncertainty was most intense. Clearly, the economic uncertainty of the COVID-19 years also had an impact, as shown by relatively low rental investment property purchase rates compared to earlier years.

Figure 3: Share of population that purchase rental investment properties

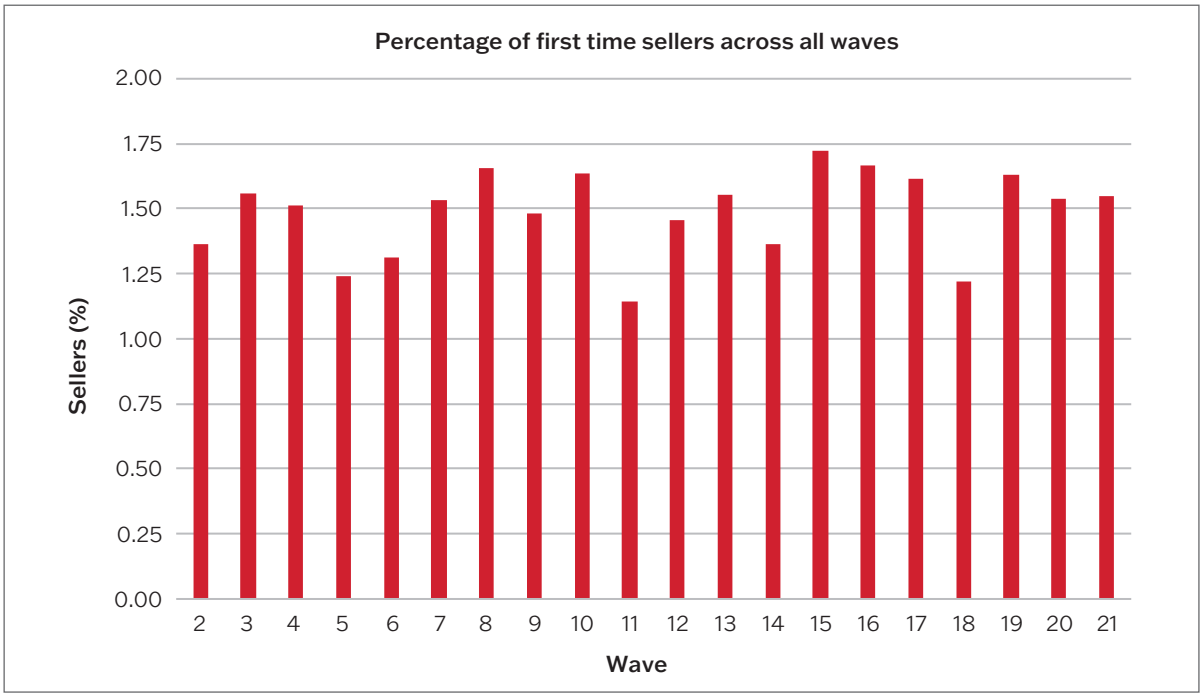


Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Figure 4 shows the proportion of individuals that sold their only investment property over the multiple years of analysis. Like the rate of purchase, the rate of sale is low and ranges between 1 per cent and 1.75 per cent. However, once again, these sales only include those who own one rental investment property which, after selling, they would have none. Again, this rate is likely lower than the actual rate because we cannot observe those who own multiple rental investment properties in a year and then reduce the number of properties they own one year later.

It is unclear from Figure 4 whether economic shocks have affected the rate of rental investment property sale significantly, though the rate of sale did peak slightly during the start of the GFC (2008-2009) and the start of the COVID-19 (2020-2021) pandemic.

Figure 4: Share of landlords who sell rental investment properties



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Next, we examine whether there are significant differences in the characteristics of individuals who buy, sell, and retain rental investment properties. In particular, we focus on differences in socio-demographic and geographical characteristics.

2.2.2 Characteristics of persons who buy, sell, or retain rental investment properties.

We begin by examining the profile of those who engage in rental investment property transactions. Regardless of whether they are buyers, sellers or retainers, these groups tend to have sound economic positions compared to the average population. They tend to be in their late 40s or early 50s when earnings typically peak, while the average age of Australians sits below 40. Most individuals who buy, sell, or retain rental investment properties are married and employed full-time. Their incomes are skewed towards the upper end of the income distribution, as 34–45 per cent is in high-income categories compared to 20 per cent for the general population. They are also more likely than the average population to have an owner-occupied home. The homeownership rate among these groups is higher at 77–85 per cent than the typical population share of under 70 per cent.

However, there are distinct differences across the three groups. In general, buyers tend have stronger economic positions than sellers. Buyers are more likely to be full-time employed than sellers (62 per cent compared to 53 per cent) and are much less likely to be out of the labour force (16 per cent compared to 24 per cent). Among buyers, 42 per cent are classified as high-income earners, compared to 34 per cent among sellers. These differences in profile suggest that losing employment is a likely trigger for leaving the investment sector. On average, buyers are younger than sellers and, reflecting this age difference, buyers are less likely to be married. This could suggest that relationship breakdown may also be a trigger for giving up being a landlord.

Retainers' characteristics are more like buyers than sellers. Retainers are the oldest age group. However, like buyers, retainers are more likely to be full-time employed and have higher incomes than sellers.

Overall, these profile differences suggest that an Australian landlord would prefer to add to and retain their rental investment property portfolio if they can, rather than sell it. Those who end up selling their rental investment properties may be doing so to boost incomes, as one-quarter are out of the labour force and two-thirds are in low-to-moderate-income households.

Table 1: Mean characteristics of buyers, sellers, and retainers of rental investment properties, per cent by column unless stated otherwise

Characteristics	Buyers[a]	Sellers[b]	Retainers[c]
Male	49%	48%	53%
Female	51%	52%	47%
Mean age (years)	45	49	50
Employed full-time	62%	53%	59%
Employed part-time	20%	21%	20%
Unemployed	2%	2%	1%
Not in the labour force	16%	24%	20%
Postgraduate degree	18%	18%	22%
Bachelor's degree	21%	19%	20%
Other post-school degree	32%	33%	33%
Year 12	11%	11%	9%
Year 11 and below	18%	19%	16%
Married	66%	69%	71%
Defacto	15%	12%	13%
Separated	2%	3%	2%
Divorced	5%	6%	4%
Widowed	2%	3%	3%
Single never married	10%	7%	7%
Has children	44%	43%	42%
Homeowner	77%	85%	85%
Renter	17%	11%	11%
Rent-free	6%	4%	4%
Low-income[d]	15%	21%	14%
Moderate-income[d]	43%	45%	42%
High-income[d]	42%	34%	45%
Sydney	17%	17%	18%
Melbourne	18%	18%	17%
Brisbane	10%	10%	9%
Perth	8%	8%	8%
Adelaide	5%	5%	5%
ACT	2%	2%	3%
Tasmania	2%	2%	2%
Northern Territory	1%	1%	1%

Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Notes:
a. Buyers are those who shift from non-landlord to landlord status between t *and* t+1.
b. Sellers are those who shift from landlord to non-landlord status between t *and* t+1.
c. Retainers are those who retain landlord status between t *and* t+1.*The characteristics are derived from wave* t.
d. Disposable incomes were converted to real equivalised incomes, then classified into three categories: low, moderate, and high income. The thresholds for these categories were derived from a national distribution of real equivalised disposable incomes. The low-income threshold represents the lowest 40 per cent of this distribution and the highest 20 per cent represents the high-income threshold.

2.3 Duration of retention of rental investment properties

In this section, we present an analysis focussing on the duration of retention of rental investment properties by landlords. In particular, we are interested in how long landlords hold on to their rental investment properties, and whether this duration varies across different subgroups of landlords with differing characteristics.

2.3.1 Analytical issues: censoring and churn

The variable that we have coded up in each wave for determining rental investment status (see Section 2.1) is not applied to the analysis in a longitudinal fashion to determine the duration of rental investment spells. For instance, suppose an individual was not a landlord in 2001, but was classified as a landlord in each wave from 2002 to 2008, the duration of rental investment would be seven years: 2002–2008.

When examining duration data, we must be aware of a common data issue called censoring which afflicts all duration analysis (see for instance, AHURI analysis by Wood and Ong 2010; Wood and Ong 2013; Wood, Ong et al. 2014; Wood, Ong et al. 2015). The observed duration of rental investment is limited to the window provided by the observation period—that is, 2001–2021. If an individual was observed as a landlord in 2001 (at the start of the observation period), we do not know how long that individual was landlord prior to 2001 because the pre-2001 period sits outside our observation window. This is known as 'left censoring'. 'Right censoring' occurs when the individual still owns the rental investment at the end of the observation period (2021), but we are unable to observe how many years the individual remains a residential investor post-2021.

Another common attribute of duration data is that it will capture individuals who buy and sell rental investment properties multiple times—in other words, multiple episodes of rental investment during the period of observation (known as 'churning'). So, we cannot assume that each landlord will only have one spell of rental investment; instead, some will have multiple spells of rental investments as they churn in and out of ownership of rental investment properties. Earlier AHURI analysis by Seelig, Thompson et al. (2009) and Wood and Ong (2010) suggests that churning is a deliberate strategy by some investors in a bid to remain negatively geared. This is important, as one limitation of the data used in this study, together with the method, is that landlords who exit and re-enter the landlord sector during a given wave are not picked up as leavers at all. Thus, churning tends to be undercounted.

2.3.2 Duration of rental investment spells

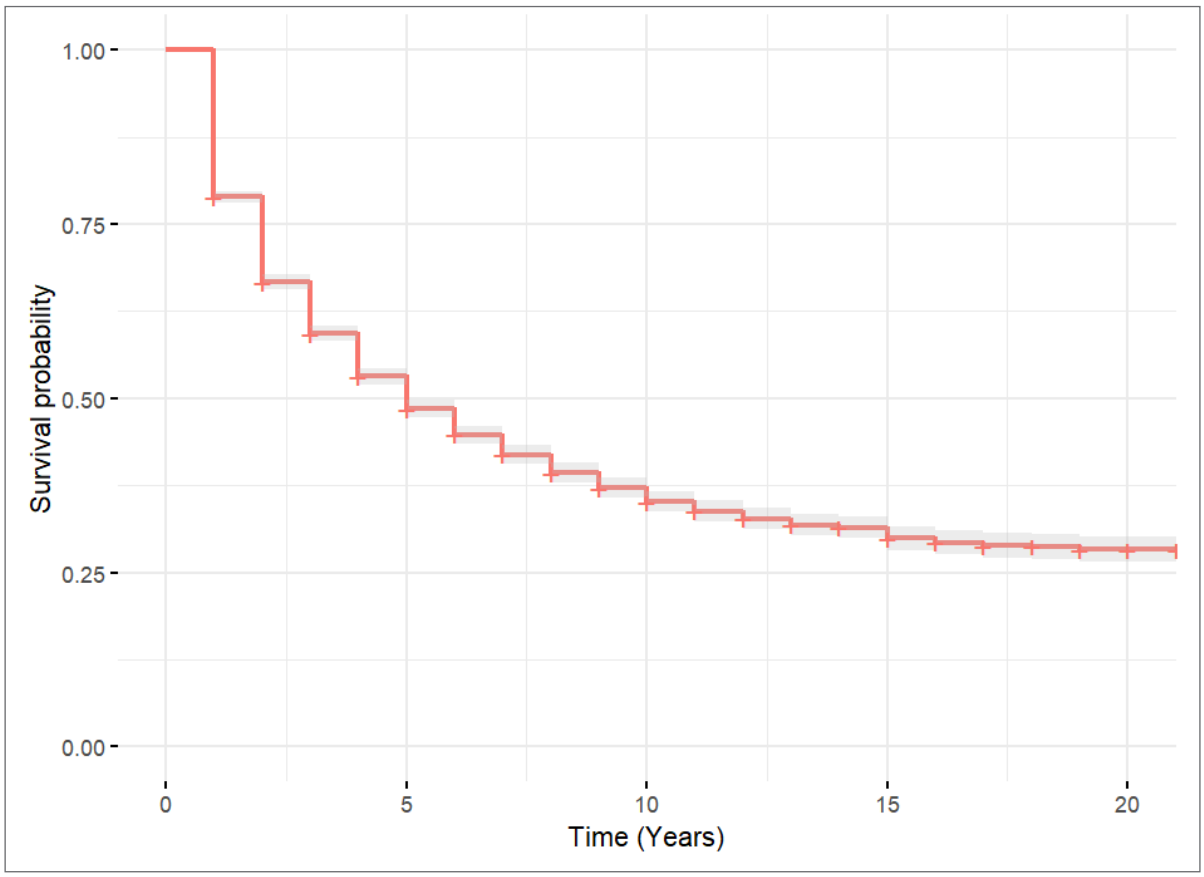
Considering the limitations posed by censoring, we present some statistics on the duration of rental investment spells by landlords in our sample. We note that certain landlords will have more than one investment spell during the observation period of 2001–2021 due to churning, so the duration measures below relate to investment spells rather than individual landlords. We find that the median rental investment spell lasts for two years, and the mean rental investment spell lasts 3.9 years. There is significant variation in the duration of spells, lasting from a minimum of one year to a maximum of 20 years. Of course, the true minimum duration could be less than one year, but a limitation of the data and method is that the minimum detectable duration is equal to exactly one year.

The Kaplan-Meier estimate is a common measure of the proportion of time an investment spell lasts or survives. Figure 5 provides the Kaplan-Meier estimate (with 95 per cent confidence intervals in grey bands) for the sample of rental investment spells.

The start of a rental investment spell is time equals 0. At time equals 0, there are 8,876 investment spells all with a probability of survival equal to 1 or 100 per cent. After one year, time equals 1 and several spells would have ended by then. As shown in Figure 5, at time equals 1, the survival probability decreases to 0.78. This implies that 78 per cent or 7,002 investment spells survive (1,874 investment spells have ended by time 1), or alternatively, that 22 per cent of rental investments are disposed of after the first year. This process repeats until the last few survivors (or investment spells) remain at the end of the observation period. Around 28 per cent of rental investment spells are still ongoing after 20 years, showing that a substantial portion of rental investments are for the long-term.

The non-linearity of the survival function is also of interest. The gradient of the curve flattens sharply around the five-year mark. This suggests that investments held for at least five years are much more likely to be held for longer periods of time—that is, up to 20 years. This suggests that there are at least two distinct investment sub-sectors: short holds of up to five years, and those held for five years or more.

Figure 5: Kaplan-Meier survival curve of rental investment spells



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

2.3.3 Characteristics of landlords by rental investment duration

In this section, we examine whether there are differences in the characteristics of landlords who hold on to their rental investment properties for short, medium, and long durations. To achieve this, we divide our sample of rental investment spells into three groups:

- Short duration (<= 2 years)
- Medium duration (2 < duration <= 6 years)
- Long duration (> 6 years).

Based on this, 55 per cent of the rental investment spells are of short duration, 28 per cent of medium duration and 17 per cent of long duration.

There are some distinct differences between those who have rental investment spells of short duration versus long duration (see Table 2). In comparison to short rental investment spells, long rental investment spells are more likely to be held by those who are male, married, employed full-time, have higher qualifications, high incomes and who are homeowners. Conversely, landlords are more likely to sell up after short investment periods if they are female, not in the labour force, on low-to-moderate-incomes or renting.

The differences between those with long versus short rental investment spell durations are like the differences between retainers versus sellers reported in Table 1. These profile differences suggest that, again, Australian individuals would prefer to retain their rental investment property portfolios for as long as possible, rather than sell them.

Table 2: Mean characteristics of landlords, by duration of rental investment spells, per cent by column unless stated otherwise

Characteristics	Short	Medium	Long
Male	48%	50%	55%
Female	52%	50%	45%
Mean age (years)	46	45	45
Employed full-time	59%	65%	68%
Employed part-time	20%	19%	18%
Unemployed	2%	1%	1%
Not in the labour force	19%	15%	12%
Postgraduate degree	17%	17%	21%
Bachelor's degree	20%	22%	21%
Other post-school degree	32%	33%	33%
Year 12	12%	11%	9%
Year 11	19%	17%	16%
Married	64%	66%	68%
Defacto	17%	16%	15%
Separated	2%	2%	2%
Divorced	5%	5%	3%
Widowed	2%	2%	2%
Single never married	10%	9%	10%
Has children	43%	44%	42%
Homeowner	77%	76%	83%
Renter	17%	18%	12%
Rent-free	6%	6%	5%
Low-income	17%	13%	11%
Moderate-income	44%	41%	37%
High-income	39%	46%	52%
Sydney	18%	19%	18%
Melbourne	18%	18%	17%
Brisbane	11%	9%	9%
Perth	7%	8%	9%
Adelaide	5%	4%	5%
ACT	2%	3%	3%
Tasmania	2%	2%	2%
Northern Territory	1%	1%	2%

Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Next, we examine whether ongoing landlords exhibit vastly different characteristics from churning landlords. We question whether churning landlords do so for strategic financial reasons—for example, to preserve tax shelter benefits. If so, this may reflect that churning landlords have higher educational qualifications or incomes than ongoing landlords.

We adopt the following definition: ongoing landlords:

- have exactly one investment spell, and
- the duration of this investment spell is greater than six years (>6). This is consistent with our previous defined duration for long-term landlords.

There were 1,831 landlords in this category.

A churning landlord is defined as a landlord who:

- has experienced more than one investment spell, and
- the duration of the spell is less or equal to 2.

There were 804 landlords in this category.

In Table 3, we report the characteristics of ongoing and churning landlords from the wave in which they are first observed investing in rental investment properties. It turns out that the distinctions between the two types of landlords are like the distinctions between short-term and long-term landlord spells (see Table 2). Ongoing landlords are more financially sound, better qualified and have higher incomes. Thus, the results do not necessarily support our earlier speculation that churning is a deliberate strategy of financially savvy landlords. Instead, it may be the case that those who churn are more likely to do so due to financial need and look for opportunities to get back into the rental investment market when they are able to. However, we note that due to the discrete nature of the duration data, landlords who churn within a wave are not identifiable.

Table 3: Mean characteristics of ongoing versus churning landlords, first observation, per cent by column unless stated otherwise

Characteristics	Ongoing	Churning
Male	55%	47%
Female	45%	53%
Mean age (years)	45	45
Employed full-time	70%	58%
Employed part-time	17%	23%
Unemployed	1%	2%
Not in the labour force	12%	17%
Postgraduate degree	21%	19%
Bachelor's degree	22%	20%
Other post-school degree	34%	29%
Year 12	9%	12%
Year 11 and under	14%	20%
Married	66%	67%
Defacto	17%	15%
Separated	2%	2%
Divorced	3%	5%
Widowed	2%	2%
Single never married	10%	10%
Has children	40%	46%
Homeowner	82%	80%
Renter	13%	14%
Rent-free	5%	7%
Low-income	11%	16%
Moderate-income	36%	41%
High-income	53%	43%
Sydney	20%	18%
Melbourne	14%	19%
Brisbane	10%	9%
Perth	9%	6%
Adelaide	5%	5%
ACT	3%	2%
Tasmania	2%	2%
Northern Territory	2%	1%

Source: Authors' own calculations from the 2001–2021 HILDA Survey.

2.4 Policy development implications

The profiling exercise in this chapter reveals that the proportion of individuals investing in rental investment properties has been on a mild upward trend between 2001 and 2021.

The average rental investment spells only last for two years based on median estimates, and 3.9 years based on mean estimates. Rental investment spells data show that 22 per cent of rental investments are disposed of after the first year. However, around 28 per cent of rental investment spells are still ongoing after 20 years. Thus, there are significant variations in the duration of rental investments over time.

These findings suggest that once individuals become landlords, those who have sound economic positions are averse to realising their rental investments. It is landlords who have weaker economic positions, or whose economic circumstances change after acquisition, who tend to be subject to shorter rental investment spells or who dispose of their investment.

Economic conditions may impact on the decision to purchase and sell rental investment properties. During the pre-GFC period, when economic and housing market conditions were strong, rental investment property purchase rates were relatively high, and sale rates were relatively low compared to the rest of the time frame. On the other hand, purchase rates were relatively low during the GFC and COVID-19 years, and sale rates were relatively high. However, the impact of economic conditions and associated policy settings require further investigation, which is carried out through various modelling exercises in Chapter 3 and Chapter 4. Economic conditions also affect individuals' employment circumstances and personal incomes, so there are potential macroeconomic and microeconomic effects at work.

Overall, because this chapter is descriptive in nature, the policy implications are tentative. In the following chapters, we build on this descriptive analysis by uncovering the causal impact of policy changes and other factors on rental investment decisions and durations via regression modelling and microsimulations.

