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REVIEW OF THE REBUILDING IRELAND HOME LOAN SCHEME

CONOR O'TOOLE AND RACHEL SLAYMAKER

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Rachel Slaymaker

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

BPFI	Banking and Payments Federation
BTL	buy to let
CBI	Central Bank of Ireland
CSO	Central Statistics Office
DGI	Data Gathering Initiative
DHLGH	Department of Housing, Local Government and Heritage
DLR	Dún Laoghaire–Rathdown
DPD	days past due
DSTI	debt service to income
ESM	Economic Sentiment Monitor
ESRI	Economic and Social Research Institute
FTB	first-time buyer
GDA	greater Dublin area
HFA	Housing Finance Agency
HTB	Help to Buy
IGB	Investment Grade Bond
LA	Local Authority
LGD	loss given default
LGMA	Local Government Management Agency
LTI	loan-to-income
LTV	loan-to-value
MARP	Mortgage Arrears Resolution Process
MPI	mortgage protection insurance
NIR	net income ratio
NTMA	National Treasury Management Agency
PDH	primary dwelling home
PPR	Property Price Register
QEC	Quarterly Economic Commentary
ReLTI	requested loan-to-income
RIHL	Rebuilding Ireland Home Loan
RTB	Residential Tenancies Board
SILC	Survey on Income and Living Conditions

GLOSSARY

affordability stress test	A test of a borrower's likelihood to be able to maintain mortgage payments in the future. In Ireland this typically takes the form of examining bank statements and spending behaviours, in addition to examining whether the borrower would be capable of maintaining payments if they were to face an increase in the mortgage interest rate.
bankable credit demand	The proportion of total credit demand that could potentially be serviced under a prudent credit risk assessment policy and current macroprudential regulations
binding	When a constraint or policy threshold limits the feasibility of a particular choice
bunching/clustering	A number of data points with similar values
buy to let	A property bought with the intention of letting it out rather than owner occupation
credit gap	The difference between bankable credit demand and the level of credit actually supplied; a measure of the unmet demand for mortgage credit
debt service to income (DSTI)/repayment to income ratio	The proportion of net income spent on debt payments. This can refer to either solely mortgage debt or a combination of mortgage and other debt.
default	A mortgage loan that is in arrears of more than 90 days
delinquency status	Whether or not a borrower is in mortgage arrears
equity release	A financial arrangement that enables a homeowner to extract a lump sum or income stream using the value of the property, while continuing to own the property
ex-ante default risk	The future expected risk of default
hedonic pricing	A regression technique method used to estimate the value of a good (such as a property) to consumers. The price of a good is a function of various characteristics and external factors. This method estimates how much the price varies in relation to each characteristic/factor.
Help to Buy Scheme	A scheme for first time buyers that helps them to accumulate a deposit by means of a tax rebate
impairment/impaired	A mortgage loan that is in arrears of less than 90 days

loan-to-income	The size of a mortgage loan relative to the borrower's gross annual income (expressed as number of times income)
loan-to-value	The size of a mortgage loan relative to the value of the property (expressed as percentage)
macroprudential regulations	Supervisory or regulatory policies imposed on financial institutions which aim to mitigate risk and to increase stability in the financial system as a whole
non-binding	When a constraint or policy threshold does not alter the feasibility of a particular choice
strategic default	The decision to stop making payments on a mortgage debt even though the borrower has the financial ability to make payment

EXECUTIVE SUMMARY

MAIN FINDINGS

The Rebuilding Ireland Home Loan (RIHL) scheme was introduced in February 2018 to provide low-cost mortgages to credit-worthy borrowers who are unable to obtain sufficient funds in the mortgage market. The scheme had approximately €414m in drawdowns (€218m) or live approvals (€196m) from February 2018 to September 2019. This report (i) provides a high-level review of the degree to which the scheme has met its objectives, (ii) scopes the need for ongoing intervention, and (iii) assesses selected operational considerations such as credit risks, funding considerations and its market impact.

Microsimulation modelling of the Irish mortgage market suggests that a credit gap exists, with both income and equity constraints impacting households. In this regard, there is a clear role for the RIHL scheme to continue, in complement to deposit supports. The scheme does appear to be targeting lower-income households who are underserved by the market in urban areas. However, there does appear to be cross-over between market lending and RIHL activity in areas covered by the €250,000 house price cap. Some suggestions are provided for refinements to the parameters covering house price and lending limits to reflect these considerations.

The main risk arising from the scheme is credit default and the impact on local authorities (LAs) if defaults rise. Evidence indicates that lower-income households (the target group) carry a higher *ex-ante* default risk. Planning to manage such risks is critical. In this regard, the central underwriting function undertaken by trained professionals at the Housing Agency is a strong feature. Observed deviations from underwriting recommendations have been identified and the Department has introduced measures to address this. Some further options for strengthening default risk safeguards should be considered.

Given the size of the scheme to date, we do not consider it poses any material risk to government finances, nor has it had an impact on house prices. However, it should remain limited in scale to avoid market distortions, and the recent commitment to limit the volume of lending in this regard is welcome. Raising the base interest rate above the market rate for long-term fixed-rate products should be considered to minimise market distortions and ensure funds are allocated to borrowers with the greatest need.

A number of data gaps are evident with the current scheme. In particular, no dedicated central database is available that links purchase prices, loan origination

features and borrower information. This gap should be addressed, and the granular data used to undertake credit risk stress tests and inform scheme calibration.

SUMMARY OF MAIN CHAPTER FINDINGS[1]

Market demand and scheme calibration

- The RIHL scheme has approximately €363m in drawdowns (€178m) or live approvals (€185m) from February 2018 to June 2019. Drawdowns from the scheme to June 2019 account for 3 per cent of first-time buyer (FTB) lending. An additional €40m had been lent in Q3 2019 to increase total drawdowns to €218m. Live approvals as of September 2019 were €196m.

- Microsimulation research indicates a credit gap in the Irish FTB mortgage market which could be met under prudent credit risk assessment. *Both* income and equity constraints are evident, suggesting that separate policies covering loan availability and deposit supports are merited.

- There is a clear role for the RIHL scheme in alleviating a portion of this unmet mortgage demand on an ongoing basis. Estimates suggest that the instrument could provide a minimum of 1000 loans, valued at €200m per annum at current market prices.

- It is clear the RIHL scheme would be expected to improve housing affordability for recipients relative to renting at new market prices or purchasing under commercial terms. Mortgages with a fixed term for the duration of the loan are welcome to remove interest rate risk for households and improve payment predictability.

- Residential mortgage lending, i.e. loans issued by regulated lenders, is concentrated at higher levels of the income distribution and RIHL offers credit to lower-income households.

- At present, there is little evidence to support an increase in the €320,000 house price cap in urban areas given the targeting of the scheme to low- to middle-income households. In these areas, the limitation of single borrower income thresholds of €50,000 would appear binding and could be revisited.

- The house price cap of €250,000 for other areas would appear to be well in excess of most market prices in many counties and should be lowered markedly. The potential for a lower third tier that would distinguish more urban areas in the €250,000 group (such as Limerick and Waterford) from more rural counties should be considered.

[1] A range of data sources are used in this report. There are differences in the time periods they cover. An overview is provided in Table 2.2. In addition, since the analytical work was completed, an update to the Local Government Management Agency (LGMA) data (from end of June to end of September 2019) on the high-level numbers of the scheme has been provided. These new figures have been added to the text, but this may have caused some apparent inconsistencies throughout the report which may affect its readability.

Credit risk and credit assessment

- The scheme has aligned its loan-to-value ratio with the level set by the Central Bank for FTBs, 90 per cent, which is a prudent step.

- The credit assessment includes a maximum debt-service to income (DSTI) ratio, which is used by many countries as a macroprudential tool. The calibration of the RIHL limit at a maximum of 35 per cent would appear to be in the prudent range relative to international norms. The maximum tightens to 30 per cent for lower-income households, which is sensible. A tightening of the open allowance for lending above the cap should be explored.

- As of June 2019, the default rate for RIHL loans (in arrears of 90 days or more) was 0.4 per cent, which is identical to the default rate on commercial loans with a similar vintage from Central Bank data.

- No data on loan-to-value (LTV) or loan-to-income (LTI) ratios at origination are available to analyse and this data gap should be addressed with haste. Requested loan-to-income data have been reviewed using microdata from the Housing Agency.

- It is likely the default rate on the RIHL loans will exceed that on market loans over time. As the aim of the scheme is to extend credit to low-income households, once sufficient credit policy safeguards are followed at origination, a somewhat higher default rate on RIHL loans would not necessarily undermine the achievement of the scheme objectives. A withdrawal of RIHL lending for areas with arrears greater than 5 per cent of the portfolio has been introduced to safeguard against high portfolio losses that may arise.

- A strong feature of the scheme is the centralised credit assessment. However, operationally, it is at the discretion of LA credit committees to make the final decision on the application. The data indicate that approvals have exceeded the level suggested by the underwriters in some LAs. Without access to adequate microdata at loan origination, it is not possible to assess whether this has already exposed the current portfolio to higher risks. The Department has already taken welcome steps to address this issue by ensuring that deviations from the underwriting assessment are reported and explained. Some further options for strengthening such safeguards could be considered, along with further credit risk minimising rules. These are discussed in Chapter 4.

- Given the scale of the RIHL scheme relative to previous LA lending, it would be prudent to take stock of the policies, procedures and capacity of LAs to manage and absorb loan delinquencies.

Market impact, scheme funding and interest rate pricing

- Drawdowns from the scheme to June 2019 have amounted to €178m, approximately 3 per cent of total FTB lending for this period. Our analysis suggests the scheme has not had any material impact on house prices nationally to date given the current level of drawdowns.

- Demand for the scheme appears to have outstripped the original scheme volume of €200m over a 3 year period and approvals have continued above this figure. Following

the increased demand, the Department received sanction to increase the scheme size to €563m across 2018 and 2019. Careful monitoring of allocations, approvals and drawdowns should be undertaken on a timely basis to ensure that scheme commitments stay within the sanctioned amount.

- It is also noteworthy that the geographic concentration of demand is greatest in the urban areas and excess demand may exist in these areas. This poses challenges for the current system of allowances at LA level. If an alternative mechanism could be developed to ensure activity remains within the sanctioned amount, it would be potentially more efficient to move away from a strict LA-level allowance.

- The Department has agreed a scheme value limit that restricts lending to 5 per cent of total FTB credit. Such a restriction is welcome. However, directly anchoring it to the broader market restricts the ability to use the instrument counter-cyclically, i.e. if credit supply restricts the borrowing capacity of FTBs, the 5 per cent limit could be temporarily revisited.

- For any loan product, the pricing of the interest rate is critical. The interest rates set by the scheme are lower, and at longer terms, than products in the market. This provides an affordability boost for recipient borrowers, in particular as the low fixed-rate term is for the duration of the loan.

- However, two further points must be considered for pricing. First, interest rates should be set to adequately compensate for credit risks and second, pricing should be such as to minimise distortions to borrowers' incentives and maximise the benefit of the scheme to those who most require these supports. Therefore, the base interest rate should be increased to above the rate in the market for the closest fixed-rate product to the RIHL terms. This is also consistent with lender of last resort pricing. Pricing can be cognisant of the additional cost of enhanced mortgage protection insurance (MPI) required under LA lending. Raising the interest rate will also tighten the DSTI limit as repayments will be higher for a given loan balance and term.

- The level of pricing of the cost of funds to the LA from the Housing Finance Agency is in line with the cost to the state of long-term finance. Term risk or interest rate misalignment risk can therefore be mitigated through hedging. Future facilities under the scheme should constantly review the base funding rate to align it to long-term funding costs.

- The level of the scheme at present does not appear to pose any considerable risks to government indebtedness or other macro-financial considerations. If lending increases markedly above the current RIHL share of FTB lending, this should be reappraised.

- In undertaking parameter changes or recalibrations of the scheme, policymakers should be cognisant of ensuring its continuation with minimum disruption to the market.

Implications for policy and scheme monitoring

In terms of the ongoing monitoring and assessment of the scheme's functionality, a number of data gaps should be addressed.

- At present the following data gaps exist.
    - No centralised database is available that captures the loan exposures, monitors credit performance and contains collateral values and originating borrower characteristics. In particular, no data are available to analyse centrally LTV, LTI or DSTI ratios on the originated loans.
    - The Housing Agency database, which maintains a limited number of fields relative to the overall application, is not available to the Department officials for analysis, nor is it available to share across LAs. These data, from the underwriting assessment, are critical to understanding the credit risk, efficacy of the policy and the correct targeting of the scheme.
    - At present, borrowers can apply to multiple LAs and potentially receive different credit outcomes. LAs are not able to monitor applications to other areas or request data from the underwriters for applications to other areas.
- A working group should be established to outline data requirements, and to ensure that data gaps are eliminated. This would fully review the information collected to date on specific fields and ensure that proper data collection is undertaken.
- A considerable strength in the current data architecture is that the Department receives loan-level data on all LA loans that are issued. This should be used as a channel to receive all required information. Standardised collection templates should be followed by all LAs and any inconsistencies in reporting and data collection across LAs identified and eliminated.
- These data should be used on an annual/biannual basis to undertake portfolio stress tests and assess the exposure of the loans to economic risks. The data can also then be used to explore whether the parameters of the scheme continue to meet overall policy objectives.

CHAPTER 1

Introduction

The Rebuilding Ireland Home Loan (RIHL) scheme was introduced in February 2018 to provide access to mortgage financing to borrowers who are unable to receive sufficient funds in the commercial mortgage market, but credit-worthy from a risk perspective. Developments in the housing market in the years leading up to the policy's introduction had been characterised by rapidly rising rents and house prices. This placed a considerable affordability strain on those in the private rental sector and, more broadly, young borrowers looking to enter homeownership.

Recent research by Corrigan et al. (2019) and Allen-Coghlan et al. (2019) points to affordability pressures for potential first-time buyers (FTBs) and high housing cost pressures for renters. Stricter credit conditions on mortgages in the commercial sector, in particular in relation to the income leverage ratio, have been noted as a limiting factor in terms of accessing sufficient credit as house prices rose.

Within this context, the RIHL scheme was introduced to provide a financing option for credit-worthy borrowers who could not receive the funds on the open market. The scheme provides a facility for the local authorities (LAs) to borrow funds from the Housing Finance Agency and directly lend to households in line with the scheme's credit policy. The funding for the scheme was initially set at €200m over a 3-year period. The lending rates for the scheme were set below those in the existing market and the fixation terms offered are for the full lifetime of the mortgage.

The objective of this report is to review the extent to which the scheme has met its original stated policy objectives in terms of aiding FTB homeownership. Furthermore, the report will consider the ongoing market gap for the scheme and whether the existing parameters are suitable, as well as assessing credit and operational risks that may arise, or have arisen, in relation to the current portfolio. Finally, it will provide recommendations for parameterisation, credit management and ongoing data monitoring.

The rest of this report is structured as follows: Chapter 2 provides some background and context to the scheme's introduction. Chapter 3 assesses the market demand and policy targeting. Chapter 4 reviews the credit policy, credit risk and other risks. Chapter 5 explores the macro-financial impacts of the scheme and scheme funding issues. Chapter 6 concludes.

CHAPTER 2

Background and context

2.1 INTRODUCTION

The economic recovery from the financial crisis in Ireland has been characterised by a rapid improvement in the macroeconomy and a strong labour market expansion, in terms of falling unemployment rates and rising incomes. Such sharp improvements in economic conditions, coupled with excess demand for housing from demographic pressures and low housing supply, have led to sharp rises in house prices and rents. While some recovery in the cost of housing was inevitable given the scale of price falls during the crisis, the acute affordability challenge facing many households, in particular those in the rental sector (Corrigan et al., 2019), has increased the requirement for policies to improve the cost, and volume, of housing.

Within this context, access to finance through the mortgage market has been a critical consideration. Among other structural factors, a tightening of credit conditions has occurred simultaneously through bank-lending conditions and the regulatory environment, with a fall in the share of mortgaged homeowners. It is within this context that the Rebuilding Ireland Home Loan (RIHL) was introduced to the market in February 2018.

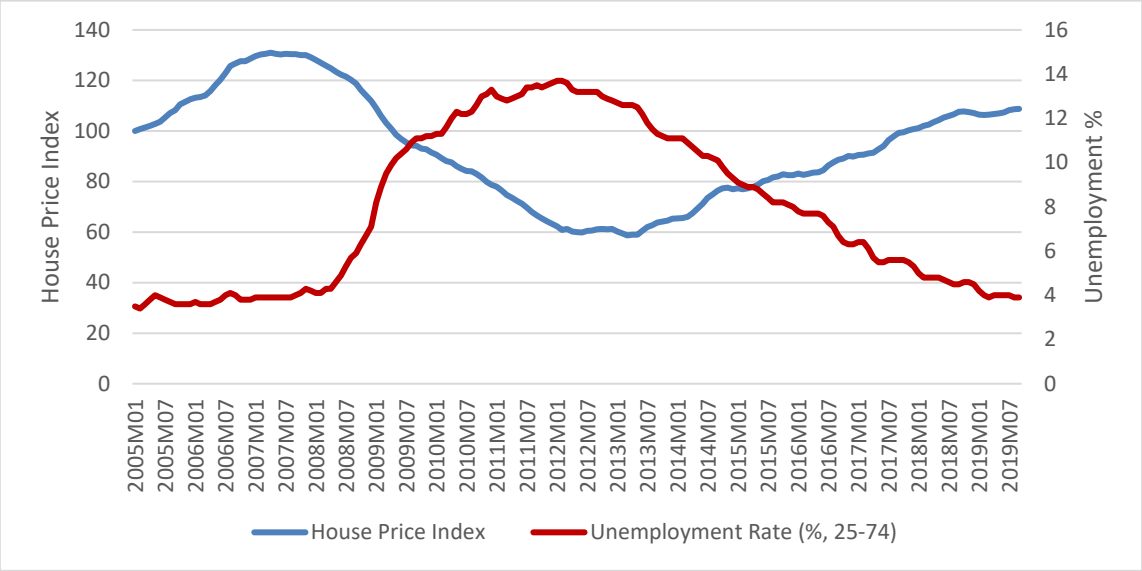
This chapter aims to provide the context within which this scheme was introduced, to explore the macroeconomic developments in the housing market that have occurred in Ireland in recent years, and to provide a brief general overview of the RIHL scheme and its activity to date.

2.2 MACRO-FINANCIAL BACKGROUND

2.2.1 From boom to bust: credit growth and loose credit conditions

From a macro-financial perspective, the past two decades have been a period of considerable volatility for the Irish housing and mortgage market. From 2002 to 2007, the market was characterised by rising house prices, rapid credit growth and loosening credit conditions. When the global financial crisis began to propagate throughout western economies, imbalances in the Irish housing market led to the onset of a systemic banking crisis. The macroeconomy deteriorated rapidly with unemployment increasing to 14 per cent in 2012, coupled with a rapid decline in house prices (Figure 2.1).

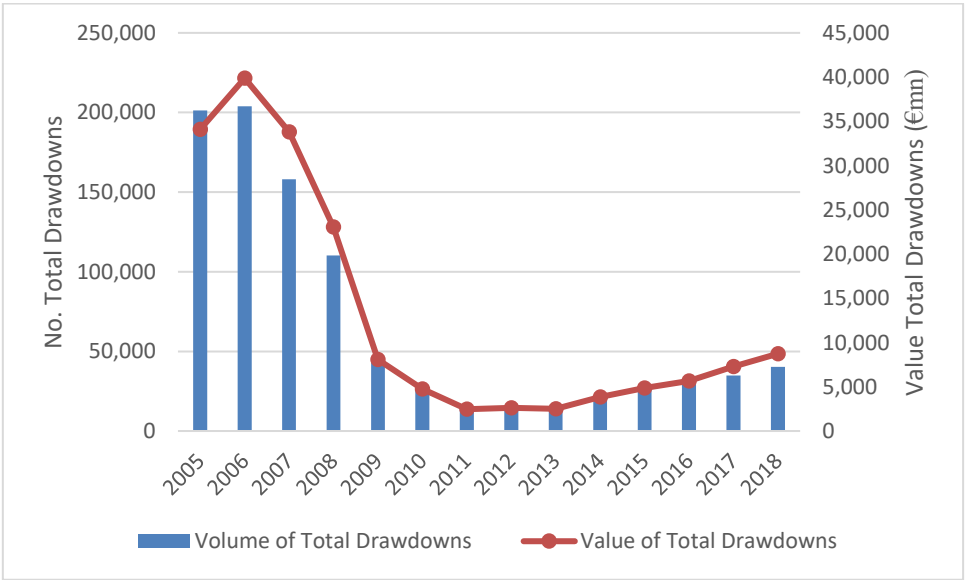
FIGURE 2.1 TRENDS IN UNEMPLOYMENT AND HOUSE PRICES 2005–2019



Source: *CSO Residential Property Price Index and Monthly Unemployment Data.*
Note: *25–74 is the age range.*

The trend in the number and value of new loans, drawn from Banking and Payments Federation (BPFI) data, is presented in Figure 2.2. In the period from 2005 to 2019 the number of new mortgages reached a peak in 2006 at over 200,000. These included a considerable share of equity release and buy-to-let loans. The total value of new lending was €40bn in 2006. The lending levels dropped rapidly following the onset of the financial crisis. While there has been some recovery in mortgage lending since 2013, the number of new mortgages only reached 40,000 in 2018, at a value of €8.7bn.

FIGURE 2.2 VOLUME AND VALUE OF TOTAL NEW MORTGAGE LENDING 2005–2018

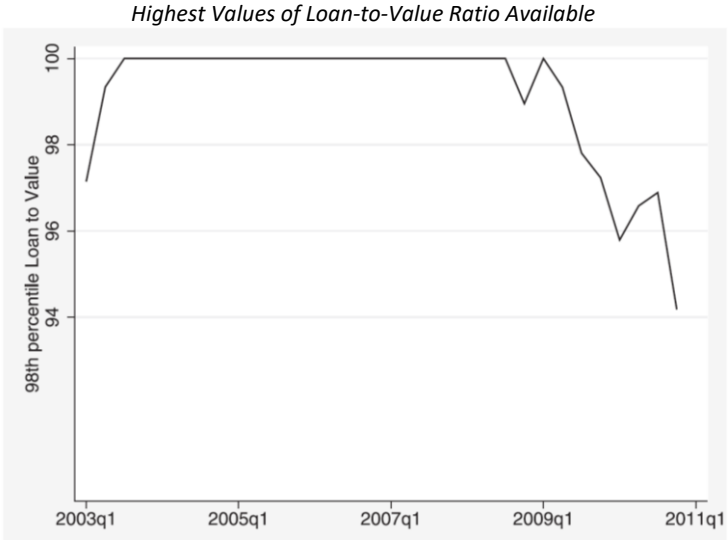


Source: *Banking and Payments Federation Ireland (BPFI).*

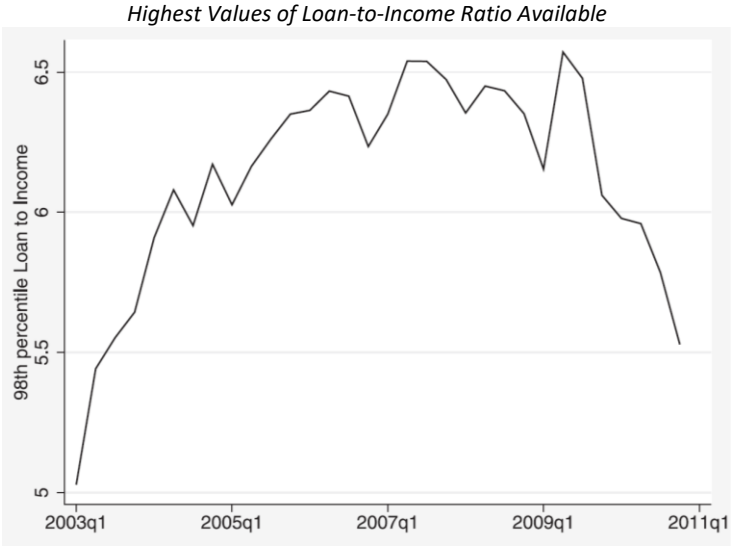
As credit for house purchases soared during the period 2002–2007, the loans provided were underwritten on looser and looser loan conditions in terms of mortgage terms, loan-to-value ratios and loan-to-income ratios (McCarthy and McQuinn, 2017). Figure 2.3 presents the trend in the maximum available loan-to-value, loan-to-income and debt service ratio in the market over the period 2003-2011, from Kelly et al. (2018). These data represent the maximum credit conditions available to borrowers in each year. It is clear that credit conditions loosened considerably, with loan-to-value ratios reaching 100 per cent in 2007. Income multiples also expanded, from 5 times income to over 6.5 times income at the height of the boom.

FIGURE 2.3 TRENDS IN CREDIT CONDITIONS

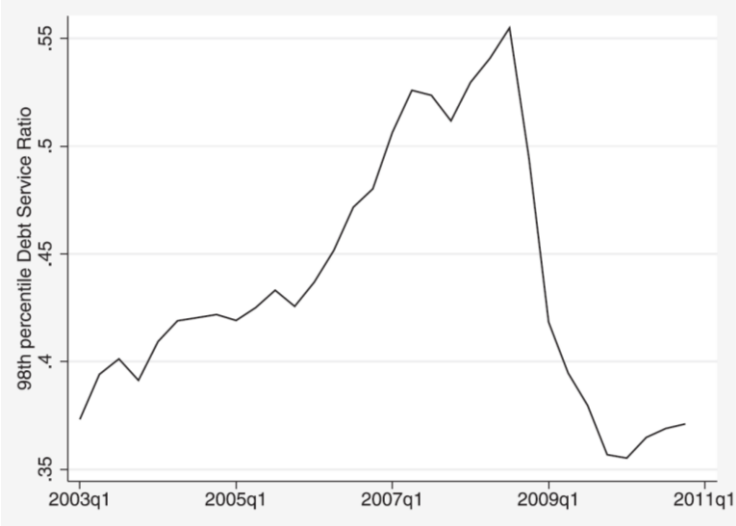
Highest Values of Loan-to-Value Ratio Available



Highest Values of Loan-to-Income Ratio Available



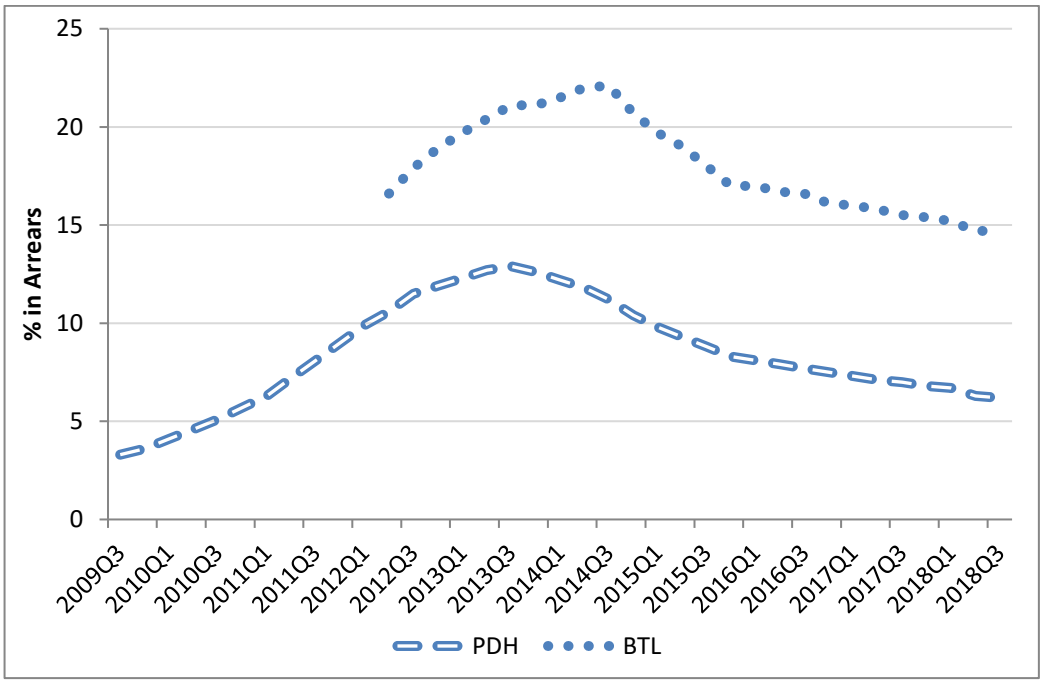
Highest Values of Debt Service to Income Ratio



Source: Kelly et al. (2018).

Given the loose credit conditions, borrowers had few buffers left to withstand economic shocks and the level of mortgage arrears rose to nearly one in five loans at the peak of the crisis, with an even higher share in the buy-to-let (BTL) market (Figure 2.4).

FIGURE 2.4 TRENDS IN MORTGAGE ARREARS FOR PRIMARY DWELLING HOMES (PDHS) AND BUY-TO-LET (BTL)



Source: *Central Bank of Ireland.*
Note: *'Mortgage arrears' refers to loan accounts in arrears of more than 90 days.*

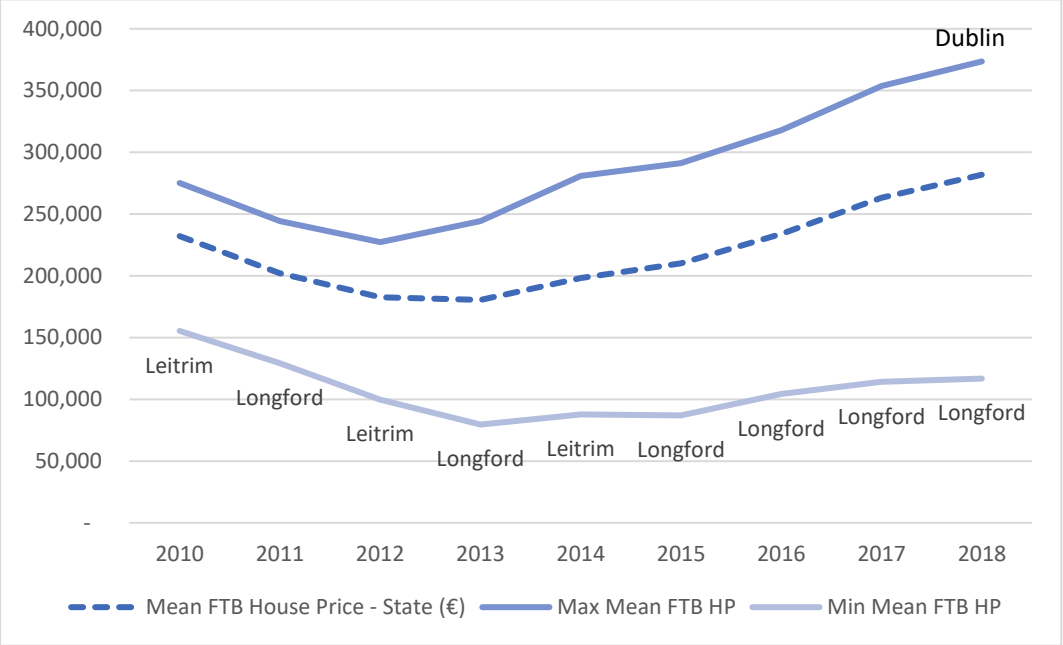
2.2.2 Recovery and the onset of affordability pressures

Since the onset of the financial crisis, two structural changes to the mortgage market have taken place which have acted as a break on credit conditions. First, banks' own credit standards have tightened and borrowers are subject to stricter income verification and stress tests than previously. This can be seen clearly in Lydon and McCann (2017), who show that few borrowers outside the top 40 per cent of the population income distribution receive mortgage finance (approximately 8 per cent in 2014), and that the proportion has fallen since 2009. The second change has been the introduction of a macro-prudential framework for mortgage lending by the Central Bank of Ireland. Introduced in 2015, the Central Bank of Ireland macro-prudential mortgage measures restrict mortgage applicants based on two concepts, loan-to-value (LTV) and loan-to-income (LTI). Under these rules, FTB applicants cannot obtain a mortgage worth more than 90 per cent of the house price (LTV) or that exceeds 3.5 times their gross annual income (LTI). This implies that the minimum deposit that homeowners must raise is 10 per cent. There are exemptions to these rules, with 5 per cent of the value of new lending

to FTBs allowed above the 90 per cent limit and 20 per cent of the value of new lending to FTBs allowed above the 3.5 LTI limit.

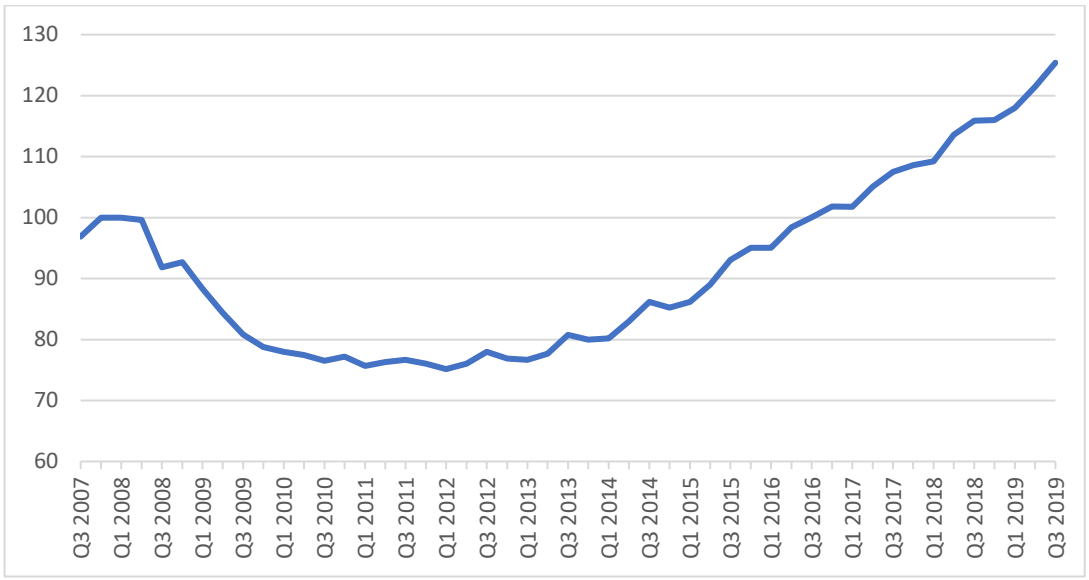
As the economy has recovered, house prices have risen rapidly. Figure 2.5 presents the average FTB house price nationally and for the highest and lowest priced counties. It clearly demonstrates the rapid increase in house prices from 2014 onwards. The data also indicate the considerably higher level in Dublin than the rest of the country, indicating that affordability pressures are most likely in and around the capital city. Coupled with the tightened credit access in the mortgage market from the structural macroprudential regulations, the strong demographic pressures from rising demand have spilled over to the rental sector and rental prices have been increasing rapidly; Figure 2.6 shows that the national rental price index stood 25 per cent higher in 2019Q3 relative to 2007Q4. This confluence of factors has led to considerable housing affordability challenges for particular groups in the population (Corrigan et al., 2019).

FIGURE 2.5 FIRST-TIME BUYER HOUSE PRICES



Source: Allen-Coghlan et al. (2019), Figure 2.

FIGURE 2.6 RESIDENTIAL TENANCIES BOARD (RTB) RENT INDEX 2007Q3–2019Q3



Source: *RTB.*
Note: *The rent index is calculated using data collated by the RTB from tenancy registrations. A national standardised average rent is calculated and then indexed using Q4 2007 as a base period (wherein the index is set equal to 100). The graph shows how the national standardised average rent has evolved over time with reference to the base period.*

2.3 OVERVIEW AND OBJECTIVES OF RIHL

In response to the affordability challenges faced by potential FTBs in the market, the Department of Housing, Local Government and Heritage (DHLGH) introduced the RIHL on 1 February 2018. The main objective of the policy is to support access to homeownership for credit-worthy low- to middle-income FTBs who are unable to source sufficient funds elsewhere. The scheme, which provides mortgages through all 31 local authorities (LAs), replaced two previous LA programmes: (i) House Purchase Loan and (ii) Home Choice Loan.

The main criteria of the RIHL policy are outlined in Table 2.1. Three loan products were originally offered under RIHL: a 2 per cent fixed-rate loan for up to 25 years; a 2.25 per cent fixed-rate loan for up to 30 years; and a 2.3 per cent variable-rate loan for up to 30 years. The variable-rate product was discontinued in August 2019. Mortgage protection insurance at an additional 0.5550 per cent must be purchased. The policy aims to avoid market distortions by capping the maximum market value of properties that can be purchased at €320,000 for properties in Dublin, Cork, Galway, Meath, Kildare, Wicklow and Louth, and €250,000 elsewhere. These loans are not subject to macroprudential mortgage regulations such as LTI limits. Nevertheless, in contrast to the two programmes it has replaced, the RIHL scheme does set a maximum LTV ratio of 90 per cent, in line with the LTV limits applied by the Central Bank of Ireland (CBI). As the scheme is aimed at low-

and middle-income borrowers, gross income caps of €50,000 (€75,000) for single (joint) applicants are applied. There is no minimum income limit.

2.3.1 Policy description

TABLE 2.1 RIHL POLICY CONDITIONS

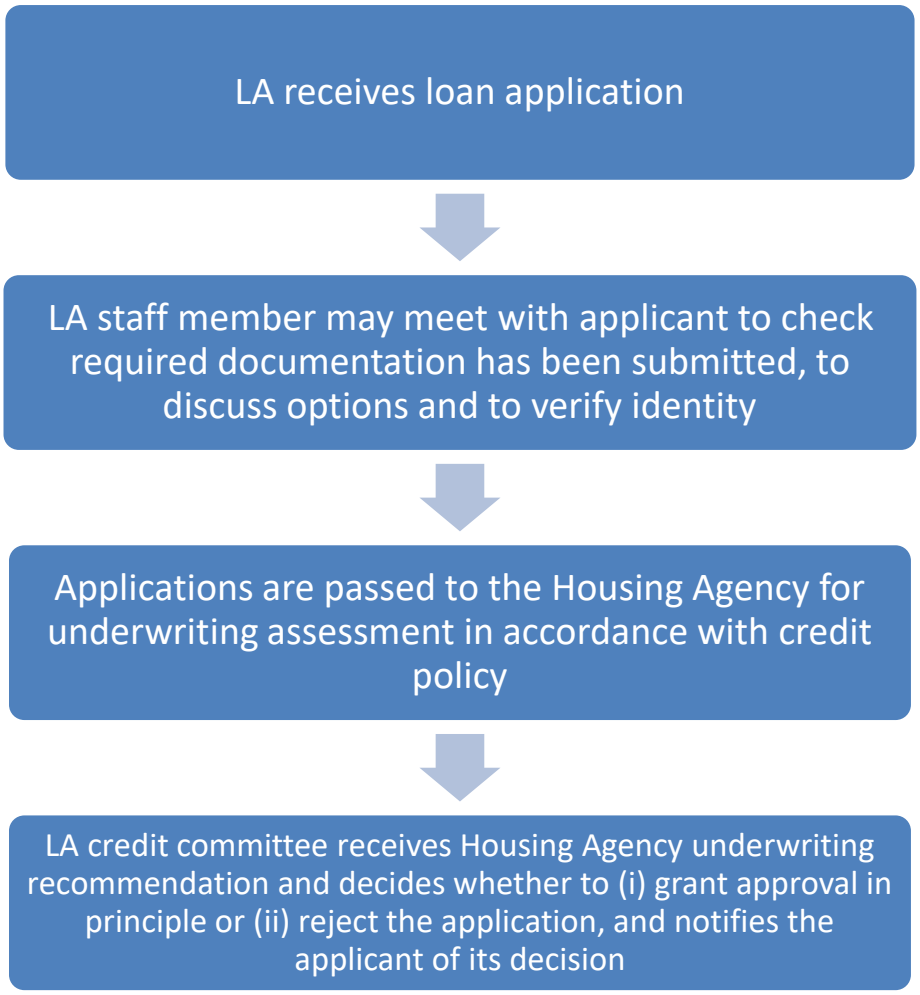
Criteria	
All loans are annuity mortgages including principal and interest (not interest-only mortgages). Three products offered: • 2% fixed for up to 25 years • 2.25% fixed for up to 30 years • 2.3% variable for up to 30 years – this has been discontinued	Loan criteria
Maximum value of the property: • €320,000 for properties in Cork, Dublin, Galway, Kildare, Louth, Meath and Wicklow • €250,000 elsewhere	Loan criteria
Maximum LTV ratio is 90% of the market value of the property so the maximum loan is: • €288,000 for properties in Cork, Dublin, Galway, Kildare, Louth, Meath and Wicklow • €225,000 elsewhere	Loan criteria
Mortgage protection insurance is required	Loan criteria
Applicants must be aged 18–70 years	Applicant criteria
Income limits of €50,000 for single applicants and €75,000 for joint applicants apply	Applicant criteria
Evidence of credible, regular saving over at least the past 12 months. Under the 10% down-payment criteria, gifts are allowable up to 7% of the purchase price, with the remaining minimum 3% coming from evidenced cash savings	Applicant criteria
Applicants must provide evidence of insufficient offers of finance from two lenders	Applicant criteria
Primary earner on the application must have at least 2 years' continuous employment and the second applicant must have at least 1 year's	Applicant criteria
Applicants must not have previously owned residential property either in or outside of Ireland	Applicant criteria
The gross internal floor area of the property must not exceed 175 m^2 and the property must be in good condition.	Property criteria
Repayments should not exceed 35% of net income (unless approved by the local authority credit committee under Exceptions to the Policy in Section 8.4, which states they cannot exceed 40% of net income and these exemptions may not account for more than 10% of cases).	Repayment capacity
Each applicant is subject to a credit check using information provided by the Irish Credit Bureau and, from September 2018 onwards, the Central Credit Register.	Repayment capacity
Variable rate loan repayment capacity is calculated with a 2 percentage point increase in the current interest rate	Repayment capacity

Source: DHLGH RIHL documentation.

Regarding the application process, RIHL applications are submitted directly to the LA in which the applicant wishes to purchase a property. This may not correspond to the LA in which the applicant currently lives. The process from application to notification of the decision is outlined in Figure 2.7. LA officials generally meet with applicants to ensure that all the required documentation has been submitted and to discuss the available loan options. Applications are then passed on to the Housing Agency for underwriting assessment, where qualified underwriters carry out the relevant credit assessment and judgement checks in accordance with the scheme's credit policy, as outlined in Table 2.1. The Housing Agency then returns each application to the relevant LA with a recommendation on whether it is suitable to be approved. The final decision on whether to grant the loan is made by each LA's credit committee,[2] giving consideration to the criteria set out in the credit policy. It may decide to grant approval in principle or to reject, notifying the applicant of the decision.

[2] Credit committees are made up of at least three members, at least one of whom is from the Housing and Finance Divisions at Senior Executive Officer level or above.

FIGURE 2.7 INDICATIVE RIHL APPLICATION PROCESS



Source: DHLGH RIHL documentation

2.4 AN OVERVIEW OF DATA SOURCES USED IN THIS REVIEW

Throughout this review, we draw on a range of data sources to analyse different aspects of the RIHL policy. A detailed overview of all data sources used, the type of data, the time period covered, discrepancies between them and the chapter in which they are used is provided in Table 2.2.

TABLE 2.2 AN OVERVIEW OF DATASETS USED IN THIS REVIEW

Dataset	Type	Period covered	Description	Section
LGMA	Administrative data	Snapshots at February, April, May, June 2019	Data for each LA on the cumulative number of RIHL applications, provisional acceptances by credit committee, drawdowns, live approvals remaining, loans in arrears and numerous other categories not used in this report.	2.5 4.3 4.4 5.2
Housing Agency aggregate data	Administrative data	February 2018–July 2019	Data on the number of applications received for underwriting. These data refer only to applications underwritten by the Housing Agency. Applications are not sent to the Housing Agency for underwriting if they are judged to be incomplete, for example, and some are not processed as they are invalid. The data on the number of approvals are only recommendations and do not refer to those who actually received RIHL loans, as the LA credit committees make the final decisions on whether to extend credit.	4.3
Housing Agency microdata	Administrative loan applicant-level data	February 2018–5 September 2019	Anonymised applicant-level data including the following information: number of borrowers, age, number of dependants, employment status, occupation, income, savings, loan size requested, loan size approved, application status, loan term, loan rate, net income ratio (NIR), reason if application declined. The data contain all applications sent to the Housing Agency for underwriting from 29 of 31 LAs, excluding Meath and Longford. As above, these data are based on applications, not those who actually received RIHL loans, as the LA credit committees make the final decisions on whether to extend credit.	3.3 3.4 4.3 4.4
DHLGH Data Gathering Initiative (DGI) loan-level dataset	Administrative loan-level data	Quarterly drops at June, September, December 2018 and March, June 2019 covering LA loans issued at any time	Loan-level data including the following key information about all LA-issued mortgage loans: amount borrowed, net instalment, last payment (broken out by capital and interest instalments), capital balance, revenue balance, arrears, drawdown date, term, elapsed term, interest rate, fixed/variable, LA, number of borrowers, borrower age. NB: These data do not refer	3.4 4.4

Dataset	Type	Period covered	Description	Section
			solely to RIHL loans. We use the drawdown date and interest rate to determine likely RIHL loans. There are discrepancies with the LGMA aggregate RIHL numbers.	
Economic Sentiment Monitor (ESM)	Household survey sample data	January 2018–February 2019 (monthly)	ESM is a nationally representative household survey conducted by the ESRI which surveys approximately 800 households per month. It includes questions on the economy, savings and investment behaviour, the housing market and questions relating to whether a household wishes to enter the homeownership market and whether they have applied for mortgage finance.	3.2 4.3
Survey on Income and Living Conditions (SILC)	Household survey sample data	For arrears 2014–2017 (annual). Otherwise 2016–2017 (annual).	SILC is a nationally representative household survey. Approximately 4500–5000 households are surveyed annually. The survey includes questions on household income, housing costs, employment, indicators of potential credit risk such as rental and other payment arrears, and a range of other socio-economic indicators.	3.2 3.4 4.4
CBI	Administrative loan-level data	2018–2019	Excerpts from the loan-level mortgage data providing information on numbers of loans in LTI and income bands.	3.3
Property Price Register (PPR)	Administrative data	2018–August 2019	The PPR is a register of all residential properties sold in Ireland and is based on stamp duty declarations to the Revenue Commissioners. The PPR contains information on the sale price, date, new build/existing property, and address of each property sold.	3.4 5.4

2.5 SCHEME ACTIVITY TO DATE: HIGH-LEVEL OVERVIEW

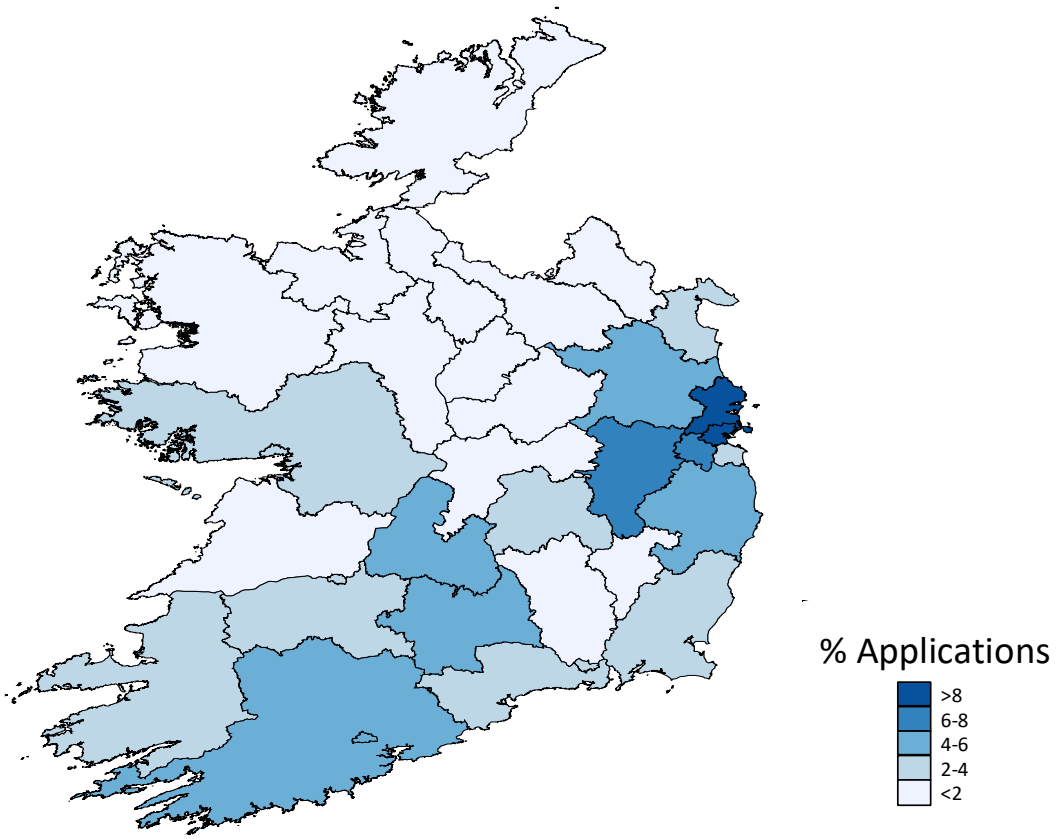
For the purposes of giving a high-level overview of scheme activity, in this section we use data on the total number of RIHL applications made by the end of June 2019. The LGMA provides these data to the DHLGH. As of the end of June 2019, 5488 applications had been made for the scheme, with 2408 applications granted provisional approval and 1021 loans actually drawn down. Our analysis throughout this report using LGMA data is based on data as of the end of June 2019, as these were the most recent data available during the analytical phase of this report.

However, data available as of September 2019 indicate that the number of provisional approvals has risen to 2875, with 1253 loans drawn down.

Figure 2.8 presents the percentage of total applications made in each LA. The largest number of applications has been made in Fingal and Dublin City, followed by South Dublin and Kildare. More generally, the highest numbers of applications are seen in the east and south-west, in the areas containing and surrounding Dublin and Cork. Two-thirds of applications have been made in LAs with the higher €320,000 house price threshold, with the four Dublin LAs accounting for one-third of the total applications. This is unsurprising as affordability pressures are more acute in urban areas, particularly in Dublin and surrounding counties.

While the four Dublin LAs accounted for one-third of applications, Table 2.3 shows that they accounted for 42 per cent of application approvals and 39 per cent of drawdowns. From column 4 in Table 2.3, it is also clear that there is substantial variation in the acceptance rate across LAs, ranging from 19 per cent in Cavan to 90 per cent in Dublin City. There are likely to be several reasons for this: differences in the validity/completeness of applications; variation in take-up of the scheme by LAs; differences in the decisions taken by each LA's credit committee; and how closely they follow the underwriting recommendation from the Housing Agency. This is explored further throughout this review.

FIGURE 2.8 PERCENTAGE OF TOTAL RIHL APPLICATIONS MADE IN EACH LA



Source: LGMA figures for RIHL applications.

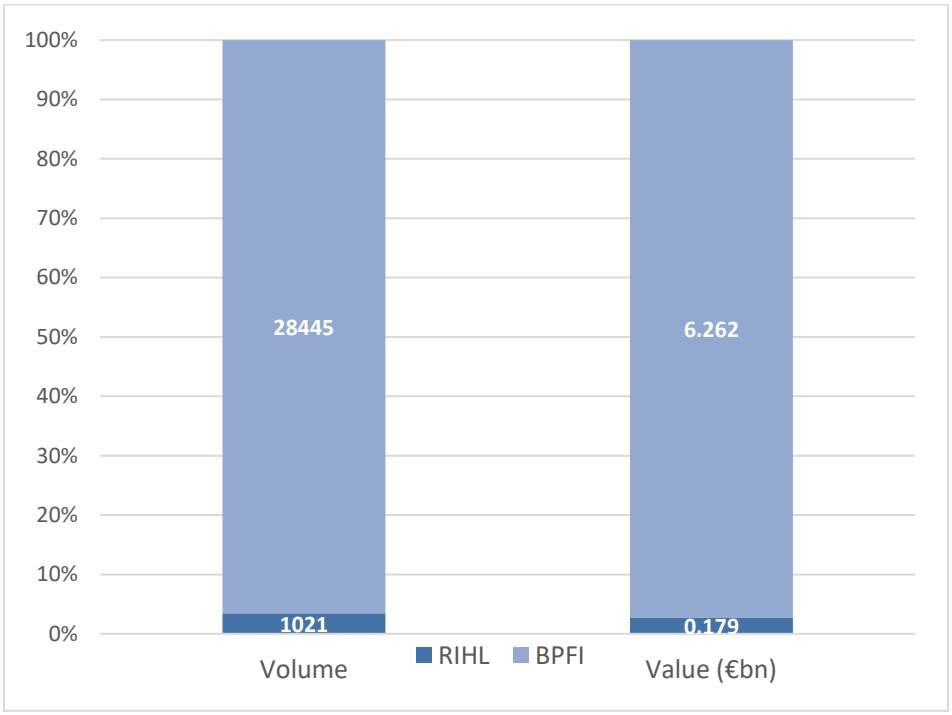
TABLE 2.3 RIHL APPLICATIONS BY LA AS OF JUNE 2019

Local authority	No. applications	No. provisional acceptances	% Acceptances	No. drawdowns	Value drawdowns (€)
Carlow	93	39	41.9	15	1,993,400
Cavan	48	9	18.8	<5	*
Clare	86	40	46.5	24	3,025,760
Cork City	195	66	33.8	7	1,275,400
Cork County	323	178	55.1	68	10,229,786
Donegal	39	24	61.5	10	675,005
Dublin:					
Dublin City	592	533	90.0	210	43,518,631
Dún Laoghaire–Rathdown	143	36	25.2	9	2,078,421
Fingal	723	328	45.4	127	28,320,799
South Dublin	401	117	29.2	55	12,642,453
Galway City	118	43	36.4	19	3,109,955
Galway County	182	49	26.9	35	4,421,856
Kerry	163	51	31.3	14	1,887,920
Kildare	369	73	19.8	42	9,105,522
Kilkenny	51	32	62.7	13	1,765,240
Laois	142	55	38.7	29	3,944,297
Leitrim	18	5	27.8	<5	*
Limerick	198	76	38.4	26	2,981,200
Longford	46	22	47.8	11	683,580
Louth	127	73	57.5	32	5,440,783
Mayo	90	52	57.8	17	1,917,345
Meath	269	144	53.5	79	15,602,930
Monaghan	48	11	22.9	6	393,700
Offaly	70	22	31.4	6	584,207
Roscommon	51	22	43.1	7	632,850
Sligo	55	22	40.0	10	1,091,000
Tipperary	281	56	19.9	26	2,786,316
Waterford	121	39	32.2	24	3,509,479
Westmeath	63	26	41.3	12	1,996,500
Wexford	142	78	54.9	51	5,376,160
Wicklow	241	87	36.1	34	7,277,475
Total	**5488**	**2408**	**43.9**	**1021**	**178,661,239**

Source: *LGMA data on RIHL applications, acceptances and drawdowns.*
Note: ** No. and value of drawdowns not reported individually if number is <5 in an LA. These numbers and values are included in the totals.*

Putting the level of lending under the RIHL scheme into context, Figure 2.9 presents the volume and the value of RIHL loans drawn down relative to total first-time buyer (FTB) drawdowns from regulated mortgage providers from BPFI data 2018–2019Q2. It shows that 1021 RIHL loans at a value of €0.179bn were drawn down relative to 28,445 loans at a value of €6.26bn drawn down from regulated mortgage providers. RIHL has therefore accounted for a very small share of loans issued to FTBs – approximately 3.5 per cent of the number of FTB loans issued between the start of Q1 2018 and the end of Q2 2019 – and 2.8 per cent of the value of loans.

FIGURE 2.9 RIHL LOANS AS A PROPORTION OF TOTAL FTB LENDING (VOLUME AND VALUE)



Source: LGMA figures for RIHL and BPFI figures for FTB loans provided by regulated mortgage providers.

CHAPTER 3

Market demand assessment and policy targeting

3.1 INTRODUCTION

The objectives of this section are fourfold. First we draw on work by Corrigan et al. (2020) to provide an assessment of the level of demand for mortgage credit in the Irish first-time buyer (FTB) market and the potential role for state-backed mortgage credit in meeting the unmet demand for credit. Second, we analyse the profile of borrowers applying for the RIHL scheme and then compare with those accessing mortgage credit through the banking sector to provide evidence that the RIHL scheme aims to target a different segment of the population. Third, we discuss the likely impacts of the scheme on affordability and increasing the stability of borrowers' monthly payments. Finally, we assess the suitability of the current house price and income thresholds of the scheme.

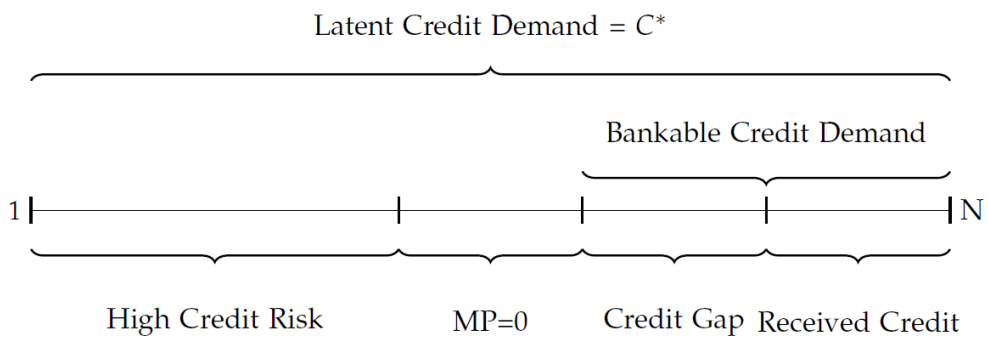
3.2 MICROSIMULATION ASSESSMENT OF MORTGAGE DEMAND

3.2.1 Credit gap

To begin our formal analysis of the level of mortgage demand among FTBs, we draw on the findings of Corrigan et al. (2020),[3] who estimate the latent demand for, and access to, mortgage credit of potential FTB households in Ireland. By combining new Economic Sentiment Monitor (ESM) survey data on the share of households with a demand for homeownership with the nationally representative Irish Survey on Income and Living Conditions (SILC) dataset, they estimate the level of latent, underlying credit demand that could be serviced by the market given prudent credit risk assessment and the current regulatory environment. Comparing this level of demand with the actual level of mortgage credit supplied to FTBs enables them to estimate the magnitude of the current level of unmet mortgage demand in the Irish FTB market.

[3] The figures in Corrigan et al. (forthcoming) are preliminary working figures and are subject to change.

FIGURE 3.1 CREDIT DEMAND FRAMEWORK



Source: Corrigan et al. (2020), Figure 2.

Corrigan et al. (2020) first introduce the concept of bankable credit demand, which they define as the proportion of total latent credit demand that could potentially be serviced under a prudent credit risk assessment policy and current macroprudential regulations. Figure 3.1 provides a graphical depiction. Total latent credit demand can be split into bankable demand and two separate groups of non-bankable demand: those who are inherently high credit risk and those who are constrained by macroprudential regulations and current credit conditions. Of the potentially bankable demand, a certain proportion will receive credit, while the remaining households will not and are classified as part of the credit gap, or unmet demand.

To determine the households who are inherently high credit risk and therefore excluded from the measure of bankable demand, they apply the following criteria: any periods of unemployment for the head of the household; rent, utilities or consumer loan arrears in the past 12 months; current debt[4] is a burden and they face at least one material deprivation indicator[5] or difficulty making ends meet; or they are unable to meet an unexpected expense and they face at least one material deprivation indicator or difficulty making ends meet.

For the remaining households, the authors then test how many households could conceivably be able to borrow to purchase a home under the current wealth (loan-to-value, LTV), income (loan-to-income, LTI) and affordability stress criteria set out

4 Current debt refers to car loans, credit cards and other consumer loans.

5 Material deprivation indicators include: had to go without heating due to lack of money; deprived of two pairs of shoes; deprived of roast joint of meat (or equivalent) once a week; deprived of meal containing meat, fish, or vegetarian equivalent every second day; unable to replace worn-out clothes with new; unable to afford warm, waterproof coat; deprived of ability to keep home warm; unable to replace worn-out furniture; deprived of get-together with friends or family for drink or meal once a month; unable to buy presents for family at least once a year; deprived of a social activity in past two weeks due to lack of money; at least one day in past two weeks where could not have substantial meal due to lack of money.

in the macroprudential regulations of the Central Bank of Ireland (CBI) and the consumer protection code. More specifically, they use data on household income (LTI channel), an estimate of their savings[6] that could be used as a down-payment (LTV channel) and whether in the face of a 2 percentage point increase in the interest rate, they would have sufficient residual income after making mortgage payments to attain their minimum required expenditure (affordability stress test) to calculate three maximum potential house prices that a household could afford. If the lowest of these house prices is above the 25th percentile of the actual transacted house price distribution in their county,[7] they are classified as bankable demand.

In essence, households in the bankable demand category are the households who should be able to obtain a mortgage on the market to purchase a property given the current regulatory environment and their credit risk status. Comparing this level of demand to the actual level of supply in the market can provide an estimate of the credit gap. The gap can occur due to three factors: (a) bank rejections; (b) borrower discouragement; and (c) the flow rate of how households turn mortgage demand into a housing market transaction. The last of these can arise due to households' inability to find a property or other market search frictions.

3.2.2 Measuring bankable demand

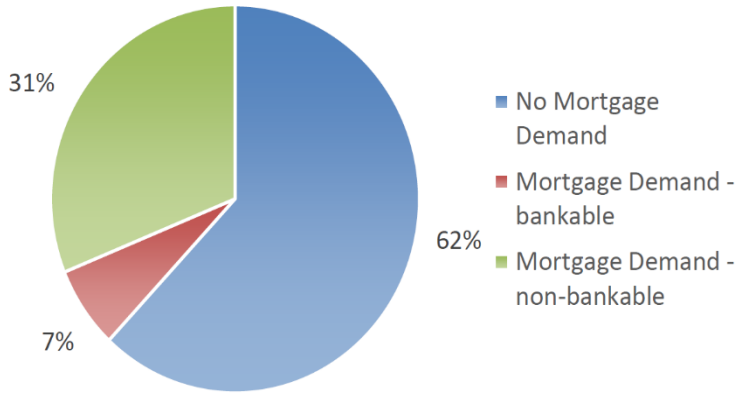
Summarising Corrigan et al.'s (2020) main findings in the context of the rental sector[8] as a whole, Figure 3.2 shows that 7 per cent of the current rental market have bankable mortgage demand, with a further 31 per cent of rental households considered to have non-bankable demand, either due to being high credit risk or due to having an insufficient down-payment (LTV), having an insufficient income (LTI) or failing the affordability stress test. These estimates refer to the stock of households with potentially serviceable mortgage demand; it is unlikely that all these households would actually attempt to obtain credit during any one year. If all the households in this estimate were to come forward for lending simultaneously, this would imply an approximate doubling of the number of mortgage loans currently granted.

6 See Corrigan et al. (2020), Section 3.2.3.1 for the methodology used to calculate this.

7 This condition is necessary to ensure households could purchase a property given current house prices. The authors explain that they use house prices at the 25th percentile for each county because Gaffney (2018) shows that the vast majority of sales below that point of the house price distribution are made by cash and institutional investors; approximately 95 per cent of properties at the 10th percentile and 80 per cent of properties at the 20th percentile, with very low levels bought by FTBs.

8 In their analysis Corrigan et al. (2020) include all households currently living in the private rental, LA rental and rent-free sectors.

FIGURE 3.2 PROPORTION OF RENTAL SECTOR WITH BANKABLE DEMAND



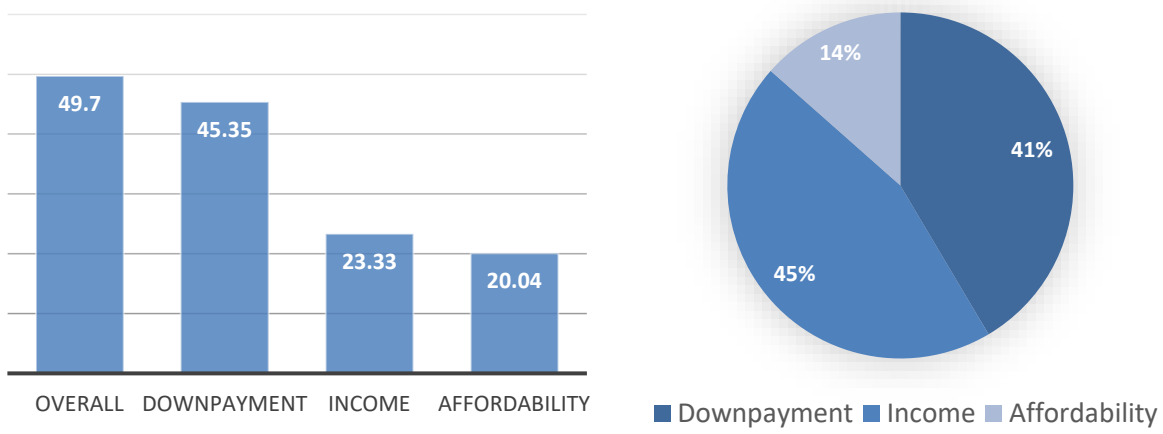
Source: Authors' calculations

3.2.3 Understanding credit access issues

This framework can be used to explore which specific issues are limiting households from accessing the mortgage market of the following: (a) sufficient income (LTI), (b) sufficient deposit (LTV), (c) sufficient affordability (stress test). By excluding the households with high credit risk status, we can understand the relative magnitude of these channels.

Figure 3.3(a) shows that half of non-high credit risk households with a demand for mortgage credit are unable to access sufficient credit under the prevailing market and macroprudential regulations, and are therefore excluded from the measure of bankable credit demand. The vast majority of these households are unable to access credit due to having an insufficient down-payment for a property. Approximately a quarter of households have insufficient income, while one-fifth would fail an affordability stress test. Figure 3.3(b) shows that for non-high credit risk households with a demand for mortgage credit, the maximum house price they could afford is most commonly restricted by their income (45 per cent), followed by the down-payment (41 per cent). This illustrates the dual issues faced by many prospective homeowners: the majority face difficulties in raising a sufficient deposit, while many of those who overcome this challenge are then faced with constraints on the amount they are able to borrow due to their income.