3. Drivers of rental property investment

- The odds of purchasing a rental investment property are raised among younger groups aged 25–34, those who are married, employed, have post-school educational qualifications, higher incomes, and lower personal mortgage burdens (relative to outright owning).
- The odds of selling a rental investment property in the short-term are raised among pre-retirement landlords aged 45-54 years, by marital separation, unemployment, the absence of post-school qualifications, lower incomes, and personal mortgage burdens.
- The duration of rental investment is shortened among younger landlords aged under 35, by marital separation, the absence of post-school qualifications, lower incomes and personal mortgage burdens.
- Those who live in more advantaged areas are more likely to purchase a rental investment property, holding other factors constant. However, those living in more advantaged areas are also more likely to sell their property in the short-term and reduce their rental investment duration over time.
- Negative gearing provisions provide significant incentives that discourage sale of rental investment properties and lengthen rental investment durations. An increase in the after-tax economic cost of holding a rental property will reduce the duration of rental investment by landlords. Conversely, an increase in the gross rental yield of holding a rental property will increase the duration of rental investment by landlords.
- The probability of buying a rental investment property appears to be highest during periods when economic conditions are strong—for example, pre-GFC. However, government policy interventions that buffered rental investments during periods of economic uncertainty, such as COVID-19, protected landlords against the financial shocks imposed by the pandemic.

This chapter sheds light on the drivers of varying landlord behaviour. While Chapter 2 offered descriptive statistics that highlight correlates of purchase, sale and retention of rental investment property, these correlations may not reflect causal relations due to confounding factors. In this chapter, we apply regression analysis to isolate confounding influences and uncover the causal drivers of rental investment property purchase, sale, and retention.

Specifically, we address the following key research question:

- What are the factors that influence the purchase, sale, and retention of rental investment property?

We begin by providing an overview of the quantitative literature on landlords' rental investment behaviour in Section 3.1. In Section 3.2, we describe our regression modelling strategies, followed by a description of the key predictors in the models in Section 3.3. Section 3.4 reports findings from regression models that estimate the causal effects of key drivers of buying and selling rental investments, as well as the drivers of the duration of rental investment retention. Section 3.5 offers some remarks on policy development implications.

3.1 Existing literature

Section 1.2 provided a high-level overview of studies of residential property investment decisions using both quantitative and qualitative approaches. The literature highlighted the importance of socio-demographic characteristics, financial drivers, and investor attitudes in influencing decisions to invest in residential property. Given the quantitative focus of this chapter, this section extends the earlier review by emphasising quantitative studies on residential property investment, including previous AHURI research. In addition, this section distinguishes between the decision to purchase an investment property, and the decision to sell or retain an investment property.

There is a wide range of existing research across multiple countries using quantitative methods to empirically analyse the factors that affect landlords to purchase an investment property (Brown, Schwann et al. 2008; Hoxha and Hasani 2023; Mantogiannis and Katsigiannis 2020; Sean and Hong 2014; Shroder 2001; Tsou and Sun 2021; Wang, Yu et al. 2020; Yanotti and Wright 2023). In line with Section 1.2, these studies found a range of important influences—including financial, demographic, and attitudinal characteristics.

Existing studies generally concur on the importance of financial drivers. In one Australian study (Yanotti and Wright 2023), income is identified as one of the strongest drivers of a residential investment property purchase. A 1 per cent increase in gross average income has been found to increase the likelihood of purchase by 12.8 per cent (Yanotti and Wright 2023). Wealth is also an important factor, and this has been confirmed in both Australian studies (Brown, Schwann et al. 2008) and US studies (Shroder 2001) employing panel data regression. The US study also links marginal tax rates and property gifts to the decision to purchase an investment property. In Hong Kong, one study using linear regression reports that a 1 per cent increase in housing price is linked to a 0.46 per cent increase in the residential property investment rate (Wang, Yu et al. 2020).

Age has been identified as an important factor in the decision to purchase an investment property (Brown, Schwann et al. 2008; Tsou and Sun 2021). Brown, Schwann et al. (2008) find the likelihood of owning investment property increases with age from their logit regression estimates. Meanwhile Tsou and Sun (2021) use a multinomial logit to find that middle-aged singles and couples in Taiwan are less likely to purchase a home to reside in and more likely to purchase an investment property.

Furthermore, Hoxha and Hasani (2023) deploy linear regression and find that prospect theory biases and heuristic biases have a significant influence on the decision to invest. They also note that personality traits of conscientiousness, neuroticism and openness to experience do not have an impact.

There is less research on the decision to sell or retain an investment property, but existing studies again highlight the importance of financial factors.

Deeter, Hunt et al. (2013) utilise logistic regression and find that, in Ireland, the decision to retain an investment property when the amount owing on the mortgage is greater than the value of the home is driven by economic considerations. Specifically, an important consideration is whether investors can absorb the loss from the sale while covering interest payments on the loan. In Australia, Wood and Ong (2013) employ a probit model and shed light on the probability of landlords holding on to their residential investment property. They find that, upon retirement, there is a sharp increase in the likelihood of selling an investment property. Additionally, a one standard deviation increases in the user cost (after-tax economic cost) of owning an investment property lowers the likelihood of retaining the property by 4.4 percentage points.

This combination of findings suggests that landlords are not a homogenous group, but that there are several different cohorts active in the sector, with likely different drivers of the propensity to exit.

3.2 Model specifications

We estimate three models to separately investigate the decision to purchase, sell and retain a rental investment property.

3.2.1 'Buy' model.

The first model is designed to estimate the probability of buying a rental investment property given that the individual does not have an existing rental investment property. Here, the individuals in the modelling sample consist of individuals in each wave who are non-landlords at time *t-1*. Of these, some transition to landlords one year later at time *t* while others remain as non-landlords.

This transition is detected by comparing the value of the *_oifrnt* variable at time *t* to its lagged value *(t-1)* for each individual. This variable is available for all waves (1 to 21). In each wave, the modelling sample is extracted based on people who report that they do not receive rental income based on *_oifrnt* at *t-1*. If the variable value at *t* indicates that the person has started receiving rental income, then the person has become a landlord at *t*. If the variable value indicates the person is still not in receipt of rental income at *t*, then the person has remained a non-landlord.

Based on this, there are approximately 6,500 person-period observations in the modelling sample. Given that the data can include multiple time periods for most individuals, there are cases where a single individual has transitioned from non-landlord (at time *t-1*) to landlord (time *t*) multiple times.

The transition from non-landlord to landlord is recorded using a binary outcome variable which takes the value of 1 when an individual transitions from a non-landlord at time *t-1* to a landlord at time *t*, and 0 if the individual remains as a non-landlord between *t-1* and *t*. As such, the approach used to model this dependent variable is the logit model.

Given this, we are modelling the probability of an individual buying a rental investment property at time *t*. This is conditional on the individual not being a landlord at time *t-1*, as well as some factors that influence this decision. These are also measured at time *t-1*. The parameters of the logit model are typically estimated using maximum likelihood estimation, which finds the parameter values that maximise the likelihood of observing the data. Various specifications including pooled and random effects were estimated before settling on a final random-effects purchase model that exploits the panel nature of the data to account for unobservable heterogeneity.[4]

4 Estimating a logit model with fixed effects presents significant challenges, primarily due to the incidental parameters problem. This leads to biased estimates, as the number of parameters increases with the sample size.

3.2.2 'Sell' model.

Similar to the approach used for the 'buy' model, a 'sell' model is used to model the probability of a landlord selling a rental investment property. However, in this case, the modelling sample comprises individuals in each wave who are landlords at time t-1. Of these, some remain landlords one year later at time t, while others transition to non-landlords. There are approximately 6,000 person-period observations in this sample across all waves (1 to 21). Given the panel data set-up, there are instances where one individual can sell multiple times throughout the time period.

The outcome is measured by a binary variable that takes on a value of 1 if a landlord at *t-1* records a transition to a non-landlord at time *t*. The binary outcome takes on a value of 0 if the person remains a landlord between *t-1* and *t*.

Given the binary nature of the outcome and the panel nature of the data, a random effects logit model is applied. (For further details on this model's description and estimation, see subsection 3.2.1 on the 'buy' model.) As with the 'buy' model, it is important to note that the dependent variable that is observed at time t is modelled using explanatory variables from time *t-1.* However, as distinct from the 'buy' model, the dependent variable refers to whether an investment property has been sold and not whether an investment property has been bought.

3.2.3 'Retention' model

An important policy question is: if an individual buys a property, how long do they hold the property for? Here, the interest is in modelling the duration of the investment in the rental investment property.

The modelling sample consists of individuals who are landlords and remain so for at least one time period/one year. The objective is to model the timing of the sale of the rental investment property—which indicates the transition to non-landlord—given that this has not occurred before. For some individuals, this can be just one year, yet for others it can be the entire time period of 21 years. Given this set-up, a discrete-time hazard model is an appropriate choice to model the duration of the investment in rental investment property—especially since the timing of the event (sale of rental investment property) is measured in discrete-time (years). This model is commonly applied in survival analysis, as well as event history analysis where the timing of the events is of interest. In particular, it has been applied in previous AHURI research measuring the duration of housing affordability stress (Wood and Ong 2009; Wood, Ong et al. 2015).

The hazard function (or conditional probability function), *h(t)* represents the probability that the event (sale of rental investment property) occurs at time *t*, given that it has not occurred before time *t*. The hazard function includes covariates that allow us to quantify the effect of various factors that affect the duration of holding a rental property.

The hazard function is modelled using a logistic regression framework. It should be noted that despite sharing this modelling methodology with the 'sell' model, there are substantial differences between the two models.

The 'sell' model focusses on the probability of sale within a fixed time frame (12 months), whereas the retain/duration model offers a more nuanced view of the timing of sale (conditional probability of sale) over an extended period. As a result, the interpretation of model estimates is quite different across the two models. For the 'sell' model, each coefficient represents the log-odds change in the probability of sale for a unit change in the predictor over a fixed time period (12 months).

In contrast, the coefficients for the retain/duration model represent the relative change in the hazard rate for a unit change in the predictor variable over continuous or discrete-time. In addition, the retain/duration model can also handle time-varying covariates and censoring data, which is not the case with the 'sell' model.

3.3 Key predictors

Table 4 lists the key predictors that might shape the decisions to buy or sell rental investment properties or shape the duration of rental investments by landlords. These variables are compiled based on the drivers that our literature review suggests are important in motivating rental investment decisions or durations.

The predictors are broadly categorised into:

- *Socio-demographic characteristics:* sex, age, marital status, presence of children, health condition, socio-economic advantage/disadvantage (SEIFA index)
- *Human capital characteristics:* labour-force status, highest educational qualification
- *Housing tenure:* homeowner, renter or rent-free
- *Geography:* state/territory
- *Financial characteristics:* household income, housing cost-to-income ratio, user cost of holding a rental investment property, gross rental yield and negative gearing status.

The measurement of the predictors is described in Table 4. Most measures are straightforward. However, three financial predictors required more complex computations, which are described below.

User cost

The user cost is a measure of landlords' after-tax economic costs of supplying rental investment properties. This allows us to explore the role of various variables in shaping the supply decisions of landlords. This measure is commonly referred to in the housing economics literature as 'user cost', and it is a critical variable that determines decisions to purchase a property (Bourassa and Yin 2006; Hendershott, Ong et al. 2009; Ong ViforJ, Clark et al. 2021; Wood and Ong 2010). User cost comprises a range of operating costs associated with supplying private rental housing, including maintenance costs, property taxes, land taxes and building insurance. It also captures capital costs on an after-tax basis, including the costs of servicing debt and the opportunity cost (income foregone) associated with investing equity in rental investment properties. The formal derivation and detailed parameters of the user cost variable are set out in Appendix A1.

Gross rental yield

Gross rental yield is the ratio of rental income to the rental investment property value. It is calculated using the rental income amount received by the landlord (*_oifrnta*) and the values of other properties of the landlord. The former is captured across all waves (1 to 21) for landlords. The latter is captured in the wealth modules of the HILDA Survey. Given that the information in wealth modules is captured every four years, there are missing values for the property values of each landlord in waves that do not contain wealth modules. We impute these missing values from the same landlord's other property values in the closest preceding or subsequent wealth module wave. As a check, we compare the calculated gross rental yields against rental yields captured by CoreLogic and found substantial alignment across the two sets of estimates (see Chapter 4).

Profit, loss or break even.

Profit, loss or break-even is a targeted question aimed at the population of landlords in the HILDA Survey, about whether a landlord made a profit, a loss or broke even from the rental investment property during the financial year (*_oifrntp*). The three possible responses to this question are: profit, loss, or break even. Hence, if a landlord made a loss in the financial year, we observe that the landlord was negatively geared.

Table 4: Predictors of rental property investment

			Model		
Predictors	Predictor categories	Continuous or binary	Buy	Sell	Retention duration
Socio-demographic					
Sex	Whether a person is male	Binary	Yes	Yes	Yes
Age	Aged 15–24, 25–34, 35–44, 45–54, 55–64, or 65+*	Binary	Yes	Yes	Yes
Marital status	Legally married, defacto, separated, divorced, widowed, single never married*	Binary	Yes	Yes	Yes
Children	Has dependent children aged 0–24	Binary	Yes	Yes	Yes
Health	Whether a person has a long-term health condition	Binary	Yes	Yes	Yes
Human capital					
Employment status	Employed full-time, employed part-time, unemployed, not in the labour force*	Binary	Yes	Yes	Yes
Education	Postgraduate degree, bachelor's degree, other post-school qualifications, year 12, below year 12*	Binary	Yes	Yes	Yes
Housing tenure					
Housing tenure	Outright owner, Owner with mortgage, Private renter, Public renter and Living rent-free*	Binary	Yes	Yes	Yes
Geography and time					
State/territory	ACT, NT, QLD, SA, TAS, VIC, WA and NSW*	Binary	Yes	Yes	Yes
SEIFA	SEIFA index of relative socio-economic advantage/disadvantage	Continuous	Yes	Yes	Yes
Time period	Pre-GFC, GFC, Post-GFC period 1, Post-GFC period 2 and COVID-19*	Binary	Yes	Yes	Yes
Financial characteristics					
Housing cost-to-income ratio	Annual housing cost / Annual disposable household income	Continuous	Yes	Yes	Yes
Household income	Low-income, moderate-income, high income* For further details, please refer to notes under Table 1	Binary	Yes	Yes	Yes
User cost	Landlord's after-tax economic costs as a percentage of property value (%)	Continuous	No	Yes	Yes
Gross rental yield	Gross annual rental income / property value (%)	Continuous	No	Yes	Yes
Negative geared status	Whether made a loss from renting property	Binary	No	Yes	Yes

*Notes: * Omitted categories.*
Source: Variables derived from the 2001–2021 HILDA Survey.

3.4 Model findings

The key findings from all three logistic models are presented within tables in this section. As described in Section 3.2, the outcomes of each model are as follows:

- 'Buy' model: odds of purchasing rental investment property in the next 12 months.
- 'Sell' model: odds of selling rental investment property in the next 12 months.
- Retention model: odds of selling rental investment property over time.

The 'sell' model focusses on the odds of sale within a fixed time frame (12 months), whereas the retention model offers a more nuanced view of the timing of sale (conditional probability of sale) over an extended period. The retention model can also handle time-varying covariates and censoring data, which is not the case with the 'sell' model.

In each table, the coefficients represent the log-odds change in the probability of each outcome occurring. These can be converted into more intuitive odds ratios for interpretation. When the predictor variable is a binary variable—for example, a variable such as 'married' that indicates whether the individual was married at t—the odds ratio is the odds of how likely married people are to experience the outcome relative to the reference category of singles who have never been married.

For example, if the odds ratio attached to a married predictor is:

- 1.5: the married individual is 1.5 times as likely to experience the outcome as singles who have never been married.
- 0.5: the married individual is 0.5 times as likely to experience the outcome as singles who have never been married.
- 1: the married individual is as likely to experience the outcome as singles who have never been married.

Note that the model findings are contingent on the definition of the dependent variable for each model. For example, the 'buy' model investigates the factors that influence the decision to become a landlord. These factors may differ when considering seasoned/advanced investors.

3.4.1 Drivers of the decision to buy rental investment properties

Table 5 reports the model estimates, which indicate that there are several factors that significantly increase or decrease the probability of buying a rental investment property. We interpret the model findings using odds ratios. An odds ratio that is:

- *greater than a value of 1* indicates that a predictor category has a positive impact on the odds of purchasing a rental investment property.
- *less than a value of 1* indicates that a predictor category has a negative impact on the odds of purchasing a rental investment property.

Socio-demographic characteristics

Young to middle-age groups are more likely to buy a rental investment property relative to the 65+ age group (reference category). For instance, those aged 25–34 years are 1.4 times as likely to purchase a rental investment property than those aged 65+.

Marital status

Marital status affects the probability of buying a rental investment property. In particular, being married increases by 15 per cent the probability of buying relative to being single and never married. Other categories such as defacto, divorced and widowed are not significantly different from the reference category. Finally, having children does not appear to significantly affect the probability of buying a rental investment property.

Employment status

Being employed (full-time or part-time) significantly increases the probability of buying a rental investment property relative to not being in the labour force. For instance, those who are employed full-time are 1.24 times as likely to purchase a rental investment property than those who are out of the labour force.

Level of education

Higher levels of educational attainment increase the probability of buying a rental investment property relative to the reference category year 11 and under. Those who have a university bachelor or postgraduate degree are around 1.2 times as likely to purchase a rental investment property as those whose highest qualification is year 11 and under, holding other factors constant. Post-school qualifications and year 12 completion also offer modest but significant increases in the probability of rental property investment relative to having a year 11 and under qualification.

Tenure status

Being an outright homeowner significantly increases the probability of buying a rental investment property relative to living rent-free (reference category). This is also true for owners with mortgages—although to a lesser extent. Both private and public renters are less likely to buy a rental investment property relative to the reference category.

Geographic variables

The SEIFA index of social advantage/disadvantage has a positive and significant effect on the probability of rental investment property purchase. As the index values increase (indicating more advantaged areas), the probability of buying a rental investment property also increases. After controlling for SEIFA, the state predictors are largely insignificant.

Income level

Low-income households are less likely to buy a rental investment property relative to high-income households; the odds of a low-income household buying a rental investment property are around 0.75 times the odds for high-income households. This is also true for medium-income households, although the decrease in probability is lesser compared to low-income households.

Time period

We chose to construct defined time periods that reflect different economic conditions rather than simply include calendar year dummies. The defined time periods include:

- pre-GFC (2001–2007)
- GFC (2008–2010)
- post-GFC-1 (2011–2015)
- post-GFC-2 (2016–2019)
- COVID-19 (2020–2021).

Using the COVID-19 time period as the reference category, we find that the probability of buying a rental investment property was highest during the pre-GFC period, when economic and housing market conditions were strong. During this period, the likelihood of rental investment property purchase was 1.12 times the odds during the COVID-19 years. These odds had dipped during the GFC, before regaining slightly during the immediate period post-GFC. However, in all three periods, the odds of rental investment property purchase remain higher than during the COVID-19 years. The results clearly show that the appetite for rental investment was lowest during the COVID-19 period, when economic conditions were highly uncertain. The results confirm the preliminary findings from Chapter 2, that economic conditions are crucial determinants of the odds of rental investment property purchase.

Table 5: 'Buy' model: random-effects logit model of the decision to purchase rental investment properties in the next 12 months

Predictors	Coefficient	Std. err.	Sig.	Odds ratio
Male	-0.046	0.014	***	0.955
Has long-term health condition	-0.054	0.017	***	0.947
Has children	-0.012	0.016		0.988
SEIFA Index	0.034	0.008	***	1.035
Housing cost-to-income ratio	0.001	0.001		1.001
Age 15–24	0.097	0.040	**	1.102
Age 25–34	0.341	0.032	***	1.406
Age 35–44	0.297	0.031	***	1.346
Age 45–54	0.281	0.029	***	1.324
Age 55–64	0.194	0.027	***	1.214
Age 65+	(omitted)			
Married	0.137	0.024	***	1.147
Defacto	0.059	0.025	**	1.061
Separated	0.138	0.042	***	1.148
Divorced	0.067	0.035	*	1.069
Widowed	0.043	0.046		1.044
Single never married	(omitted)			
Employed full-time	0.211	0.020	***	1.235
Employed part-time	0.116	0.021	***	1.123
Unemployed	-0.014	0.047		0.986
Not in the labour force	(omitted)			
Postgraduate degree	0.185	0.023	***	1.203
Bachelor's degree	0.168	0.022	***	1.183
Other post-school degree	0.066	0.019	***	1.068
Year 12	0.029	0.024		1.029
Year 11 and under	(omitted)			
Outright owner	0.115	0.030	***	1.122
Owner with mortgage	0.083	0.032	**	1.087
Private renter	-0.249	0.032	***	0.780
Public renter	-0.693	0.083	***	0.500
Rent-free tenure	(omitted)			

Table 5 (continued): 'Buy' model: random-effects logit model of the decision to purchase rental investment properties in the next 12 months

Predictors	Coefficient	Std. err.	Sig.	Odds ratio
ACT	-0.050	0.043		0.951
NT	0.048	0.066		1.049
QLD	0.017	0.018		1.017
SA	-0.044	0.025	*	0.957
TAS	-0.108	0.042	**	0.898
VIC	-0.008	0.017		0.992
WA	0.028	0.023		1.028
NSW	(omitted)			
Low-income household	-0.286	0.020	***	0.751
Moderate-income household	-0.112	0.014	***	0.894
High-income household	(omitted)			
Pre-GFC	0.115	0.021	***	1.122
GFC	0.042	0.024	*	1.043
Post-GFC 1	0.076	0.021	***	1.079
Post-GFC 2	0.019	0.021		1.019
COVID-19	(omitted)			
Constant	-2.877	0.094	***	0.056

Source: Authors' own calculations from the 2001–2021 HILDA Survey.
*Note: sig. = significance: ***Significant at the 1% level, **Significant at the 5% level, *Significant at the 10% level.*

The predictor 'male' captures the effects for both males and females. This definition is based on how the 'male' and 'female' values are coded in the data (0 and 1).