FIGURE 3.3 PERCENTAGE OF NON-HIGH CREDIT RISK HOUSEHOLDS WITH MORTGAGE DEMAND



(a) Reason unable to access credit (b) Factor determining maximum house price

Source: *Constructed from Tables 6 and 7 in Corrigan et al. (2020) using SILC and ESM data and the method described in this section of this report.*

Note: *The reasons households are unable to access credit are not mutually exclusive, i.e. a household may face more than one reason.*

3.2.4 Providing an aggregate estimate of the credit gap

In order to obtain an aggregate estimate of the annual unmet mortgage demand, Corrigan et al. (2020) compare Banking and Payments Federation Ireland (BPFI) data on actual new mortgage approvals for FTBs with three scenarios for the rate at which households actually come forward to turn latent credit demand into realised credit demand. The three scenarios allow 10 (low), 30 (medium) and 50 (high) per cent of households to realise their credit demand in a particular year. The middle scenario of 30 per cent is based on the application rate observed in the ESM data.

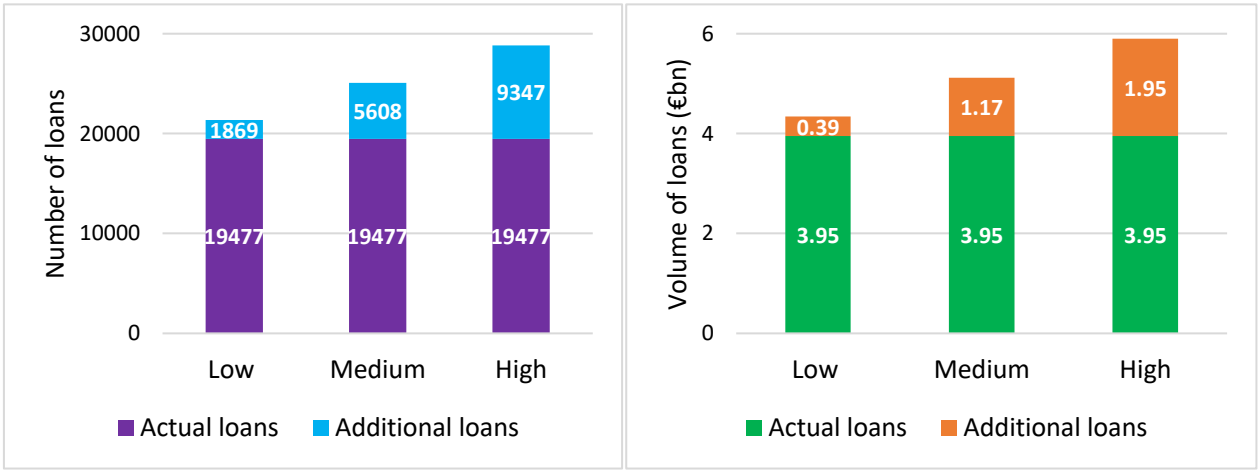
These estimates indicate that, depending on the rate at which households actually realise their credit demand, 2000–9000 additional new loans could be approved on an annual basis (Figure 3.4(a)), at a value of €0.4–1.95bn (Figure 3.4(b)). It is important to note at this stage that the magnitude of estimated unmet demand for mortgage credit is sensitive to the assumptions made. The authors make fairly strict assumptions throughout to avoid imprudent lending, leading to conservative estimates of unmet mortgage demand. Loosening any of these credit risk criteria, or for example allowing households to purchase houses below the 25th percentile of the house price distribution, would increase the estimated level of unmet demand. Indeed, in a sensitivity check, the authors allow households to purchase properties at or above the 10th percentile of the house price distribution.[9] This would suggest that the credit gap would increase to 7766 in the middle scenario

[9] See Table A.1 in Appendix I.

from 5608, with an increase to 4125 in the number of loans that RIHL could account for relative to 3489 in the baseline estimates. Full details are presented in Appendix I.

One important point to note about the SILC data used in Corrigan et al. (2020) is that SILC is a household survey and therefore only captures existing rental households. Their estimates will therefore not capture demand from those yet to form an independent household, such as those living with family while trying to save for a down-payment. These estimates of excess demand for mortgage credit among current renters can therefore be thought of as a lower bound in terms of the current credit gap for all potential FTBs. Nevertheless, regardless of the precise magnitude, Corrigan et al.'s findings clearly demonstrate that there is considerable excess demand for mortgage finance that could be serviced under prudent credit risk assessment, relative to the level of credit actually supplied in the Irish FTB market at present. A visual overview of the key steps in Corrigan et al.'s microsimulation model is provided in Figure 3.5.

FIGURE 3.4 NUMBER AND VALUE OF POTENTIAL ADDITIONAL LOANS TO SERVICE UNMET BANKABLE DEMAND

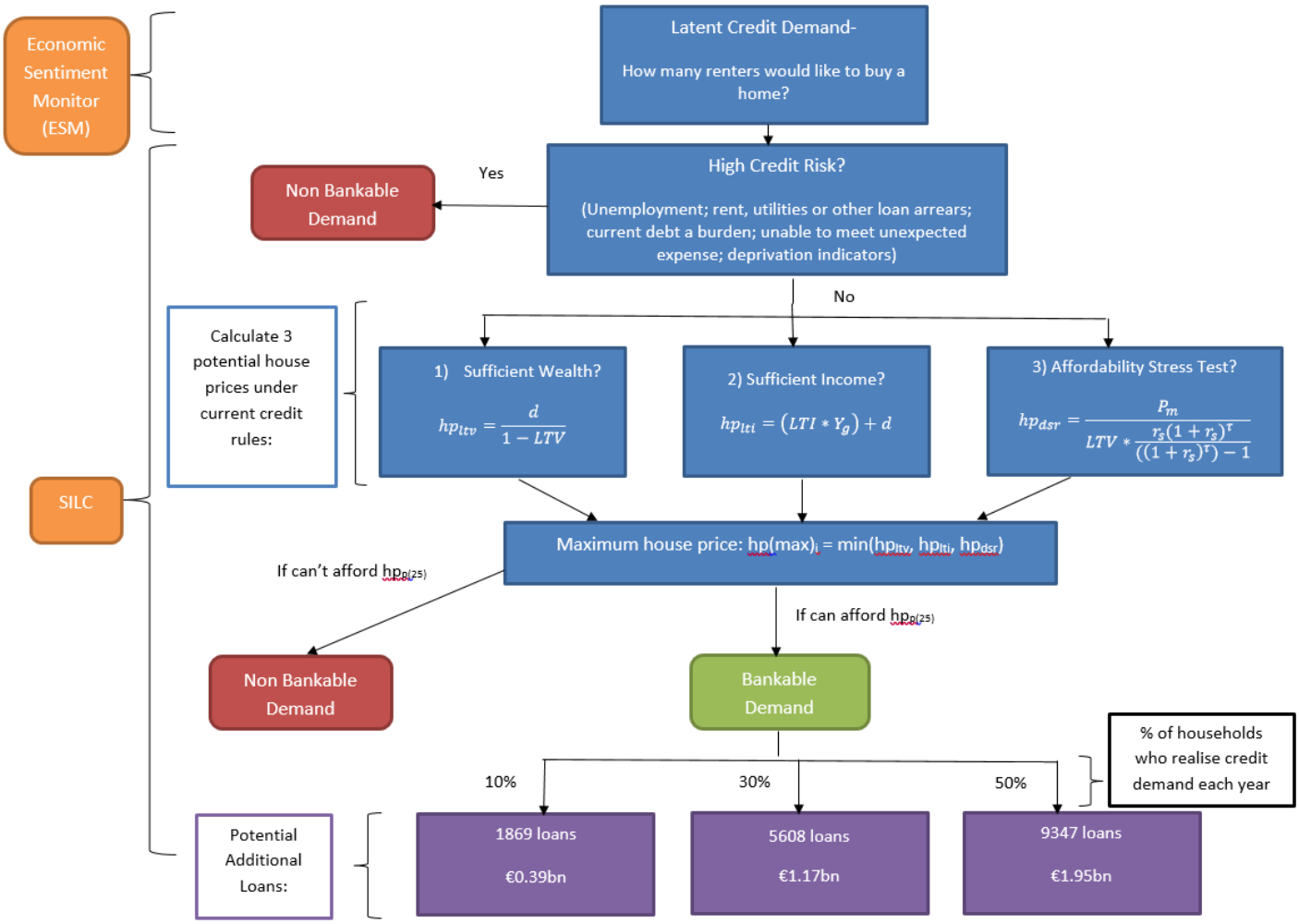


(a) Number of loans

(b) Loan value (€bn)

Source: Corrigan et al. (2020), Figure 3.

FIGURE 3.5 VISUAL OVERVIEW OF CORRIGAN ET AL.'S MICROSIMULATION MODEL



Source: Authors' creation based on Corrigan et al. (2020).

3.2.5 Role for RIHL to address credit gap

Having documented the existence of a considerable unmet underlying demand for mortgage credit in the Irish FTB market, Corrigan et al. (2020) explore whether an instrument such as RIHL could potentially address a portion of this unmet demand. The authors perform a microsimulation exercise where they approximate the current parameters of the scheme and then estimate how many households could be eligible for the RIHL. In practice, the RIHL scheme removes the maximum 3.5 loan to income ratio and the need for an affordability interest rate rise stress test as they focus on the 30 year fixed-rate option. Eligibility criteria for incomes, age and the maximum permitted house prices are applied in line with the current parameters of the scheme. The 90 per cent LTV and credit risk assessment remain

unchanged. Loans whose repayments are above 35 per cent of net monthly income are restricted to fewer than 10 per cent of the group total.[10]

The results of this preliminary analysis are presented in Table 3.1.[11] Their estimates show that between 1163 and 5815 households could be eligible for RIHL on an annual basis, depending on the rate that households actually realise their credit demand. This corresponds to an implied total loan value of between €200m and €0.98bn. It must be noted that if the intervention was to be at the higher end of the estimates in a calendar year, this would likely have an impact on house prices. A more formal assessment should be undertaken to explore this in more detail.

TABLE 3.1 ESTIMATED RIHL LOAN ELIGIBILITY

	Demand flow rate		
	10%	30%	50%
Implied RIHL loan numbers	1163	3489	5815
Implied additional value loans (€bn)	0.20	0.59	0.98
Implied RIHL drawdowns	930	2791	4652
Implied value of drawdowns (€bn)	0.156	0.468	0.78

Source: Corrigan et al. (2020), Table 12.

3.2.6 Cross-over between RIHL and Help to Buy Scheme

The findings of Corrigan et al. (2020) that households face both income and equity constraints suggest that separate policies covering loan availability and deposit supports are merited. A thorough comparison of the RIHL and Help to Buy (HTB) schemes, the cohorts they target and their relative merits is outside the scope of this report. As Corrigan et al. (2020) find more households face down-payment constraints, it is not surprising that more households have accessed the HTB scheme relative to RIHL: 13,955 HTB claims were approved between July 2016 and August 2019, compared to 1957 (1021 drawdowns plus 936 live approvals) for the RIHL in the shorter period of February 2018 to June 2019. While there may be some cross-over between the two schemes, the parameters of the respective schemes would suggest they aim to target different borrower types. The RIHL is specifically targeted at low- to middle-income households, while HTB has no income limits.

[10] Corrigan et al. (2020) note that it is not possible to 100 per cent approximate all the credit conditions of the actual RIHL scheme given the SILC data. Instead they attempt to mirror the conditions with proxies and overlay this with conditions that can be well matched. For example, throughout the paper, Corrigan et al. (2020) abstract from other costs such as mortgage or house insurance that borrowers must also incur and focus solely on the repayment. In the case of RIHL, this means that the mortgage protection insurance (MPI) cost of 0.555 per cent is not included in the repayment analysis. If this was to be included, it would reduce the number of households who would be eligible for the scheme. Some other explicit differences are discussed in the paper.

[11] The figures in Corrigan et al. (2020) are preliminary working figures and are subject to revisions and changes.

Given the generally large house prices of HTB borrowers (Parliamentary Budget Office, 2019), the HTB scheme would broadly appear to target households higher up the income distribution who lack the required down-payment.

Due to data gaps, it is not possible to quantify the actual level of cross-over between the HTB and RIHL schemes i.e. people accessing both schemes. Department of Housing, Local Government and Heritage (DHLGH) data on the number of local authority (LA) loans drawn down by property type indicate that only 13 per cent of these loans were for new properties during 2018 and 2019Q1. It must be noted that these figures do not refer specifically to RIHL borrowers. Nevertheless, as HTB is only available to borrowers purchasing new properties, the DHLGH numbers on new-build drawdowns provide an indication of the maximum number of borrowers who could have potentially accessed both schemes simultaneously. This would suggest that the number of cross-overs is likely to be small.

From an economic perspective, there is no reason why households facing both down-payment and income constraints should not be able to access both schemes simultaneously. Under the 10 per cent down-payment criteria of the RIHL scheme, gifts are allowable up to 7 per cent of the purchase price, with the remaining minimum 3 per cent coming from evidenced cash savings. Under the HTB scheme, borrowers can claim a tax rebate to the value of 5 per cent of the property price towards a deposit. All else being equal, a household raising 5 per cent of its deposit from HTB would not be expected to have a higher credit risk than a household raising 7 per cent of its deposit from a family gift. Allowing a crossover between the two schemes may, therefore, allow borrowers who do not receive gifts from family to access the RIHL scheme and subsequently homeownership.

3.3 APPLICANT PROFILE, PAYMENT PREDICTABILITY AND AFFORDABILITY

RIHL aims to support access to homeownership for credit-worthy low- to middle-income FTBs who are unable to source sufficient funds elsewhere. The aims of this section are fourfold. First, we use microdata provided by the Housing Agency[12] to document the characteristics of applicants to the scheme. Second, we demonstrate that households accessing the scheme are typically not served by the commercial mortgage market and highlight the need for RIHL in addressing this. We do this by looking specifically at the characteristics of households who received exemptions to the macroprudential LTI limits and compare these with the profile of those approved under the RIHL scheme to show how RIHL targets a different

[12] The Housing Agency microdata contain information on all applications sent to the Housing Agency for underwriting. These data were provided for all LAs with the exception of Meath and Longford. All analysis using these data in this report is therefore based on 29 of the 31 LAs.

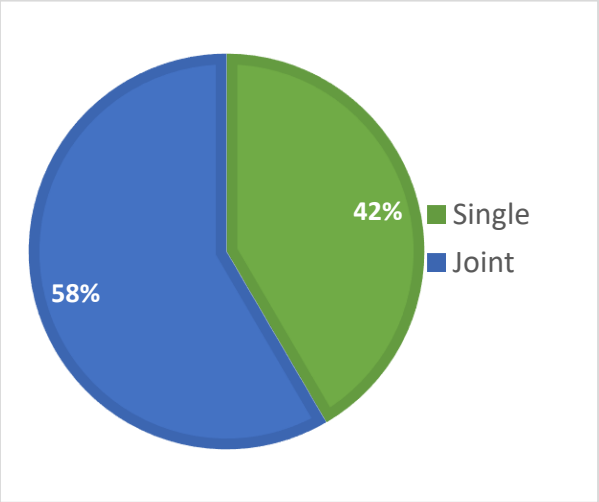
subset of the population. Third, we discuss the predictability of payment provided by long-term fixed-rate loans. Finally, we analyse the expected impacts on affordability for borrowers accessing the RIHL scheme.

3.3.1 Applicant profile

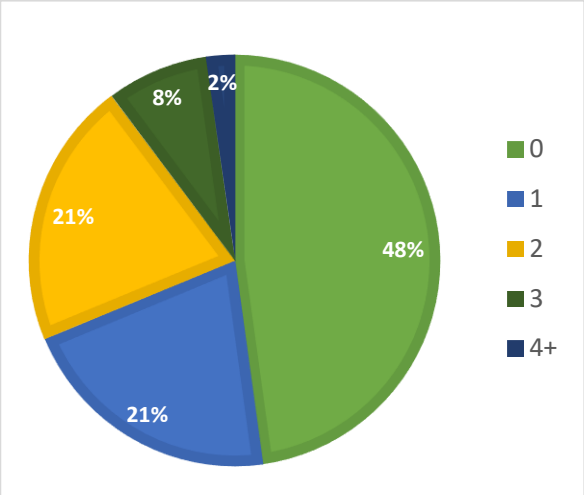
One of the major challenges associated with RIHL is to ensure that it is targeted at the most appropriate borrowers. In this section, we explore the characteristics of all applicants, regardless of whether their application was successful, to assess where the demand for the scheme is coming from.

FIGURE 3.6 PERCENTAGE OF SINGLE AND JOINT RIHL APPLICATIONS AND NUMBER OF DEPENDANTS

(a) Joint v single

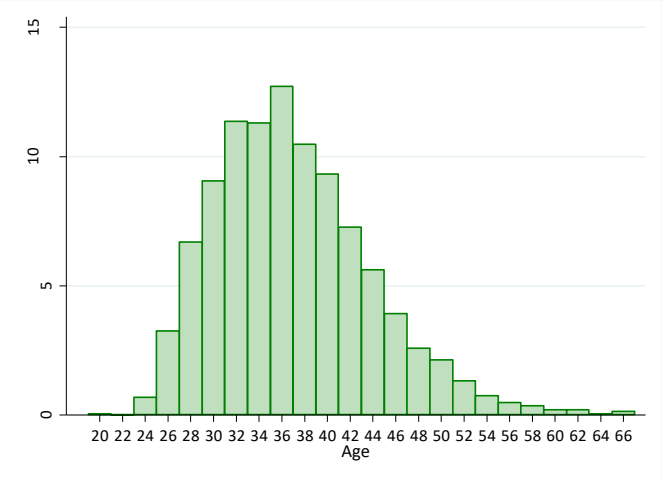


(b) No. of dependants



Source: Housing Agency microdata.

FIGURE 3.7 AGE DISTRIBUTION OF RIHL APPLICANTS

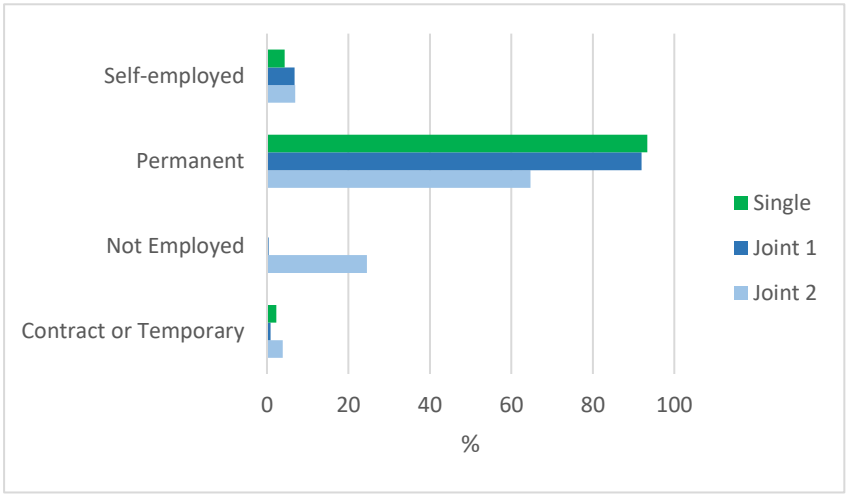


Source: Housing Agency microdata.

Just over 40 per cent of applicants are single applicants (Figure 3.6(a)), with just under half of applicants having no dependants, two-fifths having one or two, and 10 per cent having three or more (Figure 3.6(b)). The average age for an applicant is 36. Unsurprisingly, the highest number of applications came from applicants aged in their 30s, but a significant number also came from those in their mid-40s upwards (Figure 3.7). Regarding employment status, Figure 3.8 shows 93 per cent of single applicants are on a permanent contract with a further 4 per cent self-employed and 2 per cent on contract or temporary employment. Similar figures are evident for the primary applicant on joint applications. In addition, 65 per cent of the second applicants are in permanent employment, 7 per cent are self-employed and 25 per cent not in employment.

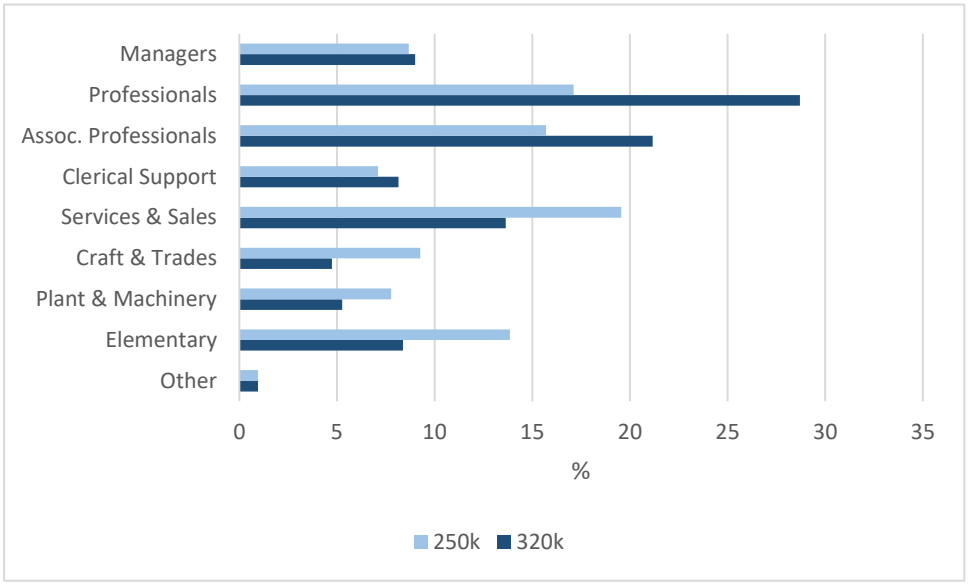
In terms of occupation, Figure 3.9 highlights significant differences between applicants in urban (€320,000 house price threshold including the greater Dublin area (GDA), Cork and Galway) and non-urban (€250,000 house price threshold) areas. In urban areas, 50 per cent of applicants are in professional or technical and associate professional occupations, compared to just over 30 per cent in non-urban areas. Traditionally, credit demand from those in professional occupations would have been served by the banking sector. Previous work (Corrigan et al., 2019; Allen-Coghlan et al., 2019) shows that there are acute affordability challenges in urban areas, particularly in and around Dublin. The high numbers of professionals in urban areas accessing the scheme is likely to be a reflection of this. Instead, there are higher shares of applicants working in services and sales, trades, plant and machinery and elementary occupations in non-urban areas. These differences imply that there may be substantial differences in the pool of borrowers in different LAs. The credit risk implications of this will be discussed in Section 4.4.

FIGURE 3.8 RIHL APPLICANT EMPLOYMENT STATUS BY NUMBER OF LOAN APPLICANTS



Source: Housing Agency microdata.

FIGURE 3.9 RIHL APPLICANT OCCUPATION BY €320,000 AND €250,000 HOUSE PRICE THRESHOLD AREAS

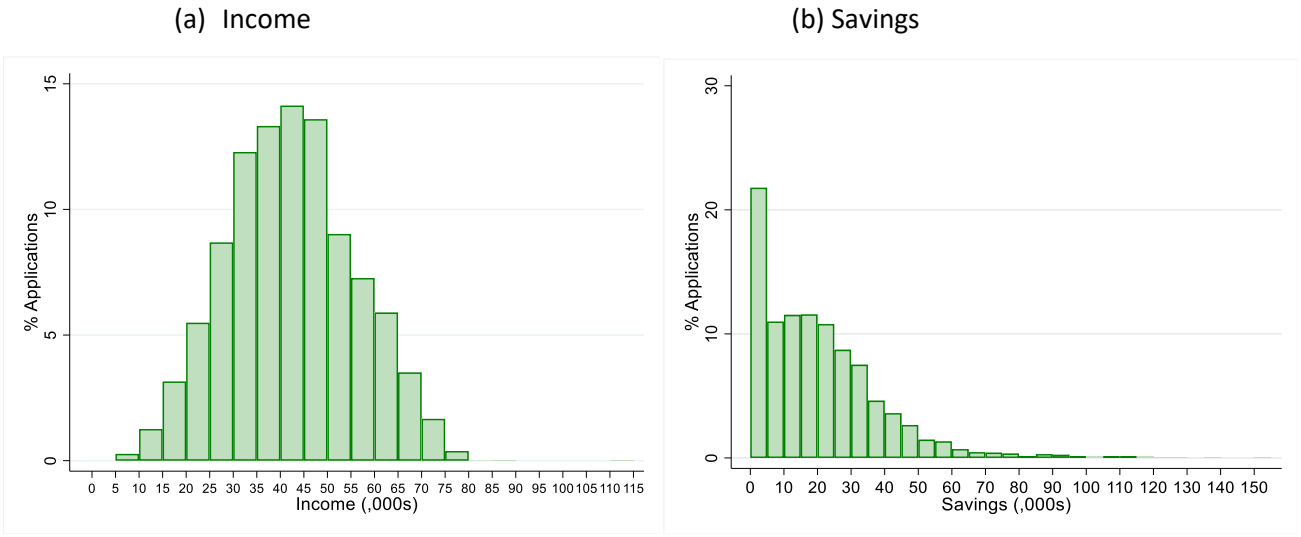


Source: Housing Agency microdata.
Note: For joint applicants, occupation refers to applicant 1. €320,000 house price threshold LAs in the data are: Dublin City, Dún Laoghaire–Rathdown, Fingal, South Dublin, Kildare, Wicklow, Louth, Cork City, Cork County, Galway City and Galway County. All other LAs are €250,000 house price threshold areas.

Turning to income, the mean gross income of applicants to the scheme was €42,229. Figure 3.10(a) shows that the income distribution follows a normal distribution, with more than half of applicants having incomes in the range of €30,000–50,000. Only 12 per cent of applicants had an income greater than €60,000. On the other hand, a sizeable 20 per cent share of the applicants had an income of €30,000 or below. Figure 3.10(b) plots the distribution of applicant savings. These are the documented level of savings in an applicant's savings account. They do not contain any potential gift an applicant may receive towards

a down-payment unless this has already been gifted. The mean savings amount was €20,587, but more than 20 per cent of applicants only had between 0 and €5000 in documented savings.

FIGURE 3.10 GROSS RIHL APPLICANT INCOME AND SAVINGS DISTRIBUTIONS

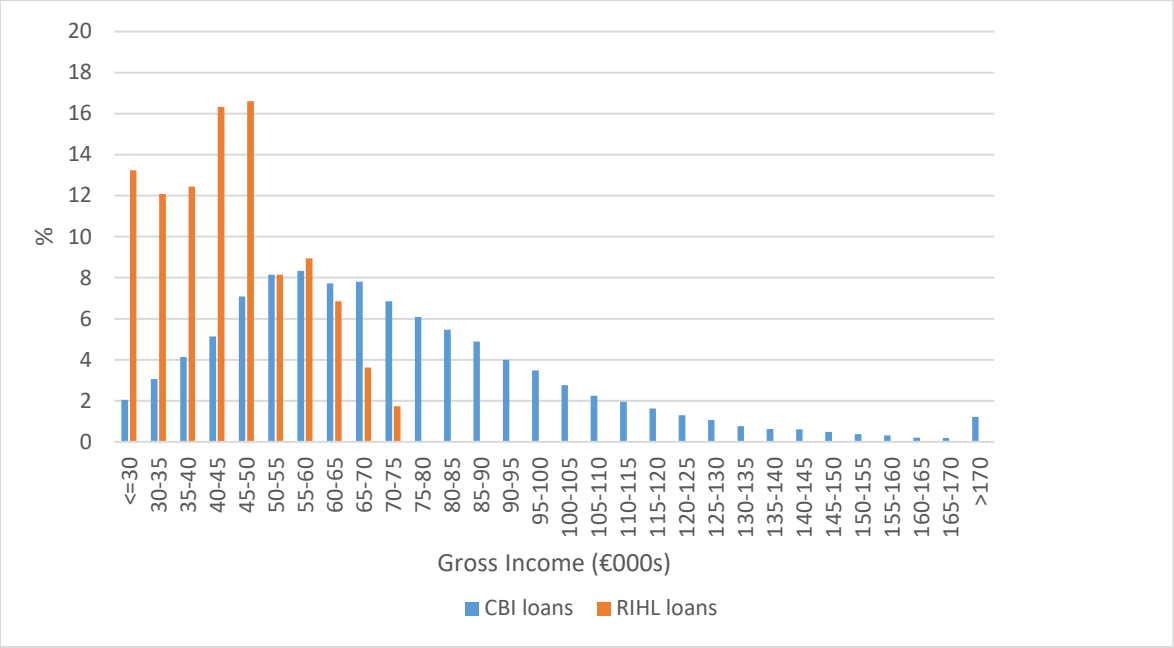


Source: *Housing Agency microdata.*
Note: *All valid applications. Savings do not necessarily include gifts: this is what has been documented in their savings account. Savings are not the same as deposit.*

3.3.2 Comparison with commercial market

The RIHL scheme aims to target a portion of the market currently underserved by the banking sector. Therefore, a critical issue in terms of ensuring the appropriateness of the scheme is to document the type of households using the scheme and ascertain whether such households are underserved by the market. To do this, in this section we compare some key borrower and loan characteristics for RIHL against those of borrowers who obtained mortgage finance from the banking sector. The previous section documented the characteristics of all applicants to the scheme. In this section we instead focus only on applications recommended for approval as we wish to compare those approved for mortgage finance in the banking sector with those approved for the RIHL scheme.

FIGURE 3.11 PERCENTAGE OF COMMERCIAL MARKET AND RIHL MORTGAGE LOAN APPLICATIONS BY GROSS INCOME BAND



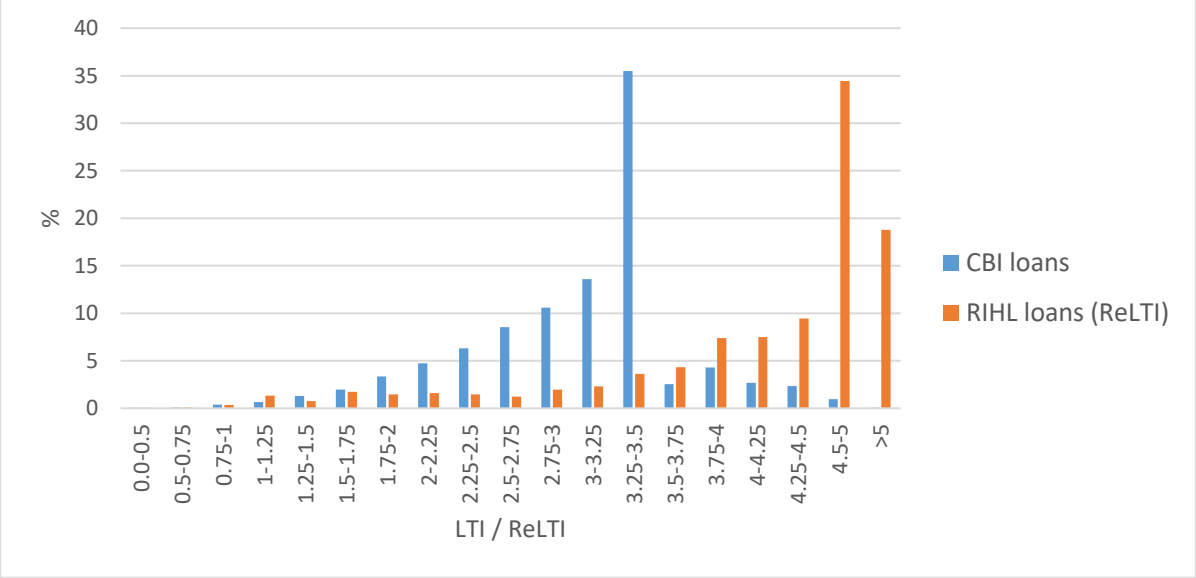
Source: Income data from the CBI loan-level data (commercial market) and the Housing Agency (RIHL)). The Housing Agency data relate to all applications recommended for approval by the underwriters, rather than the borrowers who have actually received RIHL loans. CBI data are for 2018; Housing Agency RIHL data are for February 2018 to July 2019.

Figure 3.11 presents a comparison of the share of RIHL approved applications and commercial loans issued by gross income bands using data from the Housing Agency and CBI. It clearly shows that commercial loans tend to serve those in the upper part of the income distribution, while RIHL applications are much more highly concentrated towards the lower end of the income distribution. Indeed, approximately 80 per cent of loans made in the commercial market were to households earning in excess of €50,000, while over 70 per cent of approved RIHL mortgage applications were from applicants earning €50,000 or below. While there is some cross-over between the two loan sectors in the middle of the income distribution, this is likely due to differences across geographical areas. Indeed, Figure 3.19 in Section 3.4 clearly shows that the distribution of RIHL applicant incomes for those in the urban areas (maximum house price of €320,000) is quite distinct from and higher than for those in non-urban areas with the lower €250,000 house price thresholds. Figure 3.11 provides a clear indication that the RIHL scheme is targeted at a different segment of the population to those accessing loans through the banks.

One of the suggested constraints potential borrowers face in accessing credit from the market is the 3.5 maximum LTI limits set under the macroprudential regulations. Indeed, Figure 3.12 illustrates that most RIHL borrowers exceed the 3.5 LTI, with one-third of approvals having a requested loan-to-income ratio (ReLTI) of 4.5–5 and a further 20 per cent of ReLTIs exceeding 5. The credit risk implications

of these ratios will be discussed in Section 4.4.