3.4.2 Drivers of the decision to sell rental investment properties

Similar to the 'buy' model, the results for the 'sell' model indicate that there are factors that significantly increase or decrease the probability of selling a rental investment property. The model estimates for each factor are provided in Table 6.

Socio-demographic characteristics

All the age predictors are insignificant relative to the reference category of those aged 65+, except for the 45–54 years predictor. Landlords aged 45–54 have significantly lower odds of selling a rental investment property compared to other age groups.

Marital status

Marital status affects the probability of selling a rental investment property. In particular, a separated status significantly increases the probability of selling a rental investment property relative to being single and never married (reference category). No other marital status has a significant effect on the probability of selling. Similarly, having children does not have a significant effect on the probability of selling.

Employment status

Being employed full-time significantly decreases the odds of selling a rental investment property by 11 per cent, relative to not being in the labour force. In contrast, unemployed people are 1.28 times as likely to sell their rental investment property relative to not being in the labour force.

Level of education

Higher levels of educational attainment such as postgraduate degree, bachelor's degree and post-school qualifications significantly decrease the odds of selling a rental investment property relative to those with no post-school qualification. The findings suggest that employment and education have a protective effect against having to sell rental properties.

Tenure status

Being a homeowner with a mortgage significantly increases the probability of selling a rental investment property relative to living rent-free, while the outright owner predictor is insignificant. This indicates that mortgagors are 1.16 times as likely to sell a rental investment property as outright owners and those living rent-free. This may reflect the higher financial burden that mortgagors carry relative to outright owners and rent-free households. The housing-cost-to-income ratio is insignificant, but some of the housing-cost burden effect may be reflected in the finding that mortgagors are more likely to sell their rental investments than those in tenures with low housing cost.

Geographic variables

The SEIFA index (pertaining to the owner) of social advantage/disadvantage increases the probability of selling a rental investment property. As the index values increase (indicating more advantaged areas), the probability of selling a rental investment property also increases. Every point increase in the SEIFA index raises the odds of selling by 0.3 per cent. Relative to New South Wales (reference category), the odds of selling a rental investment property are only significantly higher in Victoria. For the ACT and the Northern Territory, the probability of selling is significantly lower compared to New South Wales.

Relative to New South Wales (reference category), the probability of selling a rental investment property is significantly lower in Tasmania and the ACT. In contrast, Victoria had a significantly higher probability of selling compared to New South Wales.

Income level

Low-income households are 1.22 times as likely to sell a rental investment property as high-income households, while moderate-income households are 1.08 times as likely to sell as high-income households.

Financial factors related to rental investment.

We turn next to three financial factors that are directly related to the rental investment a landlord holds.

First, the user cost predictor has a positive coefficient, but is insignificant. It suggests that a rise in the after-tax economic cost of holding a rental investment property has an insignificant effect on the landlord's odds of selling up. However, a closer examination indicates that the user cost in a year has a non-linear relationship to the probability of selling within the next 12 months. By including a squared user cost term into the specification, we find a significant U-shaped/quadratic relationship. This indicates that an increasing user cost initially decreases the probability of selling, up to a certain point (a turning point), after which increasing user cost leads to an increase in the probability of selling. The estimated turning point is approximately equal to the average user cost in the sample (5.7%). This is also supported by the results of the duration model, which indicate that a rise in the user cost reduces the duration of retention of a rental property (see subsection 3.4.3).

Second, the gross rental yield predictor is not significant. This contradicts Wood and Ong (2011), who find that a higher gross rental yield increases the probability of selling up a rental investment property because landlords expect lower rates of capital gains from rental investment properties with higher rental yields. However, Wood and Ong (2010) relied on observing changes in landlord behaviour between two years only—2002 and 2006—and the analysis was conducted within the context of a strong pre-GFC housing market. It would appear that extending the time frame across 20 years that include more variations in housing market performance over time results in a different finding, in which gross rental yield is insignificant.

Third, we find that negative gearing significantly lowers the probability of selling a rental property. This again contradicts Wood and Ong's (2010) study covering the years 2002 and 2006, which found that negative gearing is linked to a higher probability of selling one's rental investment. The earlier study suggested this could be due to negatively geared investors churning in and out of the market to preserve tax shelter benefits. However, the results over the longer time frame presented here suggest otherwise, as rental investors who are negatively geared are actually motivated to retain their rental investment property as long as the property continues to deliver negative gearing benefits.

Time period

With regard to time period, the predictors are largely insignificant. This suggests that, on average, the economic conditions in a period do not significantly affect the odds of selling a rental investment property in the next 12 months. It may be the case that government interventions—for example, reductions in interest rates during the COVID-19 period, and other fiscal stimulus measures during the GFC and the COVID-19 period—may have provide adequate buffers for rental investors during periods of economic uncertainty. However, it is noteworthy that the likelihood of selling was statistically significantly lower immediately after the GFC than during the COVID-19 period.

Table 6: 'Sell' model: random-effects logit model of the decision to sell rental investment properties in the next 12 months

Explanatory variables	Coef.	Std. err.	Sig.	Odds ratio
Male	-0.073	0.032	**	0.930
Has long-term health condition	-0.018	0.034		0.982
Has children	-0.012	0.034		0.988
SEIFA Index	0.032	0.018	*	1.033
Housing cost-to-income ratio	0.002	0.001		1.002
Age 15–24	0.161	0.132		1.175
Age 25–34	0.052	0.066		1.053
Age 35–44	-0.061	0.063		0.941
Age 45–54	-0.146	0.057	**	0.864
Age 55–64	-0.076	0.048		0.927
Age 65+	(omitted)			
Married	0.019	0.061		1.019
Defacto	-0.043	0.065		0.958
Separated	0.375	0.099	***	1.455
Divorced	0.101	0.086		1.106
Widowed	-0.080	0.107		0.923
Single never married	(omitted)			
Employed full-time	-0.117	0.042	***	0.890
Employed part-time	-0.006	0.042		0.994
Unemployed	0.243	0.099	**	1.275
Not in the labour force	(omitted)			
Postgraduate degree	-0.221	0.051	***	0.802
Bachelor's degree	-0.204	0.051	***	0.815
Other post-school degree	-0.137	0.045	***	0.872
Year 12	-0.033	0.059		0.968
Year 11 and under	(omitted)			
Outright owner	0.031	0.068		1.031
Owner with mortgage	0.148	0.072	**	1.160
Private renter	0.058	0.074		1.060
Public renter	-1.424	0.435	***	0.241
Rent-free tenure	(omitted)			

Table 6 (continued) : 'Sell' model: random-effects logit model of the decision to sell rental investment properties in the next 12 months

Explanatory variables	Coef.	Std. err.	Sig.	Odds ratio
ACT	-0.341	0.100	***	0.711
NT	-0.400	0.136	***	0.670
QLD	0.013	0.041		1.013
SA	0.077	0.061		1.080
TAS	0.103	0.108		1.108
VIC	0.101	0.039	**	1.106
WA	0.020	0.052		1.020
NSW	(omitted)			
Low-income household	0.198	0.042	***	1.219
Moderate-income household	0.072	0.028	**	1.075
High-income household	(omitted)			
User cost	0.018	0.017		1.018
Negative gearing	-0.149	0.027	***	0.862
Rental yield	-0.055	0.044		0.946
Pre-GFC	-0.108	0.062	*	0.898
GFC	-0.008	0.068		0.992
Post-GFC 1	-0.113	0.052	**	0.893
Post-GFC 2	-0.009	0.041		0.991
COVID-19	(omitted)			
Constant	-1.301	0.223	***	0.272

Source: Authors' own calculations from the 2001–2021 HILDA surveys.

*Note: Sig. = significance: *** Significant at the 1% level, **Significant at the 5% level, *Significant at the 10% level.*

The predictor 'male' captures the effects for both males and females. This definition is based on how the 'male' and 'female' values are coded in the data (0 and 1).

3.4.3 Drivers of the retention of rental investment

Table 7 contains the estimates of the discrete-time hazard model used to model the duration of holding a rental investment property. Because this model is a duration model, a higher odds value reflects a shorter duration of rental investment retention. In comparison, the 'sell' model reports the probability of an investor realising their rental investment within the next 12 months.

Socio-demographic characteristics

Younger age groups such as 15–24 and 25–34 years exhibit higher odds of selling their rental investment property over time compared to the reference category of age 65+. Those aged 15–24 years are 1.83 times as likely to sell their rental investment property over time as older age groups, whereas those aged 25–34 years are 1.52 times more likely to sell their rental investment property over time as older age groups. This indicates that younger groups aged under 35 experience shorter investment durations than older groups.

Marital status

As per the 'sell' model, a separated status will significantly increase the odds of selling over time compared to other marital categories. Thus, holding other factors constant, separation reduces rental investment durations over time compared to other marital states.

Employment status

The human capital findings are similar to the 'sell' model. Unemployed people are 1.73 times more likely to sell their rental investment property over time compared to other labour-force statuses. Thus, unemployment significantly reduces the duration of rental investment retention. All levels of educational attainments decrease the odds of selling over time relative to an education of Year 11 and under. This indicates longer investment durations for landlords who posses higher qualifications.

Tenure status and geographic variables

The housing tenure and geographical findings are similar to the 'sell' model. With regard to tenure, we find once again that mortgagors have increased odds of selling over time, relative to other tenures. Thus, being mortgaged reduces investment durations relative to other tenures. A higher SEIFA index increases the odds of selling over time. This implies that as the value of the index increases—meaning the area is more advantaged—the duration of rental investment reduces on average. Compared to New South Wales, both the ACT and the Northern Territory have significantly lower odds of selling over time, whereas South Australia and Victoria have significantly higher odds of selling over time relative to New South Wales.

Income level

Financial factors are clearly important determinants of the odds of selling over time. Low-income households tend to have lower investment durations compared to high-income and moderate-income households. Holding other factors constant, low-income households are 1.34 times as likely to sell over time as moderate-income and high-income households. A one percentage point increase in the user cost raises the odds of selling over time by 8.9 per cent, confirming the importance of the after-tax economic cost of holding a rental property in the decision to continue to retain rather than sell the property. A higher gross rental yield reduces the odds of selling over time, with a one percentage point increase in the gross rental yield reducing the odds of selling over time by 8.1 per cent. At the same time, as per the 'sell' model, the importance of negative gearing status as an incentive to retaining rental property over time is confirmed. Being negatively geared reduces the odds of selling over time by nearly 20 per cent.

Time period

Regarding the effect of time periods, all of the earlier time periods have increased odds of selling relative to COVID-19. In fact, relative to the COVID-19 period, the odds of selling a rental investment property over time rises from 1.27 in the pre-GFC period to 2.18 by the pre-COVID period. This implies that the duration of rental investment was shorter across all time periods relative to the COVID-19 time period. It may be the case that the generous government income support measures implemented during the COVID-19 period provided a significant financial buffer that helped landlords retain their properties during this period of significant economic shock.

Table 7: Retention model: discrete-time hazard (logistic) model of the retention of rental investment properties over time

Predictors	Coef.	Std. err.	Sig.	Odds ratio
Male	-0.181	0.045	***	0.834
Has long-term health condition	0.020	0.058		1.020
Has children	0.056	0.054		1.058
SEIFA Index	0.075	0.027	***	1.078
Housing cost-to-income ratio	0.006	0.002	***	1.006
Age 15–24	0.605	0.210	***	1.831
Age 25–34	0.420	0.104	***	1.522
Age 35–44	0.113	0.101		1.120
Age 45–54	0.023	0.092		1.023
Age 55–64	0.055	0.082		1.057
Age 65+	(omitted)			
Married	0.095	0.091		1.100
Defacto	-0.107	0.101		0.899
Separated	0.601	0.145	***	1.824
Divorced	0.191	0.126		1.210
Widowed	-0.271	0.171		0.763
Single never married	(omitted)			
Employed full-time	-0.106	0.068		0.899
Employed part-time	0.032	0.069		1.033
Unemployed	0.548	0.163	***	1.730
Not in the labour force	(omitted)			
Postgraduate degree	-0.364	0.071	***	0.695
Bachelor's degree	-0.346	0.071	***	0.708
Other post-school degree	-0.232	0.062	***	0.793
Year 12	-0.096	0.080		0.908
Year 11 and under	(omitted)			
Outright owner	-0.057	0.114		0.945
Owner with mortgage	0.233	0.121	*	1.262
Private renter	0.183	0.125		1.201
Public renter	0.000	(omitted)		1.000
Rent-free tenure	(omitted)			

Table 7 (continued): Retention model: discrete-time hazard (logistic) model of the retention of rental investment properties over time

Predictors	Coef.	Std. err.	Sig.	Odds ratio
ACT	-0.685	0.164	***	0.504
NT	-0.710	0.235	***	0.492
QLD	-0.033	0.059		0.968
SA	0.169	0.085	**	1.184
TAS	0.142	0.155		1.153
VIC	0.184	0.054	***	1.202
WA	0.067	0.072		1.069
NSW	(omitted)			
Low-income household	0.293	0.068	***	1.340
Moderate-income household	0.055	0.048		1.057
High-income household	(omitted)			
User cost	0.085	0.032	***	1.089
Negative gearing	-0.212	0.046	***	0.809
Rental yield	-0.084	0.081		0.919
Pre-GFC	0.237	0.136	*	1.267
GFC	0.563	0.132	***	1.756
Post-GFC 1	0.626	0.107	***	1.870
Post-GFC 2	0.779	0.095	***	2.179
COVID-19	(omitted)			
Constant	-4.024	0.362	***	0.018

Source: Authors' own calculations from the 2001–2021 HILDA surveys.

*Note: Sig. = Significance. *** Significant at the 1% level, **Significant at the 5% level, *Significant at the 10% level.*

The predictor 'male' captures the effects for both males and females. This definition is based on how the 'male' and 'female' values are coded in the data (0 and 1)

3.4.4 Summary of model findings

The findings show that a range of factors influence rental property investment decisions.

Socio-demographic characteristics

Demographic characteristics show that a lifecycle element is evident. The odds of purchasing a rental investment property peak during ages 25–34, when individuals are building their wealth. The odds of selling a property in the short-term—that is, within the next 12 months—are the lowest during ages 45–54, when the average individual has progressed along their wealth-accumulation trajectory and is still in their peak earning years. It may be the case that those in this category are approaching retirement and therefore least willing to dispose of rental investments as they contemplate the decline in income that usually accompanies retirement. It may also be the case that age is actually a proxy for factors such as financial awareness, and that those in the 45–54 age group are more financially aware than other age groups. Younger groups aged under 35 years tend to have shorter rental investment durations than older age groups, which suggests that either they:

- are more willing than older groups to cycle in and out of rental property investment.
- have a higher propensity to become over-extended and effectively forced to exit the investment sector quickly.

Marital status

Being married also raises the odds of purchasing a rental investment property, possibly due to the greater borrowing capacity of couples compared to singles. Conversely, a separated status can significantly raise the odds of selling in the short-term, as well as shorten the duration of rental investments over time.

Human capital factors

Labour-force status and educational qualifications are important factors driving rental investment decisions. Employment is associated with higher odds of rental investment property purchase due to greater borrowing capacity, while unemployment appears to be a critical factor in forcing the sale of rental investment properties and shortening the duration of rental investments. Holding other factors constant, higher educational attainment in the form of university or other post-school qualifications appears to raise the odds of purchasing and retaining rental investment properties, while reducing the odds of selling such properties.

Housing tenure and location

Unsurprisingly, owners are more likely than renters to purchase rental investment properties. However, those who are encumbered by mortgages have raised odds of selling their rental investment property in the short-term, as well as having shorter durations of retention. This likely reflects the higher financial burden that mortgagors carry relative to outright owners.

Those who live in more advantaged areas are more likely to purchase a rental investment property, holding other factors constant. However, importantly, those living in more advantaged areas are also more likely to sell their property in the short-term and reduce their rental investment duration over time. This may reflect:

- the greater financial burden required to service a property loan in a high-value advantaged market relative to a low-value market segment.
- that property owners may be able to reap larger profits from selling a property in a high-value segment relative to a low-value segment.
- that landlords living in more advantaged neighbourhoods are more likely to be speculative investors who extend themselves financially to purchase rental properties that they can only hold for short periods before they need to sell again.

Economic cycles

The probability of buying a rental investment property appears to be highest during periods when economic conditions are strong—such as the pre-GFC period. However, it is less clear whether economic conditions affect the odds of selling a property in the short-term. In fact, holding other factors constant, we find that rental investment durations were shorter pre-COVID-19 than during COVID-19. This may be attributed to:

- government policy interventions that buffered rental investments during this period, including reduction of property loan interest rates to historically low levels
- general fiscal stimulus measures that boosted the economy against the financial shocks imposed by COVID-19.

Financial factors

Low-income households are less likely to buy a rental investment property relative to high-income households. Low-income households are also more likely to sell in the short-term and have lower rental investment durations.

Among landlords, negative gearing provisions provide significant incentives that discourage sale of rental investment properties and lengthen rental investment durations. While the after-tax economic cost of holding a rental property and the gross rental yield do not affect the odds of selling the property in the short-term, these variables have significant impacts on the duration of rental investment. The retention model findings indicate that an increase in:

- the after-tax economic cost of holding a rental property will reduce the duration of rental investment.
- the gross rental yield of holding a rental property will increase the duration of rental investment.

Comparing the results above to Wood and Ong (2010), there are both similarities and differences. With regard to the buy model, both studies found that outright owners and continuous employment significantly increased the likelihood of investing in residential property. With regard to the sell model, both studies found that negative gearing had a significant role in the landlord's decision to sell the investment property. Both studies also found that landlords in low-income to moderate-income households were more likely to sell their investment property. With regard to the retain model, both user cost and negative gearing play a significant role in holding the investment property. Furthermore, both studies found that younger landlords (under 35), with low levels of income and human capital have significantly shorter durations of investment.

One of the key differences across both studies was the role of rental yield in the retention model. This was significant for the 2010 Wood and Ong study, but not significant in the current study. However, the direction of effect (negative) is consistent across the studies. The negative effects indicate that higher rental yields are likely to shorten the duration of investment. In most cases, higher rental yields are associated with lower expected rates of capital gain, and this could persuade the landlord the sell their investment. Based on this comparison, it is clearly evident that the majority of the Wood and Ong (2010) findings hold with an extended dataset that contains the GFC and COVID-19 events.

3.5 Policy development implications

It should be noted that the policy development implications discussed below do not take account of macroeconomic dynamics such as the exchange of housing stock between owner-occupied and investment/rental units.

Landlords with lower educational qualifications are more likely to sell in the short-term and have shorter rental investment durations than landlords with higher qualifications, after controlling for income and labour market status. This suggests that those who have lower educational qualifications are less well-positioned to deliver long-term supply of rental housing in the private rental sector, with potentially negative implications for tenure security in the sector. Wood and Ong (2010) suggest that it is typically presumed that investment in 'bricks and mortar' does not require the economic or financial knowledge of other financial investments, such as shares and bonds. However, our findings suggest a degree of financial knowledge is likely required to support rental investment retention. Programs that offer education on property investment retention—in particular to landlords with no post-school qualifications—may benefit some landlords and support efforts to retain property and promote the supply of long-term rental housing to the rental property market.

Relative to higher-income households, low-income households are 1.22 times as likely to sell within the next 12 months and 1.34 times as likely to end their rental investment spell over time. This likely reflects the higher financial burden that low-income landlords have to bear in order to hold a rental investment property and pay any potential mortgage on it. Landlords who are encumbered by their own home mortgages also have raised odds of selling their rental investment property in the short-term, as well as shorter durations of retention. This likely reflects the higher financial burden that they have to bear relative to outright owners in order to repay their home mortgages as well as potential mortgages against their rental investment properties. Thus, rigorous financial risk assessments by lenders and appropriate macroprudential regulations are critical to ensure that those who purchase rental investment properties are financially well-positioned enough to retain them.

Changes to policy that impact landlords' tax positions could have major effects on the decision to retain a rental investment over time and hence the willingness of individual landlords to remain in the market. A one percentage point increase in the user cost raises the odds of selling over time by 8.9 per cent, which confirms the importance of the after-tax economic cost of holding a rental property in the decision to continue to retain rather than sell the property. Being negatively geared reduces the odds of selling over time by nearly 20 per cent. These measures are affected by tax parameters that governments set. For instance, interest-rate changes and the CGT discount will affect landlords' after-tax economic cost of supplying a rental property. Negative gearing provisions also offer generous tax shelter benefits—especially for higher-income earners—which clearly encourage retention of rental investment properties. Thus, tax reforms that increase landlords' after-tax economic costs will likely need to be implemented incrementally in a transitional manner to avoid market destabilising impacts (Duncan, Hodgson et al. 2018; Eccleston, Verdouw et al. 2018).

A higher gross rental yield reduces the odds of selling over time, with a one percentage point increase in the gross rental yield reducing the odds of selling over time by 8.1 per cent. The findings suggest that landlords only continue investment in the rental market if market conditions offer them a sufficient rent relative to their property values. Policy changes that apply long-term freezes to rental increases—for example, The Greens (2023)—may therefore negatively impact the supply of housing in the private rental market.

4. Policy changes, supply and affordability in the private rental sector

- **During periods of economic shock such as the GFC and COVID-19, on average landlords' after-tax economic cost of supplying rental housing fell. This can be attributed to the reduction in interest rates. This chapter considers three key policy reforms:**
  - If home-loan interest rates were held constant at 2018 levels during 2019–2021 instead of being allowed to fall:
    (i) Landlords' costs would have increased; low-income landlords would have been more likely to sell their retail investments.
    (ii) Rents would rise, especially for low-income renters, and the share of renters paying more than 30 per cent of their income in rent would increase.
  - If the CGT discount were halved from 50 per cent to 25 per cent over the period 2001–2021:
    (i) Landlords' costs would increase, as would the probability of high-income landlords selling their rental investment properties.
    (ii) Average rents would rise by 3 per cent and rental cost burdens would rise slightly across all income groups.
  - If the stage 3 tax cuts were applied over the period 2001–2021 instead of actual personal income tax rates:
    (i) Landlords' costs would decrease, reducing the probability of them selling their rental investment properties.
    (ii) If landlords passed on their reduced user costs, average rents would fall by 15 per cent, as would the share of low-income households paying more than 30 per cent of their income in rent.

This chapter focusses on the potential impacts of policy reforms in the private rental sector by addressing the following research question:

- How might policy changes affect landlords' costs of supplying private rental housing and how would this in turn influence affordability outcomes for private renters?

Our primary approach here is to apply a technique called microsimulation to mimic the impacts of selected policy changes on the after-tax economic cost or user cost of holding rental investment properties. This simulation modelling approach will allow us to generate predicted outcomes under modified scenarios reflecting the policy changes, and to compare these with actual outcomes under the base case where no policy change has taken place. We then discuss how these might affect tenant affordability.

In this chapter:

- Section 4.1 reviews existing studies that use microsimulation to simulate policy reform in the private rental sector.
- Section 4.2 compares landlords' user cost and gross rental yields over time.
- Section 4.3 examines how interest-rate changes during the COVID-19 years are likely to have affected landlords' cost of holding rental investment properties.
- Section 4.4 simulates the impact of a reduction in the CGT discount for landlords from 50 per cent to 25 per cent—a policy measure that has been proposed intermittently by political parties over the years (Parliamentary Budget Office 2019).
- Section 4.5 focusses on the likely impact of the recent stage 3 income tax cuts on landlords' user cost.
- Section 4.6 offers some remarks on policy development implications in the rental sector.

4.1 Existing literature

There are many studies that use microsimulation to simulate the effect of different policy reforms in relation to the private rental sector. These include:

- reforms recommended by the Henry review (Wood, Ong et al. 2011)
- comparison of different COVID-related policy interventions (Leishman, Ong et al. 2020)
- reforms to CRA (Leishman, Ong et al. 2020; Ong, Pawson et al. 2020; Wood, Ong et al. 2011; 2014)
- improving the returns of private rental landlords (Wood, Harman et al. 2008)
- effects of a secure lease scheme (Wood, Cigdem-Bayram et al. 2017).

These microsimulations are discussed in more detail in the paragraphs that follow.

Wood, Ong et al. (2011) use microsimulation to simulate the impact of one of the recommendations from the Henry review, focussing on the reform of savings income discount to net rental income. They find negatively geared investors are more likely to offload their rental investments under the reforms—but this is offset by equity investors who are more likely to retain their investment. The impact on rents and housing stress is uncovered to be modest overall, with only marginal effects observed in the more affordable segments of the private rental market. Wood, Ong et al. (2011) also simulate the Henry review recommendation of greater targeting of CRA and more accurate indexing of CRA to rent costs. This reform causes one-third of recipients to become ineligible for CRA and less than 1 per cent will gain eligibility. However, this reform significantly improves housing affordability for recipients, reducing the proportion of private renters in housing stress from 37 per cent to 29 per cent, and also reducing government spending by around 20 per cent.

The effect of a range of COVID-related policy interventions on unemployment and housing stress is simulated by Leishman, Ong et al. (2020). They conclude that JobKeeper and JobSeeker reduced housing stress by a significant amount. Furthermore, they estimate that a combination of CRA with a 25 per cent rent relief program has the greatest impact on reducing housing stress.

Ong, Pawson et al. (2020) simulate a variety of reforms to CRA. The simulations reveal that reforming CRA eligibility to reflect housing need reduces the population of low-income private-renter income units experiencing housing stress by 44 per cent, in addition to being the lowest cost option of all the different reforms simulated. Wood, Ong et al. (2014) simulated how well CRA protects renters from housing stress. Specifically, they found that the removal of CRA in 2001 increased the tenants' housing cost-to-income ratio by around 16 percentage points, and subsequently the rates of housing stress rose from 12 per cent to 53 per cent. CRA continued to offer protection in later years but began to fade from 2008 onwards.

Wood, Cigdem-Bayram et al. (2017) deploy microsimulation to estimate the cost of a secure lease scheme. A secure lease scheme is an alternative form of housing assistance to CRA and public housing; it provides more stable housing for vulnerable individuals who are eligible for public housing but are residing in a private rental. Without a secure leasing scheme, Wood, Cigdem-Bayram et al. simulate that CRA payments to those who would be eligible would cost the government $8.6 billion between 2010–2014, while housing these individuals in public housing would cost the government $13.1 billion over the same time frame. On the other hand, the secure leasing scheme cost $10 billion over five years, while reducing the estimated CRA expenditure by $1.2 billion.

Another study (Wood, Harman et al. 2008) utilises microsimulation to simulate policy reform designed to improve the returns of private rental landlords via an upfront grant and subsequently improve rental housing affordability in the private rental market. They conclude that targeting housing in the more affordable segments of the market that generally have lower rates of return will lower the cost to the government and have the greatest impact, as opposed to just providing the grant to every private rental landlord.

4.2 Landlords' user cost and gross rental yield: trends over time

In order to understand the likely impacts of policy changes on rental investment, we first compare landlords' user cost and gross rental yield over the data time frame.

As defined earlier:

- *user cost of a rental investment property:* the after-tax economic cost associated with holding the rental investment property.
- *gross rental yield:* the income generated from the rental investment property.

Both the user cost and rental yield are expressed as a percentage of the rental property value, so a simple ratio of these two measures provides the holding capacity of the investor. For example, if the user cost was 5 per cent and the rental yield was 4 per cent, the ratio would be greater than 1, indicating that the cost associated with the property is higher than the income generated by the property. In contrast, a ratio of less than 1 indicates that the costs are lower than the income generated by the property. Historically, average user costs have been higher than average rental yields.

Using our modelling sample, we can calculate the ratio of user cost to gross rental yield from landlords across all waves. This gives an indication of landlords' ability to hold on to their rental properties over the years as reflected in the cost they have to bear (the user cost) relative to the income they receive from their rental investment property (the rental yield).

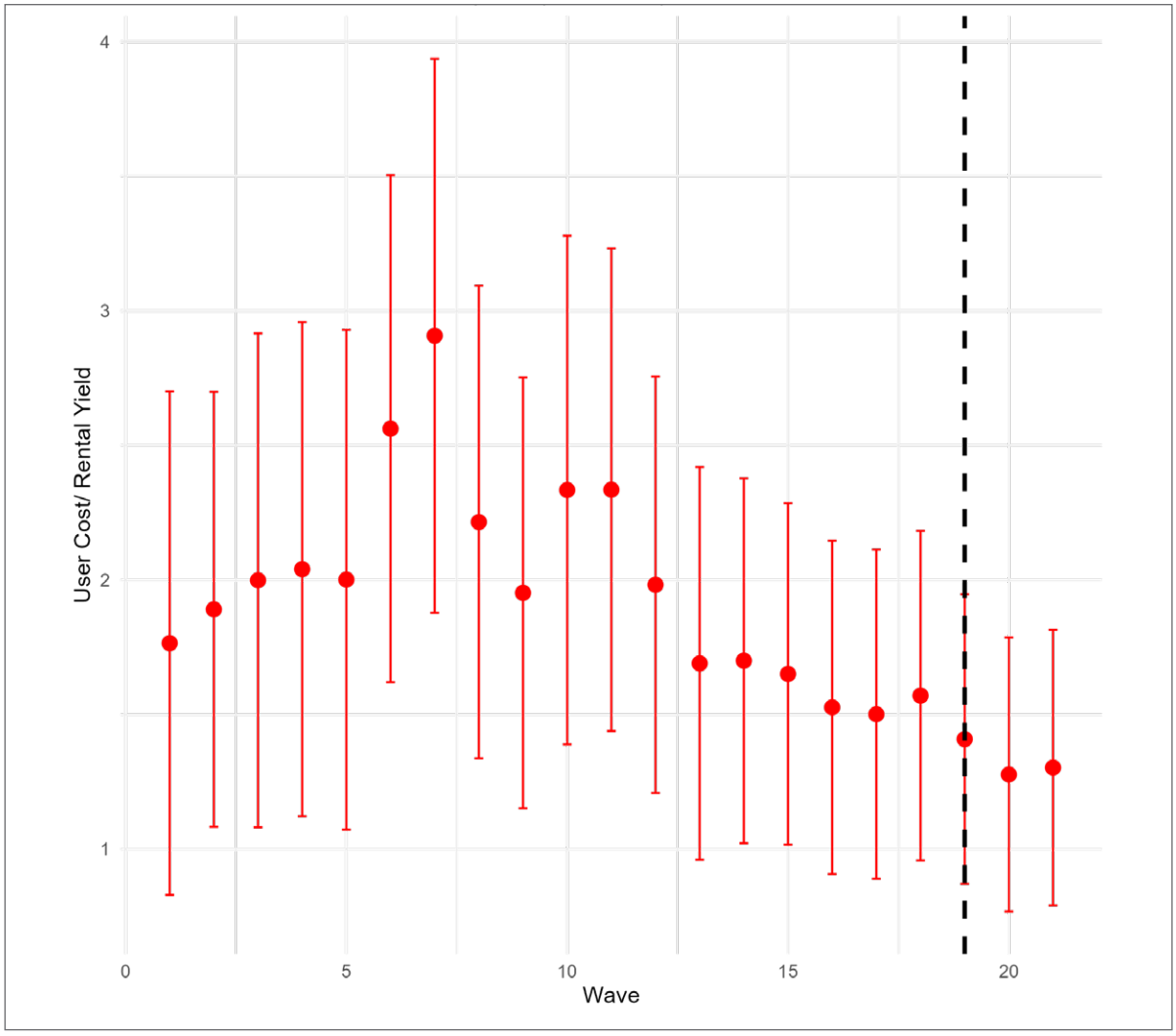
Figure 6 shows the mean value of this ratio represented by the red dots, together with red lines representing one standard deviation from the mean. This figure offers a number of insights into investment behaviour over different periods of the economic cycle:

- During the pre-GFC years 2001–2005, the mean ratio of user cost and rental yield increased marginally. The ratio then increased rapidly in 2006 reaching a maximum in 2007.
- The mean ratio decreased substantially during the GFC in 2008 and 2009.
- During the post-GFC period, the mean ratio increased for the last time in 2010 and was in decline until the tail end of the COVID-19 period, before rising again after that. In addition to the mean ratio decreasing since 2010, another aspect is the reduction in the variance (one standard deviation) of the ratio.
- There was another substantial drop in the ratio in 2019 just as COVID-19 was starting (indicated by the dashed black line). Subsequent drops in the mean ratio for 2020 and 2021 resulted in a mean ratio of less than 1.5 during the COVID-19 years. This is the lowest value that the mean ratio takes over the time frame. Additionally, the variance of the ratio continued to decrease, with the lowest levels observed in the last two years of the sample time frame.

Given these trends, it would appear that landlords would find it relatively easier to hold a rental investment property and would be less inclined to sell the rental investment property during periods of economic shock such as the GFC and COVID-19 years. However, this assumes that the landlord's financial situation does not change substantially.

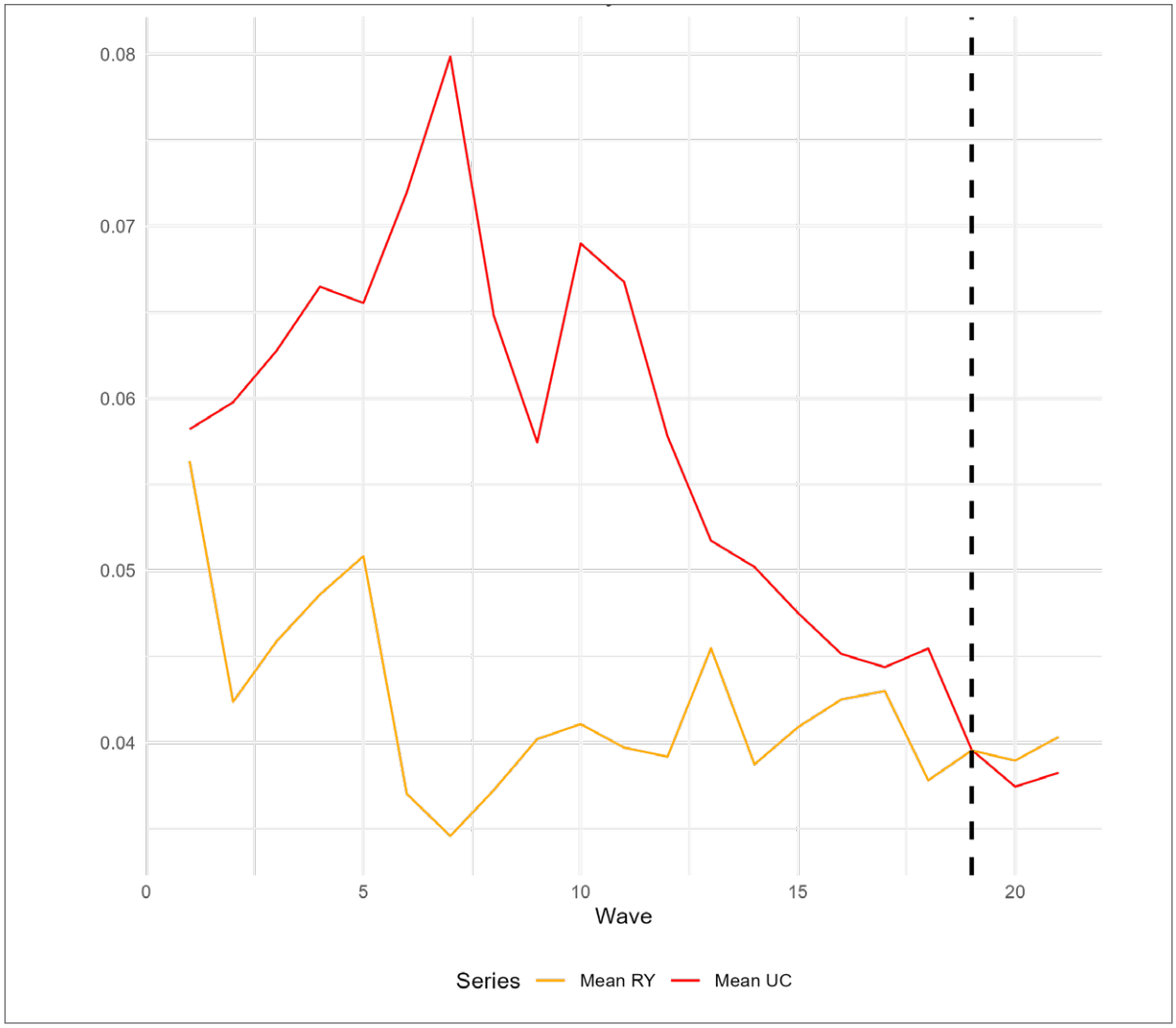
Notably, it is the user cost component of the ratio that is driving most of this change. Figure 7 shows that the mean user cost (represented by the red line) dropped significantly during the GFC and COVID-19 years, while the rental yield exhibited greater stability (represented by the yellow line). These trends suggest that government interventions such as the reduction of interest rates to historically low levels during COVID-19 had the effect of reducing the after-tax economic cost of holding rental property and raising expected capital appreciation. In fact, as per Appendix A1 (Landlords' user cost), interest rates are a key component of the after-tax economic cost variable.

Figure 6: Ratio of user cost to gross rental yield, mean and one standard deviation, all landlords



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Figure 7: Mean values of user cost and rental yield across all waves



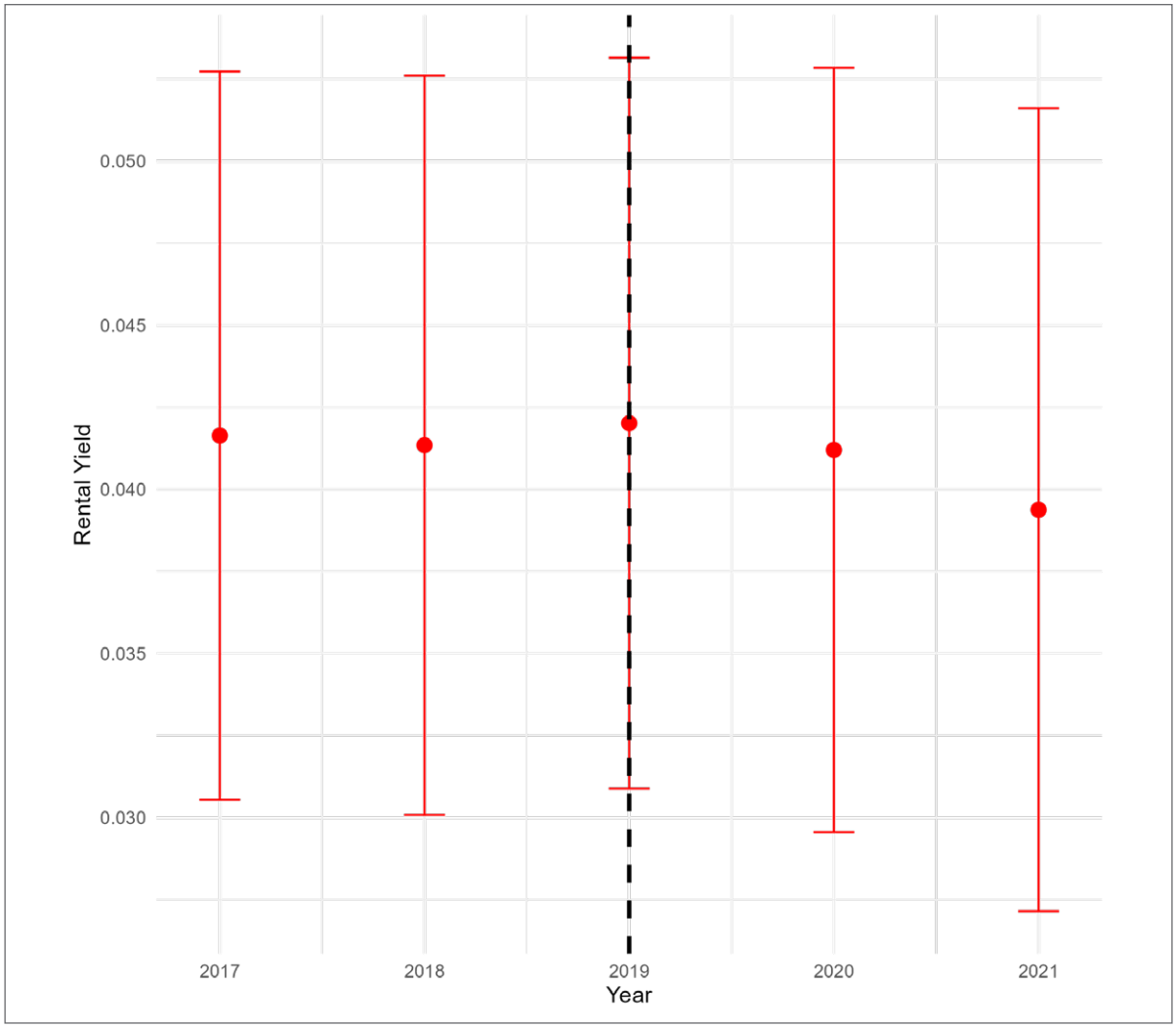
Source: Authors' calculations from the 2001–2021 HILDA Survey.