FIGURE 3.12 PERCENTAGE OF CBI MORTGAGE LOANS AND RIHL MORTGAGE LOAN APPLICATIONS BY LTI RATIO BAND



Source: *Housing Agency and CBI.*
Note: *CBI figures refer to actual LTIs for loans drawn down in the commercial market, whereas Housing Agency figures refer to ReLTIs based on approved loan size for all valid applications received by the Housing Agency for underwriting and recommended for approval.*

One way in which lower- to middle-income households could potentially still access the homeownership market through the commercial loan sector is to be granted an LTI exemption. Under the current macroprudential regulations, up to 20 per cent of FTBs can be granted an LTI exemption by commercial banks.

Kinghan (2018) compares both the loan and borrower characteristics of FTBs who received and did not receive an LTI exemption in the first half of 2018. These findings are reproduced below in columns 2 and 3 of Table 3.2. The first thing to note is that the mean income of households receiving an LTI exemption is in fact slightly higher than for those without an exemption, and at just under €75,000 is virtually at the maximum income threshold for a couple under the RIHL scheme. Secondly, the mean house price for those granted an exemption is €371,000, well above the maximum €320,000 threshold for urban areas. In part these differences are likely to be explained by regional variation, with Dublin accounting for a 28 per cent share of borrowers among those without exemptions, but a much larger 67 per cent share of those granted an exemption.

In column 4 of Table 3.2 we provide a comparison with RIHL applications recommended for approval. The estimated mean income and mean loan size for RIHL borrowers are approximately only 60 per cent of the levels of those currently receiving LTI exemptions. In addition, the lower proportion of joint applicants

shows that RIHL is attracting more single earner households, who are particularly likely to face challenges entering homeownership in the commercial market. These figures highlight that households currently receiving exemptions from the LTI limits in the commercial sector tend to be relatively higher income households with relatively larger loan sizes. The RIHL is clearly targeting a different segment of the market relative to the banking sector, even those who obtain LTI allowances.

TABLE 3.2 A COMPARISON OF CHARACTERISTICS OF FTB BORROWERS WITH AND WITHOUT LTI EXEMPTION 2018 H1 WITH RIHL APPLICATIONS

Characteristic	Without	With	RIHL
Mean gross income (€)	72,991	74,590	44,188
Mean loan size (€)	201,433	288,891	188,076
Mean house price (€)	269,094	371,378	–
Mean LTI	2.9	4.0	4.3*
Mean interest rate (%)	3.1	3.1	2.2
Mean loan term	29	32	27
Mean age	35	33	36
Joint applicants (%)	72.2	62.6	56.7
Dublin (%)	28.2	66.6	44.6

Source: *Figures taken from Kinghan (2018), Table 7.*
Note: *RIHL figures refer to all approved applications. * ReLTI. RIHL house price data are not available because the Housing Agency microdata are application data and this field is therefore frequently incomplete and in any case does not refer to the actual purchase price.*

In summary, this section has provided clear evidence that RIHL targets a distinct portion of the population relative to those able to access mortgage finance through the banking sector, even compared with those granted an LTI exemption from the macroprudential regulations. This suggests that borrowers accessing the RIHL scheme are currently underserved by the commercial sector.

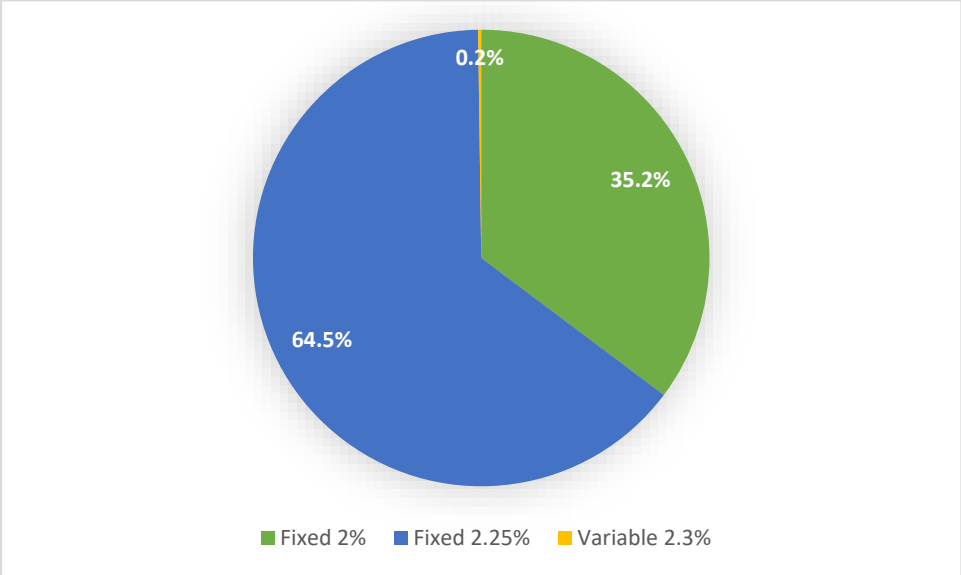
3.3.3 Payment predictability and affordability assessment

Payment predictability

One of the aims of RIHL is to provide a sustainable and predictable repayment basis for borrowers. Regarding predictability of payment, it is helpful to draw on the work of Slaymaker et al. (2019), who examine the implications of interest rate rises on Irish households' ability to repay their mortgages. They find that younger and low-income households would be most at risk of falling into arrears on their mortgage repayments as a result of an increase in interest rates. Drawing on this work, Fahy et al. (2019) note that in contrast to many other countries, in Ireland no loans are offered by mortgage lenders with a fixed rate for the duration of the mortgage term. While long-term fixed-rate loans are not suitable for all borrowers,

they conclude that the provision of such loans would be advantageous for those most at risk of falling into arrears due to rises in interest rates. In particular, at-risk borrowers, such as those on low incomes, would benefit from the certainty around their repayment levels provided by long-term fixed-rate loans.[13]

FIGURE 3.13 PERCENTAGE OF APPROVED RIHL APPLICATIONS BY INTEREST RATE TYPE



Source: Housing Agency microdata.

Accordingly, the fixed interest rate option for the duration of the loan provided by the RIHL scheme removes any concerns over future payment fluctuations by offering stable monthly mortgage payments across the lifetime of the loan. Housing Agency data for applications recommended for approval shows a roughly two-thirds to one-third split between the 30 year 2.25 per cent fixed rate and the 25 year 2 per cent fixed-rate options, with only 0.2 per cent of applicants choosing the variable rate. In August 2019 the 2.3 per cent variable rate up to 30 year loan term option was removed. Given the intended target cohort and the aim to provide payment predictability, this decision to only offer fixed-rate products seems sensible.

Affordability

Regarding affordability, Corrigan et al. (forthcoming) compare the prospective mortgage payment to net income ratio with the proportion of net income currently spent on rent for households they determine to be eligible for RIHL. They show that the proportion of income spent on housing payments would fall from a mean of 22.4 per cent to just under 20 per cent if households were to transition from

[13] Similar conclusions regarding the potential benefits of long-term fixed-rate loans for the UK market are presented in the Miles (2004) report.

renting to owning under the RIHL scheme, therefore improving affordability. It is, however, important to note that they show that those eligible for an RIHL loan already have considerably lower rent to income ratios compared to those who are considered to have non-bankable demand, and those who are high credit risk or are bound by the macroprudential regulations, who pay on average nearly 28 per cent of their income on rent. RIHL is intended to be a small, focused scheme in the broader context of the overall housing market. Corrigan et al.'s findings suggest that households in the scheme are likely to benefit from some improvement to affordability, but those facing the greatest affordability challenges are likely to be those ineligible for RIHL who require alternative tenures.

More generally, given the RIHL scheme parameters discussed above, it is very clear that the lower interest rate and ability to borrow higher multiples of income can provide more affordable mortgages, and increase credit access relative to funds available in the private market. It is also likely that, given the rent levels in many areas, borrowers who would otherwise have to obtain a new property in the rental sector would be better off under home purchase with the RIHL scheme. To illustrate this, we leverage the work of Allen-Coghlan et al. (2019) and calculate the average instalment for a typical FTB who purchases the average-priced FTB property in each county. We calculate this using the interest rate for the RIHL loans and the commercial loan market for a standard 30 year mortgage. We use the 30 year fixed-rate comparison for the RIHL loan. We then use the FTB income levels estimated in Allen-Coghlan et al. (2019) to calculate an illustrative rent-to-income ratio, and debt-service-to-income ratio for RIHL loans and commercial loans.

The results are presented in Table 3.3 using 2018 data. It is clear that the repayment for purchase is lower under RIHL relative to the market and the rental sector. On average across all 26 counties, the payments are approximately 20 per cent lower than the new market rents[14] or *c.*€130 per month. The repayment-to-net-income ratios are on average 4 percentage points lower for households using the RIHL to purchase the average FTB property relative to renting the average dwelling. It must be noted that this average assessment does not control hedonically for property types that would impact house prices and, although the rents are modelled hedonically, if structural differences between the rental and purchase sector stock are evident in some counties, this may explain some of these differences.

[14] These figures are based on RTB rental data for new market rents. Calculations by Corrigan et al. (2020) reproduced in Table 6 use SILC data on current rents paid. Rents reported in SILC are lower than those for new market rents reported by the RTB. This is unsurprising as the SILC data refer to a rental price set when that tenancy was agreed and there has been significant rental price inflation in recent years, meaning the prices a renter would currently face if they were to begin a tenancy now would be higher. While the magnitude of the effect differs according to the rent measure used, both measures indicate having an RIHL loan relative to paying rent should provide a significant improvement in affordability.

It is also noteworthy that in the areas with the highest house prices, it is clear that the borrowers would be unable to access credit without an exemption from the macroprudential LTI limit which does not apply to RIHL loans. The RIHL does carry a 35 per cent debt-service to income (DSTI) ratio limit, which is close to the indicative figures in Dublin and Wicklow.

TABLE 3.3 ILLUSTRATIVE COMPARISON OF RENTAL, RIHL AND COMMERCIAL MORTGAGE HOUSING COSTS

County	Monthly rent (RTB/ESRI) (€)	Monthly RIHL instalment* (€)	Monthly commercial instalment (€)	LTI	Possible under CBI rules	RTI (%)	DSTI – RIHL (%)	DSTI – commercial (%)
Carlow	782	629	696	3.1	Yes	22	18	20
Cavan	612	524	579	2.8	Yes	19	16	18
Clare	673	645	713	3.5	Yes	21	20	22
Cork	1009	880	973	4.1	No	28	24	27
Donegal	565	462	511	2.8	Yes	20	16	18
Dublin	1604	1287	1423	5.0	No	39	32	35
Galway	983	781	863	4.3	No	32	26	28
Kerry	694	620	685	3.2	Yes	21	19	21
Kildare	1150	1021	1129	4.7	No	33	29	32
Kilkenny	841	659	728	3.4	Yes	25	20	22
Laois	795	628	695	3.4	Yes	25	20	22
Leitrim	530	412	455	2.1	Yes	16	12	13
Limerick	876	734	811	3.6	No	25	21	23
Longford	573	400	443	2.2	Yes	18	13	14
Louth	941	733	810	3.9	No	29	23	25
Mayo	619	516	570	2.9	Yes	20	17	18
Meath	1065	947	1048	4.6	No	32	28	31
Monaghan	614	580	641	3.2	Yes	19	18	20
Offaly	654	554	613	3.2	Yes	22	18	20
Roscommon	573	459	508	2.6	Yes	19	15	17
Sligo	698	534	590	2.7	Yes	20	15	17
Tipperary	655	549	607	2.7	Yes	18	15	17
Waterford	790	645	713	3.4	Yes	24	20	22
Westmeath	730	615	680	3.2	Yes	22	19	21
Wexford	723	627	694	3.2	Yes	21	19	21
Wicklow	1172	1101	1217	5.3	No	35	33	36

Source: *ESRI calculations.*
Note: *RTB, Residential Tenancies Board. * RIHL instalment is exclusive of mortgage protection insurance (MPI) so as to be comparable with the commercial market instalment. Data taken from CSO house prices, Central Bank interest rates and ESRI/RTB rental data.*

While this is an illustrative example, these scenarios do not provide insight into whether the borrowers who have received credit under the RIHL scheme actually faced a reduction in their housing costs. Rather this illustration shows, in a static sense, how affordability could be improved in the purchase market under the RIHL

scheme relative to the market rents for new properties given average market prices. While data on households' previous rent are recorded in the Housing Agency microdata, an accurate assessment of the extent to which the RIHL scheme has actually improved housing affordability for these households is not possible due to the lack of information on property characteristics. In many cases there are likely to be major differences between the types of property applicants rented and with those sought for purchase. For instance, it is not appropriate to compare the rent for one bedroom in a house share with the mortgage repayment for a two-bedroom house.

It must be noted that households who are included in the scheme must pay an additional compulsory 0.5550 per cent for mortgage insurance to protect against income and other risks. This increases the repayment burden. We calculate the illustrative impact of the MPI for the different affordability scenarios in Table 7. On average, the increase amounts to circa €50 extra per month but this rises to approximately €100 in Dublin. This represents a 2 percentage point increase in the income ratio. It must be noted that commercial mortgage borrowers are also required to take out mortgage cover, with at least a life policy required.

TABLE 3.4 AFFORDABILITY INCLUDING MORTGAGE PAYMENT INSURANCE

County	Monthly repayment with MPI	Affordability with MPI (%)	Increase (€)	Percentage point affordability change
Carlow	676.58	19	47.17	1.3
Cavan	563.11	17	39.26	1.2
Clare	693.02	22	48.32	1.5
Cork	945.89	26	65.95	1.8
Donegal	496.81	18	34.64	1.2
Dublin	1383.22	34	96.44	2.4
Galway	839.03	27	58.50	1.9
Kerry	666.16	20	46.45	1.4
Kildare	1097.05	31	76.49	2.2
Kilkenny	708.17	21	49.38	1.5
Laois	675.26	21	47.08	1.5
Leitrim	442.75	13	30.87	0.9
Limerick	788.62	22	54.99	1.6
Longford	430.44	14	30.01	1.0
Louth	787.54	25	54.90	1.7
Mayo	554.52	18	38.66	1.2
Meath	1018.28	31	71.00	2.1
Monaghan	623.46	20	43.47	1.4
Offaly	595.63	20	41.52	1.4
Roscommon	493.68	16	34.42	1.1
Sligo	573.89	17	40.01	1.2
Tipperary	590.10	17	41.14	1.2
Waterford	693.29	21	48.34	1.5
Westmeath	660.92	20	46.08	1.4
Wexford	674.45	20	47.02	1.4
Wicklow	1183.06	35	82.48	2.4
Overall	725.19	22	50.56	2.0

Source: ESRI calculations. Data taken from CSO house prices, CBI interest rates and ESRI/RTB rental data.

3.4 ASSESSMENT OF PARAMETER SUITABILITY

In this section we assess the suitability of the current parameters of the RIHL scheme. While the choice of parameters will always contain an element of policymakers' judgement, insights into suitability can be gleaned from analysis of microdata. In particular, evidence of bunching or clustering at strict cut-offs, rather than smooth distributions, can be a sign that a particular threshold is binding. Similarly, clear differences in outcomes between groups with similar characteristics can be a sign of an unsuitable threshold. These observations must be balanced against the fact that changing a parameter can hugely alter the pool of scheme entrants and the demand for a product and may also have credit risk implications. All these aspects need to be considered when assessing the suitability of the current scheme parameters. Naturally, any scheme parameterisation, while informed by empirical evidence, will also be guided by the objectives of the policy

and policymakers' judgement.

In order to assess the suitability of the current scheme parameters, first, we focus specifically on the house price thresholds set by the scheme. Second, we look at the suitability of the income thresholds. Finally, we combine the two to examine the house prices that different income levels would allow an applicant to purchase. Discussion of the suitability of the age parameters of the scheme is contained in Section 4.2.

3.4.1 House price limits

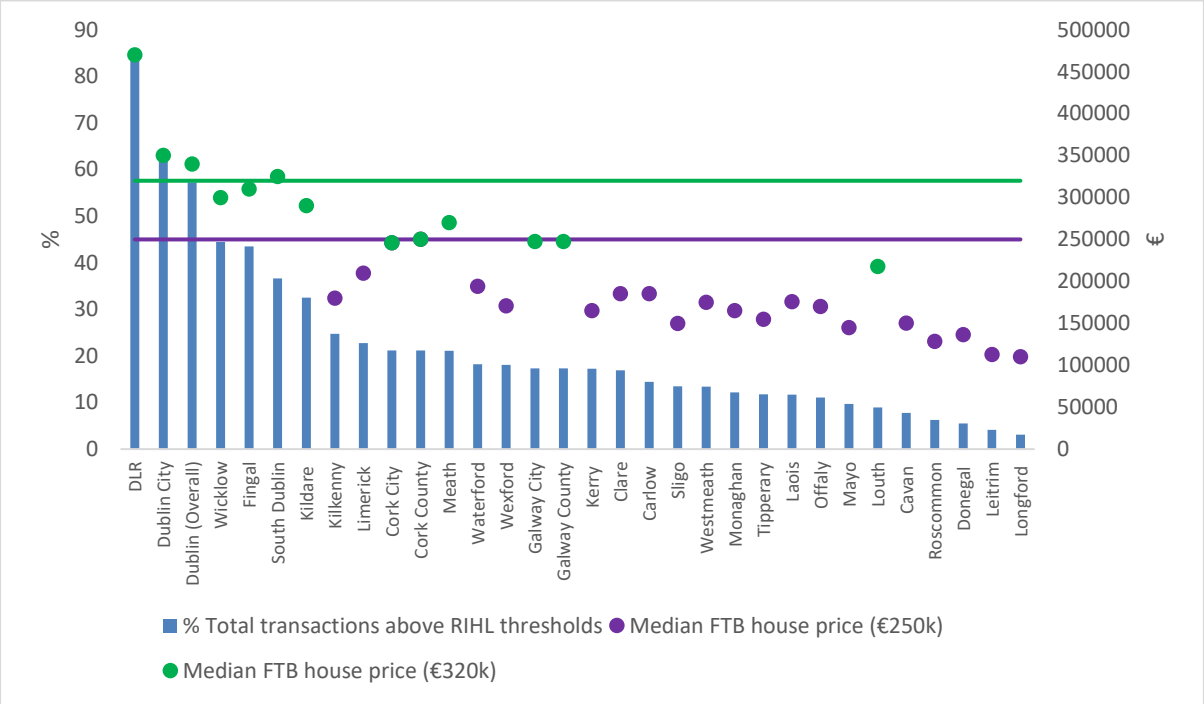
One of the key features of the RIHL scheme is that the maximum value of properties that can be purchased under the scheme is capped with the aim of avoiding market distortions. House prices are capped at €320,000 for properties in the GDA, Cork, Galway and Louth, and €250,000 elsewhere. Previous research has demonstrated that in Ireland affordability challenges more generally (Corrigan et al., 2019), and those faced specifically by FTBs (Allen-Coghlan et al, 2019), are not universal, but rather acute affordability issues exist for particular groups, predominantly in urban areas. The benefits of a product such as RIHL will therefore be greatest when targeted at the urban areas with the most severe affordability challenges.

Figure 3.14 reinforces the finding that affordability concerns occur in urban areas, particularly in and around Dublin. It presents the median FTB house prices relative to the RIHL house price thresholds. As RIHL is a product aimed at low- to middle-income households, the median house price is a useful measure as it implies that half of FTB transactions were below this point. In fact, for non-urban LAs, those with a house price threshold of €250,000, we see that the median FTB house prices are well below these thresholds. In fact, all of these areas except Limerick had a median FTB house price of less than €200,000 in 2018. Currently this €250,000 threshold appears to be quite high for non-urban areas. There is also a potential danger that providing significant sums of credit in areas without severe affordability challenges could lead to localised distortions in house prices.

For the more urban LAs with a house price threshold of €320,000, the median house price is above the maximum threshold in South Dublin, Dublin City and considerably so for Dún Laoghaire–Rathdown (DLR). In Figure 3.14 we also use Property Price Register (PPR) data to plot the percentage of total property transactions above the RIHL thresholds. Here it is important to consider all transactions, not just those by FTBs, as FTBs compete for houses with second and subsequent buyers, as well as investors. This shows that for Dublin City, while the median FTB price of €350,000 is some way above the threshold, just under 40 per cent of all transactions took place at less than €320,000. DLR is an obvious outlier

with a median FTB price of €470,000 and 85 per cent of all transactions above the threshold.

FIGURE 3.14 MEDIAN FTB HOUSE PRICE AND PERCENTAGE OF TOTAL TRANSACTIONS ABOVE RIHL HOUSE PRICE THRESHOLDS BY LA



Source: *Authors' calculations based on Central Statistics Office (CSO) median FTB house price data and PPR data.*
Notes: *Percentage of total transactions above RIHL thresholds is based on PPR data from February 2018 to August 2019. Median FTB house prices refer to 2018 only. We use all transactions because FTBs compete against other buyers. Furthermore, the PPR dataset does not contain buyer type.*

In the absence of access to granular house price data for RIHL borrowers, one additional way to examine the suitability of the scheme's house price thresholds is to look at loan sizes. To do this we use two datasets: the Housing Agency applications microdata and the Data Gathering Initiative (DGI) LA loan drawdowns dataset. These DGI data contain all mortgage loans issued by LAs. As we are interested in the RIHL scheme, we limit our analysis to loans that were drawn down after 1 February 2018 with an interest rate of 2 per cent, 2.25 per cent, or 2.3 per cent if specified as an RIHL loan, as allowed by the scheme.[15]

Figure 3.15 presents the distribution of both requested loan sizes and actual loan sizes drawn down for urban areas (maximum loan size of €288,000) and those for non-urban areas (maximum €225,000 loan size). Overall, 15 per cent of applicants in urban areas applied for the maximum loan size (Figure 3.15(a)). The

15 More information on these data is provided in Table 2.2.

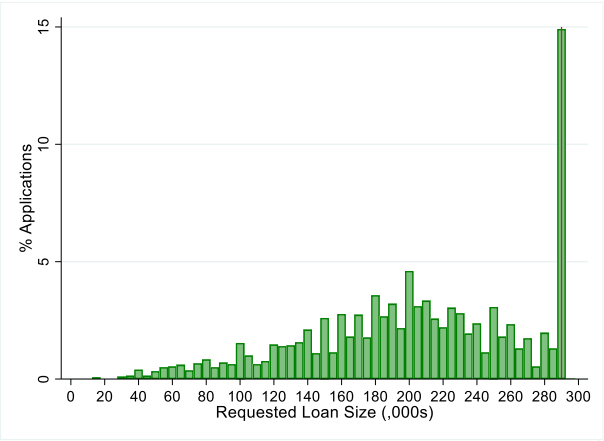
corresponding figure for non-urban areas was 5 per cent (Figure 3.15(b)). From Figure A.1 in Appendix I it is clear that these figures are driven by couples rather than single applicants. A comparison of Figure 3.15(a) and (c) shows that while overall in urban areas 15 per cent of applications were for the maximum loan size, these accounted for only 5 per cent of drawdowns. In non-urban areas only 5 per cent of applications and 0.5 per cent of drawdowns were for the maximum amount (Figure 3.15(b) and (d)). The distributions of loan size drawdowns are reproduced separately for the four Dublin LAs in Figure A.2 in Appendix I.[16]

Figure 3.16 instead presents the percentage of applications and of drawdowns either at or within €10,000 of the maximum loan size split out by LA. This reveals substantial geographical variation, accounting for just under 30 per cent of applications in DLR and South Dublin, approximately 25 per cent in Fingal and Wicklow and just under 20 per cent in Dublin City. In terms of drawdowns, the figure was 20 per cent for Wicklow, 15 per cent for Dublin City and Kildare and below 10 per cent for both South Dublin and Fingal. There have been no drawdowns within €10,000 of the maximum loan size in DLR, where only nine drawdowns have taken place in total. Potentially the relatively small number of drawdowns close to the maximum limits relative to the number of requests in South Dublin and Fingal could indicate that the house price thresholds may be binding. However, the large number of drawdowns overall in Fingal, coupled with the fact prices are generally lower in Fingal than Dublin City, which has a similar level of drawdowns and requests near to the limit, would suggest this is not likely to be the case. Among the non-urban maximum €250,000 price areas, only Waterford, Kerry and Laois saw any drawdowns within €10,000 of the maximum loan size.

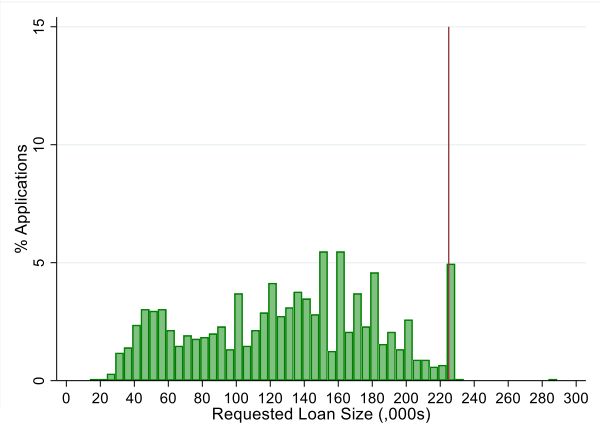
[16] There are a very small number of loans in the dataset that are above the thresholds, which we cannot identify.

FIGURE 3.15 REQUESTED LOAN SIZE DISTRIBUTION BY €320,000 AND €250,000 HOUSE PRICE THRESHOLD AREAS

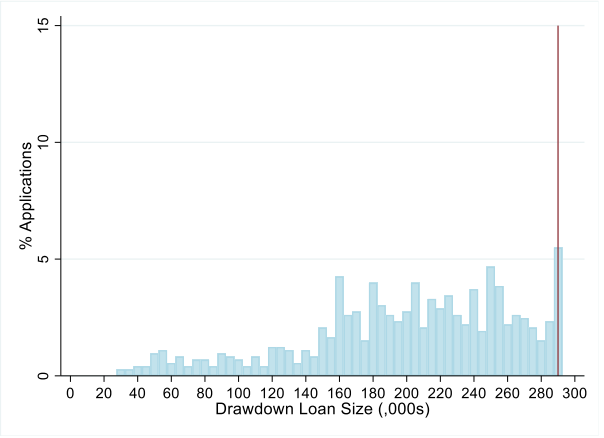
(a) 320k areas – requested



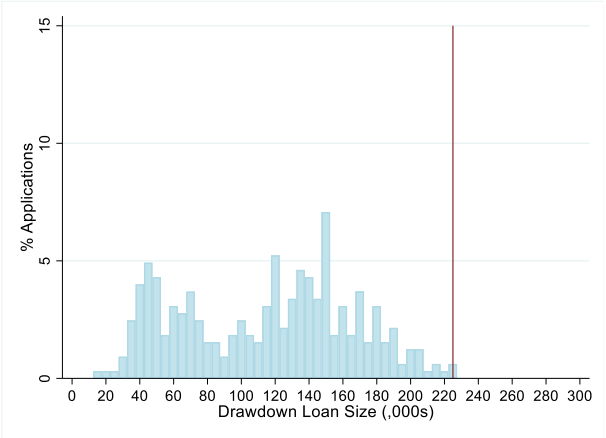
(b) 250k areas – requested



(c) 320k areas – drawdowns

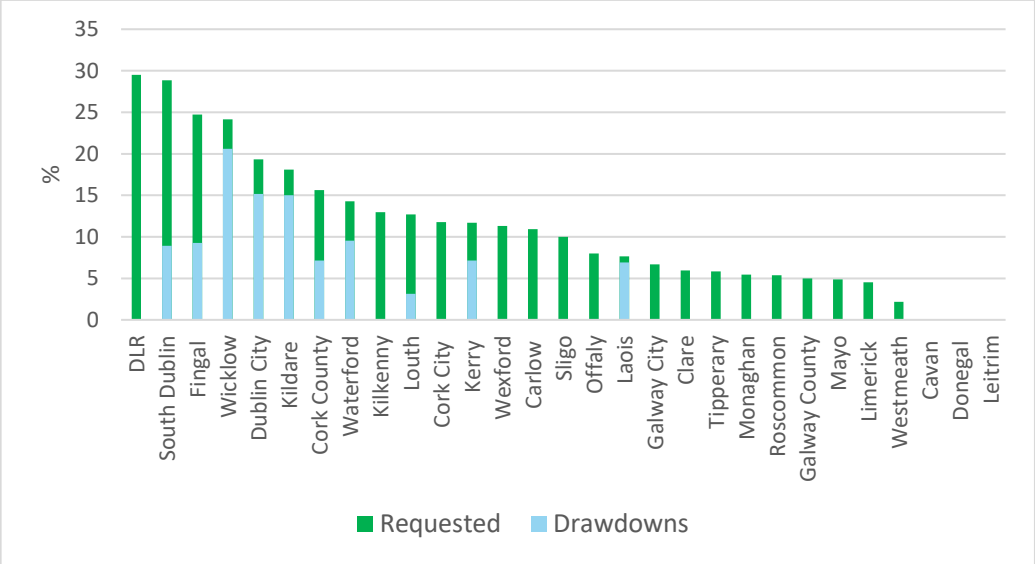


(d) 250k areas – drawdowns



Source: *Housing Agency microdata and DGI loan level data.*
Note: *This includes all LA loans issued under 2 or 2.25 per cent interest rates, or 2.3 per cent if specifically declared as RIHL since 1 February 2018.*

FIGURE 3.16 PERCENTAGE OF RIHL LOANS REQUESTED/DRAWN DOWN WITHIN €10,000 OF THRESHOLD FOR THAT LA



Source: *Housing Agency microdata and DGI loan level data.*
Note: *For areas with maximum loan size of €288,000 this means €278,000 and for those with maximum loan size of €225,000 this means €215,000. All valid applications.*

Our analysis of median FTB house prices does not find evidence that FTBs are unable to purchase properties at or below the current house price thresholds, with the exception of DLR. This is confirmed with the DGI loan level data showing there have been very few drawdowns in DLR (Appendix I, Figure A.2(b)). Similarly, using the loan level data does not suggest a need to raise these house price thresholds at present. These findings are supported by the Local Government Management Agency (LGMA) 2019Q2, data which show that the average loan size drawn down was €199,476 in counties where the maximum loan size is €288,000 (€215,861 in Dublin) and €117,228 in counties with a maximum loan size of €225,000. The parameters of the scheme should be monitored over time, as rapid house price increases could cause the current thresholds to become too low in urban areas, but at present there does not seem to be any evidence suggesting a need to raise the house price thresholds.

3.4.2 Income limits

The second key feature of the RIHL scheme is that maximum allowable gross incomes are capped at €50,000 and €75,000 for single and joint applicants respectively. It is important to consider whether these thresholds are set at appropriate limits.

FIGURE 3.17 PERCENTAGE OF RENTAL HOUSEHOLDS BY INCOME BAND (ALL V. PRIVATE MARKET ONLY)

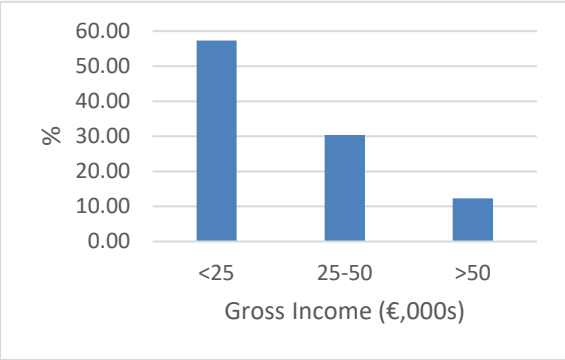
Source: *SILC 2016 and 2017 gross household incomes grown forward to 2018 using Quarterly Economic Commentary (QEC) income growth estimates.*

Note: *See Allen-Coghlan et al. (2019), Section 2.2, for more information on the methodology used to derive the figures.*

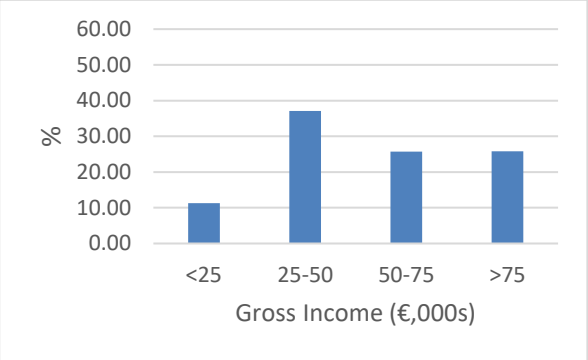
For context, Figure 3.17 presents the proportion of rental households, overall and just in the private rental sector, by income band using data from SILC. It shows that most households in the rental sector are located in the lower parts of the income distribution. Figure 3.18 then distinguishes between single- and multiple-adult households for the private rental sector. It shows that only 12 per cent of single-adult private rental households have an income above the €50,000 threshold. For private rental households with at least two adults, approximately 25 per cent earn an income greater than the €75,000 RIHL threshold. These figures indicate that more than 85 per cent of single-adult households and 75 per cent of double-adult households in the private rental sector would meet the current income thresholds for the scheme. As the RIHL scheme is targeted at low- and middle-income households, this very broad level picture would not support an increase in the income thresholds. However, in practice we would at most only expect this to be an issue in a few specific areas, particularly in and around Dublin.