Note: RY = Mean gross rental yield; UC = Mean user cost.

In order to validate the results depicted in figures 6 and 7, we examine the rental yield figures from recent CoreLogic data for the period 2017–2021.

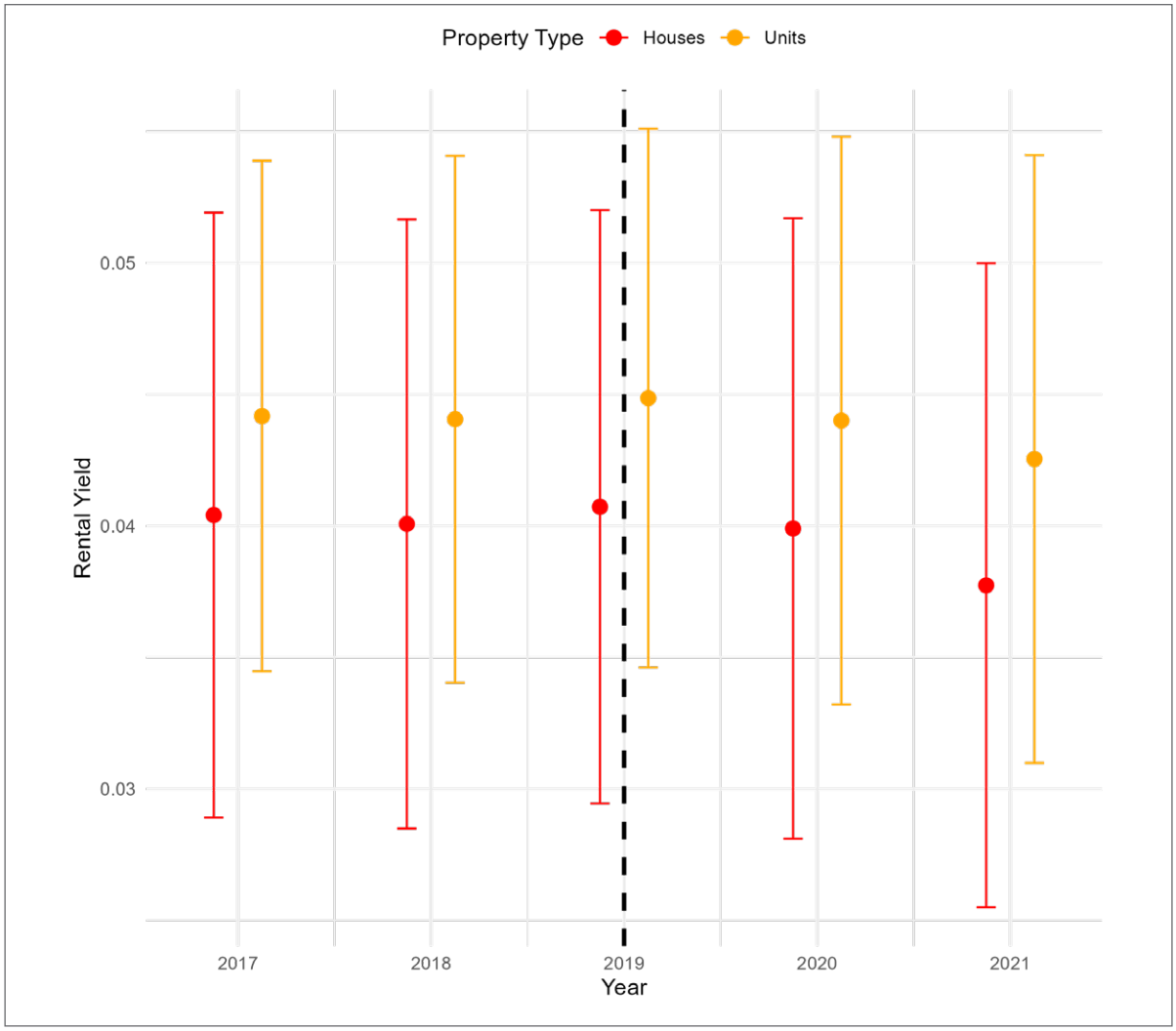
Figure 8 shows the rental yield across this time period for all dwelling types, and Figure 9 shows the rental yields across two different dwelling types (houses vs units). This was used as a sense check to ensure that the rental yield used in the modelling data reflect the yields provided by CoreLogic data. Based on the figures, the rental yields in the sample are comparable to the overall CoreLogic rental yields. Furthermore, the sample yields appear to be closer to the rental yields of houses.

Figure 8: Gross rental yield from CoreLogic, mean and one standard deviation



Source: CoreLogic data.

Figure 9: Gross rental yield from CoreLogic, mean and one standard deviation, by dwelling type



Source: CoreLogic data.

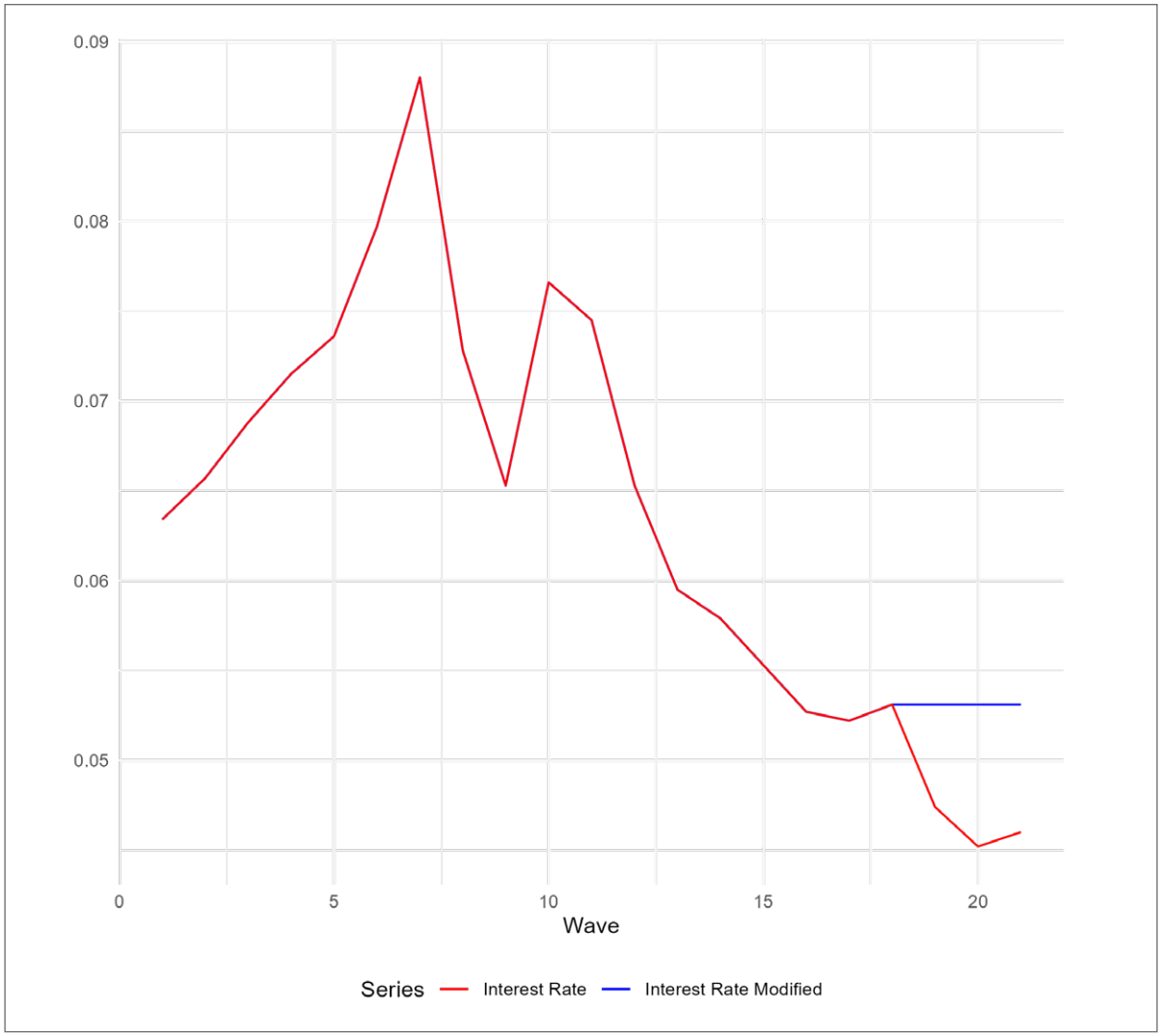
4.3 Interest-rate reductions during COVID-19

Home-loan interest rates play a critical role in the user cost calculation. The reductions in these rates caused the user cost to decrease substantially after 2018. In order to assess the impact that the decreasing interest rates had on user cost, we examine a modified scenario where interest rates are held constant from 2018 onwards.

Figure 10 shows the interest rates used in the analysis. The red line indicates the actual rates, and the blue line indicates the counterfactual rates (2018 rates held constant). The interest rate in 2018 was 5.31 per cent. It fell to 4.74 per cent in 2019, 4.52 per cent in 2020 and was 4.60 per cent in 2021.[5] Hence, by holding interest rates constant at 2018 levels, we created modified scenarios where interest rates are artificially prevented from falling by 57 basis points between 2018 and 2019, 79 basis points between 2018 and 2020, and 71 basis points between 2018 and 2021.

5 Annual interest rates are derived by average monthly standard home-loan interest rates published by the Reserve Bank and are calculated on a financial year basis. Hence, the 2018 interest rate is calculated by average monthly interest rates from July 2018 to Jun 2019, and so on.

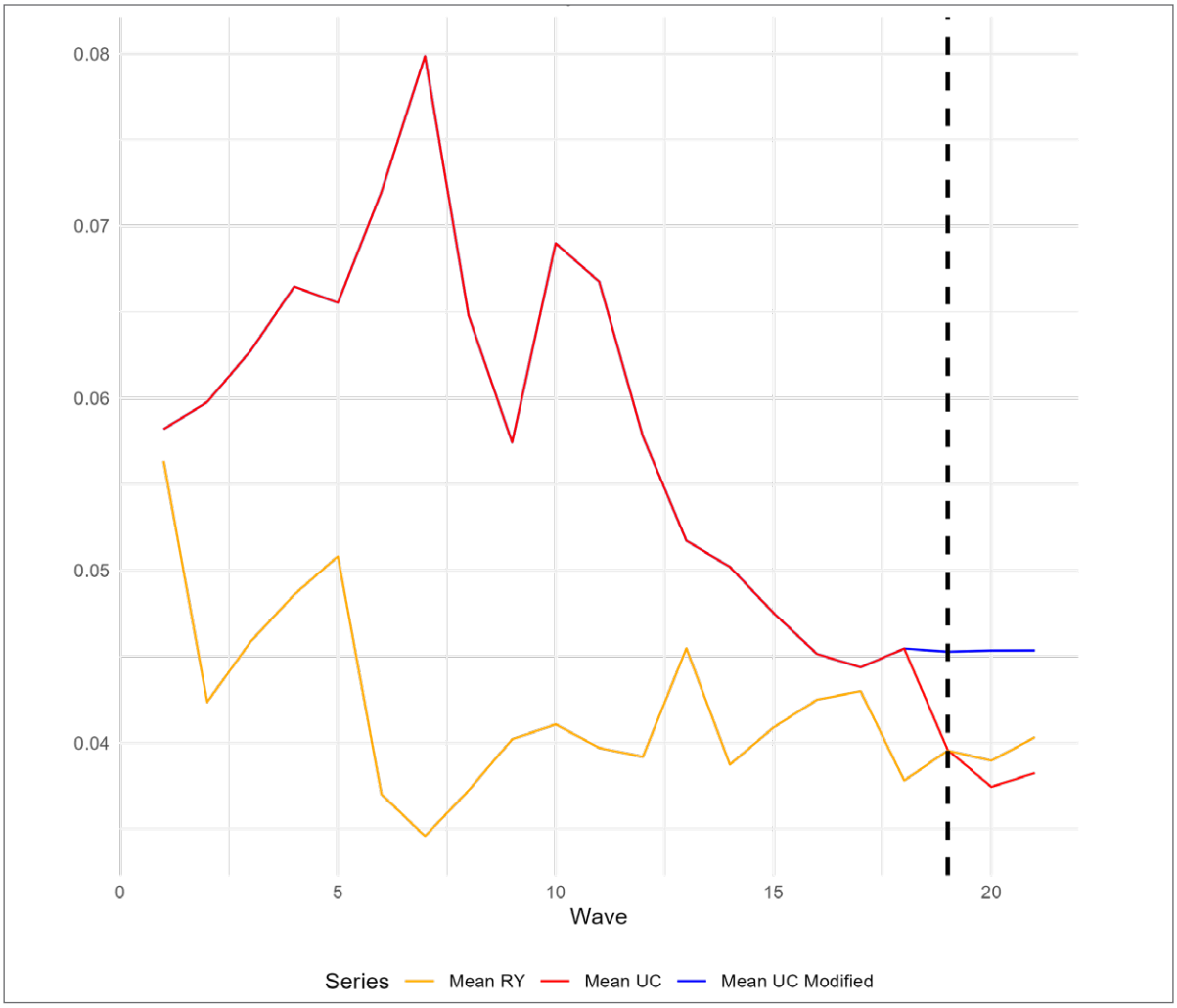
Figure 10: Home-loan interest rates under base and modified interest-rate scenarios, 2001–2021



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Figure 11 shows the mean values of both the user cost and rental yield for each wave. The user cost is split into actual rates (red) and counterfactual/modified rates (blue). Given that the counterfactual interest rates were constant since 2018, the blue line shows the impact on the mean of user cost under this assumption. Instead of declining from 3.9 per cent to 3.7 per cent between 2019 and 2021, the mean user cost under the modified scenario would have held constant at 4.5 per cent.

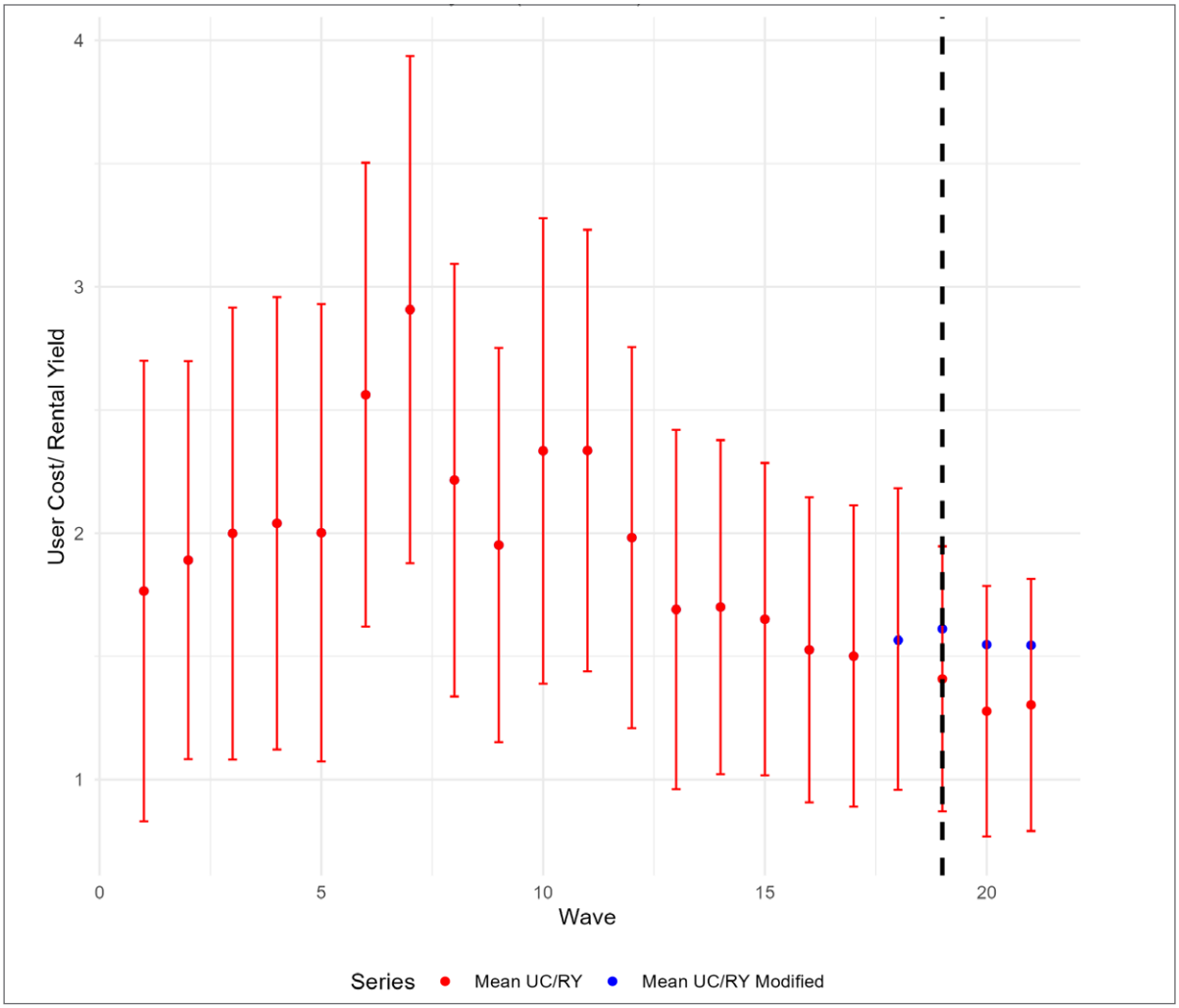
Figure 11: Mean values of user cost (UC) and rental yield (RY) under base and modified interest-rate scenarios, 2001–2021



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Figure 12 is similar to Figure 6, with the addition of counterfactual/modified mean ratio of user cost and rental yield (blue). This indicates a significant increase in the mean ratio if the interest rates were held constant from 2018. Instead of declining from 1.40 to 1.28 between 2019 and 2021, the mean ratio of user cost to rental yield would have been relatively constant at 1.55 under the modified scenario.

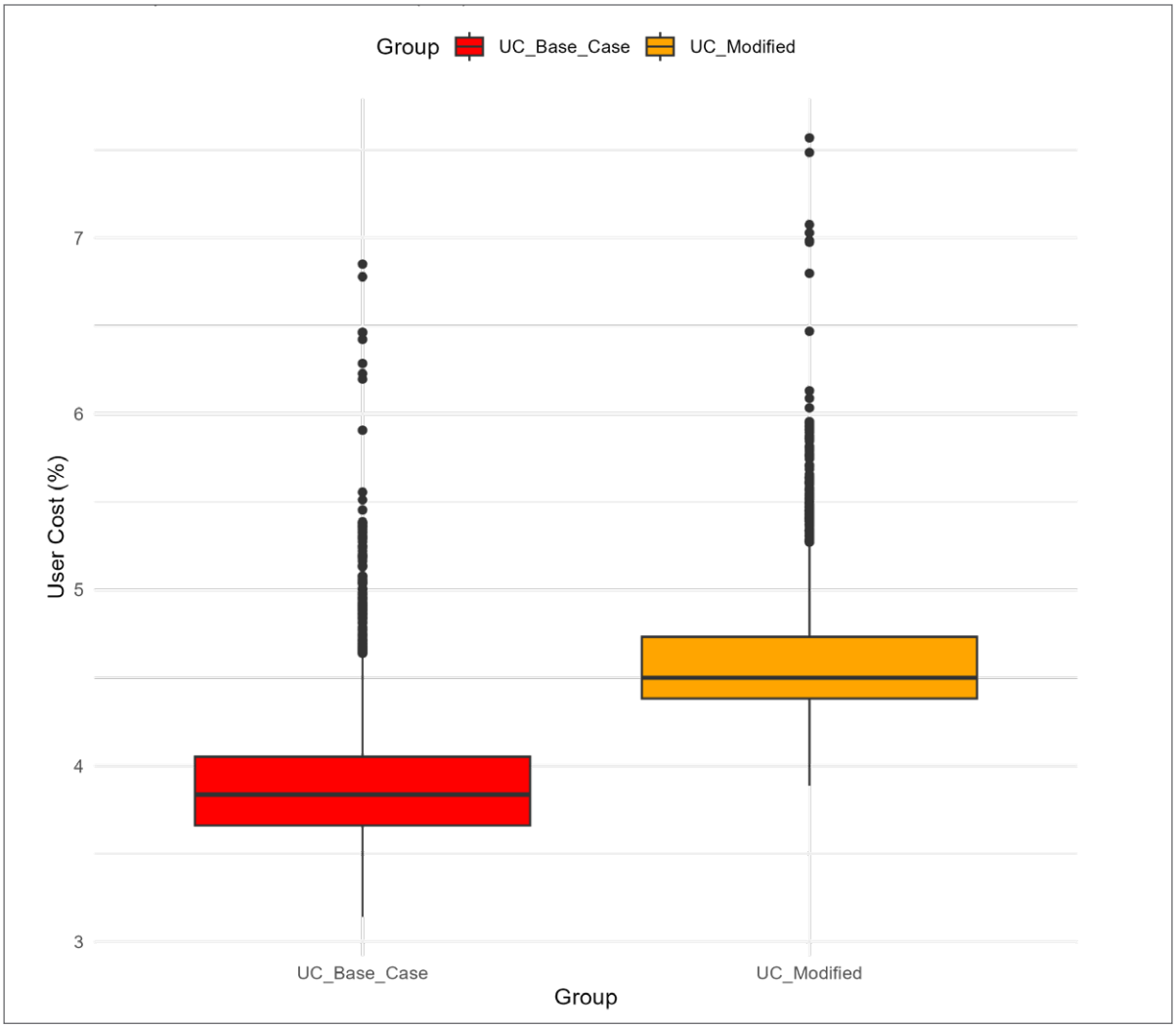
Figure 12: Mean ratio of user cost (UC) and rental yield (RY) under base and modified interest-rate scenarios, 2001–2021



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Figure 13 depicts the boxplot of both the original or base-case user cost (based on actual interest rates) and the modified user cost (interest rates held constant at 2018 levels) over the period 2019–2021. This plot visually represents the distribution of both user cost measures. In particular, we can see central values as well as the spread of the user costs. Based on this, both the mean and median values of the modified user cost are significantly higher than the base case. This is expected, as user cost is a function of the interest rate. The mean user cost increased from 3.9 per cent (base case) to 4.6 per cent (modified scenario). The spread/range of both user costs appears to be the same.