FIGURE 3.18 PERCENTAGE OF PRIVATE RENTER HOUSEHOLDS BY INCOME BAND

a) Single-adult households



b) Multiple-adult households



Source: SILC 2016 and 2017 gross household incomes grown forward to 2018 using QEC income growth estimates.

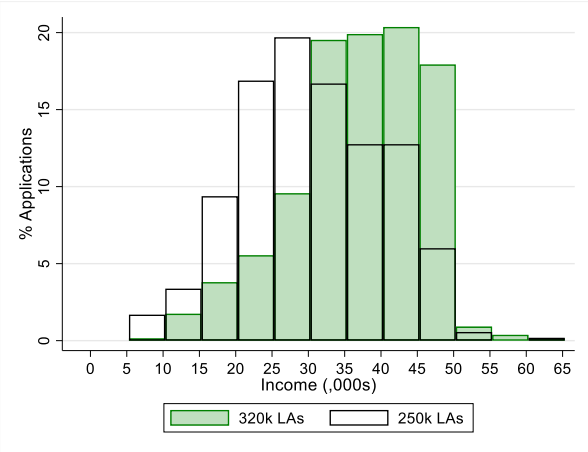
Turning specifically to RIHL applicants, Figure 3.19 clearly shows that for both single and joint applicants, there are distinct income distributions for households living in urban (€320,000 house price threshold) and non-urban (€250,000 house price threshold) areas, with incomes higher in urban areas. Observing a large proportion of borrowers with incomes at or just below the thresholds would indicate that these thresholds may be binding and that there may be justification to raise them.

For single applicants, it is clear that in non-urban areas the income distribution follows a normal distribution with few households close to the maximum income threshold of €50,000. In contrast, single applicants in urban areas are heavily located towards the highest levels of permitted income; nearly one-fifth of applications were within €5000 of the €50,000 threshold. This would suggest the €50,000 threshold is binding for many single applicants in these urban areas.

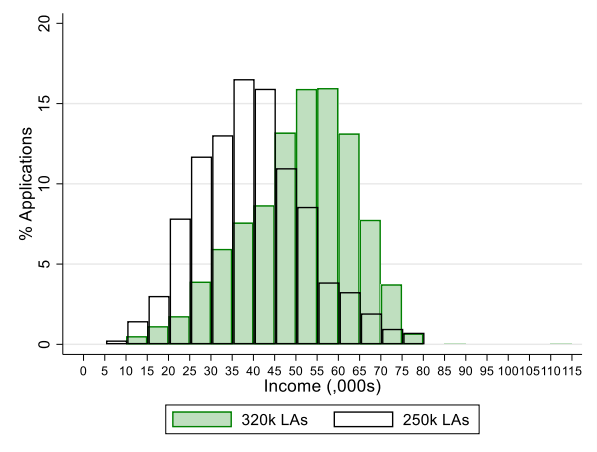
For joint applicants, while there is a similar pattern of incomes being higher in urban areas, there are many fewer applications towards the maximum income thresholds in urban areas relative to single applicants. Indeed, only 4 per cent of applications in urban areas were within €5000 of the €75,000 threshold, which would suggest it is not binding. That we find no evidence of a need to increase this €75,000 threshold is consistent with the data from the CBI on those granted LTI exemptions in 2018 presented in Section 3.3, which showed these households had a mean income of just under €75,000. This would indicate that many households with incomes towards the RIHL maximum joint threshold are accessing credit through the banking sector via exemptions to the macroprudential rules.

FIGURE 3.19 RIHL APPLICANT INCOME DISTRIBUTION BY €320,000 AND €250,000 HOUSE PRICE THRESHOLD AREAS

(a) Single applications



(b) Joint applications



Source: Housing Agency microdata. All valid applications.

While analysing the income distributions across urban and non-urban areas is informative, in practice we might only expect the current income thresholds to bind in more specific areas, particularly in and around Dublin. Table 3.5 presents the median incomes of both single and joint applicants, as well as the percentage of applications close to the income thresholds, separately for each LA. The first thing to note is the very small share of joint applicants within €5000 of the maximum income threshold, with roughly 5 per cent in Dublin City, South Dublin and Wicklow and 2 per cent in Fingal. On the other hand, for single applicants, a quarter in Dublin City, more than one-fifth in South Dublin and Wicklow and nearly one-third in DLR had incomes within €5000 of the maximum €50,000. This reinforces what we found above, suggesting that the €50,000 threshold is binding for many single applicants in these urban areas.

TABLE 3.5 MEDIAN INCOME AND PERCENTAGE APPLICATIONS CLOSE TO INCOME THRESHOLDS BY LA

LA	Median annual income (€): single applications	% Single applications €45–50k income	Median annual income (€): joint applications	% Joint applications €70–75k income
Carlow	34,250	17.86	39,653	5.71
Cavan	33,000	11.11	39,845	0
Clare	30,423	0	40,582	5.41
Cork City	35,689	18.18	51,268	2.80
Cork County	36,750	14.47	50,130	6.17
Donegal	30,297	0	38,545	0
Dublin:				
Dublin City	40,000	24.46	54,943	5.53
DLR	42,457	31.48	55,000	1.27
Fingal	38,070	17.79	51,984	1.99
South Dublin	39,111	22.14	55,934	5.61
Galway City	35,000	14.29	48,173	2.78
Galway County	30,995	8.43	39,489	1.18
Kerry	25,951	3.51	39,132	1.30
Kildare	39,110	12.31	51,025	4.76
Kilkenny	31,483	0	43,273	0
Laois	30,003	10	40,040	0
Leitrim	20,908	0	41,000	0
Limerick	31,835	7.25	37,327	0
Longford	–	–	–	–
Louth	32,438	8.89	45,190	2.50
Mayo	26,520	2.70	37,831	0
Meath	–	–	–	–
Monaghan	24,838	0	35,345	0
Offaly	37,000	10.53	38,177	0
Roscommon	30,400	0	37,352	0
Sligo	26,000	12.00	40,255	2.94
Tipperary	30,001	0	35,780	0
Waterford	36,265	24.24	40,352	2.90
Westmeath	37,886	12.50	32,915	0
Wexford	29,923	7.14	40,633	0
Wicklow	40,276	21.95	54,175	4.73

Source: *Housing Agency microdata.*

In Section 3.3 we showed that just over one-fifth of joint applicants were in fact single earners owing to the second applicant not being in employment. Analysis of the Housing Agency microdata shows that a quarter of these applicants had an

income above €50,000, the limit a single applicant would face.

An important point to consider here is whether an applicant just over these income thresholds, and therefore not eligible for RIHL, would be likely to be able to become a homeowner. We have already shown that the mean income of those receiving LTI exemptions from the CBI in 2018 was just under €75,000 (Table 3.2), so we would expect that those earning just above the €75,000 threshold are likely to be served by the banking sector. In contrast, a single applicant in an urban area earning €51,000, under a 3.5 LTI and a 90 per cent LTV, would be able to afford a maximum house price of roughly €200,000. This would suggest there is likely to be a group of single-applicant households earning above the €50,000 threshold who are unable to access mortgage credit, in comparison to those on lower incomes who are able to become homeowners through the RIHL scheme. Given this, and the evidence that the income thresholds appear to be binding for many single applicants in urban areas, it would be recommended to review the level of the limit on single-income households in urban areas. Options to address this could be to raise the limit, or to remove the lower-income thresholds for single applicants and to apply a uniform income threshold of €75,000 in urban areas. However, it is important to note that such a change cannot be considered in isolation. Any change to the income threshold for single applicants could notably change the scope of the policy for this group and should be cognisant of income limits for other social and affordable housing policies.

3.4.3 Looking jointly at house price and income limits

Unlike the house price thresholds, which differ depending on the geographical location of the property, the maximum income thresholds for the RIHL scheme are the same regardless of location. One issue with this is that house prices differ substantially across the country. To illustrate this point, it is useful to think in terms of what amount a particular income allows a household to borrow. In the commercial sector under macroprudential LTI limits of 3.5, a couple earning €75,000 could expect to borrow a maximum of €262,500, which is considerably greater than the maximum loan amount of €225,000 available in non-urban areas, and even greater than the median FTB house prices in all these non-urban LAs (Figure 3.14). In this context, both the income and house price limits would appear to be high for the non-urban LAs, so we would not expect households to be able to reach these thresholds in these areas. In theory, the condition requiring evidence of having been rejected by two mortgage lenders should prevent borrowers who could access mortgage finance from a bank from doing so through the RIHL scheme. In practice, it could be a concern that some borrowers at the upper end of the allowable income distribution in non-urban areas could use RIHL as a way to borrow larger amounts than they would be permitted to in the commercial market. This should be considered during the assessment process.

To look further at the suitability of the current income and house price thresholds, it is informative to consider the maximum house price each applicant's income would permit them to buy under the current market credit conditions of a 3.5 LTI and a 90 per cent LTV. This then allows us to create a hypothetical house price distribution for RIHL applicants and compare it to the actual house price distribution from the PPR data. If the distributions of house prices RIHL applicants should currently be able to purchase through accessing credit from the banking sector and the actual house price distribution are similar, this would imply that the current parameters of the scheme may be too high. We do this separately for the €320,000 (Figure 3.20(b)) and €250,000 maximum house price threshold areas (Figure 3.20(a)).

Figure 3.20(a) shows a significant overlap between this hypothetical and the actual house price distribution in non-urban areas. This implies that given the current scheme parameters, most of the current pool of applicants in non-urban areas would be expected to be able to access credit from the market. This is not to say that all of these households would necessarily receive credit through the banking sector in practice. It also does not indicate that there is no requirement for RIHL in these non-urban areas, but it does suggest that many of the current applicants in these areas are unlikely to really need the RIHL product in order to become a homeowner.

Figure 3.20 does highlight that the vast majority of the need for this product occurs in urban areas. From Figure 3.20(b) we see that the two distributions are fairly distinct. This reinforces the finding of Allen-Coghlan et al. (2019) that severe affordability pressures for FTBs are very much an urban rather than a nationwide issue. The benefits of a product like RIHL will therefore be greatest when targeted at the urban areas with the most severe affordability challenges.

Figure 3.20 demonstrates that the current house price threshold of €250,000 in non-urban areas is indeed too high as it includes nearly 90 per cent of all properties sold in these areas. In contrast, households in urban areas with a maximum permitted house price of €320,000 can only access 60 per cent of all properties sold. Allowing households in non-urban areas to access a similar 60 per cent of the house price distribution would mean reducing the maximum price threshold for these areas to approximately €165,000–170,000. This is not to say that 60 per cent is the appropriate benchmark, but merely to illustrate a comparative figure for the €320,000 in urban areas. In practice, there is considerable variation in house prices between these non-urban areas. For instance, from Figure 23 we see that median FTB prices in these areas ranged from €210,000 in Limerick down to €110,000 in Longford. Consideration could be given to further splitting these non-urban areas, for instance by separating the most rural areas with the lowest prices into a third group with lower maximum house price thresholds.

More generally, the median FTB house price for each LA could provide a useful benchmark when deciding where to set maximum house price thresholds as 50 per cent of the transactions have occurred below this point. However, policymakers should be cognisant that the introduction of county-specific limits adds considerable complexity to the scheme and may have distortive policy effects in terms of scheme access but also may affect the spatial pattern of demand. Given these considerations, it may be more efficient to include a single third tier. For example, setting a third tier at *c*.€150k–€170k for areas with very low house prices relative to the current limit could be considered.

As the hypothetical house price calculated in Figure 3.20 is based on what applicants could afford given their income, as well as current market credit conditions, it also indicates that the current income thresholds are too high in the non-urban areas. Lowering the income thresholds in non-urban areas could be considered.

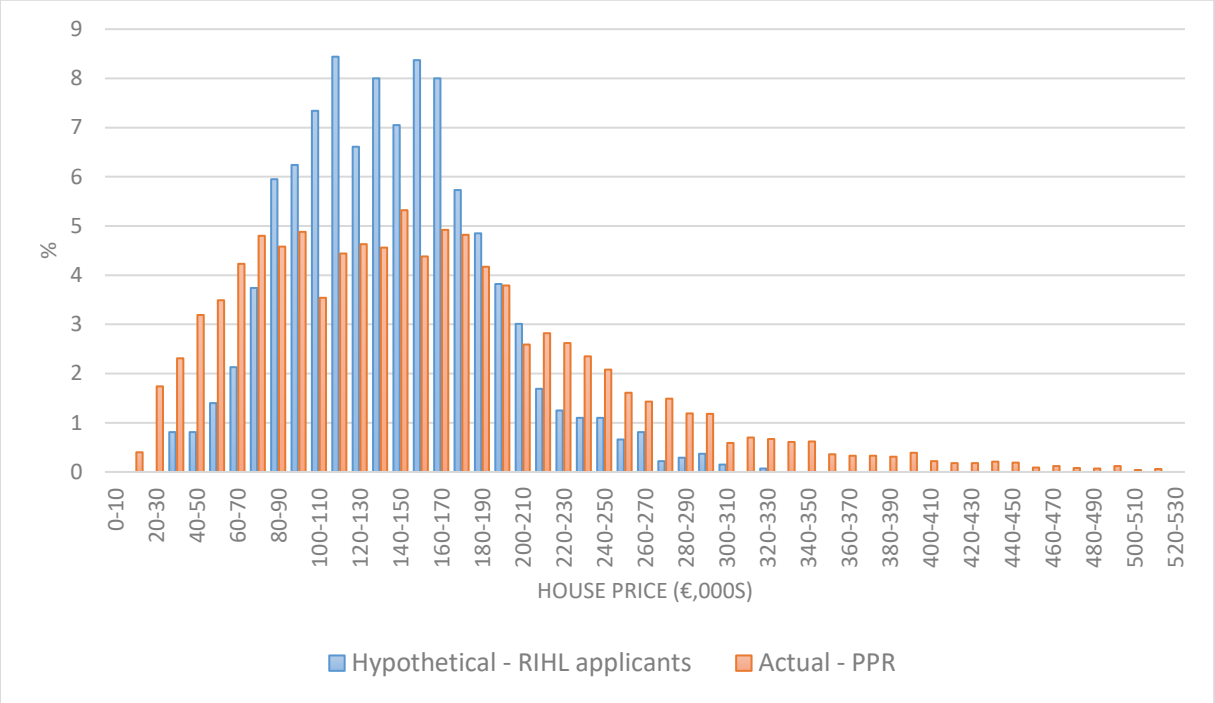
In summary, from our analysis of house price and income threshold suitability, we draw the following conclusions. At present, we find no evidence of a need to raise house price thresholds. In fact, in non-urban areas we show that the current €250,000 limit is too high and should be lowered.

For incomes, we find no evidence of a need to raise the maximum €75,000 threshold for joint applicants. Households at or above these income levels appear to be receiving credit through the banking sector, either in line with the macroprudential regulations or through receiving an LTI exemption. For single applicants there is evidence that the €50,000 threshold is binding in urban areas. Consideration should be given to revising this limit. Options could include raising the limit, or removing the lower-income thresholds for single applicants. Policymakers should be cognisant of the consistency of any changes relative to income limits for other social and affordable housing schemes. As with the house price limits, in non-urban areas, the income limits may be too high as evidenced by the fact that the RIHL applicant households would be able to borrow sufficiently to purchase at the market transacted prices under the 3.5 LTI limit set by regulations (see Figure 3.20(a)).

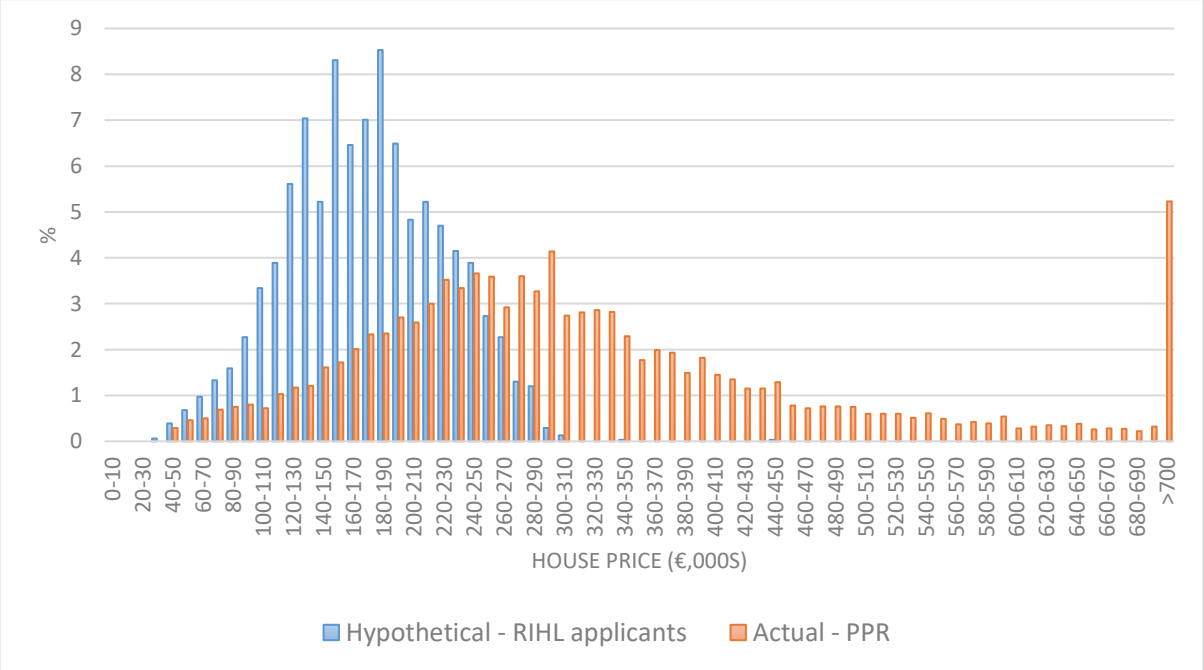
The parameters of the scheme should be monitored over time, as rapid house price increases could cause both the current house price and income thresholds to become too low, particularly in urban areas.

FIGURE 3.20 HYPOTHETICAL RIHL V. ACTUAL PPR HOUSE PRICE DISTRIBUTIONS – €320,000 V. €250,000 AREAS

(a) 250k areas



(b) 320k areas



Source: *Housing Agency microdata and PPR.*
Note: *Hypothetical RIHL is the house price each RIHL applicant could hypothetically afford given their income and a 3.5 LTI and a 90% LTV (current market credit conditions). PPR data contain all transactions, not just FTBs.*

3.5 CHAPTER CONCLUSIONS

A number of findings emerge from this chapter. The main considerations are as follows.

Mortgage demand

- Microsimulation research shows there is a considerable unmet underlying demand for mortgage credit in the Irish FTB market, which could be met under prudent credit risk assessment.
- The most common reason households are unable to access credit is having an insufficient down-payment. Many of those who overcome this are then restricted in how much they can borrow by their income.
- This implies a role for both equity and income supports (for example, a combination of help-to-buy-type instruments with a dedicated public mortgage provision). A cross-over between these two policies should be allowable in cases where borrowers face income and down-payment constraints.

Role for RIHL

- At present there is a clear role for RIHL in alleviating a portion of the current unmet demand for mortgage credit. It is estimated that RIHL could provide a minimum of 1000 loans valued at €200m per annum.

Targeting of scheme, payment predictability and affordability

- Mortgage lending by the banking sector is concentrated at the higher end of the income distribution, while RIHL offers credit to households in lower parts of the distribution.
- Since the start of the RIHL scheme, 80 per cent of loans made in the commercial market were to households earning in excess of €50,000, while 70 per cent of RIHL mortgages were to households earning €50,000 or below.
- Previous research finds low-income, younger households are most at risk of falling into arrears on their mortgages when interest rates rise. Mortgages with a fixed term for the duration of the loan are therefore a welcome addition to the market, as they should provide predictability for households unable to cope with fluctuations in payments. The decision to remove the variable rate option in August 2019 was sensible, as it would not have provided this stability.
- RIHL would be expected to improve affordability relative to new tenancies in the private rental market or under commercial mortgages, provided it is well targeted.

Parameter suitability

- Median FTB house prices are well below €250,000 in all LAs with this house price limit. In areas with the higher €320,000 limit, median FTB prices were only higher than the limit

in DLR, in Dublin City and (slightly) in South Dublin. In all areas except DLR, at least 40 per cent of all housing transactions took place below these thresholds.

- At present, we find no evidence of a need to raise house price thresholds and maintain consistency with the objectives of a targeted instrument that lends to low- and middle-income households. In fact, in non-urban areas we argue that the current €250,000 limit is too high and should be lowered considerably. A three-tier system could be used that would provide a considerably lower cap for counties with the lowest house prices.

- For incomes, we find no evidence of a need to raise the maximum €75,000 threshold for joint applicants. Households at or above these income levels appear to be receiving credit through the banking sector, either in line with the macroprudential regulations or through receiving an LTI exemption. There is evidence that the income cap for single applicants is binding in urban areas. Options include raising the cap for single households or removing the lower income threshold and having a common €75,000 upper limit on all incomes. These changes can be considered in the context of income limits for other social and affordable housing schemes for consistency purposes. As with the house price limits, in non-urban areas, the income limits appear high and could be lowered.

- The parameters of the scheme should be monitored over time, as rapid house price increases could cause both the current house price and income thresholds to become unsuitable.

CHAPTER 4

Credit policy and credit risk assessment

4.1 INTRODUCTION

Critical to the effectiveness, suitability and sustainability of the scheme is the credit risk assessment done on potential borrowers as well as the broad parameters of the credit policy. Managing credit risk at the point of loan origination is a multifaceted task, which combines strict evaluation of borrower risk through appropriate credit assessment with ensuring sufficient buffers in terms of equity to reduce expected losses in the case of default.[17]

International evidence, and recent research for Ireland, highlights a number of key catalysts that drive mortgage default. These include labour market shocks (unemployment or income falls), which limit repayment capacity (Gerardi et al., 2017; McCarthy, 2014), interest rate rises that stress payments (Slaymaker et al., 2019), equity shocks (falls in house prices) and changes in personal circumstances such as divorce or poor health.[18] Considerable importance has also been given to the incidence of simultaneous equity and affordability shocks, which magnify the default risk.[19]

The decisive factor as to how such shocks translate into arrears cases is the absorptive capacity of the household. The employment status, level of income, spending patterns, and indebtedness all play a role in determining credit risk. For example, it has been found that lower-income households have fewer spare resources left after housing cost (Corrigan et al., 2019) and this makes them vulnerable to changes in their economic circumstances. Indeed, Slaymaker et al. (2019) show that lower-income households are more sensitive to interest rate hikes in terms of default risk.

While managing credit risks at origination through an appropriate credit policy is complex, there are some critical indicators that highlight the level of vulnerability in the portfolio. These include the repayment-to-income ratio, the loan-to-income (LTI) ratio and the loan-to-value (LTV) ratio. Therefore, from a credit risk

17 O'Malley (2018) found strategic default to have occurred in Ireland when repossession risk was removed. This is critically important in the context of local authority (LA) lending.

18 Fahy et al. (2018) show that the balance of these factors changes over time, with adverse personal circumstances more important during periods of relative economic buoyancy.

19 This issue is commonly known as the double trigger. See Slaymaker et al. (2019) for further discussion and references.

assessment perspective, it is critical to understand the extent to which the credit policy limits risks relating to the aforementioned issues.

The objectives of this chapter are threefold. First, we explore the high-level parameters of the credit policy and assess their appropriateness in limiting risks. Second, we use data on the existing lending to explore the actual credit risk profile of existing lending. Finally, we explore other selected credit risk considerations.

It must be noted that this review of the credit policy and credit risk is undertaken from an economic perspective. Please note that the report is not an audit of compliance with regard to the credit policy, nor does it provide any insight into legal or governance issues that are associated with credit allocation. Rather it focuses on the management of the economic factors that lead to credit default and how these can be minimised.

4.2 CURRENT CREDIT POLICY AND RISK ASSESSMENT PROCESS

The current credit policy for the Rebuilding Ireland Home Loan (RIHL) scheme is set out in the credit policy 2018[20] in line with the parameters provided in the Housing (Rebuilding Ireland Home Loans) Regulations 2018 (S.I. No. 25 of 2018). The credit policy also notes its compliance with the Housing (Miscellaneous Provisions) Act 1992 and the Consumer Credit Act 1995. The key criteria of the credit policy are listed in Table 4.1. While a complete review of all the operational specifics is outside the scope of this research (requiring legal and other considerations), we present some reflections on the criteria in line with whether they heighten or lessen the risk of a credit default. We discuss these conditions bunched into the two aforementioned groups of (a) loan conditions and (b) repayment capacity. We first discuss a key entry condition of insufficient finance offers.

[20] Internal DHLGH document.

TABLE 4.1 RIHL CREDIT POLICY CONDITIONS AND CRITERIA

Credit policy conditions	Criteria
Evidence of insufficient finance from two financial institutions	Scheme entry
The maximum LTV ratio is 90 per cent	Loan conditions
The maximum value of the property to be purchased cannot exceed regulatory limits. These are currently set at €320,000 for Cork, Dublin, Galway, Kildare, Louth, Meath and Wicklow, and €250,000 in other counties	Loan conditions
The maximum borrowing limits are €288,000 in Counties Cork, Dublin, Galway, Kildare, Meath and Wicklow, and €225,000 elsewhere	Loan conditions
Loans are annuity mortgages including principal and interest (not interest-only mortgages)	Loan conditions
Loan terms are set at a maximum of 30 years, up to the age of 70 years	Loan conditions
Mortgage protection insurance is required	Loan conditions
Fixed- and variable-rate loans will be advanced based on the capacity to repay using net income ratio calculations	Repayment capacity
Repayments should be limited to 35 per cent of after-tax disposable income (unless approved by the LA credit committee under Exceptions to the Policy in Section 8.4)	Repayment capacity
Variable rate loan repayments should be calculated with a 2 per cent increase on the interest rate	Repayment capacity
Income limits for a single application of €50,000 maximum and €75,000 for joint entries apply	Loan conditions
Applications must have a credible savings record of a minimum of 12 months' duration immediately prior to making the application	Repayment capacity
Applicants must consent to an Irish Credit Bureau/Credit Register check and be of good credit standing with a satisfactory credit record	Repayment capacity
A judgement search must be undertaken	Repayment capacity
Primary earner on the application must have at least 2 years' continuous employment and the second applicant must have at least one year	Repayment capacity

Source: DHLGH RIHL documentation.

It should be noted that the current evaluation of credit risk focuses more on an assessment of repayment capacity and housing equity from an economic perspective. For example, the credit policy incorporates a range of measures including valuations and that the property should be in good condition and of good marketable title. These factors would affect the expected losses in the case of default, but ensuring these are enforced, along with other legal issues, is outside the scope of this report.

4.2.1 Scheme entry and insufficient finance offers

It has been a long-standing element of LA mortgage credit access that borrowers must receive at least two rejections from banks. This is a critical element to ensure that the scheme is not interfering with the broader market and that the borrowers

are actually credit constrained. This condition is all the more important for the current scheme given that the interest rates are lower than the current market prices and at longer (potentially more favourable) lending terms.

For the RIHL scheme, it has been noted in discussions with stakeholders conducted as part of the review that it has become difficult for borrowers to obtain formal rejection letters. As alternatives, online calculator figures have been accepted for the RIHL scheme as proof of insufficient finance. Such a policy does require additional policing to ensure the scheme is targeted at borrowers most in need. Indeed, feedback has been received from an LA that it is unclear why its applicants to its scheme are unable to get funds through the banks. It feels it is not acting as lender of last resort and is competing with the banks. In the €250,000 house price areas, our illustrative analysis above (Figure 3.20) shows that most borrowers would appear to be able to borrow commercially at less than 3.5 times incomes. This highlights the importance of policing the insufficient offers.

Of critical importance is that the income, house purchase value and implied deposit are cross-checked between the application form for RIHL and the online calculators. The borrowing amount on the calculator should then be checked vis-à-vis the application form. It can be seen from the two online calculators for Bank of Ireland and AIB contained in Appendix II that the personal characteristics, house price and lending amount are provided and can be used in the check. If the loan amount they can get, for the same house price and personal income, is lower in the RIHL application than in the market one, then the insufficient finance condition will not be passed. At this stage their particulars may need to be re-entered in a commercial bank's calculator to ensure that finance is insufficient if the borrower has not provided sufficient evidence. Indeed, this check could be done on all applications, even if formal rejections are provided. At present the LA is required to check that the borrowing amount and all other input details on the market lender's online calculator are consistent with the RIHL application submitted, before sending to the Housing Agency. We would suggest that this be conducted also by the Housing Agency, separately and independently of the LAs.

These checks between the application form and the online calculator are particularly important in non-urban areas without acute affordability concerns. In consultations with stakeholders conducted as part of this review, concerns were raised over applicants applying to banks for larger loan sizes simply to get the required rejection and then requesting a smaller loan amount under the RIHL scheme. Additional concerns were raised over applicants applying to the banking sector with no mention of a gift towards a down-payment, but then including a gift in their RIHL application. The down-payment amount on the online mortgage calculator should be checked to ensure it is the same as on the RIHL application.

Another potential source of cross-checking for two rejected or insufficient applications will be the Central Credit Registry, which will hold evidence of applications. This would provide each borrower with an application footprint that could be checked. It is envisaged that the Credit Registry will be used by the LAs going forward. Where borrowers do not have any mortgages outstanding and have two applications on the credit registry, this could be used to inform the insufficient finance condition. The check on the borrowing amount as above should still be completed. One LA indicated that it will begin to use the Credit Registry to follow rejections in the future.

One suggestion from the consultations is that a formal engagement process could be set up with the local bank managers to consider the issues of rejections. This would allow LAs to gain more local market knowledge and better understand whether the scheme was targeting the correct borrowers, given it would be in the bank's interests to provide a loan if it can. While it may be difficult to operationalise such a rule on an LA level given the national nature of the policy, incorporating information sharing between the scheme participants and the market providers could be beneficial. Such an engagement could take the form of simple information sharing, or a referral process (similar to the mechanism used for the small to medium-sized enterprise (SME) credit guarantee scheme, whose participants are referred from the commercial banks when they have insufficient collateral).

4.2.2 Loan conditions

LTV restriction and equity contribution

The LTV ratio is a critical driver of mortgage default, as households with negative equity have a higher likelihood of missing payments. Furthermore, having equity in the asset value relative to the debt level also provides to keep the loss given default (LGD) manageable and lower the expected portfolio losses.

Ensuring that households provide a sufficient equity buffer therefore provides a safeguard in the event of a house price downturn. RIHL sets the LTV ratio at 90 per cent. This is a tighter limit than was set by previous LA lending schemes (Table 4.2) and the restriction is now in line with the Central Bank of Ireland's (CBI) limits under the macroprudential restrictions on the mortgage market. The 90 per cent limit set by the CBI is in line with international norms (Kelly et al., 2015). Furthermore, research by Kelly et al. (2015) show that first-time buyer (FTB) default probabilities increase considerably after an origination LTV of 90 per cent, which provides empirical evidence for the calibration of the indicator in this region. Bringing the RIHL LTV to 90 per cent is therefore a positive step and should be maintained in any future loan schemes.

TABLE 4.2 MAXIMUM LTV RESTRICTIONS BY LOAN SCHEME

Standard LA annuity loan	Home Choice loan	RIHL	CBI FTB limit
97%	92%	90%	90%

Source: DHLGH documentation; CBI.

The credit policy outlines the composition of the applicant equity that contributes to the 10 per cent. While gifts are allowable up to 7 per cent of the purchase price, cash savings, demonstrated by written proof, must make up the final 3 per cent. A savings share is important as it demonstrates good financial planning and management. International research has found that borrowers funding even modest down-payments from their own resources have substantially lower default rates (Kelly, 2008). In the policy, the final statement in Section 2.1 allows exemptions from this 3 per cent savings share. Exemptions from the savings share heighten risk, and this clause should not be used extensively.

Other loan conditions

The other key loan conditions of importance for underwriting are contained in Table 4.3 and are compared with the two previous LA schemes. In terms of the income limits and the maximum loan criteria, Chapter 3 discusses the current suitability of these thresholds. Given the requirement to have a 90 per cent LTV, the maximum loans are in a sense a residual given the house price limits and LTV. One feature of the RIHL scheme relative to previous LA schemes is the lack of a specific minimum income limit. As lower-income households have fewer buffers and residual income left after housing costs (Corrigan et al., 2019), it is likely that removing a minimum income does heighten risk. Nevertheless, a stable income, however low, if matched with an appropriate payment, could be low credit risk. The critical issue is, therefore, the assessment of repayment capacity.

One final reflection in relation to these parameters relates to the age limits, which are set between 18 and 70. Setting the maximum age above the normal retirement age could be risky given that median income replacement rates following retirement are 50 per cent of earned income (Nivakoski and Barrett, 2017). Many commercial lenders set the cut-off for the end of the mortgage term at 65 (therefore the term is set at a maximum of 30 years or 65 minus current age). LAs consulted as part of this review indicated they would like to lower the maximum age at the end of the term to 67 to correspond to the national retirement rate. However, given inflation in incomes over the horizon of the mortgage, the risk of facing default in the later years is very low. Nevertheless, it might be prudent to align the scheme end age to the statutory pension age limit.

TABLE 4.3 CRITERIA BY LA LOAN SCHEME

Criterion	Standard LA annuity loan	Home Choice loan	RIHL
Income limit – single	<€50k	>€35k	<€50k
Income limit – joint	<€75k	>€45k	<€75k
Age	18–70	18–70	18–70
Maximum loan	€220,000	€285,000	€288,000 or €225,000
Maximum term	30 years*	30 years*	30 years

Source: *DHLGH documentation; Central Bank of Ireland.*
Note: ** LAs had some discretion around the maximum lending term for the products.*

4.2.3 Repayment capacity

Understanding the appropriateness of the credit policy in providing guidance to measure repayment capacity is linked to the assessment of income, repayment capacity and good financial standing as outlined in Sections 2, 3 and 4 of the policy. While there is considerable detail in these sections, we will focus here on a limited number of the indicators of most relevance to the economic determinants of credit default.

Employment status restrictions

Assessing income and borrowing capacity is critical to ensuring good credit assessment. Labour market shocks have been found to be a strong driver of mortgage default and therefore managing these risks at origination is critical. The first criterion of importance is an assessment of length of employment or self-employment (2 years continuous regardless of employment type). Ensuring borrowers have proper employment (or a history of self-employment) is critical to ensuring such households are a credit-worthy borrower. This condition is in line with market norms and should be maintained. One aspect that could well be adjusted relates to contract income, where the contract has less than 3 months left. This condition applies if a borrower has been provided a commitment from an employer to renew the contract. This clause should ensure that such a commitment is received in writing.

Net income ratio limits

There is no maximum LTI limit in the RIHL scheme as is the case for commercial loans under the macroprudential framework. Instead, the loans set a maximum repayment burden or debt service to income (DSTI) ratio of 35 per cent of net income. This maximum is specified in the credit policy to fall for lower-income households and differ between joint and single-borrower applications. The schedule can be found in the credit policy document. Importantly, the repayment burden includes all debts, not just the proposed mortgage repayment. There are

exemptions from the 35 per cent rule whereby flexibility can be provided up to 40 per cent DSTI in up to 10 per cent of cases per annum.

The credit policy also provides for a graduated reduction in the maximum allowable income limit for lower-income households. This is set out in Table 4.4.

TABLE 4.4 MAXIMUM RIHL ALLOWABLE NET INCOME RATIO (DSTI) BY GROSS INCOME

Gross income (€)	Maximum ratio (%)	
	Single	**Joint**
25,000–30,999	30	n/a
31,000–34,999	31	n/a
35,000–39,999	32	30
40,000–44,999	33	31
45,000–49,999	34	32
50,000–54,999	35*	33
55,000–59,999	n/a	34
60,000–75,000	n/a	35

Source: *DHLGH credit policy documentation.*
Note: ** Only a single applicant earning exactly €50,000 is eligible in this band.*

The graduated reduction is prudent and would be consistent with research evidence by Corrigan et al. (2019) that lower-income households have few resources available after housing costs, even at a low net income ratio (DSTI).

Of critical importance for this review is the extent to which the 35 per cent DSTI is suitably parameterised for the pool of borrowers accessing the RIHL scheme. To consider this issue, we look to international evidence to consider what other countries set when they use this rule.

A number of countries use these explicit DSTI limits in their macroprudential frameworks (see Table 4.5). The National Bank of Romania has set the DSTI ratio at 35 per cent of net income to manage risks on its lending activity. Table 4.5 lists the full range of other European countries that rely on DSTI limits, in addition to LTV limits, to manage macroprudential risks. Nier et al. (2019) note that these measures have also been a long-standing feature of the macroprudential regimes used in Asia.

TABLE 4.5 COUNTRIES USING DSTI LIMITS IN EUROPE AND THE PARAMETER CALIBRATION

Country	Regulator	Year	Calibration
Cyprus	Central Bank of Cyprus	2013	The debt servicing amount shall be limited to either (a) 35% of the borrower's 'total monthly income' or (b) the difference between the 'total monthly income' and the 'total monthly expenditure', whichever is lower. For high-income borrowers, the debt servicing amount may exceed the above limit of 35%. This limit shall in any case not exceed the lower of (a) 60% of the borrower's total monthly income or (b) the difference between the 'total monthly income' and the 'total monthly expenditure'.
Czech Republic	Česká národní banka	2018	Recommendation: upper limit for the DSTI ratio of 45% (of the applicant's net annual income). This may be exceeded for 5% of the total amount of retail loans secured by residential property, in justifiable cases, i.e. a high probability of a loan repayment is identified.
Estonia	Eesti Pank	2014	All credit institutions operating in Estonia are subject to a DSTI limit of not more than 50% of borrower's net income for new housing loans. Up to 15% of the amount of new housing loans issued in a quarter are allowed to breach the limit(s).
Hungary	Magyar Nemzeti Bank	2018	Payment-to-income (PTI) ratio limits are amended, and now range from 25% to 60% during the phase-in period (1 October 2018–30 June 2019).
Lithuania	Lietuvos bankas	2011	DSTI of not more than 40% of borrower's net income.
Lithuania	Lietuvos bankas	2015	Amendments of previously introduced measure: introduction of stress DSTI limit of 50% (alongside the usual 40% limit) with the 5 per cent interest rate used in the stress testing. A credit institution can apply a DSTI of more than 40% of the borrower's income, but overall capped at 60%, for the amount of housing loans that is not higher than 5% of the total value of new housing loans granted by that credit institution during the calendar year.
Portugal	Banco de Portugal	2018	DSTI limit 50%, with the following exceptions: • up to 20% of the total amount of credit granted under this measure by each institution in each year may be granted to borrowers with a DSTI of up to 60%; • up to 5% of the total amount of credit granted under this measure by each institution in each year may exceed the limits laid down regarding the DSTI.
Romania	Banca Naţională a României	2011	In the case of consumer loans, when establishing the maximum level of DSTI, the credit institutions must take into account the foreign currency risk, interest rate risk and income risk. The values for these risk factors are explicitly specified in the regulation: (a) for foreign currency risk, the depreciation scenarios of the local currency to be incorporated are 35.5% for EUR denominated loans, 52.6% for CHF denominated loans and 40.9% for USD denominated loans, (b) for interest rate risk 0.6 percentage points increase in interest rate and (c) for income risk, 6% reduction in income. The measure is applied to both banks and non-bank financial institutions.
Romania	Banca Naţională a României	2018	Implementation of a limit of 40% on DSTI, as measured by the ratio of total monthly payment obligations arising from credits to borrower's net income.
Slovakia	Národná banka Slovenska	2016	Tightening of the limit on DSTI ratio for housing loans. Loan instalments (for both new and existing loans, subject to assumed interest rate increase by 2 percentage points, if interest rate is not fixed) cannot exceed 80% of borrower's disposable income.

Country	Regulator	Year	Calibration
Slovenia	Banka Slovenije	2016	The recommended maximum level of the DSTI ratio is: (a) for borrowers with monthly income less than or equal to EUR 1700: 50%; and (b) for borrowers with monthly income exceeding EUR 1700: 50% for that portion of income up to EUR 1700 inclusive, and 67% for that portion of income exceeding EUR 1700. In the event of several borrowers, this provision applies to each borrower separately.

Source: *ESRB Macroprudential database.*
Note: *EUR, euro; CHF, Swiss franc; USD, US dollar.*

Given the international comparisons in Table 4.5, the RIHL calibration for the DSTI does not appear to be out of line with the international evidence. Two further considerations must be noted at this juncture. The above limits are set for the commercial market as a whole in many cases, whereas the RIHL is targeted at a specific group of constrained households who are lower income. Lower-income households are likely to default more and therefore the RIHL pool is likely to be of higher credit risk. This would suggest that a tighter limit than for the market as a whole would be required. The fact that the RIHL credit policy lowers the DSTI limit as income falls appears consistent with this and is a prudent feature.

Another source of vulnerability would be if the whole portfolio was receiving credit at or close to the 35 per cent DSTI limit. This would indicate a concentration of lending at high DSTIs and would heighten the portfolio risk. We will explore this in Section 4.4.

As we noted earlier, exemptions to the policy can be provided where the application falls outside the criteria in the following categories.

- Net income ratio is >35 and <40 per cent and limited to 10 per cent of cases on an annual basis (subject to exceptional circumstances that can be justified and documented).
- Income is outside that allowable in Section 4.2 of the credit policy document.
- Income in the case of a separation.

In these cases, the credit committee can go beyond the allowable limits without recourse to the underwriter. The provision of allowable exemptions is not without precedent. A number of the international macroprudential frameworks provide a system of proportionate caps or ‘speed limits’ to breach the maximum allowable numerical limit. For example, in Ireland exemptions can be granted to the 90 per cent LTV limit in cases amounting to 5 per cent of the balance of lending, while 20 per cent of the balance of FTB lending can breach the 3.5 times income ratio. In

the UK, the LTI ratio can also breach the 4.5 ratio in 15 per cent of cases, while such an instrument is also available under the regulatory framework in New Zealand.[21]

The motivation for these allowances is to minimise distortions from the policies, for example in cases where households have a good repayment capacity but do not have sufficient down-payment or alternatively have high equity but cannot borrow sufficiently (Cassidy and Hallissey, 2016). Cassidy and Hallissey (2016) also note that such exemptions allow flexibility, whereas otherwise a regulator may be preventing borrower types or specific products in their entirety.

However, given that the pool of RIHL borrowers is likely higher risk and it is already a niche scheme, the rationale for such exemptions in the context of the RIHL is less clear. It would be better to restrict such allowances further. Data on the receipt of these allowances should be collected centrally and the borrower profile analysed and monitored as is conducted for the commercial market (Kinghan and McCann, 2019).

While the imposition of a DSTI ratio as a prudential filter is critical to ensure good credit risk management for this scheme, it may not alone be a sufficient safeguard for low income households. For example, many households, with income below €30,000 could actually have a 30 per cent DSTI but have insufficient funds left to cover a basic standard of living. A simple illustration of the potential indebtedness of low-income households is as follows. Figure 4.1 shows that the implicit LTI ratio (for the 30 year fixed-rate option) which is suggested by the DSTI restriction could go as high as 5.7 for low-income borrowers[22] (this does not mean that the borrowers would actually qualify for loans of this size as other factors may eliminate them from the credit assessment). Furthermore, research shows that, even at low DSTI, low-income households have few resources left after housing cost to purchase a normal basket of goods and services (Corrigan et al., 2019). It may therefore be prudent to introduce additional measures to limit indebtedness and ensure repayment capacity for low-income households. One channel that could be used would be to raise the interest rate. This would tighten the current DSTI limits by increasing the payment for a given term and loan balance. This in itself would be an additional safeguard and help boost the credit-absorptive capacity. We return to this issue in Chapter 5.

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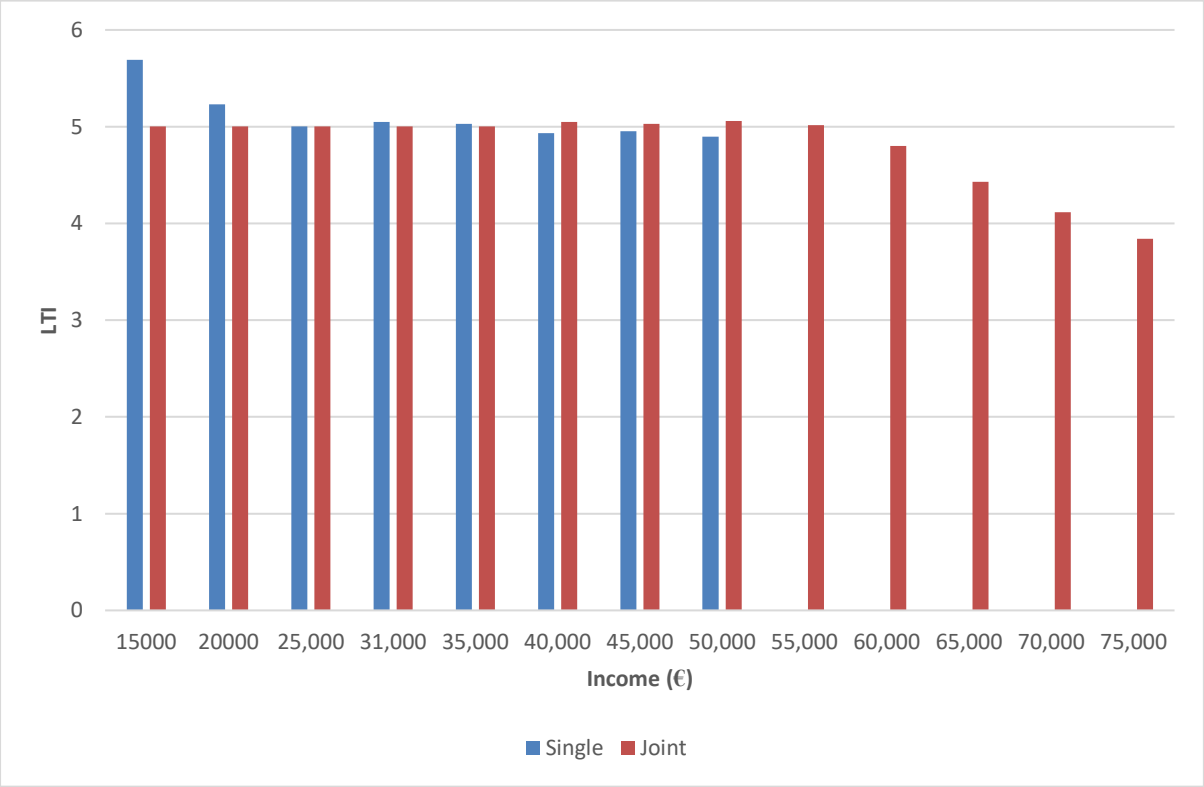
21 See the Bank of England or Reserve Bank of New Zealand websites for more information on their mortgage lending limits.

22 The authors can provide calculations on request. The analysis follows the steps on page 13 of the credit policy using the 30 year fixed-rate product as an example. However, in discussions with the Housing Agency, it was noted that in determining the borrowing capacity, the MPI payment is reduced from the total loan size by adjusting down the monthly repayment capacity by the value of the MPI payment and then the loan size is recalculated. While this is a prudent measure in terms of assessing borrowing capacity, it is not documented in the credit policy. This should be addressed and this step included in any revised credit policy.

Additionally, if further measures were to be imposed, these could include explicitly specifying a minimum income level, residual income (after mortgage payment) test, or income multiple restriction on borrowing. Further research would be required as to the efficacy and calibration of these options.

FIGURE 4.1 IMPLIED LTI MAXIMUM BASED ON GROSS INCOME AND NET INCOME ALLOWABLE



Source: *ESRI calculations.*
Note: *Figures consistent with ESRI calculations using original credit policy. Adjustments may be in place that have updated this. The numbers are illustrative only and do not imply that borrowers on these incomes would be provided with these credit terms. Analysis follows Step 4 on p. 12 of credit policy but includes mortgage protection insurance (MPI).*

Other indicators

In terms of prohibited categories, for households who had rent arrears, there is an exemption for satisfactory explanations. This would appear to be broad and a clarification should be provided as to what is a satisfactory explanation. All other prohibitions would appear suitable.[23]

4.3 UNDERWRITING DECISIONS AND THE CREDIT COMMITTEE OUTCOMES

RIHL applications are received by LAs and then passed on to the Housing Agency, which performs the main credit assessment. This section provides an overview of

[23] The groups referred to are: applicant(s) who are the subject of legal action for debt recovery; applicant(s) who have been involved in a previous settlement that has resulted in a loss to a financial institution; applicant(s) who are declared bankrupt or currently subject to bankruptcy proceedings; and applicant(s) who have a court order (judgment) for recovery of debts granted against them.

the underwriting rejection rates and reasons for rejections. This is critical to assessing the borrower screening. Using the Housing Agency microdata, we are then able to compare approved and rejected applicants on key measures such as income and requested loan-to-income (ReLTI). Finally, this section provides a crucial assessment of the existing operational functioning of the scheme and how this relates to the credit risk policy.

4.3.1 Rejection rates and the underwriters' reasons for rejections

At this juncture we look at the credit acceptance and rejection rates on all applications submitted to the Housing Agency for underwriting and the reasons for rejections as a guide for the selection criteria. Overall 51 per cent of applications were approved by the underwriters. This is in line with the rejection rate data the ESRI collected as part of its Economic Sentiment Monitor (ESM) for renter households who applied for a mortgage. It might have been expected that the rejection rate would be higher for borrowers in the RIHL scheme if such households are higher credit risk. However, ESM applicants may be rejected based on insufficient financing or income under the regulatory environment, which may increase the rejection rate in this group. This is equivalent to not being eligible in the RIHL scheme data.

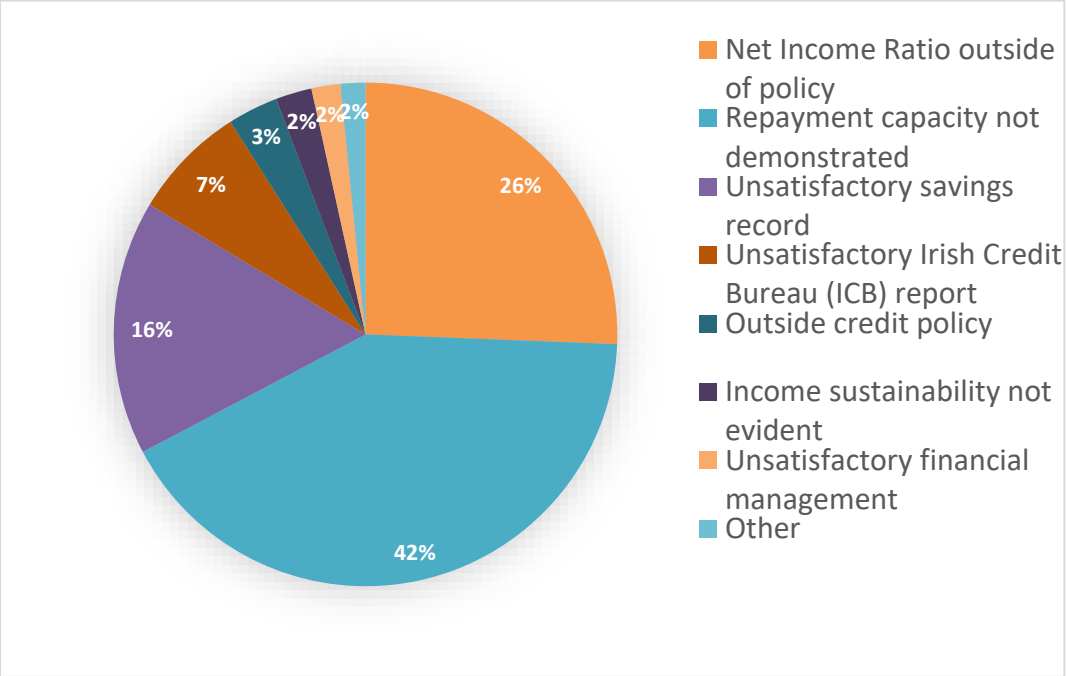
TABLE 4.6 RIHL APPLICATIONS RECEIVED AND RECOMMENDED OUTCOMES

	Total no. applications received by Housing Agency	% Approvals/ rejections (of loans underwritten)	ESM data (Private renters)
Invalid	743		
In process	74		
Recommended to approve	2389	50.7	51.7
Recommended to decline	2319	49.3	48.3
Total	5525	100	100

Source: *Housing Agency.*
Note: *Numbers refer to period February 2018–July 2019. The ESM numbers refer to actual approvals and rejections, whereas the Housing Agency numbers refer to applications recommended for approval/decline.*

Figure 4.2 presents information regarding the reasons for rejections by the underwriters. Nearly three in four rejections were due to insufficient income or repayment capacity. This is important, as allowing households who are vulnerable on this metric to have mortgage finance is likely to increase ex-post defaults. Considerable differences exist across LAs in terms of the recommended approval rates as presented in Figure 4.3. In general, higher approval rates are observed in Dublin and other urban areas such as Cork, Limerick and Galway city.

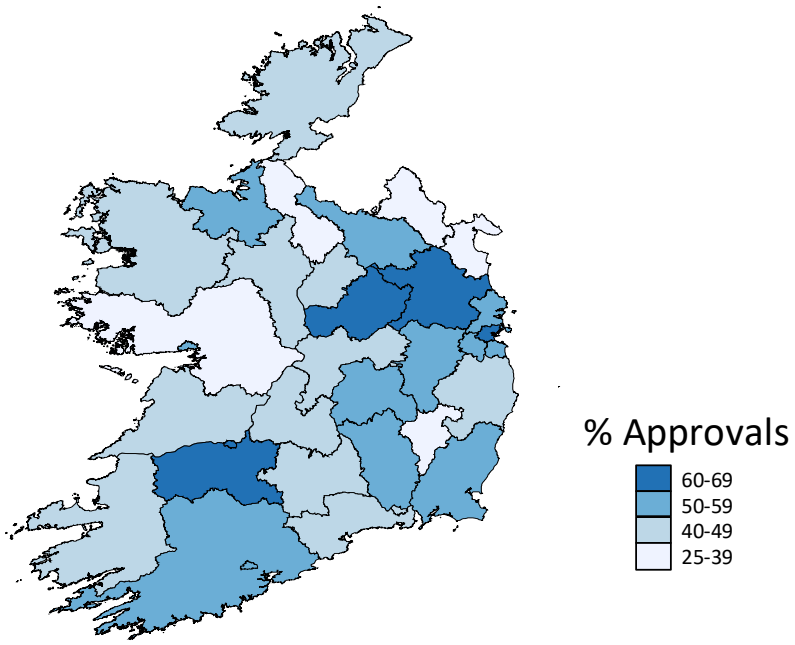
FIGURE 4.2 REASONS FOR RECOMMENDED REJECTION OF RIHL APPLICATION BY UNDERWRITERS



Source: *Housing Agency.*

Notes: *These refer to the applications that the Housing Agency underwriters recommended to reject. We do not know if they were accepted or rejected in practice as the LA credit committees make the final decision. In total the underwriters assessed 4708 applications between 1 February 2018 and 31 July 2019. The Housing Agency also received 743 invalid applications, with 45 per cent of these occurring in the first 3 months of the scheme and 72 per cent occurring within the first 6 months of the scheme.*

FIGURE 4.3 PERCENTAGE OF RIHL APPLICATIONS UNDERWRITTEN BY HOUSING AGENCY THAT WERE RECOMMENDED FOR APPROVAL



Source: *Housing Agency.*

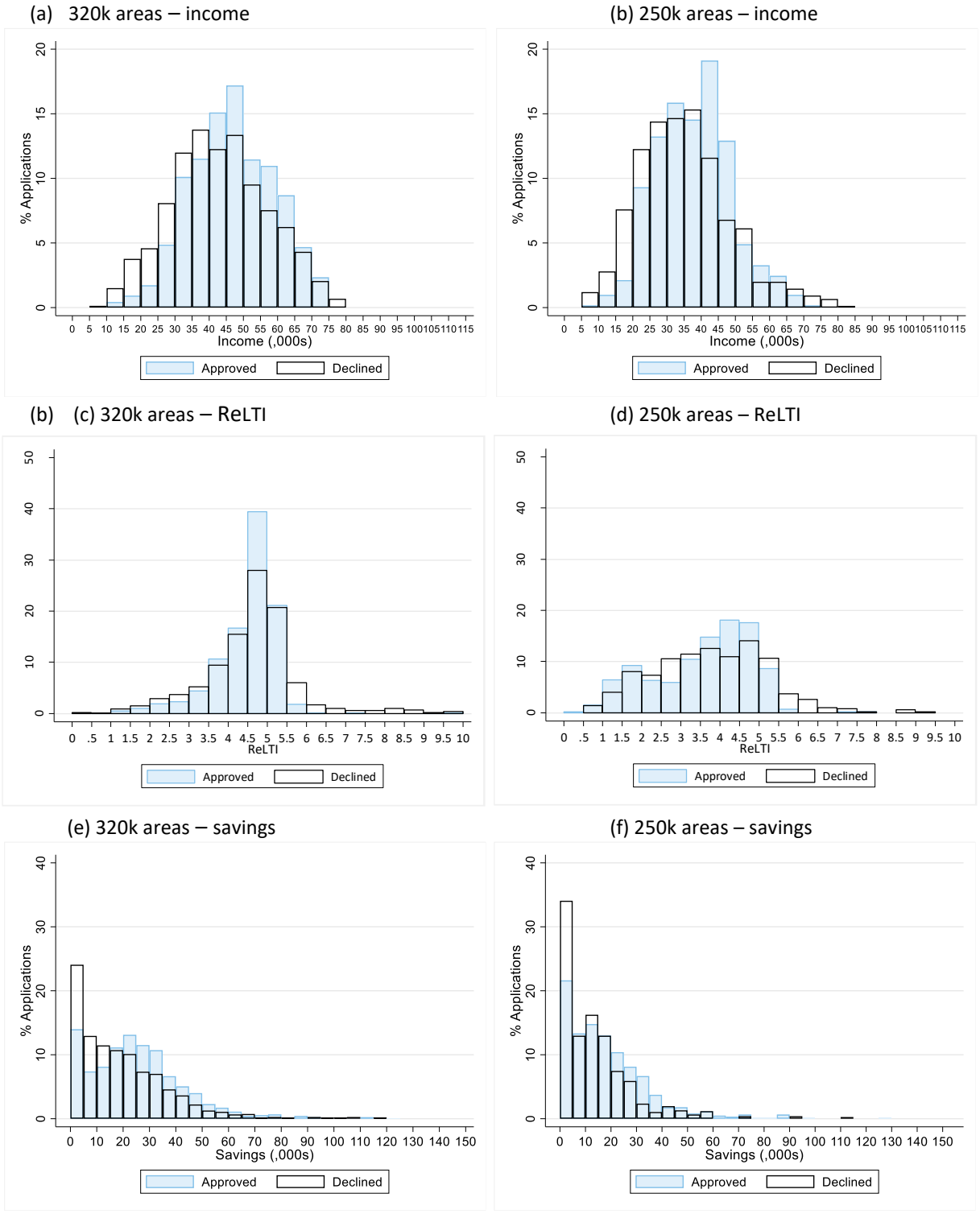
At this juncture it is informative to compare the characteristics of borrowers whose applications were recommended for approval with those whose were declined.[24] Regarding income, it is clear from Figure 4.4(a) that in urban areas, a higher proportion of declined applications were from households at the lower end of the income distribution, whereas those who were approved tended to have higher incomes. In non-urban areas, this pattern is somewhat evident but less clear; a greater share of applicants higher up the income distribution are also declined. This may indicate that some applicants in areas with lower house prices, who may not be facing severe affordability challenges, are attempting to access this attractive mortgage scheme.

Turning to LTI ratios, in urban areas 40 per cent of approvals had an ReLTI of 4.5–5, with a further 20 per cent at 5–5.5 (Figure 4.4(c)). Virtually all applications with an ReLTI above 5.5 were recommended for rejection. In non-urban areas the spread is much greater (Figure 4.4(d)). Under the current macroprudential regulations, borrowers are permitted a maximum LTI of 3.5 unless they are granted an exemption. It is interesting to note that in urban areas only 10 per cent of approved applications had an ReLTI less than 3.5, whereas the corresponding figure for non-urban areas was 40 per cent. In addition, nearly 10 per cent of approved applications in non-urban areas had an ReLTI greater than 5. The credit risk implications of this will be discussed in Section 4.4.

Figures 4.4(e) and (f) show the distributions of savings for approved and rejected applicants. In urban areas, nearly 40 per cent of declined applicants had savings of less than €10,000. Just over 20 per cent of approvals in urban areas also had savings of less than €10,000. This group is likely to contain a mixture of tenant purchase applicants and those receiving a gift who only need to provide 3 per cent of the purchase price in documented savings. 30 per cent of applicants in urban areas had savings of at least €32,000, the amount required to fund the maximum house price purchase with a 90 per cent LTV. Nearly 35 per cent of declined applications in non-urban areas had less than €5000 in savings. 27 per cent of applicants in non-urban areas had savings of at least €25,000, the amount required to fund the maximum house price purchase in those areas with a 90 per cent LTV.

[24] Differences in key characteristics between applicants recommended for approval and rejection are presented in Table A.2 in Appendix I.

FIGURE 4.4 INCOME, RELTI AND SAVINGS DISTRIBUTIONS FOR APPROVED V. DECLINED RIHL APPLICATIONS



Source: *Housing Agency microdata.*

Note: *ReLTI is calculated using the requested loan size for applications recommended to be declined and using the approved loan size for applications recommended for approval. Savings refer to the documented level of savings in an applicant's savings account. They do not contain any potential gift an applicant may receive towards a down-payment unless this has already been gifted.*

4.3.2 Existing operational functioning of the scheme

In terms of the credit risk policy of the existing operational functioning of the scheme, the application is received by the LA but the main credit assessment is done centrally by the Housing Agency. It is a considerable strength of the existing scheme to have trained, professional underwriters assessing the loan applications from a risk perspective. While this report is not an audit of the underwriting nor a compliance check, from consultations and discussions with the underwriting team, their processes, procedures and enforcement of the credit policy would appear to be good and strict. Indeed, three in four recommendations for rejection are for what could be classed as affordability issues, which would suggest prudence. The use of this centralised assessment function is a good step towards mitigating ex-post default risk.

Following its assessment, the Housing Agency provides a recommendation to the LA, which is then discussed by their credit committee. The LA credit committee has the final decision on credit allocation. Credit committees have at least three members, with a minimum of one from the Housing and Finance divisions at Senior Executive Officer level or above. At present, in cases where the LA credit committee wishes to go against the recommendation of the Housing Agency, it has the discretion to do so. Making a lending decision against the recommendation of trained underwriters is a significant risk. This has occurred across LAs, as presented in Table 4.7.

Column 4 of Table 4.7 shows the percentage of total applications received that are sent to the Housing Agency for underwriting and credit assessment. There is significant variation across LAs, with an average of 86 per cent but falling as low as one third of applications in Cavan.[25] This variation likely reflects both the validity of applications received as well as variation in the amount of pre-checking prior to sending the applications on to the Housing Agency. The final two columns of Table 15 show that the number of applications accepted by the credit committee is higher than the number of recommended acceptances by the Housing Agency underwriters in 12 of the 31 LAs, significantly so in some cases.

[25] There is a data timing mismatch here as the LGMA data on total number of applications are for end of June 2019 whereas the Housing Agency underwriting data are for end of July 2019. Cases of percentages greater than 100 are likely due to this.

TABLE 4.7 COMPARISON OF LGMA AND HOUSING AGENCY RIHL APPLICATIONS AND ACCEPTANCES

LA	No. applications received by LA	No. applications underwritten by HA	% applications underwritten by HA	No. recommended acceptance by HA	No. provisional acceptance by LA
Carlow	93	65	69.9	24	39
Cavan	48	16	33.3	8	9
Clare	86	75	87.2	30	40
Cork City	195	189	96.9	89	66
Cork County	323	365	113.0	196	178
Donegal	39	44	112.8	21	24
Dublin:					
Dublin City	592	529	89.4	324	533
DLR	143	121	84.6	68	36
Fingal	723	649	89.8	382	328
South Dublin	401	338	84.3	178	117
Galway City	118	98	83.1	52	43
Galway County	182	164	90.1	59	49
Kerry	163	117	71.8	52	51
Kildare	369	174	47.2	87	73
Kilkenny	51	45	88.2	24	32
Laois	142	104	73.2	55	55
Leitrim	18	15	83.3	<5	5
Limerick	198	124	62.6	76	76
Longford	46	49	106.5	23	22
Louth	127	119	93.7	45	73
Mayo	90	69	76.7	29	52
Meath	269	291	108.2	201	144
Monaghan	48	42	87.5	16	11
Offaly	70	45	64.3	18	22
Roscommon	51	52	102.0	22	22
Sligo	55	53	96.4	27	22
Tipperary	281	127	45.2	59	56
Waterford	121	84	69.4	34	39
Westmeath	63	41	65.1	28	26
Wexford	142	136	95.8	69	78
Wicklow	241	182	75.5	89	87
Total	**5488**	**4708**	**85.8**	**2389**	**2408**

Note: Five counties appear to send a higher number of applications to Housing Agency than total applications they received, but this may be due to the date mismatch. The red text indicates where an LA has provisionally approved a greater number of loans than has been recommended for approval by the Housing Agency underwriters.

It is not possible to definitively evaluate whether this practice has already increased the credit risk of the loan book without access to appropriate microdata. However, given the recommendation from the underwriter was to reject, approving these cases is highly likely to increase credit defaults and may lead to vulnerabilities going forward.

This issue has been identified and a remedial strategy put in place by the Department of Housing, Local Government and Heritage (DHLGH). This was outlined in Circular 28/2019. The strategy requires LAs to report within ten working days to the Department instances where the LA credit committee's decision on a loan application differs from the Housing Agency recommendation on that application. The report should contain the number and value of applications and a description of how and why the Credit Committee's decision differed. These rules apply from September 2019.

While this change is clearly welcome, it does not eliminate the risk that the LAs can continue to go against the underwriting assessment if they so wish. Additional options to improve safeguards could be explored. The strictest of these would be to remove the discretion to approve an application that has been rejected for underwriting. A second option would be to allow the LA to appeal cases back to the underwriter and provide supporting information. The underwriter would then be provided with an opportunity to revise their assessment. However, if the underwriter rejects the appeal, the loan application should not proceed.[26]

These measures all relate to cases where the underwriters have provided a negative recommendation. In cases where the underwriters have given approval, LAs should have full authority to layer additional safeguards over and above the existing credit policy and reject approved applicants if they have a prudential reason to. For example, one LA suggested it would like to have a minimum income threshold and deploy a maximum LTI ratio. Given that the credit risk remains on its balance sheet, such steps would enhance the credit risk of its portfolio.[27] Such changes should be objective, evidence-based and consistent with the national nature of the scheme.