Figure 13: Boxplot of user cost under base and modified interest-rate scenarios, 2019–2021



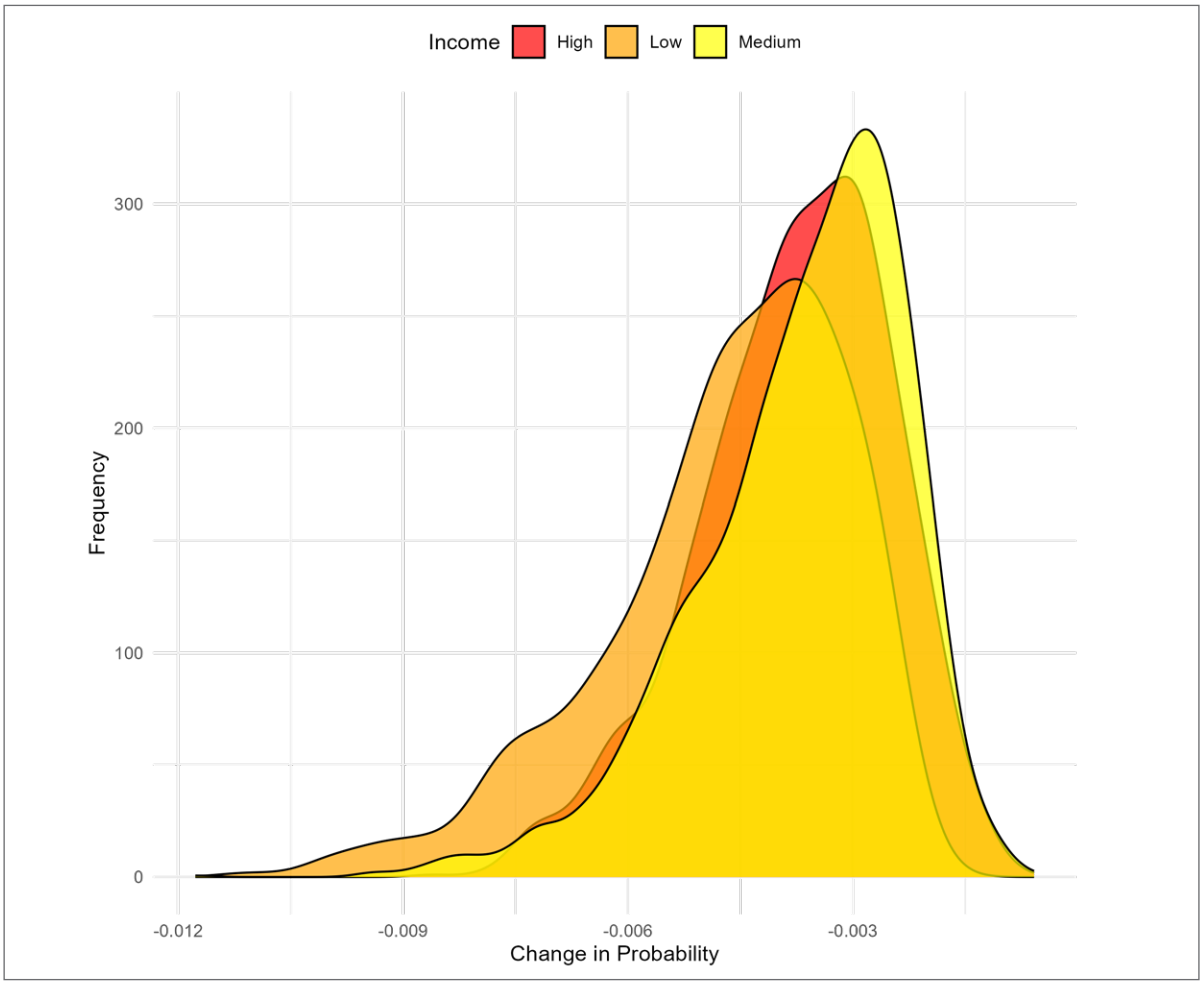
Source: Authors' own calculations from the 2019–2021 HILDA Survey.

Note: UC = user cost.

Given the change in user cost, we also examine the impact this would have on the duration of rental investment, as user cost was a significant factor in the duration model. We replace the original user cost with the modified version (based on modified interest rates) and calculate the revised probabilities of sale over time from the duration model. These revised probabilities can be compared to the original probabilities (based on the original user cost) to assess the impact of the policy change. The difference between the probabilities (probability [original]–probability [revised]) is negative on average, which indicates that revised probabilities (based on policy change) are higher than the base-case probabilities. The overall mean difference is -0.38 per cent, indicating a small increase in the probability of sale on average. This is to be expected, given that an increased user cost will reduce the duration of the rental investment.

Furthermore, if we segment this result by household income, we observe that the mean difference differs across income groups. For low-income landlords, the mean difference is the largest (in absolute terms) at -0.47 per cent. In contrast, the mean difference for medium-income and high-income households is -0.38 per cent and -0.37 per cent, respectively. This is expected, as the increased user cost will have a larger impact on the hazard rate for low-income households relative to medium-income and high-income households. Figure 14 depicts the distribution of these small but consistent differences in probabilities across income groups. Based on the user-cost calculation (see Appendix A1), these results reflect the expected capital gains.

Figure 14: Distribution of change in the simulated probability of sale of rental investment over time when switching from base to modified interest-rate scenario, 2019–2021



Source: Authors' own calculations from the 2019–2021 HILDA Survey.

Following previous AHURI studies such as Wood, Ong et al. (2011), we predict the impact of a given change on tenant rents on the assumption of a long-run market-clearing mechanism, in which market rental rates converge on investors' average user cost. Under this assumption, in the long-run, tax-driven changes in user cost are passed on into market rents. Therefore, we assume that any increase in user cost will be passed on entirely to the tenant.[6]

The increase in user cost is applied to the average property value by state across all waves. Note that the state variable allows for urban and regional segmentation. This provides adequate variation when applying the overall increase in user cost to each renter.

As per our assumption, all of the increase in the landlord's user cost is passed on to the individual via housing costs—that is, the annual rental amount. Furthermore, if we assume that incomes—each household's disposable income over a financial year—do not change significantly for the renters, then it is possible to calculate the rent-to-income ratio using the increased housing cost.

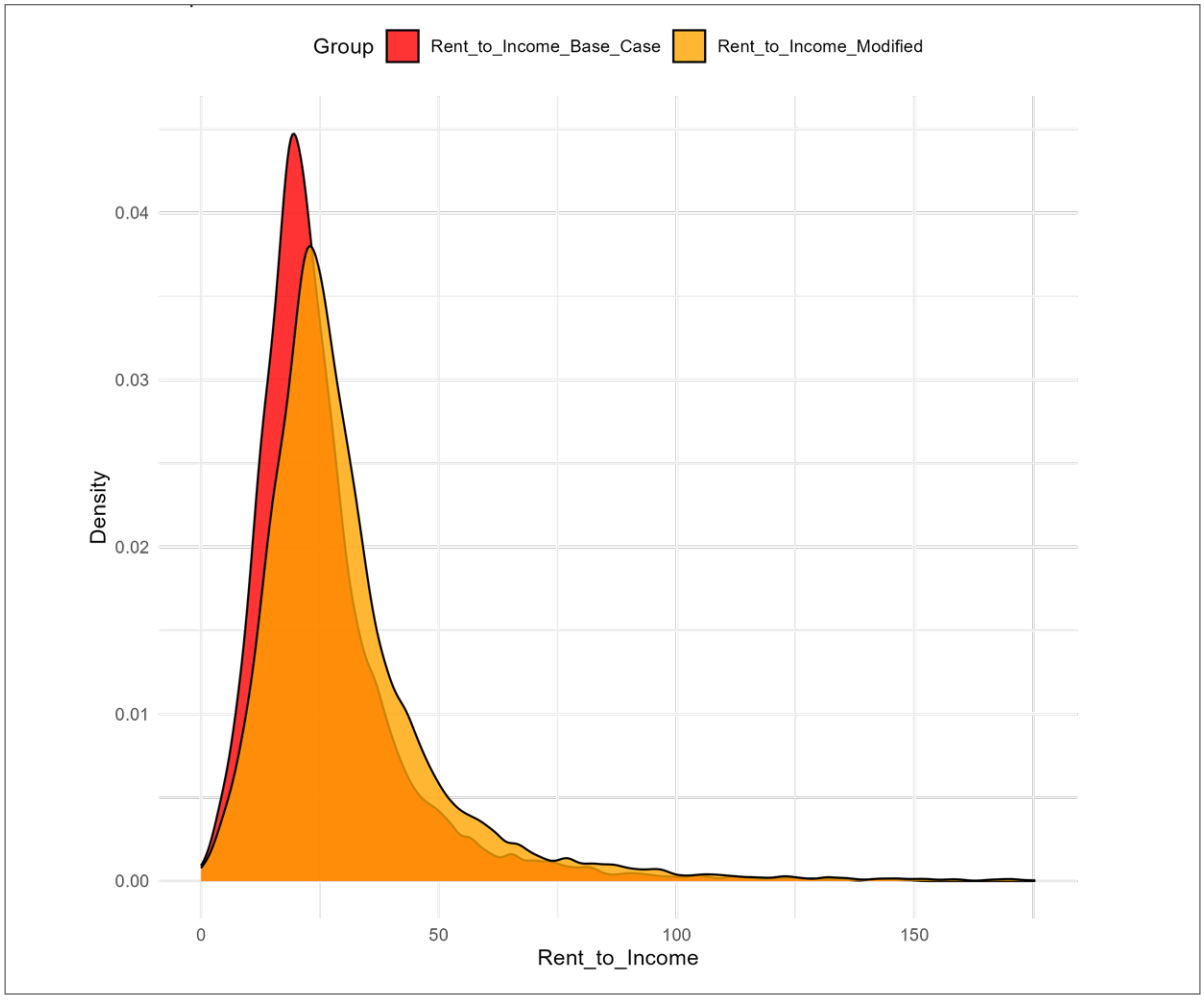
Figure 15 compares the empirical distribution/density of rent-to-income ratio across the base case and the modified case (changes to interest rate). This figure provides a measure of how likely or common different ratio values are within the sample. The modified distribution is shifted to the right relative to the base-case distribution. This indicates that the rent-to-income ratio has increased on average as a result of the change in interest rates.

Table 8 provides some detailed statistics across all income groups for both the base case and the modified scenario in which interest rates in 2019–2021 are held constant at 2018 levels. Based on the statistics presented, the mean rent rises by 18 per cent under the scenario relative to the base case. This is expected since all of the user-cost increase is passed on to the renter. Holding income constant for both the base case and the scenario, the increase in rents leads to an increase in the rent-to-income ratio. However, it is important to note that the rise in mean rent has been calculated independently of the probability of sale reported earlier. Hence, the increase in rent is not a function of the higher number of properties being sold by landlords.

The percentage rise in this housing-cost burden and the share of people coping with rents greater than 30 per cent of income is highest among low-income tenants. The mean rent-to-income rises the most among low-income tenant households by 14 percentage points—but this rise is much smaller for medium-to-high-income households, at under 4 percentage points. This partly reflects that low-income renters are more likely to be in housing stress to begin with, so the increase in rent has a disproportionate effect on their rent-to-income ratio. As shown in the final column in the table, the proportion of low-income households who spend more than 30 per cent of their income in rent increases from 49 per cent (base case) to 63 per cent (modified scenario). This represents a substantial increase of 14 percentage points. Similarly, the share of medium-income households paying more than 30 per cent of their income on rent rises by 13 percentage points but starting from a lower base: from 12 per cent to 25 per cent in this category. High-income households experienced the least amount of change, exhibiting a 5-percentage point increase in the number that have to pay rents in excess of 30 per cent of income.

6 Note that the landlord may choose to pass on only a fraction of the increase in user cost. As such, the impact on the tenants could be variable. However, for the purpose of this study, it is assumed that all the increase in user cost is passed on to the tenant.

Figure 15: Distribution of rent-to-income ratio under base and modified interest-rate scenarios, 2019–2021



Source: Authors' own calculations from the 2019–2021 HILDA Survey.

Table 8: Private renters' housing-cost burdens under base and modified interest-rate scenarios, 2019–2021

Base case	Income	Mean rent ($)	Mean rent-to-income ratio (%)	Share with rent > 30% of Income (%)
	Low	$15,626	76	49
	Medium	$20,665	21	12
	High	$26,058	16	3
Modified Interest-rate scenario	Income	Mean rent ($)	Mean rent-to-income ratio (%)	Share with rent > 30% of Income (%)
	Low	$18,438	90	63
	Medium	$24,385	25	25
	High	$30,748	19	8
Change	Income	Mean rent (% change)	Mean rent-to-income ratio (% pt change)	Share with rent > 30% of Income (% pt change)
	Low	18	14	14
	Medium	18	4	13
	High	18	3	5

Source: Authors' own calculations from the 2019–2021 HILDA Survey.

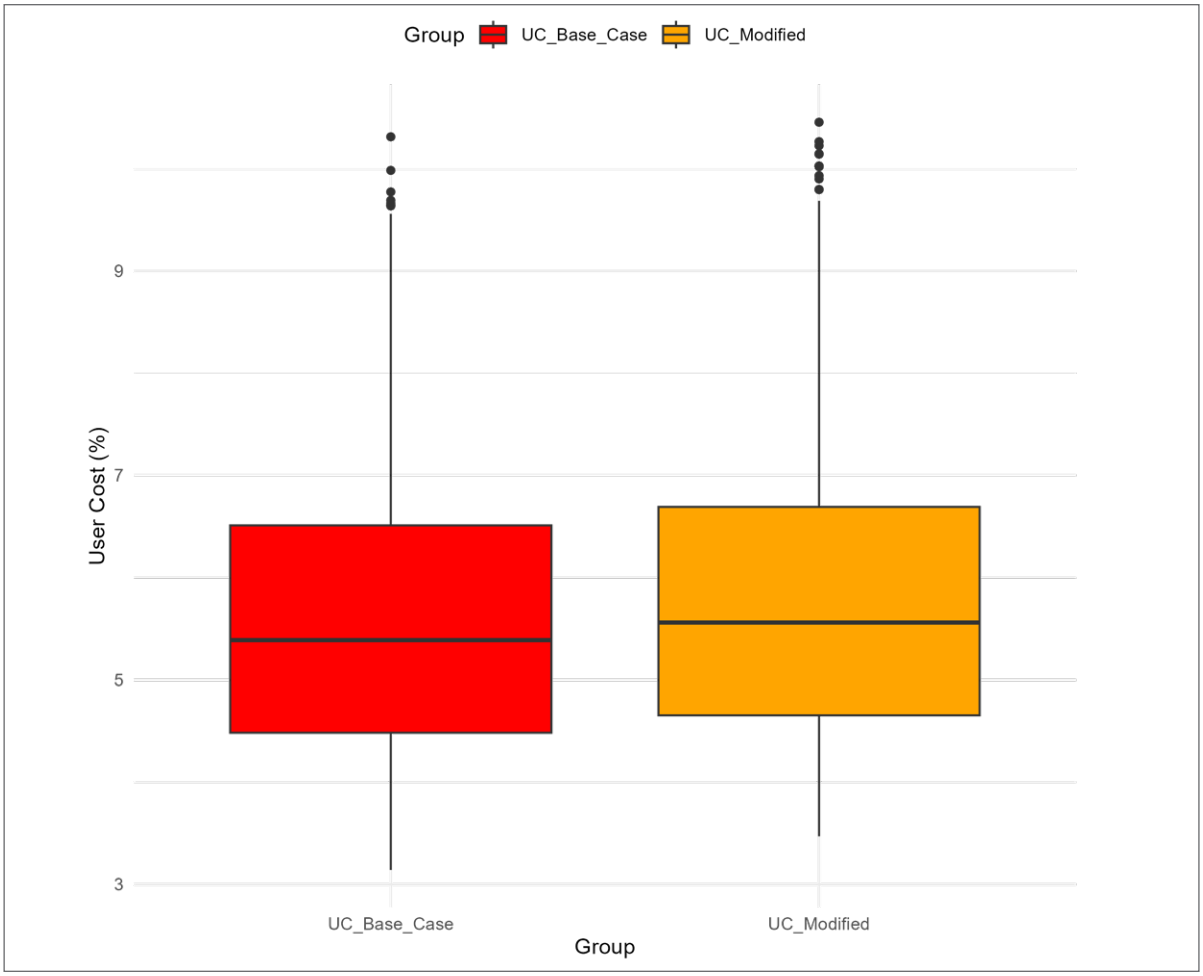
Note: The mean income for each income group is $52,692 (low), $105,480 (medium) and $184,122 (high).

4.4 Halving the CGT discount for landlords

Next, we apply a simulation exercise to measure the impact of halving the CGT discount for landlords. The CGT discount affects the user cost or after-tax economic cost for landlords by reducing the amortised cost component of the user-cost variable. By halving the CGT discount, we expect this cost component to rise, which should in turn have a negative impact on the duration of rental investment, as the user cost is a significant predictor in this model.

Figure 16 shows the boxplot of both the base-case user cost (at 50 per cent CGT discount rate) and the modified user cost (at 25 per cent CGT discount rate). The modified CGT discount rate is applied to all years in the study time frame from 2001 to 2021. This plot visually represents the distribution for both sets of user costs. We can see central values as well as the spread of user costs. Based on this, both the mean and median values of the modified user cost are higher than the base case, noting that this is subject to an assumed holding period of 10 years (see Table A1 in Appendix A1). The mean user cost increases from 5.5 per cent (base case) to 5.7 per cent (modified case), but these results will vary if the holding period changes. The spread of both user costs appears to be the same.

Figure 16: Boxplot of user cost under base and modified CGT-discount scenarios

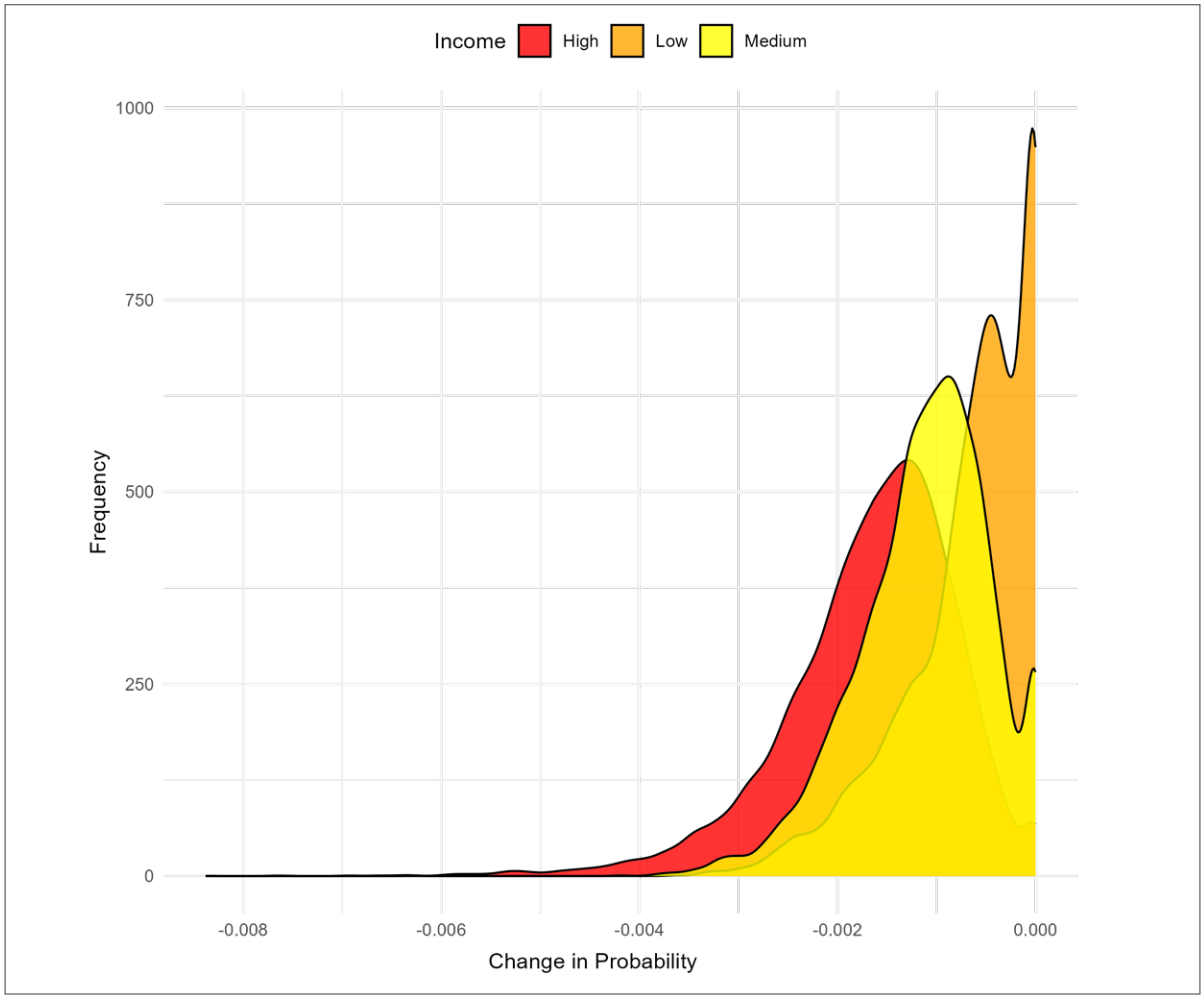


Source: Authors' own calculations from the 2001–2021 HILDA Survey.
Note: UC = user cost.

As per the interest-rate simulation, we also examine the impact this would have on the duration of rental investment. The overall mean difference in the probability of sale over time under the base and modified scenarios is -0.1 per cent. This represents a small increase in the probability of sale/hazard over time, on average. This is to be expected, given that an increasing user cost will reduce the duration of the rental investment.

Furthermore, if we segment this result by household income, we observe that the mean difference varies across income groups. For low-income landlords, the mean difference is the smallest (in absolute terms) at -0.065 per cent. In contrast, the mean difference for medium-income households is -0.11 per cent, and for high-income households -0.17 per cent. Figure 17 illustrates the distribution of the difference in probabilities across income groups.

Figure 17: Distribution of change in the probability of sale of rental investment over time when switching from base to modified CGT-discount scenario



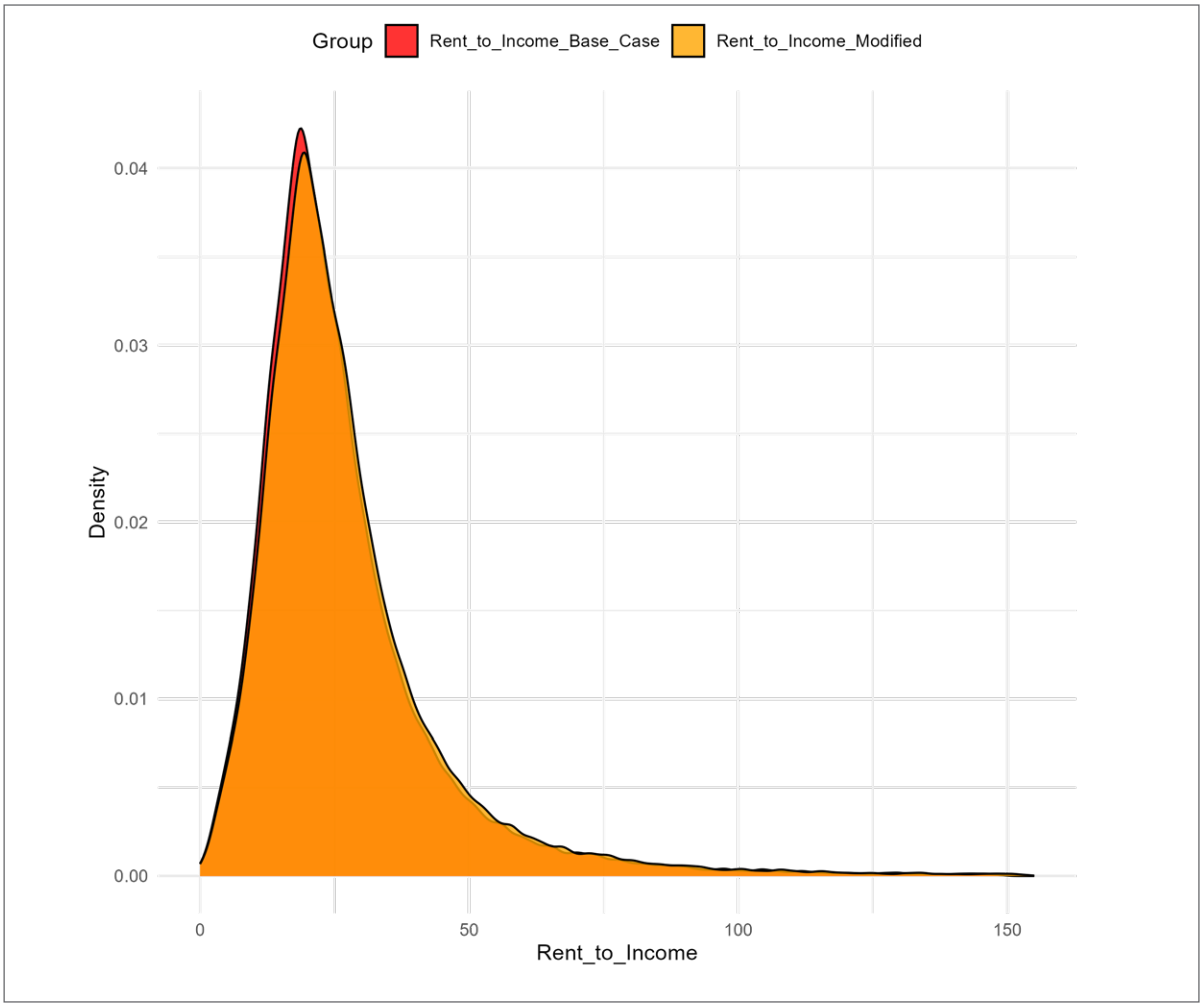
Source: Authors' own calculations from the 2001–2021 HILDA Survey.

As per the previous simulation, we predict the impact of the tax change on private renters over the period 2001–2021. As per our previous assumption, all the increase in the landlord's user cost is passed on to the tenant via housing costs (annual rental amount). Furthermore, if we assume that income—that is, a household's disposable income over the financial year—does not change significantly for the renters, then it is possible to calculate the rent-to-income ratio using the increased housing cost.

Figure 18 compares the distribution/density of rent-to-income ratio across the base case and the modified case (which is halving CGT). This figure provides a measure of how likely or common different ratio values are within the sample. The modified distribution is slightly shifted to the right relative to the base-case distribution. This indicates that the rent-to-income ratio has increased slightly, on average, due to the changes in CGT.

Table 9 provides some detailed statistics across all income groups for both the base-case and the halving-CGT scenarios. Based on the statistics presented, the mean rents are all 3 per cent higher for the halving-CGT scenario relative to the base case. This is expected, since all the user-cost increase is passed on to the renter, but the impact on tenants differs in several ways. Holding the income constant for both the base case and modified scenario, the increase in rents leads to an increase in the mean rent-to-income ratio. The final column of the table captures the proportion of renters who spend more than 30 per cent of their income on rent. The increase in mean rent-to-income ratios is small for all income categories at 1–2 percentage points. The share of tenants who pay more than 30 per cent of their income in rents rises by 1–3 percentage points across all income groups when landlords' CGT discount is halved.

Figure 18: Distribution of rent-to-income ratio under base and modified scenarios



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Table 9: Private renters' housing-cost burdens under base case and modified CGT-discount scenarios

Base case	Income	Mean rent ($)	Mean rent-to-income ratio (%)	Share with rent > 30% of income (%)
	Low	$12,757	62	52
	Medium	$16,119	22	15
	High	$19,967	16	4
Modified CGT-discount scenario	Income	Mean rent ($)	Mean rent-to-income ratio (%)	Share with rent > 30% of income (%)
	Low	$13,183	64	55
	Medium	$16,657	22	17
	High	$20,633	17	5
Change	Income	Mean rent (% change)	Mean rent-to-income ratio (% pt change)	Share with rent > 30% of income (% pt change)
	Low	3%	2	3
	Medium	3%	1	2
	High	3%	1	1

Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Note: The mean income for each income group is $41,078 (low), $79,357 (medium) and $135,833 (high).

4.5 Reforming the personal income tax system via the stage 3 income tax cuts

Next, we apply a simulation exercise to measure the impact of implementing stage 3 tax cuts for landlords (based on the modified version by the Albanese government). These tax cuts affect the user cost or after-tax economic cost for landlords, as marginal income tax rates (MITR) from the personal income tax system feed directly into the user-cost calculation (see Appendix A1 for more details).

We obtained stage 3 tax cuts from the 2024–25 personal income tax rates and thresholds published on the ATO website, as they were recently introduced. We apply these 2024–25 personal income tax parameters to landlords in our full sample, replacing their actual MITRs from 2001–2021 with MITRs drawn from the 2024–25 tax rates and thresholds.

The resident tax rates are given in Table 10.

Table 10: Personal income tax rates for 2024–25 (incorporating stage 3 cuts)

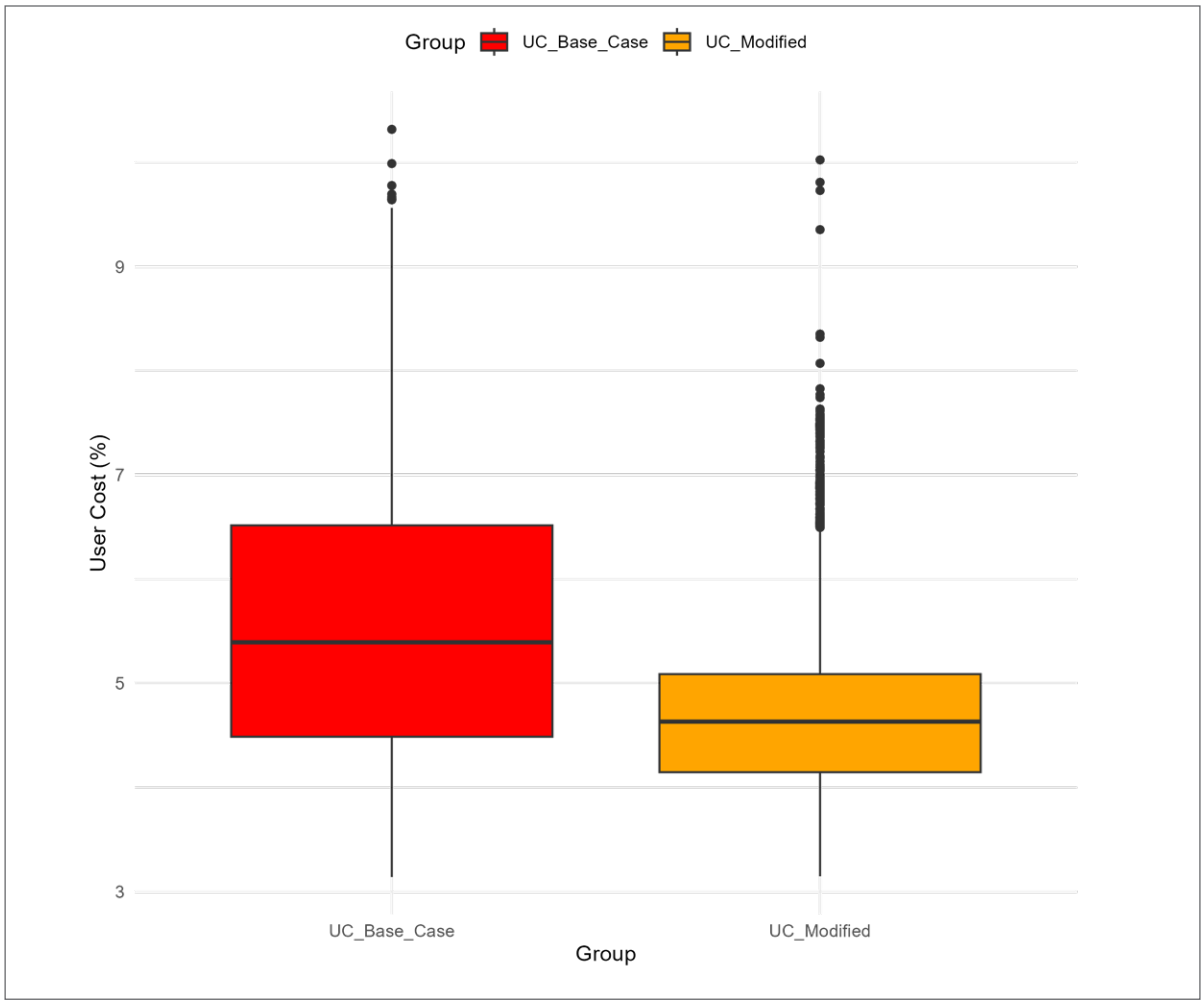
Taxable income	Tax on this income
0–$18,200	Nil
$18,201–$45,000	16c for each $1 over $18,200
$45,001–$135,000	$4,288 plus 30c for each $1 over $45,000
$135,001–$190,000	$31,288 plus 37c for each $1 over $135,000
$190,001 and over	$51,638 plus 45c for each $1 over $190,000

Source: ATO[7]

7 https://www.ato.gov.au/tax-rates-and-codes/tax-rates-australian-residents#ato-Australianresidenttaxrates2020to2025

Figure 19 depicts the boxplot of both the base-case user cost (which is based on actual tax rates) and the modified user cost (which is based on stage 3 tax cuts). This plot visually represents the distribution for both sets of user costs. We can see central values as well as the spread of the user costs. Based on this, both the mean and median values of the modified user cost are significantly lower than the base case. The mean decreased from 5.5 per cent (base case) to 4.9 per cent (modified case). The spread of both user costs appears to be the same.

Figure 19: Boxplot of user cost under base and modified personal income-tax scenarios



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Note: UC = user cost.

Next, we examine the impact this would have on the duration of rental investment. On average, it increased the probability of sale/hazard. Given this result, we replaced the original user cost with the modified version (based on stage 3 tax cuts) and calculated the revised probabilities. These revised probabilities can be compared to the original probabilities (based on the original user cost) to assess the impact of the policy change. The difference between the probabilities (probability [original] – probability [revised]) is negative on average, which indicates that the revised probabilities (based on policy change) are higher than the base-case probabilities. The overall mean difference is approximately zero. This represents no change or negligible change in the probability of sale/hazard on average.

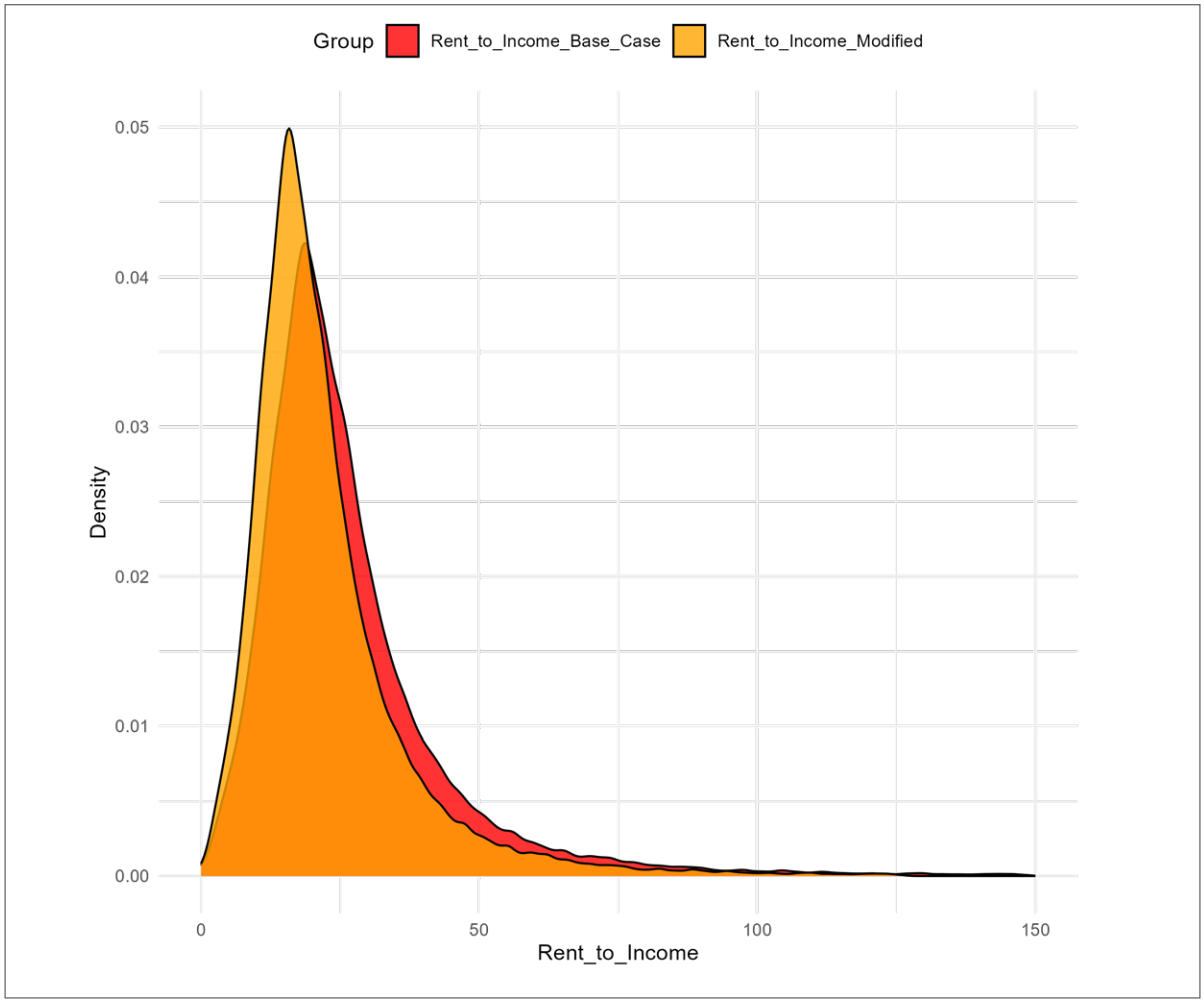
Next, we predicted the impact of the tax change on tenant rents on the assumption of a long-run market-clearing mechanism, in which market rental rates converge on investors' average user cost. Under this assumption, tax-driven changes in user cost are passed on into market rents in the long run. Therefore, we assume that any decline in user cost will be passed on entirely to the tenant, which should in principle result in a rent reduction.

Figure 20 compares the empirical distribution/density of rent-to-income ratio across the base case and the modified case (changes to personal income tax rates). This figure provides a measure of how likely or common different ratio values are within the sample. The modified distribution is shifted to the left relative to the base-case distribution. This indicates that the rent-to-income ratio would decrease on average if landlords' reduction in user cost because of the stage 3 tax cuts were passed fully on to tenants.

Table 11 provides some detailed statistics across all income groups for both the base case and the interest-rate reduction scenario. Based on the statistics presented, the mean rents are all lower for the modified scenario relative to the base case by 15 per cent. This is expected since all of the decrease in user cost is passed on to the renter. Holding the income constant for both the base case and the modified scenario, a decrease in rents leads, on average, to a decrease in the ratio of rent-to-income. The decline in rent-to-income ratio is greatest at 10 percentage points among low-income tenants, followed by 3 and 2 percentage points among medium-income and high-income tenants. The proportion of low-income renter households who pay more than 30 per cent of their income in rent declines by 13 percentage points from 52 per cent (base case) to 39 per cent (modified scenario). The decline in share paying more than 30 per cent of income in rent is smaller among medium- and high-income renter households, at 7 and 2 percentage points respectively.

From these insights, we expect any alleviation of personal income tax burdens for landlords should, in principle, result in reduced housing-cost burdens for tenants—especially those on the lowest incomes. However, this is unlikely to be the case, especially when the rental market is tight, and vacancy rates are low (Rowley, Brierty et al. 2023). We offer further policy reflections in Section 4.6.

Figure 20: Distribution of rent-to-income ratio: base case versus modified case



Source: Authors' own calculations from the 2001–2021 HILDA Survey.