4.4 UNDERSTANDING THE CREDIT RISK PROFILE OF EXISTING LENDING

In this section we discuss the key measures used in best practice internationally to understand the credit risk profile of existing lending and to identify vulnerabilities in a portfolio. To provide an initial indication of the level of credit risk of the existing lending, we explore the trends in loan arrears. We then use microdata from the

26 These changes would require a change in the supporting legislation and the credit policy.

27 Again, these changes would require a change in the supporting legislation and the credit policy.

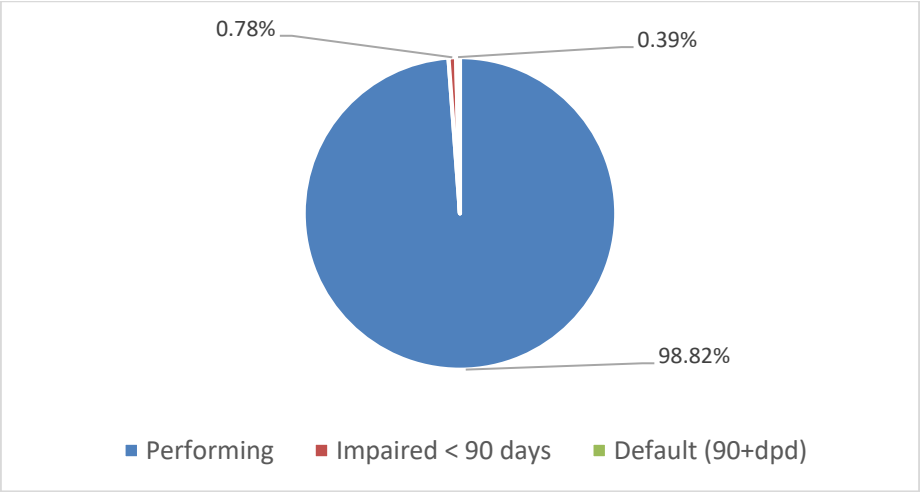
Housing Agency to explore credit conditions at origination in order to identify potential vulnerabilities that may lead to heightened future credit risk.

4.4.1 Originating credit conditions and loan arrears

Of critical importance to understanding the credit risk of the underlying portfolio is up-to-date information on credit conditions at origination as well as current LTV ratios and the delinquency status of the current portfolio. Best practice internationally for monitoring and reviewing trends in loan arrears is the receipt of microdata at the loan level with sufficient information to stress test the portfolio. These data would be equivalent to those collected by the CBI on a 6-monthly basis. Portfolios of loans that are securitised and used as collateral for the ECB are also subjected to the publication of loan-level data for investors to monitor their performance. The critical fields for monitoring in these data are the originating and current LTV ratio, fields relating to income at origination, and information on the loan default status (performing/impaired or days past due (DPD)).

In relation to the credit risk of the underlying pool of mortgages issued under the RIHL scheme, a number of data sources can be leveraged to piece together the current performance of the loans. The data submitted to the Department by the LGMA record the number of arrears cases, and the arrears balance, on a monthly basis. Using the latest available data from June 2019, approximately 1.2 per cent of the loans are in any day arrears. This equates to a total of 12 cases across the 1021 drawdowns indicated. Eight of these loans are in arrears for less than 90 days, with only four indicated as having passed the standard definition of non-performing, which is 90 DPD. An overview of these data is presented in Figure 4.5.

FIGURE 4.5 DEFAULT RATE OF RIHL LOANS AS OF JUNE 2019



Source: ESRI calculations using LGMA data.

In terms of assessing default rates, it is informative to compare the default rate of these RIHL loans with loans issued over the same period in the commercial market. Data from the CBI indicate that loans issued over that period have an identical 0.4 per cent default rate to the RIHL loans. That RIHL default rates are currently in line with commercial lending is positive, but not surprising given the strong performance of the Irish economy over this period.

The data above indicate that a number of RIHL loans are in arrears but not yet in default, i.e. have less than 90 DPD on payments. To attempt to understand the credit risk trajectory of the portfolio, and to appropriately measure the flow of loans into arrears with the objective of estimating the potential portfolio losses, credit risk modelling focuses on loan credit performance transitions (Kelly, 2011; Gaffney et al., 2014a, 2014b). Such transitions explore how loans move in and out of default across ranges of DPD over time. For example, this method would take all loans in period A and look at their credit performance, and then match this to their credit performance in period B. If the portfolio credit risk is worsening considerably, loans would be seen to flow from lower buckets of DPD to higher over time. This is clearly demonstrated by Kelly and O'Malley (2016) in relation to the Irish mortgage market during the financial crisis.

To undertake such an analysis requires detailed microdata on the individual loans and the ability to follow the performance of the loan over time. The Department currently receives a loan-level data drop from the LAs, the Data Gathering Initiative (DGI) return, which contains information on the loan performance in terms of arrears. These data have been provided to us for the purposes of undertaking an initial exploration of default transitions in LA loans issued from 1 February 2018. Table 2.2 gives a full overview of these data. In this dataset, it is not fully possible to specifically identify RIHL loans. However, using the origination dates and other loan characteristics (e.g. interest rate, term), it is possible to consider all loans issued by the LAs since February 2018 that have the correct characteristics for a RIHL loan. We would expect most of these to be RIHL loans. It must be noted that while the number of loans in the DGI dataset is similar, it does not correspond exactly to the number of loans in the LGMA data.

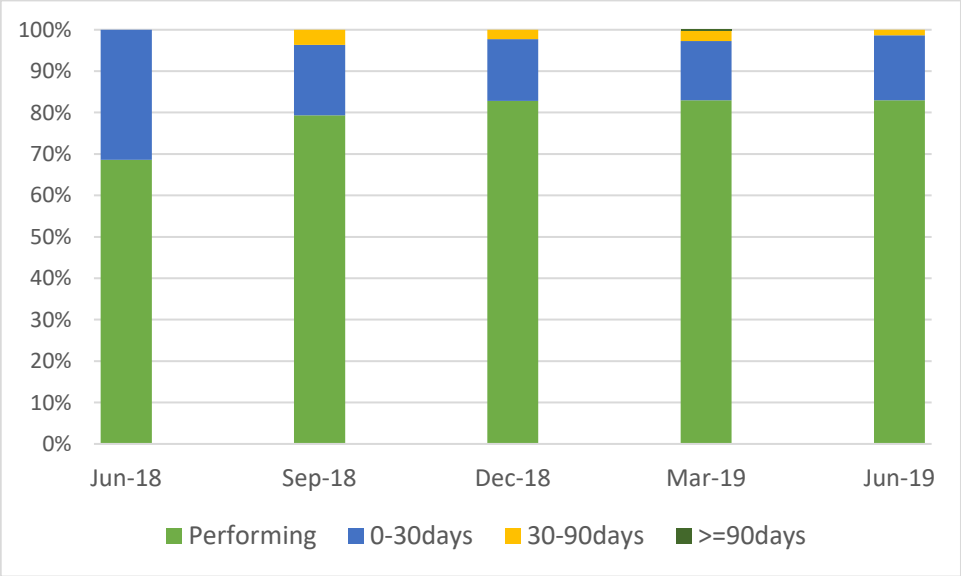
For the purposes of this analysis, we take the quarterly loan drops of data from June 2018 to June 2019. The overall trend in loan arrears on these accounts is presented in Figure 4.6. There are very few loans in default, with none recorded in June 2019, but a considerable share with some DPD. The lack of loans in default is inconsistent with the LGMA data and warrants further analysis. The considerable share of short-term arrears may be due to recording issues. For example, during consultations for this review, one LA indicated that it has to provide these data to the Department at a point in the month before some payments are due and they are consequently recorded as in arrears. Furthermore, some of these 1-month

arrears cases could represent technical defaults where borrowers miss a payment purely by accident due to date issues. Such defaults normally self-cure immediately and are not seen as a problem from a credit risk perspective.

It is important to be able to accurately monitor loans that do fall into 1-month arrears in order to act with the aim of preventing a deterioration into longer term arrears. To be able to do this, it is important that households are only recorded as being in arrears if they did not make the full payment on their last payment date, and not simply because their payment date falls after the monthly recording cut-off date. Furthermore, as LAs are also required to provide this information for the Central Credit Register, incorrectly recording borrowers as in arrears on their payments may have considerable consequences for a borrower in terms of worsening their credit score, through no fault of their own.

It must be noted that this review has not undertaken an audit of the processes or data gathering and reporting activities of loan authorities. Our reflections presented here are purely based on the consultations, which highlighted some common patterns that require additional analysis. It is proposed that a working group be set up to manage data gathering and the processes around data collection and reporting as part of the ongoing RIHL scheme, and this forum should identify these issues.

FIGURE 4.6 PERCENTAGE OF RIHL LOANS BY ARREARS STATUS



Source: *Authors' calculations based on DGI loan-level data.*
Note: *For each quarter these data include all LA loans drawn down between 1 February 2018 and the end of that quarter, with an interest rate equal to one of the two RIHL fixed interest rates or variable rate loans if specifically declared as RIHL. From June LGMA data: eight cases of arrears <90 days, four cases of arrears >90 days (based on 1021 drawn-down loans). From April LGMA data, eight cases of arrears (definition or duration not specified) out of a total of 830 loans drawn down.*

Importantly for our analysis, we can use the granular data to explore whether the loans in the portfolio are transitioning to worse DPD bands, which would point towards a worsening of credit risk.

In Table 4.8 we present a series of arrears transition matrices using the DGI LA loan-level data. It is helpful to focus on the most recent data available, presented in the bottom panel. The purpose of this panel is to take all the loans in a given period, March 2019, to classify them as performing, up to 1 month in arrears, 1–3 months in arrears or 3 or more months in arrears, typically referred to as default. We then follow these loans into the next period, June 2019, and see how many of them have remained in each category and how many have transitioned into another category. For example, from the bottom panel we see that in March 2019 there were 671 performing loans and by June 2019 641 of these were still performing, 27 had transitioned into one-month arrears, three were in one to three months arrears. Of the 116 loans that were in arrears of up to 1 month in March 2019, 23 had self-cured and become performing by June 2019, while 93 remained up to 1 month in arrears. None had worsened to either 1–3 months arrears or default.

There are several points to be taken from Table 4.8. First, as also shown in Figure 4.6, there is a fairly high proportion of loans in arrears of up to 1 month: 16 per cent of loans in June 2019. A large number of loans in arrears of up to 1 month, particularly given that many of these loans have only been drawn down a matter of months ago, could potentially be a concern. However, as discussed above, it seems likely that this is due to an issue with how the arrears status is calculated in the dataset. One positive to be taken from Table 4.8 is that we do not observe significant deteriorations in loan status towards 1–3 month arrears or default. For instance, between March 2019 and June 2019, none of the 116 loans in one-month arrears had deteriorated to 1–3 months in arrears or default, while none of the 20 loans initially in 1–3 months arrears progressed to default and 15 actually reduced to 1-month arrears or self-cured and became performing. The lack of transitions towards lengthier periods of missed payments is obviously a positive sign. Nevertheless, gaining a clearer understanding of how the arrears status is calculated in these loan level data is crucial and an aspect that requires further investigation.

TABLE 4.8 RIHL ARREARS TRANSITION MATRICES

			Performing	Up to 1 month	1–3 months	≥3 months
				September 2018		
June 2018	24	Performing	15	7	2	0
	11	Up to 1 month	6	5	0	0
	0	1–3 months	0	0	0	0
	0	≥3 months	0	0	0	0
				December 2018		
September 2018	171*	Performing	147	21	3	0
	37	Up to 1 month	4	32	1	0
	8	1–3 months	6	0	2	0
	0	≥3 months	0	0	0	0
				March 2019		
December 2018	434	Performing	400	28	4	2
	78	Up to 1 month	20	57	1	0
	12	1–3 months	3	5	4	0
	0	≥3 months	0	0	0	0
				June 2019		
March 2019	671	Performing	641	27	3	0
	116	Up to 1 month	23	93	0	0
	20	1–3 months	8	7	5	0
	2	≥3 months	1	1	0	0

Source: *DGI loan-level data.*
Note: ** Should be 173 but two loans disappear from the data between September and December 2018.*

A second element to understanding the credit risk of the current portfolio is to explore trends in the key credit conditions, in particular LTV ratios, LTI ratios and DSTI ratios. These indicators are very important predictors of vulnerabilities in the portfolio and therefore of future credit risks.

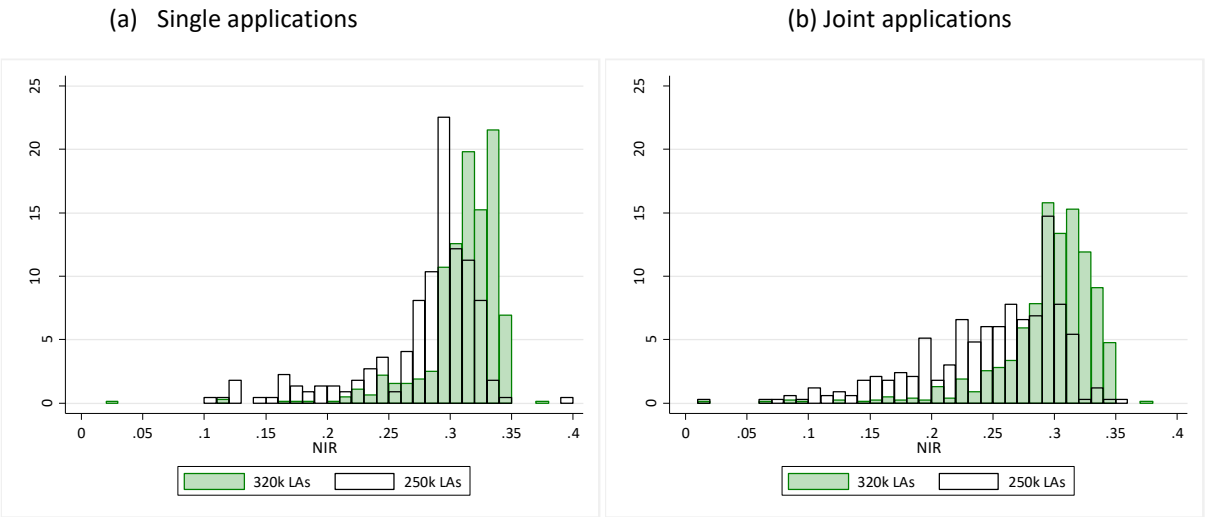
With regard to the LTV ratio, the scheme imposes a maximum LTV of 90 per cent as previously documented. On the RIHL application form applicants are requested to fill in a potential purchase price, but this is poorly filled in.[28] In any case, this house price refers to the price of the property the borrower expects to purchase, not the price of the house they actually purchase, and would therefore not give a true and accurate LTV even if it were fully completed. The responsibility to check that the 90 per cent LTV limit is adhered to therefore falls on LAs when the sale is agreed and the loan is drawn down. To the best of our knowledge, data on the

28 In the Housing Agency microdata provided for this review, this prospective LTV figure is only present for 38 per cent of applications recommended for approval and none of those recommended for rejection.

actual LTV are not recorded centrally, while data on the property price are not collected in a way that allows an LTV to be calculated. It is therefore not possible to examine this crucial aspect of credit risk in this report, or indeed to assess whether the 90 per cent limit is being adhered to in practice. This is a major data gap and should be addressed. It is our understanding that it is the responsibility of the LAs at present to ensure adherence to the 90 per cent LTV limit. However, we feel this should be a shared competency with the underwriting team to ensure the loan assessors have full information on the deposits provided and its impact on credit risk.

In addition, while the scheme imposes a maximum LTV ratio of 90 per cent, meaning that a minimum 10 per cent deposit is required, the credit policy states that only 3 per cent of the value of the property needs to come from documented cash savings. As noted in Section 4.2, exemptions from this savings share are permitted. The Housing Agency have indicated this has only been used on a couple of occasions since the start of the scheme. This is positive as the use of this exemption from the savings share heightens risk and should not be used extensively.

FIGURE 4.7 DSTI RATIO – APPROVED RIHL APPLICATIONS ONLY



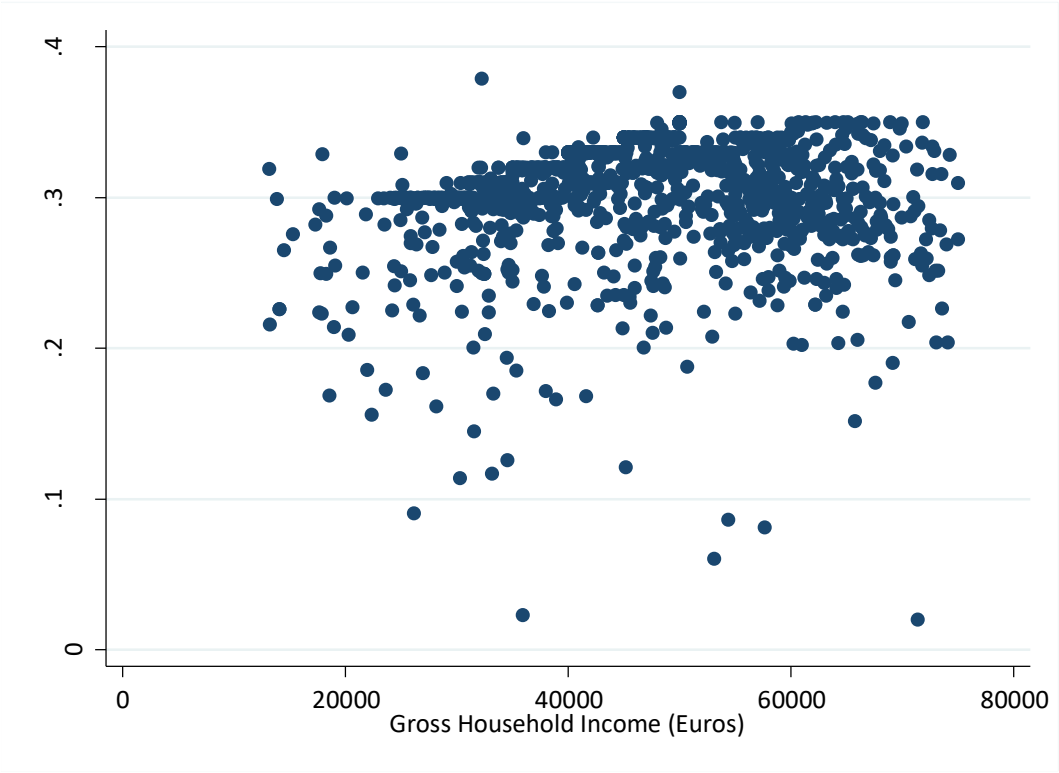
Source: *Housing Agency microdata.*
Note: *Applications recommended for approval only.*

Using the Housing Agency microdata, we can examine the distribution of the DSTI for the applications recommended for approval (Figure 4.7). Monitoring the DSTI is crucial for assessing vulnerabilities in the current portfolio. Unsurprisingly, the vast majority of applicants have a DSTI of 30 per cent or more. This is particularly true for single applicants and those in areas with a €320,000 maximum house price. Joint applicants in €250,000 areas are much more evenly spread across the DSTI distribution. The incidence of single applicants appearing to be at or near their

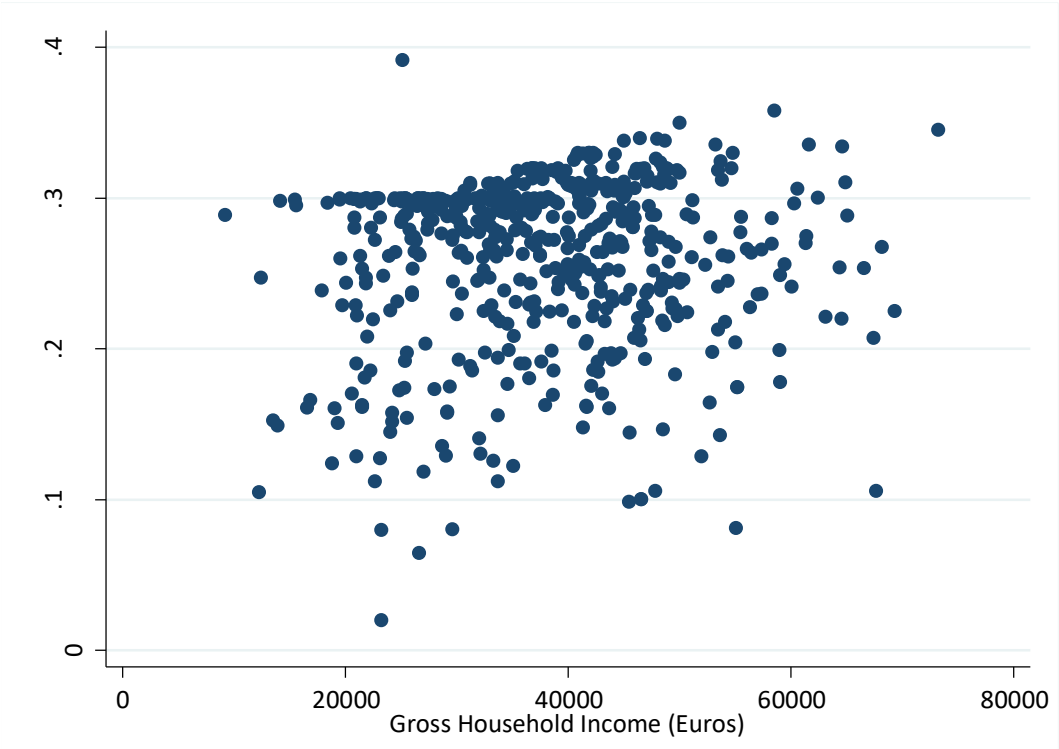
maximum DSTI may potentially heighten the credit risk of the portfolio if they have less income diversification. On the other hand, we see minimal cases of DSTIs exceeding the 35 per cent limit, indicating that these exemptions do not appear to be widely used. This is positive from a credit risk perspective.

FIGURE 4.8 RELATIONSHIP BETWEEN NET INCOME RATIO AND GROSS HOUSEHOLD INCOME

(a) €320k areas



(b) €250k areas



Source: Housing Agency microdata.

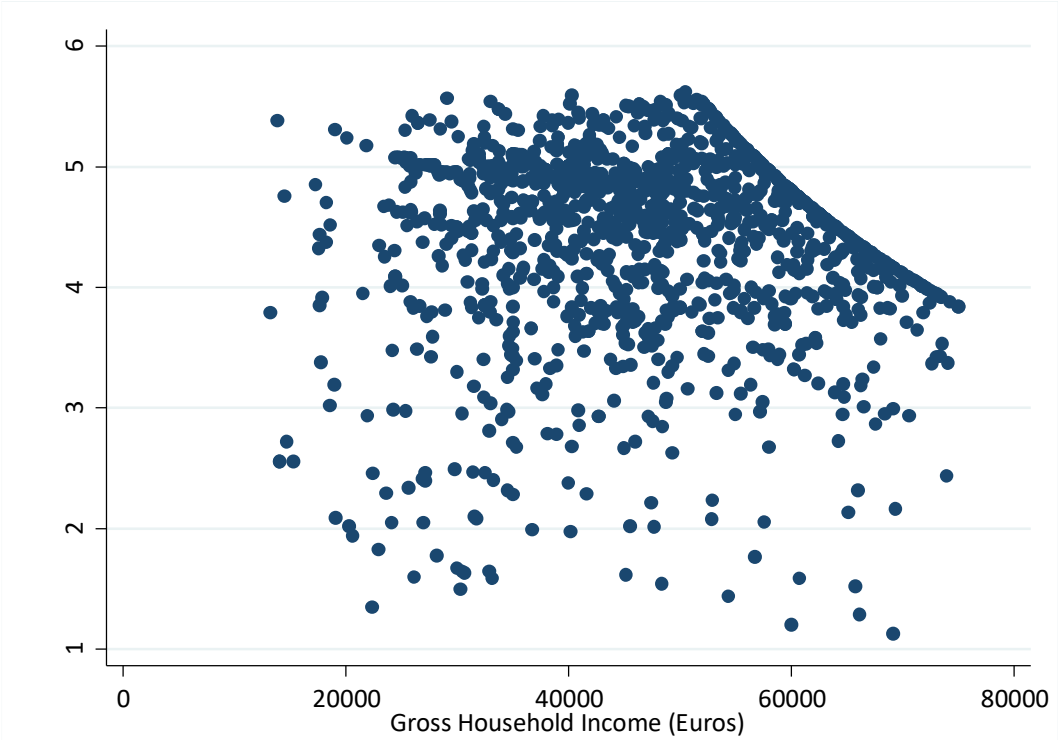
Figure 4.8 plots the relationship between gross household income and the DSTI. The maximum permissible DSTI differs according to income bands. We can see clear evidence of these maximums being hit in urban areas, with clusters of observations at 30, 31, 32, 33, 34 and 35 per cent at different parts of the income distribution (Figure 4.8(a)), but not so in non-urban areas other than a clustering around 30 per cent. In general, there is a fair amount of dispersion of DSTIs at all income levels, although there is a noticeably higher concentration at or above 30 per cent in urban areas. It is not the case that those on lower incomes tend to have higher DSTI ratios. In fact, high DSTI ratios appear to occur throughout the income distribution, in both urban and non-urban areas.

Turning to LTIs, given the RIHL scheme does not impose LTI limits, we would expect scheme applicants to have higher LTIs than those accessing credit through the banking sector. Indeed this is the case, with one-third of approvals having a ReLTI of 4.5–5 and a further 20 per cent exceeding 5 (Figure 3.12). Moreover, less than 10 per cent of those who received an LTI exemption in 2018 had an LTI of >4.5 (Kinghan and McCann, 2019, Figure 5), compared to just over 50 per cent of RIHL recommended approvals. These households will be inherently riskier than those able to access mortgage credit from the banking sector, which is to be expected.

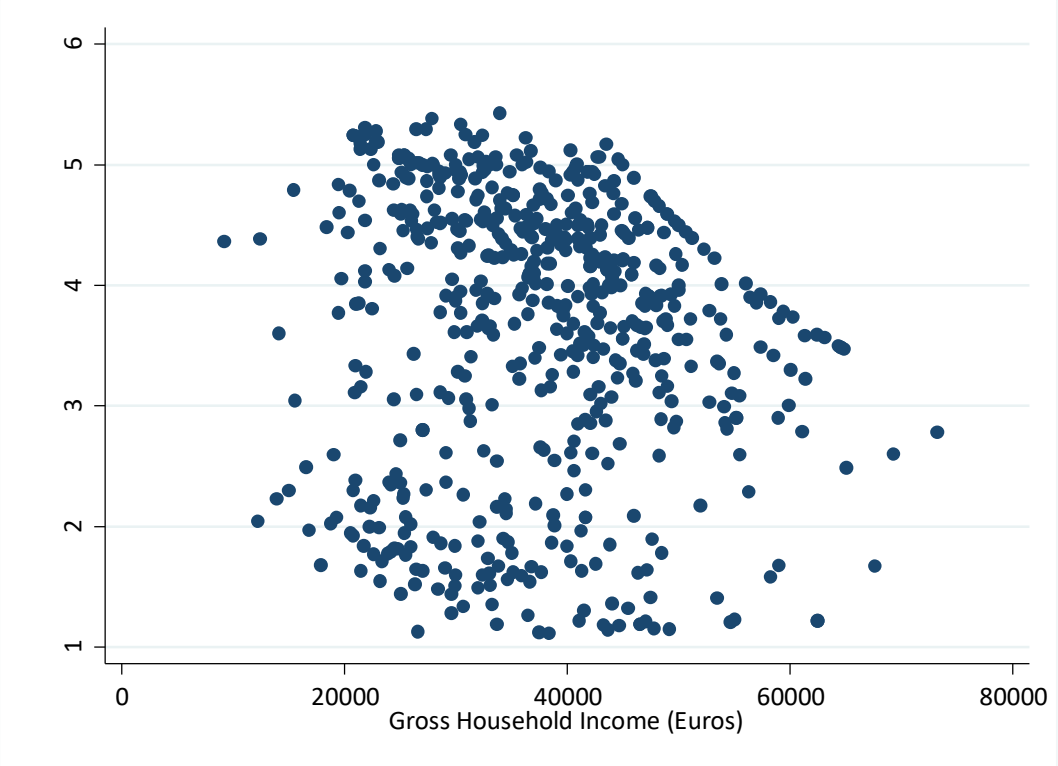
One interesting point demonstrated in Figure 4.9 is that the maximum house price and therefore loan size thresholds act as a cap on the maximum LTI households at the higher end of the RIHL income distribution can have. This results in a situation where the maximum allowable LTI is actually higher for lower- than for higher-income households. While to some extent high LTIs are to be expected from this cohort, particularly in urban areas with acute affordability challenges, the number of high LTIs in non-urban areas without widespread severe affordability challenges is a concern. From a credit risk perspective, these high leverage levels heighten the risk of the portfolio.

FIGURE 4.9 RELATIONSHIP BETWEEN RELTI RATIO AND GROSS HOUSEHOLD INCOME

(a) €320k areas



(b) €250k areas

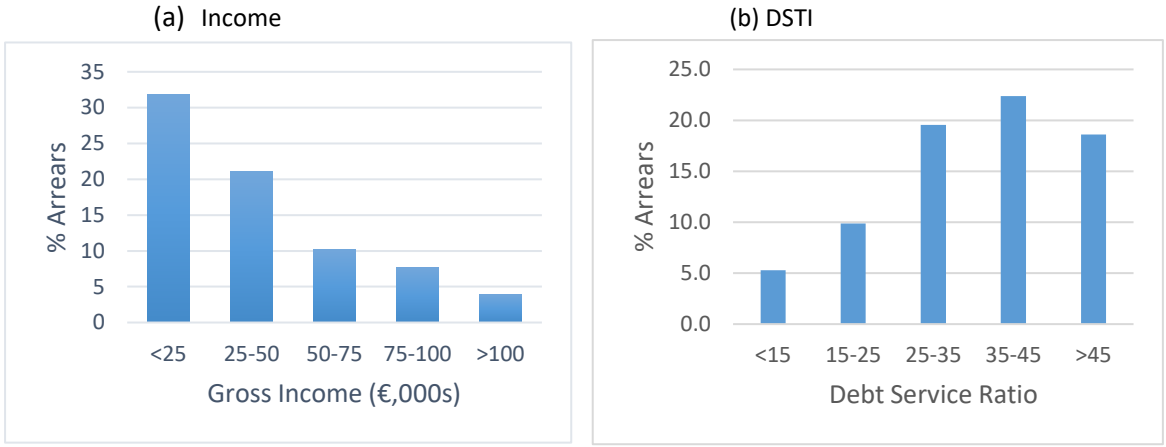


Source: Housing Agency microdata.

Two final points are worth noting in relation to the credit risk of the RIHL scheme. First, lower-income households are found to default more often. Figure 4.10(a) shows the arrears rate of Irish mortgage holder households over the period 2014–2017 across buckets of the current income distribution. The arrears rate for households within the targeted group of the income distribution (less than €75,000) is considerably higher than those at higher income levels. It is therefore expected that the arrears on the RIHL loans would be higher than for the commercial market, which lends to higher-income individuals. This should be built into any exploration of the future credit risk of the portfolio. It must be noted that income shocks are more likely to cause default relative to the income level (Slaymaker et al., 2019). However, low-income households may be more susceptible to income shocks or have fragile employment, which is a major determinant of arrears (McCarthy, 2014). That is why having strong measures to limit indebtedness for low-income households is of critical importance. Note also that the level of arrears is elevated in Figure 4.10 due to the legacy of the financial crisis. These levels of arrears are not necessarily an expectation, or good predictor, of the level of future arrears flows at these income bands. Rather, they are an indicator of the relative risk.

The second point is that the higher the current DSTI ratio, the higher the arrears rate will be. Figure 4.10(b) shows the default rate for Irish mortgage holders over the period 2014–2017 for different levels of the current DSTI ratio using the Survey on Income and Living Conditions (SILC) dataset. While it would be expected that incomes rise over time, which would lower the current debt service ratio for fixed-rate loans, RIHL loans originated at higher levels of the DSTI close to or at the 35 per cent limit will leave such borrowers with considerable vulnerabilities and few buffers to withstand shocks. It is clear that households are clustering at the maximum allowable limits from the analysis in Figure 4.8. However, the use of the graduated lowering of limits for low-income households is positive for resilience (Table 4.4).

FIGURE 4.10 PERCENTAGE OF MORTGAGED HOUSEHOLDS IN ARREARS BY INCOME AND DSTI RATIO



Source: SILC, 2014–2017. 'Arrears' refers to having missed at least one payment in the past 12 months due to financial difficulties.

4.5 ADDITIONAL SAFEGUARDS AND LOAN ARREARS MANAGEMENT STRATEGY

This section provides a brief discussion of some additional safeguards that are in place and considers the current loan arrears management framework, which is critical to dealing with cases of default.