Table 11: Private renters' housing-cost burdens under base and modified personal income-tax scenarios, 2001–2021

Base case	Income	Mean rent ($)	Mean rent-to-income ratio (%)	Share with rent > 30% of income (%)
	Low	$12,757	62	52
	Medium	$16,119	22	15
	High	$19,967	16	4
Modified personal income-tax scenario	Income	Mean rent	Mean rent-to-income	Rent > 30% income
	Low	$10,796	53	39
	Medium	$13,642	18	8
	High	$16,898	14	2
Change	Income	Mean rent (% change)	Mean rent-to-income ratio (% pt change)	Share with rent > 30% of income (% pt change)
	Low	-15	-10	-13
	Medium	-15	-3	-7
	High	-15	-2	-2

Source: Authors' own calculations from the 2001–2021 HILDA surveys.

Note: The mean income for each group is $41,078 (low), $79,357 (medium) and $135,833 (high).

4.6 Policy development implications

It should be noted that the policy development implications discussed below do not take account of macroeconomic dynamics, such as the exchange of housing stock between owner-occupied and investment/rental units.

The evidence presented in this chapter shows that monetary and fiscal policies clearly have impacts on landlords' after-tax economic cost of supplying rental housing. In turn, this can affect their willingness to retain their rental investment, with implications for the stability of supply of rental housing to tenants in the private rental market.

Furthermore, if changes in landlords' cost of supplying rental housing are fully passed on to tenants, policy changes that affect these costs will have flow-on effects to rental affordability.

While the above is true, our microsimulations in this chapter show that the distributional consequences of different policy changes can vary widely.

As an example of a monetary policy change that can affect the private rental market, we model what would happen if home-loan interest rates were held constant at 2018 levels during 2019–2021 instead of being allowed to fall. Under this scenario, we find that low-income landlords (21%) would have been more likely to dispose of their rental investment than high-income landlords (34%). At the same time, average rents would have risen by 18 per cent and rental cost burdens would rise the most among low-income renters by 14 percentage points.

We also model the impact of two fiscal policy changes and find that their distributional impacts are quite different from the monetary policy change described above.

If the CGT discount were halved to 25 per cent over the period 2001–2021 instead of retaining the present 50 per cent discount, landlords' mean user cost and the probability of landlords selling their rental investment property over time would also increase. However, these increases would be greatest among high-income landlords rather than low-income landlords. This is potentially because CGT discounts offer greater tax shelter benefits to high-income landlords than low-income landlords (Duncan, Hodgson et al. 2018). Hence, when the CGT discount is reduced, high-income landlords experience a greater loss of tax shelter benefits than low-income landlords. Thus, CGT reform will more likely lead to the higher-income landlords exiting the sector—which is arguably a bad thing, as they are associated with greater stability from a renter perspective.

Furthermore, under this CGT-discount reform, average rents would rise by 3 per cent, which is a much smaller increase than the rise experienced under the interest-rate changes simulated in this chapter. Rental cost burdens would rise slightly (1–3 percentage points) across all income groups.

Another fiscal policy measure recently implemented is the rollout of the stage 3 personal income-tax cuts. We simulate the consequences of applying the stage 3 tax cuts over the period 2001–2021 instead of actual personal income tax rates. Once again, the effects differ from the previous two reforms. Landlords' mean user cost would have decreased, and any changes to the probability of sale of their rental investment property would have been negligible. If changes in landlords' user cost were passed on fully to tenants, average rents would fall by 15 per cent and rental cost burdens would decline the most among low-income tenants.

A comparison across the three simulations suggest that the two fiscal policy measures (capital gains tax and stage 3 tax cuts) would have produced more equitable outcomes than the monetary policy measure. The CGT reform would have negatively impacted high-income landlords more than low-income landlords, and the resulting flow-on effects on rental affordability would have been negligible. The stage 3 tax cuts would have had minimal impact on landlords' retention of their rental investment, and low-income tenants would enjoy greater alleviation of their rental cost burdens than higher-income tenants. On the other hand, applying tighter monetary policy measures would negatively impact low-income landlords and low-income renters more than their high-income counterparts. It is worth noting that from a policy implementation perspective, fiscal reform is within the control of government, whereas monetary policy is not.

However, our simulations of rental affordability impacts rely on the assumption that landlords would fully pass on changes in their after-tax economic cost of supplying rental housing to tenants. It is reasonable to assume this would be the case when landlords find their after-tax economic cost rising. However, in practice, landlords are unlikely to be compelled to pass on any reductions in their after-tax economic cost to tenants—especially when vacancy rates in the market are low.

5. Policy reflections

In this final chapter, we address the key research question:

- How can the project findings help promote the supply of private rental housing?

We address this question by referring to our findings on the purchase, sale and retention duration of rental investments. Individuals who are well-positioned to purchase rental investment properties will add to the supply of private rental housing, and landlords who are well-positioned to retain their rental investments for long durations will add to the supply of secure long-term private rental housing stock. On the other hand, landlords who are ill-positioned to retain their rental investments for long durations can disrupt the supply of private rental housing, with potentially negative impacts on tenant affordability and security.

5.1 Tax reforms and market destabilisation.

Current tax incentives motivate landlords' retention of rental investment properties, so reforms that wind back these incentives will need to address potential market destabilisation.

Changes to policy that impact on landlords' tax positions could have major effects on the decision to retain their rental investment over time—and therefore the willingness of landlords to remain in the market. A 1 percentage point increase in the user cost raises the odds of selling over time by 8.9 per cent. Being negatively geared reduces the odds of selling over time by 20 per cent. For instance, interest-rate changes and the CGT discount will affect landlords' after-tax economic cost of supplying a rental property. Negative gearing provisions also offer generous tax benefits, especially for high-income landlords, which clearly encourage their retention of rental investment properties.

However, studies have repeatedly highlighted the unequal outcomes under CGT discount and negative gearing arrangements, which typically benefit high-income earners more than low-income earners (Duncan, Hodgson et al. 2018). There is therefore a case for winding back generous CGT discounts and negative gearing provisions because they contribute to existing inequalities between high-income and low-income landlords and between landlords (who can access the tax subsidies) and renters (who cannot).

In practice, because winding back CGT discounts and negative gearing provisions will increase landlords' after-tax economic costs of supplying rental housing, such reforms will need to be implemented incrementally in a transitional manner to avoid destabilising the supply of housing in the private rental market (Duncan, Hodgson et al. 2018; Eccleston, Verdouw et al. 2018).

5.2 Policy changes that freeze rental increases are likely to negatively impact the supply of rental housing.

Landlords' rental investment decisions are affected by the gross rental yields of their rental properties. A higher gross rental yield reduces the odds of selling over time, as a 1 percentage point increase in the gross rental yield depresses the odds of selling over time by 8.1 per cent. This suggests that landlords will only continue to invest in the rental market if market conditions offer them a sufficient rent relative to their property values. Policy changes that apply long-term freezes to rental increases (e.g. The Greens 2023) may therefore negatively impact the supply of housing in the private rental market.

5.3 Rigorous financial risk assessments by lenders and macroprudential regulations are critical to ensure that those who purchase rental investments are financially well-positioned to retain them.

Low-income individuals are only 0.75 times as likely to buy a rental investment property as high-income individuals. Relative to higher-income landlords, low-income landlords are 1.22 times as likely to sell within the next 12 months, and 1.34 times as likely to end their rental investment spell over time. This reflects the higher financial burden that low-income landlords bear to hold a rental investment property, including potential mortgage payments. Landlords who are encumbered by their own home mortgages also have raised odds of selling their rental investment property in the short-term, as well as shorter durations of retention. This reflects the higher financial burden that they bear relative to outright owners in order to repay their home mortgages as well as potential mortgages against their rental investment properties. Rigorous financial risk assessments by lenders and appropriate macroprudential regulations are thus critical to ensure that those who purchase rental investment properties are financially well-positioned enough to retain them to maintain a steady supply of rental housing in the market.

5.4 Programs that offer education on property investment retention to landlords can improve the supply of rental housing.

Landlords with higher educational qualifications are more likely to purchase and retain investment properties. Those who have a university bachelor or postgraduate degree are around 1.2 times as likely to purchase a rental investment property as those whose highest qualification is year 11 and under, holding other factors constant. All levels of educational attainment decrease the odds of selling over time relative to an education of Year 11 and under. These findings suggest that those who have lower educational qualifications are less well-positioned to deliver long-term supply of rental housing in the private rental sector, with potentially negative implications for tenure security in the sector. Wood and Ong (2010) suggest that it is typically presumed that investment in 'bricks and mortar' does not require the economic or financial knowledge that other financial investments such as shares and bonds might require. However, our findings suggest a degree of financial knowledge is required to support rental investment retention. Programs that offer education on property investment retention—especially to landlords with no post-school qualifications—may benefit some landlords and support efforts to retain property and promote the supply of long-term rental housing to the rental property market.

5.5 Policy changes that affect landlords' costs of supplying rental housing can have affordability consequences for renters.

A comparison across the simulations modelled in this report suggest that halving the CGT discount and preventing a decline in interest rates would have the effect of increasing landlords' after-tax economic cost of supplying rental housing. If it is assumed that this cost increase is passed on fully to tenants, both reforms would have the impact of reducing rental affordability.

However, halving the CGT discount would produce more equitable outcomes than preventing a decline in interest rates. If implemented, the CGT reform would have negatively impacted high-income landlords more than low-income landlords, and the resulting flow-on effects on rental affordability would have been negligible. On the other hand, applying tighter monetary policy measures would negatively impact low-income landlords and low-income renters more than their high-income counterparts. Moreover, average rents would rise by just 3 per cent under the CGT reform but would rise by 18 per cent under the interest-rate reform.

The results indicate that policy changes that affect landlords' costs of supplying rental housing need to be preceded by proper investigation into the distributional consequences of these reforms and their impacts on vulnerable tenants before policy implementation.

5.6 Policies that reduce individual landlords' cost of supplying rental housing are unlikely to generate affordability benefits for renters, unless accompanied by other measures that diversify the sources of rental housing supply.

We find that if the stage 3 tax cuts (as amended by the Albanese government) were applied over the period 2001–2021 instead of actual personal income-tax rates, landlords' mean user cost would have decreased from 5.5 per cent to 4.9 per cent, and any changes to the probability of sale of their rental investment property would have been negligible. If changes in landlords' user cost were passed on fully to tenants, average rents would fall by 15 per cent and rental cost burdens would decline across all income groups. The decline in rent-to-income ratio would be largest at 10 percentage points among low-income tenants, and the share of low-income renter households who pay more than 30 per cent of their income in rent would fall the most by 13 percentage points.

However, in practice, landlords are unlikely to pass on a reduction in their cost of supplying rental housing to renters, unless vacancy rates are low in the market. The other important consideration is that currently the private rental market is dominated by individual landlords. Unless the sources of supply of private rental housing are diversified so that individual landlords' share of the market declines, the prospects of landlords passing on cost reductions to tenants are even dimmer. Such diversification can be achieved by greater government and institutional investment in social and affordable housing for low-income tenants. However, unlike countries such as the USA and the UK, the build-to-rent market in Australia is still embryonic. More research is required into risks and capacity for scaling-up the build-to-rent market in Australia, and the impacts on rental affordability.

5.7 Final remarks

This report updates and expands on earlier AHURI research by Wood and Ong (2010) that modelled factors shaping rental property investment behaviour by residential landlords. The earlier research tracked patterns of rental property investment behaviour over the period 2001–2006. It also uncovered drivers that help shape whether a person may decide to become a landlord and, once they have done so, the duration of their investment in the private rental housing market.

The report builds on findings from Wood and Ong (2010) by offering up-to-date estimates from 2001 to 2021. We also extend the previous analysis via new modelling methods and policy simulations that reflect current affordability concerns. Our focus remains on individual landlords who engage in rental property investment—in other words, our study does not cover institutional landlords.

The report presents a significant bank of new evidence on rental investment behaviour and the potential impacts of policy changes on landlords' cost of supplying rental housing—and associated rental affordability consequences for tenants. However, it has also uncovered new areas of research that require further investigation.

First, our study identifies landlords based on their reported rental income. Because of data limitations, we are unable to distinguish between landlords who hold one rental investment property versus those who hold multiple investment properties. The rental investment behaviours of single-property landlords may vary from those who own multiple properties.

Second, and related to the above, is the omission of institutional landlords from our analysis. Unlike the UK and the USA, the build-to-rent market is still nascent in Australia. Institutional landlords are motivated differently from individual landlords, and subject to different tax parameters. Thus, further work is needed to uncover the opportunities for scaling-up institutional investment in affordable rental housing in Australia, as well as associated risks and opportunities. There is also a case for investigating the extent to which an expansion in institutional investment can promote affordability outcomes for low-income renters, given institutional investors are typically profit-driven.

Third, our findings show that while 22 per cent of rental investments are disposed of after the first year, around 28 per cent of rental investment spells are still ongoing after 20 years. Clearly, some landlords are short-term investors who may be churning in and out of the market, while others are long-term investors who remain in the market for lengthy periods of time. We have uncovered the varying characteristics of landlords who are churners, as compared to those who retain their property for lengthy durations. Better understanding is needed of the impacts that landlords' churning has on tenant affordability and security in the private rental market.

Fourth, we have modelled a selected suite of policy changes in this report, focussing on monetary and income tax measures. Landlords are also influenced by state and territory government policies including, for instance, land taxes. Future work should examine the impact of state taxes on landlord behaviour.

Regarding future modelling considerations, it would be ideal to model the effect of variables. These include:

- *transition variables*, which are a change in 'states' across multiple characteristics—such as the transition from being single to married.
- *control variables* such as superannuation balances and other income-related and wealth-related variables. These could be included; especially as older outright homeowners are more likely to own investment properties but have low or negligible superannuation balances. However, this information is only available in every fourth wave of HILDA (the wealth module), and we would need to impute the values for the missing waves.
- *policy-related variables* that have an effect on increasing the number of landlords would be a useful future direction. Current data such as user cost, rental yield and negative gearing status only feature in the sell and retain models, but we have been able to show the potential policy effects on landlords exiting, as well as the impact on renters.

The possibility of passing on a fraction of the increase in user cost (rather than 100%) could be examined in a future study.

Future studies could also consider the effect of macroeconomic dynamics such as exchange of housing stock between owner and investors. Lastly, if information on the number of investment properties were available, it would be possible to more accurately track landlord versus non-landlord status.

This work was undertaken to offer insights into landlord behaviour over a 20-year period (2001–2021). As a result, we observed long-run trends such as decreasing interest rates during this period. However, this trend drastically changed in mid-2022, whereby the cash rate experienced rapid growth. Consequently, landlords were impacted by this change— the rate of acquiring/buying investment properties fell, as did landlords' capacity to hold the residential properties. Future work could examine the net result of these effects on the supply of rental properties over the period 2022–2024.

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Appendix 1

A1: Landlords' user cost

Landlords' user cost (also known as landlord's after-tax economic cost) is expressed algebraically as follows:

$$UC = \frac{i+OC}{1-\emptyset} - CAP + AMORT \times (CAPTAX + TC)$$

where

UC = user cost of landlord

i = home-loan interest rate

OC = operating costs specific to rental investors as a fraction of asset value

$\emptyset$ = property agent fees as a fraction of asset value

π = house price appreciation rate

d = economic depreciation rate

τ = marginal income tax rate of landlord

T = holding period

β = brokerage fees as a fraction of asset value

$k = ((1 - \tau)\ i)$

$\delta = \ \pi\text{-}\{d+k\}$

CAP = capital gain = $\frac{\pi - d}{(1-\tau)(1-\emptyset)}$

$AMORT$ = amortisation = $\frac{\delta}{(1-\tau)(e^{\delta T}-1)(1-\emptyset)}$

$CAPTAX$ = capital gain tax = $0.5 \times \tau[(1-\beta)e^{\pi T} - 1]e^{(-kT)}$

TC = transaction costs = $\beta e^{\delta T}$

The individual components of the user-cost formula are described in Table A1.

Table A1: Landlords' user-cost components

Item	Description
Marginal income tax rate	The marginal income tax rate (MITR) of the individual landlord is based on their financial assessable (tax liable) income, with tax rates taken from the Australian Tax Office. The progressive tax rates for each financial year can be seen at: https://www.ato.gov.au/tax-rates-and-codes/tax-rates-australian-residents
Home-loan interest rate	Interest on home-loan debt varies from year to year. It is calculated by taking the average of monthly standard variable owner-occupier lending rates for Australia per financial year. Source: Reserve Bank of Australia (RBA), Table F5 – Indicator Lending Rates, column D. https://www.rba.gov.au/statistics/tables/index.html#interest_rates
Operating costs	Sum of annual maintenance costs, property taxes, building insurance premiums and land taxes.
Annual maintenance costs	0.38% of the rental investment property value, based on values estimated in previous AHURI research by Ong ViforJ, Graham et al. (2023).
Property taxes	Average property taxes as a percentage of property value varies by the different greater capital city statistical area (GCCSA) regions, with the values derived from Ong ViforJ, Graham et al. (2023).
Building insurance premiums	Annual building insurance premium rates, which vary by state, are derived from Ong ViforJ, Graham et al. (2023). Because HILDA does not provide values for building value and land value separately from the home value, they must be estimated. For landlords in major cities, land value is assumed to be 57% of the property value, and 39% for other areas.
Land taxes	Annual land tax rates for rental investors vary by state and year. This is applied to the land value rather than the property value. The land value is assumed to be 56.53% of the total property value in major cities, or 38.88% in other areas. The land tax parameters for each state and each year are sourced from the NSW Government Treasury, which provides an interstate comparison of taxes each financial year. https://www.treasury.nsw.gov.au/search/node?keys=interstate+comparison
House price appreciation rate	3.5% of the rental investment property value. This assumes a real capital appreciation rate of 1%, which is added to the mid-point of the RBA's target inflation rate of 2.5%.
Economic depreciation rate	1.1% of the rental investment property value. See Appendix A.3 in: https://www.rba.gov.au/publications/rdp/2014/pdf/rdp2014-06.pdf
Holding period	10 years
Brokerage fees	3% of the rental investment property value. Brokerage fees represent the costs of selling, including real estate agent commissions, advertising, legal and other costs. See Appendix A.5 in: https://www.rba.gov.au/publications/rdp/2014/pdf/rdp2014-06.pdf
Property agent fees	3% of the rental investment property value, as justified in the below working paper by the RBA. See Table A2 in: https://www.rba.gov.au/publications/rdp/2014/pdf/rdp2014-06.pdf

A2: Housing tenure: number of units

Figure A1: Housing tenure and number of units, 2001–2021

A3: Odds ratios for predictors across all models

The highlighted cells in Table A2 represent significant variables across all models.

Table A2: Odds ratios for predictors

	Log odds		
Explanatory variables	Buy	Sell	Retain
Male	0.955	0.929	0.834
Has long-term health condition	0.948	0.982	1.021
Has children	0.988	0.988	1.057
SEIFA Index	1.035	1.032	1.078
Housing cost-to-income ratio	1.001	1.002	1.006
User cost	NA	1.019	1.089
Negative gearing	NA	0.861	0.809
Rental yield	NA	0.947	0.919
Age 15–24	1.102	1.175	1.831
Age 25–34	1.406	1.053	1.522
Age 35–44	1.346	0.941	1.120
Age 45–54	1.325	0.864	1.024
Age 55–64	1.214	0.927	1.057
Age 65+			
Employed full-time	1.235	0.890	0.899
Employed part-time	1.123	0.994	1.033
Unemployed	0.986	1.275	1.730
Not in the labour force			
Postgraduate degree	1.203	0.802	0.695
Bachelor's degree	1.183	0.816	0.707
Other post-school degree	1.068	0.872	0.793
Year 12	1.030	0.968	0.909
Year 11 and under			
Married	1.147	1.019	1.100
Defacto	1.061	0.958	0.898
Separated	1.148	1.455	1.824
Divorced	1.070	1.106	1.210
Widowed	1.044	0.923	0.763
Single never married			

Table A2 (continued): Odds ratios for predictors

	Log odds		
Explanatory variables	Buy	Sell	Retain
Outright owner	1.122	1.032	0.945
Owner with mortgage	1.086	1.160	1.263
Private renter	0.779	1.059	1.201
Public renter	0.500	0.241	
Rent-free tenure			
Low-income household	0.751	1.219	1.340
Moderate-income household	0.894	1.075	1.057
High-income household			
ACT	0.952	0.711	0.504
NT	1.049	0.670	0.491
QLD	1.017	1.013	0.968
SA	0.957	1.080	1.184
TAS	0.898	1.108	1.152
VIC	0.992	1.106	1.202
WA	1.028	1.021	1.069
NSW			
Pre-GFC	1.122	0.898	1.267
GFC	1.043	0.992	1.755
Post-GFC 1	1.079	0.893	1.870
Post-GFC 2	1.019	0.991	2.179
COVID-19			
Constant	0.056	0.272	0.018

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