4.5.1 Mortgage insurance

Under the RIHL credit policy, it is a legal requirement for the borrower to have the mandated LA mortgage insurance in place for the drawdown balance and the term of the loan. The LA will arrange for mortgage protection insurance under the standard LA MPI scheme. The cost of MPI, which covers both death and permanent disability, is currently 0.5550 per cent (see Housing Circular 3/2017) and should be considered when calculating the borrower's capacity to repay the loan. This protection is greater in scope than the standard life cover that is required by commercial lenders.

4.5.2 High arrears new lending restriction

As of September 2019, the Department has issued a circular that introduces an additional layer of safeguards against future default.[29] The circular indicates that in cases where the total level of arrears for a particular LA on loans allocated under the RIHL scheme rise above 5 per cent of the total extended balances, the LA will be requested to discontinue issuing these loans. Warnings of arrears levels will be issued where arrears exceed 3 and 4 per cent of its RIHL book.

[29] Circular 28/2019, 12 September 2019.

Introducing a broad risk mitigation strategy such as this is an important safeguard for the scheme. This will limit the level of lending by LAs whose portfolios are not performing well and will ensure that new drawdowns do not occur in areas with high arrears rates. A further potential benefit is that this works to ensure maximum effort among LAs to ensure prudent allocation by limiting their future access to the scheme in the case of realised ex-post default.

While a broad rule is welcome, a number of elements should be considered for the current parameterisation. First, the objective of the lending is to low-income households who are a higher credit risk. The portfolio is therefore going to experience defaults at a higher rate than the broader economy. Further explorations should be undertaken as to setting of the parameter at 5 per cent given the objective of lending to low-income households.

Second, if the economy is struck with an economic shock, it is likely that some areas will be hit harder. If this is the case, the arrears rates are likely to rise in these areas relative to other areas. Even if all LAs undertake prudent risk management, the spatial diffusion of economic shocks will have the consequence that some areas will experience higher rates of default. With the current rule, this will have a disproportionate effect on some areas that is outside their control.

Finally, for LAs who issue a small number of loans, one loan could make up a large portion of its portfolio. As it is likely that arrears cases will happen due to non-economic factors such as sickness or changes in family circumstances, one arrears case could cut off a whole LA's activity.

Furthermore, as with any state lending product, there may be a benefit to the scheme being operated in a counter-cyclical manner, i.e. if the commercial banks pull back, then it could be desired that the scheme would increase to deal with the credit crunch. This is most likely to happen during a downturn, when the arrears rate will naturally rise. If the current hard limit cuts off the lending activity, then the ability to use policy in a counter-cyclical manner is limited.

Consideration should be given to how a balance can be struck between the overall scheme safeguard and ensuring the programme's continued operation under well-managed credit risks.

4.5.3 Arrears management and loan resolution

While it is not within the scope of this report to undertake a full review of the local government sector's mortgage arrears resolution policy, the following observation is presented. Historically the arrears rate on LA loans has been high and the balances in arrears have been slow to fall despite the buoyant economy. Given the

RIHL scheme increases the scope and scale of LA lending considerably relative to the preceding years, and the fact that the profile of borrowers has likely changed, it would be good practice to take stock of the code of conduct guidelines and functionality of the mortgage arrears resolution procedure,[30] explore whether it follows best practice and determine whether any changes should be made given the changed LA lending context. This process should be cognisant of the incentives of borrowers in terms of their repayment behaviour and be wary of strategic defaults.

This is made all the more important by the fact that loan losses may be more difficult to carry for smaller LAs. It is our understanding that a central loan arrears resolution fund, which can be accessed as a last resort, is available in cases where the LA is finding it difficult to cover the loan losses. Given the scale of the RIHL scheme relative to previous LA lending, it would be prudent to take stock of the policies, procedures and capacity of LAs to manage and absorb loan delinquencies. Forecasting and stress testing of loan exposures should be done on a regular basis as a good-practice risk monitoring tool, and the fund linked to such an assessment.

4.6 CHAPTER CONCLUSIONS

A number of findings emerge from this chapter regarding the risks and other operational considerations of the RIHL scheme. The main points are as follows.

Credit policy and credit risk assessment

- The scheme has aligned its LTV ratio with the level set by the Central Bank for FTBs, 90 per cent. This is prudent.
- The credit assessment includes a maximum DSTI that is used by many countries as a macroprudential tool. The calibration of the RIHL limit, at a maximum of 35 per cent, would appear to be in the prudent range relative to international norms. The maximum tightens to 30 per cent for lower-income households, which is sensible. A tightening of the open allowance for lending above the cap should be explored.
- As of June 2019, the default rate for RIHL loans (arrears of 90 days or more) was 0.4 per cent, which is identical to the default rate on commercial loans with a similar vintage from CBI data.
- It is likely that the default rate on the RIHL loans will exceed that on commercial loans over time, as research shows that lower-income borrowers default more often. As the aim of the scheme is to extend credit to such households, once sufficient credit policy

[30] *Dealing with mortgage arrears – a gui*de *for local authorities*. https://www.housing.gov.ie/sites/default/files/migrated-files/en/Publications/DevelopmentandHousing/Housing/FileDownLoad%2C30943%2Cen.pdf

safeguards are followed at origination, in isolation, a somewhat higher default rate on RIHL loans will not necessarily undermine the achievement of the scheme objectives, nor should it automatically be used to curtail the programme.

- An overall cap on LA lending for areas with arrears greater than 5 per cent of the portfolio has been introduced to safeguard against high portfolio losses that may arise.
- A strong feature of the scheme is the centralised credit assessment. However, operationally, it is at the discretion of LA credit committees to overturn the assessment of the underwriting team. The data indicate that this has occurred in some LAs where approvals have exceeded the level suggested by the underwriters. Without access to adequate microdata at loan origination stage, it is not possible to assess whether this has already exposed the current portfolio to higher risks.
- The DHLGH has already taken welcome steps to address this issue by ensuring that deviations from the underwriting assessment are reported and explained. Some further options for strengthening such safeguards could be considered.
- As the credit risk lies with the LAs, any loan losses will have to be covered from their funds. If losses are high, this may impact other LA services.
- At present, it is not possible to provide full insight into the vulnerabilities of the portfolio without access to granular microdata on LTV, LTI and DSTI ratios at origination. This data gap should be addressed with haste.
- Considerable data gaps exist in terms of collating a centralised database of loans that monitors their performance. Suggestions for ongoing data collation and monitoring are provided in Section 6.2. Annual stress tests should be conducted on the portfolio to provide accurate measures of potential arrears.

Given the scale of the RIHL scheme relative to previous LA lending, it would be prudent to take stock of the policies, procedures and capacity of LAs to manage and absorb loan delinquencies. The following are further suggestions on credit policy.

- Consider limiting the maximum age to the statutory retirement age.
- Consider limiting exemptions from the saving share of equity.
- While the main credit safeguard for RIHL is the application of a 35 per cent net income ratio that falls to 30 per cent for low-income households, some further measures could be useful, such as a minimum income limit, an increase in the interest rate, income multiple restriction or a formal residual income test.
- For contract employees who have less than 3 months remaining on their contracts, ensure that any commitment from the employer to employment renewal is put in writing.

CHAPTER 5

Scheme operational funding, housing market impact and other risks

5.1 INTRODUCTION

The objectives of this chapter are threefold: first, we explore the scheme funding and operational structures. Second, we explore the impact of the drawdowns to date on the housing market. Third, we explore the impact on government finances and other selected risks.

5.2 OPERATIONAL STRUCTURES AND SCHEME FUNDING

5.2.1 Scheme funding and allocations monitoring

The original announced Rebuilding Ireland Home Loan (RIHL) scheme was to be funded up to €200m over a 3 year period. At the beginning of the scheme, the Housing Finance Agency (HFA) borrowed €200m in funds at a competitive fixed rate from the National Treasury Management Agency (NTMA) to lend to the local authorities (LAs) for the scheme. It was noted that these funds were to cover the fixed-rate products and the HFA would secure funding for the variable-rate loans from the market. The setting of the original €200m was established based on the projected demand for the scheme at inception. Within the scheme, each LA receives a capital allowance. While there were some reallocations across LAs, the allocations at the end of 2018 are presented in Table 5.1.

TABLE 5.1 RIHL CAPITAL ALLOCATIONS 2018

LA	Capital allowance (€)	Allowance share (%)	No. applications	Application share (%)
Carlow	5,200,000	2	93	2
Cavan	2,100,000	1	48	1
Clare	4,500,000	2	86	2
Cork City	1,520,000	1	195	4
Cork County	6,000,000	3	323	6
Donegal	2,000,000	1	39	1
Dublin City	50,000,000	24	592	11
DLR	10,020,000	5	143	3
Fingal	19,276,000	9	723	13
South Dublin	25,000,000	12	401	7
Galway City	3,000,000	1	118	2
Galway County	3,924,000	2	182	3
Kerry	3,075,000	1	163	3
Kildare	8,000,000	4	369	7
Kilkenny	6,080,000	3	51	1
Laois	5,500,000	3	142	3
Leitrim	500,000	0	18	0
Limerick	2,545,916	1	198	4
Longford	1,200,000	1	46	1
Louth	4,300,000	2	127	2
Mayo	5,456,036	3	90	2
Meath	9,300,000	4	269	5
Monaghan	5,000,000	2	48	1
Offaly	1,700,000	1	70	1
Roscommon	1,500,000	1	51	1
Sligo	3,375,000	2	55	1
Tipperary	1,978,470	1	281	5
Waterford	2,000,000	1	121	2
Westmeath	4,576,000	2	63	1
Wexford	7,000,000	3	142	3
Wicklow	4,000,000	2	241	4
TOTAL	209,626,422	100	5488	100

Source: https://www.oireachtas.ie/en/debates/question/2019-03-05/596/

From the applications that have been received for the scheme, demand has far exceeded the original amount expected. Using the granular data from the Housing Agency, it is possible to estimate the total value of applications received. As of early September 2019,[31] the total value of loans applied for (which was deemed valid in terms of the scheme conditions) was €782m.

As of June 2019, LA credit committees had provisionally approved 2408 loans

[31] The latest date for applications received in our granular data extract from the Housing Agency was 5 September.

valued at over €454m, well in excess of the initial allocations. Loan applications expired amounted to €92m, leading to an overall facility exposure of €363m. Drawdowns, however, had not exceeded the initial facility, standing at €178m.

Following discussions with the Department of Public Expenditure and Reform, an increase in the overall capital allowance for the scheme was provided in August 2019, amounting to €363m, to cover the exposure of the scheme. This takes the total allocation to the scheme to €563m. The balance of the funds not already earmarked to cover approvals or drawdown is envisaged to be made available for drawdown until June 2020 (for applications made in 2019 with a 6 month drawdown window from approval). The HFA has confirmed that it will provide the additional tranche of funding at the 1.5 per cent rate.

While no LA exceeded its allocation in terms of drawdowns, the approvals were above those envisaged in the original fund. In a general banking context, it can be difficult to map approvals to drawdowns (roll rate) as borrowers take time moving through the process or may even decide to withdraw from the transaction. For this scheme, it does take time to build up a picture of the roll rate and this is now becoming clearer based on the Local Government Management Agency (LGMA) submitted data. However, it is important that the exposures of the scheme stay within the limits of the overall level set centrally. While it was clear that demand outstripped the initial €200m, the new revised allocation, based on the 2019 data, should provide a better matching of capital allowances to demand going forward and should make it less likely that LAs find themselves coming up against a binding allocation. However, it is important that overall scheme activity stays within the sanctioned amount. While this might mean a delay or denial of applications once the figures are reached, this safeguard must be put in place to ensure the sustainability of the scheme. Indeed, it may not be possible to satiate all the demand, given that the level of the overall funding will be capped for risk and operational reasons. Careful monitoring of the level of approvals relative to the capital allowances by the Department of Housing, Local Government and Heritage (DHLGH) and the LAs should be continued and strengthened.

It is also noteworthy that the geographic concentration of demand is greatest in the urban areas. This may lead to excess demand relative to allowances in some urban areas and lower demand relative to allowances in other areas that could be channelled to areas with greater demand on a frequent basis. Indeed, given the demand-led orientation of the scheme, it is challenging to set allowances at an LA level. If an alternative mechanism could be developed to ensure activity remains within the sanctioned amount, it would be potentially more efficient to move away from a strict LA-level allowance. If this is not possible, data from the applications levels can be used to better target the allowances given that the scheme is more than 18 months in operation. At a minimum, consideration should be given to a

structured and time-bound appraisal of the use of allocations which could lead to increased channelling of credit towards areas with greater demand. A reserve fund could be used to top up allocations for areas where demand has exceeded projections, all within the scheme-sanctioned amount. The critical elements for any reform would be flexibility across areas with certainty on controlling the activity relative to sanction levels.

5.2.2 Term risk and operational funding

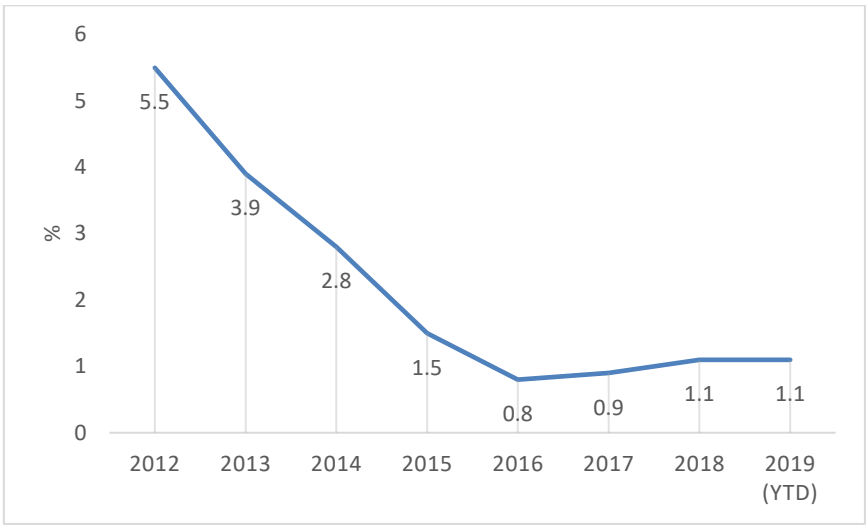
Lending activity under the scheme is ultimately funded by the HFA, which provides a borrowing facility for LAs. These lending facilities are provided on a long-term basis for fixed-rate loans, leveraging the low cost of government financing available at present. LAs can pass this directly to households in the form of lower-cost, longer-term fixed-rate loans. The HFA does not carry credit risk as the LA is the ultimate borrower and carries an implicit government guarantee. This is a long-standing policy of the HFA to assign a zero credit risk to LAs.

While any maturity transformation inevitably contains risk, the HFA undertakes to manage interest rate risk across its lending portfolio.[32] In this context, the term risk (which would ultimately be borne by the Housing Finance Agency) would be low given the relatively moderate level of the scheme and would be no different to its lending activities for other longer-term activities, such as lending to Approved Housing Bodies.

Ultimately, the ability to manage the term risk would link to the cost of long-term financing available to the HFA, which in turn borrows from the NTMA. It is ultimately an evaluation of the cost of funds to the NTMA that sets the appropriate price to the LAs. The NTMA has issued €66bn in medium to long-term debt since 2015 at a 14.3 year weighted maturity carrying an average interest rate of 1.1 per cent. Indeed, the average rate on long-term debt has fallen markedly from 2012 (see Figure 5.1). On 9 May 2019 the NTMA raised €4bn through the syndicated sales of a new 30 year treasury bond at an average yield of 1.53 per cent.[33]

[32] We would like to thank the HFA for the provision of information on its risk management strategy.
[33] https://www.ntma.ie/news/ntma-raises-4-billion-from-sale-of-new-2050-benchmark-bond

FIGURE 5.1 AVERAGE INTEREST RATE ON GOVERNMENT LONG-TERM DEBT



Source: NTMA Investor Briefing Pack, August 2019.

While it is outside the scope of this report to evaluate in detail the long-term pricing decisions set by the HFA, given the current interest rate environment and the ability of the NTMA to fund long-term debt at rates around 1.1 per cent on average, the pricing for the current funding tranche would appear to be appropriate given the maturity. It appears that the current long-term financing rates of 1.5 and 1.75 per cent for the 25 and 30 year fixed rate could ultimately be fully hedged by HFA borrowing at the current interest rates, thus allowing interest rate risk to be sanitised. Whether this occurs is a decision for the HFA in line with its own interest rate risk management policy. It is not within the scope of this report to explore this.

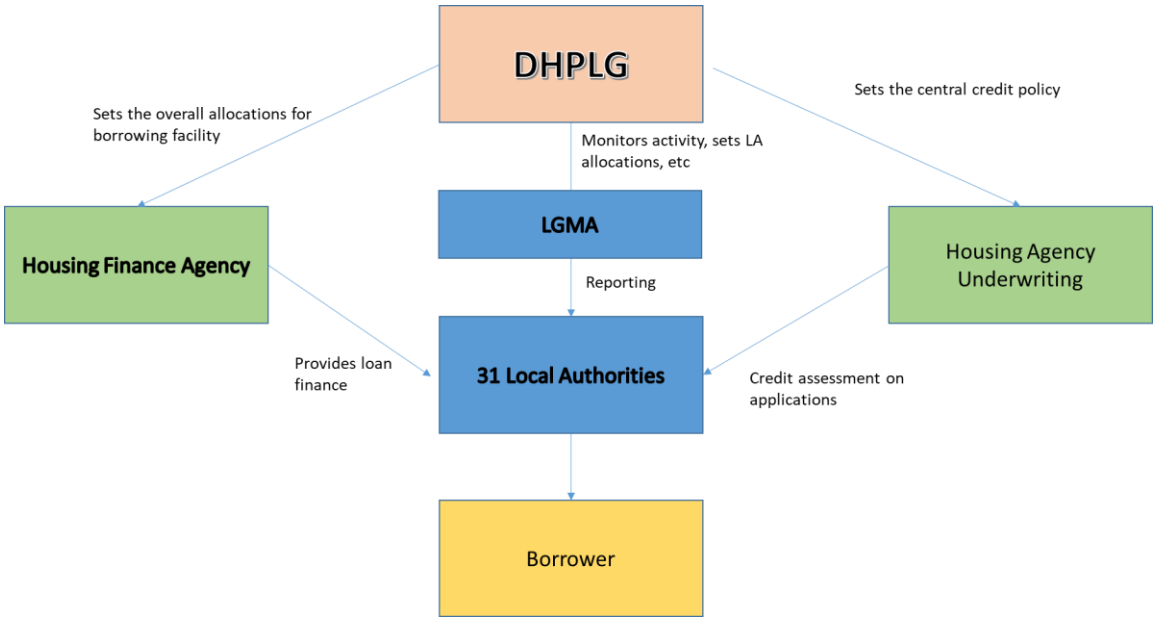
However, interest rates for long-term funding are subject to considerable fluctuation given the Irish and global financing environments. If funding tranches are to be made available for continued schemes into the future, these will have to be priced at the long-term rate in the market when the scheme is issued. While maturity risk can be managed for existing liabilities, the base rate from which the current lending activity is financed should rise in line with the cost to the state of raising long-term finance for future iterations of the scheme if they are to be provided on long-term fixed-rate contracts.

On an operational point, any delays between the drawdown activity of the loan and the facility drawdown for the LAs from the HFA, whereby LAs are using own funds to cover mortgages, provides a challenge to the HFA in understanding what its exposure is going to be. Consideration should be given to shortening the timespan or looking at other operational mechanisms to provide a more transparent understanding of the exposures for the HFA.

5.2.3 Organisational structures

As can be gleaned from the descriptions above in terms of funding and credit risk, the organisational structures for the provision of the RIHL loans are multilayered due to the multiple agencies involved in the process: a total of 35 organisations. Figure 5.2 briefly describes the organisational process.

FIGURE 5.2 RIHL ORGANISATIONAL PROCESS



Source: ESRI observations.

The requirement to monitor and manage 31 separate LAs, all with different credit committees, local market needs, organisational structures and information gathering systems, adds considerable complexity to the process. This leaves the scheme open to challenges in terms of data collection, monitoring, harmonisation of processes and procedures, etc. In particular, information sharing across agencies may be difficult where recording systems are incompatible.

A good example is as follows. It was noted in the consultations that borrowers can apply (and have applied) to various LAs simultaneously. They can therefore receive multiple approvals or different outcomes from different authorities. At present, there is no central portal where LAs can observe such behaviour. The underwriters have noted cases such as these but do not have full information. Under the current arrangement, they are also unable to inform multiple agencies if they observe such practices. This is particularly the case in the greater Dublin area (GDA), where potential buyers may be exploring a number of areas across a wide geographic area. Another potential complexity is the different recording of loan, financial and

other information across all the LAs and the ability to collate, merge and monitor these data in a consistent format.

Given these complexities, further consideration should be given as to whether some, or a number, of aspects of the scheme could be centrally managed. For example, the use of a central application process may be beneficial whereby borrowers can apply to multiple councils on the one form and these cases are informed to all in the process. Further centralisation could be considered in terms of credit risk loss absorption buffers. Central information sharing templates and information gathering is also critical and we will provide some suggestions in regard to data gaps in the conclusions.

Furthermore, given the considerable complexity (both operationally and from a compliance and oversight perspective) of running a major loan scheme, serious consideration should be given as to whether sufficient resources are currently available to the DHLGH and the other agencies involved in running this scheme, or whether these resources need to be enhanced. Such an operation requires considerable resources in order to be successful.

5.3 INTEREST RATE PRICING

At this juncture, it is useful to consider the pricing of the interest rates available to borrowers under the scheme. From its outset the scheme offered three interest rate products: (1) a variable rate priced at 2.3 per cent; (2) a 25 year fixed rate priced at 2 per cent, and (3) a 30 year fixed-rate product priced at 2.25 per cent. The components of the interest rate pricing are set out in Table 5.2.

TABLE 5.2 THE COMPONENTS OF RIHL INTEREST RATE PRICING

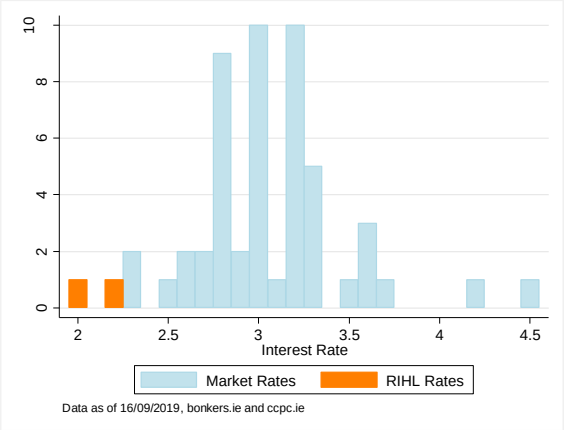
	Nature of charge (%)		
	Fixed rate – 25 years	**Fixed rate – 30 years**	**Variable rate**
HFA rate	1.5	1.75	1.0
MARP premium	0.25	0.25	0.8
LA admin fee	0.25	0.25	0.5
Rate charged	**2.0**	**2.25**	**2.3**

Source: DHLGH RIHL documentation.

As of an August 2019 circular by the Department, the variable rate product is no longer offered as part of the scheme. These interest rates are low relative to rates available to borrowers in the commercial market. Figure 5.3 presents a histogram of market interest rate prices. The RIHL products (fixed rates) are the lowest interest rate product available in Ireland, assuming a 90 per cent loan-to-value

(LTV) ratio. Most mortgage interest rates are set between 2.8 and 3.3 per cent. There are only two offerings close to the RIHL rates, short-term fixed rates by Ulster Bank and KBC. In the commercial market, there are no interest rate products with a fixed-rate period above 10 years, which provides a considerable strategic difference for the RIHL loans.

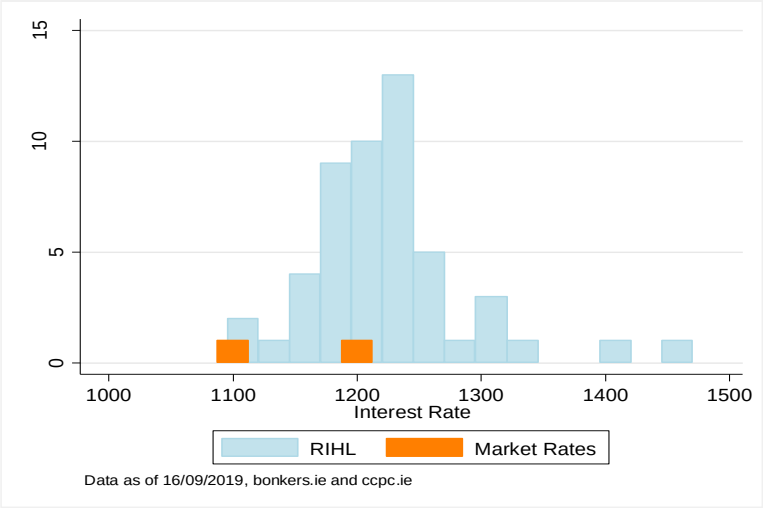
FIGURE 5.3 HISTOGRAM OF INTEREST RATES IN MARKET AND FOR RIHL LOANS



Source: Bonkers.ie; consumerhelp.ie.

For an equivalent loan size and term, the RIHL interest rates provide a lower instalment than what is available on the market, reflecting the lower rates. This is shown in Figure 5.4.

FIGURE 5.4 HISTOGRAM OF INSTALMENTS FOR €288,000 LOAN AT 90 LTV IN MARKET AND FOR RIHL LOANS

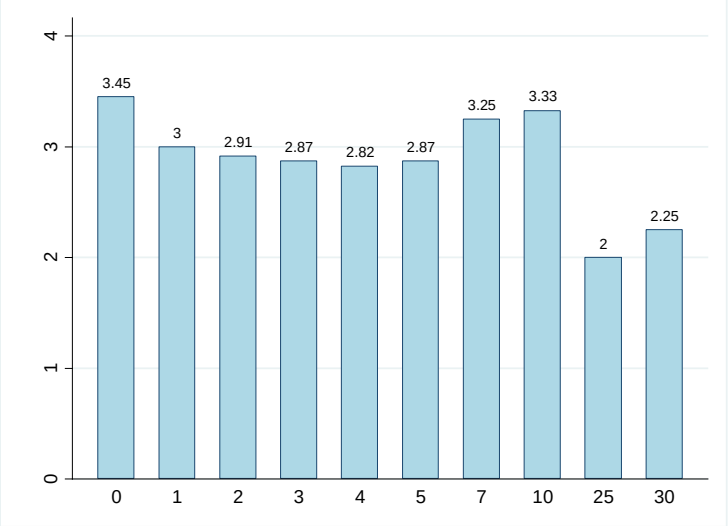


Source: Bonkers.ie; consumerhelp.ie.

As noted above, no banks currently provide fixed-term tenures above 10 years. While these are common in other international mortgage markets (such as the US

and Denmark), the RIHL loans offer the longest term and the lowest interest rate in the market. This is an unusual combination for interest rate pricing given that banks normally charge higher rates the longer the fixation term, because long-term fixed rates shift the interest rate risk from borrowers to banks (Kelly and Myers, 2019). The exposure to cost of funding risk, inflation and long-term interest rates usually ensures that this relationship holds. Figure 5.5 shows how the pricing of Irish fixed-rate loans increases as the tenure moves from 4 to 10 years in duration.

FIGURE 5.5 AVERAGE INTEREST RATE BY FIXED TERM LENGTH



Source: Bonkers.ie; consumerhelp.ie.

Along this dimension, it would be expected that the RIHL loans would set interest rates at higher levels than the shorter-term maturity loans. However, given that the LAs' cost of funding is determined by long-term secure lending facilities provided by the HFA, the cost of funds can be lower than would be available to commercial financial institutions. Indeed, in regard to the cost of funding to the LA from the HFA, the funding cost for the variable rate loan is 1 per cent, rising to 1.5 per cent for the 25 year fixed rate and 1.75 per cent for the 30 year fixed rate. Given this, and the fact that at the prevailing long-term rates available to the Irish government the HFA would be able to sanitise any term risk by fully hedging the current fixed rate liabilities, applying a lower cost of funds to the RIHL loans would appear suitable at present.[34]

Two further considerations arise in relation to pricing: (1) is credit risk fully priced into the current interest rate? (2) Are the RIHL interest rates too low relative to

[34] This does not take account of the fact that the variable rate option may increase in cost and this may lead to heightened default risk for borrowers.

the market, and could they create distortions regarding the incentives of borrowers?

At present the credit risk of the loan is priced as follows. The Housing Circular 38/2013 directed LAs to apply a mortgage arrears resolution process (MARP) premium rate of 0.8 per cent with effect from 1 January 2014 to all existing and new mortgages. This rate should continue on all variable-rate loans issued from 1 February 2018, while a reduced MARP premium of 0.25% applies to new fixed-rate loans from 1 January 2018. This is set by the Loans Management Group. The lower MARP to be charged on all fixed-rate loans is due to lower default risk attached to fixed-rate rather than variable rate loans on account of the interest rate risk.

A number of observations can be made based on the type of loan product, the default profile of the borrower pool and the LA lending experience. First, given the targeting of the loan at lower-income households, these loans are inherently higher risk than those allocated in the commercial market, which lends to higher income groups. Evidence shows that lower-income households have fewer buffers with which to absorb economic shocks (Corrigan et al., 2019) and therefore are most likely to go into default. As noted above, this suggests that the credit risk profile of the existing portfolio is higher than that of the commercial market. Under normal credit risk pricing circumstances, the credit risk component of the interest rate would be higher than for other borrowers in the market. Second, the lending experience of the LAs, with high arrears rates and low repossessions, would suggest a higher default risk is likely and loan resolution could be challenging with high expected losses.

The other major consideration in regard to the pricing of RIHL loans relates to whether the level of the interest rate is correct so as to target the scheme to those who need it most in terms of credit access. The long fixed-rate duration would be attractive to most households considering purchasing in this price range. Given that to qualify borrowers must provide evidence of insufficient offers of finance, the RIHL loan product acts to lower credit constraints by providing credit to worthy borrowers. In this sense, the RIHL scheme acts as a lender of last resort for these households. Traditionally, to prevent distorting borrower behaviour (whereby borrowers would try to access the scheme when they could actually raise market finance), lender of last resort finance should be priced at higher than the natural long-term competitive market rate. If it is not, borrowers have the incentive to attempt to gain access to the scheme when they otherwise could have secure finance from the market.

Given these two considerations (coupled with the concerns around the ability to prove insufficient finance and the cross-over between RIHL lending and the

commercial market in non-urban areas), we recommend that the interest rate be raised to above the level of the closest fixed-rate tenure available to the RIHL product in the market. In practice, this would mean the RIHL product should be priced above the most expensive 10-year fixed rate offered in Ireland as this is the longest comparison term available at present. Such a rate increase would be consistent with lender of last resort pricing and help to ensure that borrowers who can get credit in the commercial market are incentivised to do so. Pricing can be cognisant of the 0.5550 per cent mortgage protection insurance (MPI) that is compulsory for LA borrowers. It must be noted that raising the interest rate in this regard will in fact tighten the debt service to income (DSTI) restriction at the current 35 limit as it will raise the payment for a given term and loan balance. This would provide further credit risk protection as it would be a more stringent screening of borrowers.

5.4 IMPACT ON HOUSING MARKET AND MACRO-FINANCIAL RISKS

5.4.1 Impact of scheme on house prices to date

In Ireland, a critical determinant of the house price appreciation occurring over the Celtic Tiger boom phase was rapid growth in credit under imprudent lending conditions. Understanding the sensitivity of house prices is therefore critical to assessing both macro-financial risks and the market dynamics over time. It is important to note from the outset that at present we may not expect to find any impact of the scheme on house prices given that the scheme has been in operation for only a short period and the fact that only 1021 loans had been drawn down by the end of June 2019. This should be monitored over time.

The impact of the RIHL lending activity on house prices in Ireland depends on the extent to which it increases the overall level of credit drawn down. It is outside the scope of this study to undertake a full new econometric evaluation of the causal relationship between house prices and credit for first-time buyers (FTBs) in Ireland that would fully take into account the macroeconomic dynamics and endogeneity of housing and credit markets. However, to gauge the relative impact of the scheme lending on house prices in Ireland, we can use existing literature that estimates the relationship between credit growth and house prices to provide scenarios for the likely impulse that the growth in credit could have had. We can then compare this to the actual house price dynamics in the market to evaluate whether the introduction of the scheme was associated with an increase in prices in line with the scenarios.

Our scenarios and estimates of the increase in credit as a result of RIHL are presented in Table 19 below. The steps that we deploy to develop the scenarios are as follows. We first take the value of drawdowns of RIHL loans from inception

to end of June 2019.[35] Over this period a total of 1021 loans have been drawn down. Given coefficients from existing research (Kelly et al., 2018; Favara and Imbs, 2015), we estimate that the impact on house prices would be less than one percentage point all else equal. These scenarios are hypothetical and do not attempt to explain the trend in house prices in Ireland as a function of the scheme.

TABLE 5.3 ESTIMATED IMPACT OF RIHL LENDING ON HOUSE PRICES

	RIHL lending to end June 2019	
	Volume	**Value**
RIHL	1021	€178,661,239
BPFI (FTBs)	28,445	€6,262,000,000
BPFI (total new house purchase credit)	46,783	€10,644,000,000
Total FTBs	29,466	€6,440,661,239
Total overall	47,804	€10,822,661,239
RIHL increase over FTBs	3.6%	2.9%
RIHL increase overall	2.2%	1.7%
Percentage change in house prices		
Kelly et al. (2018) Coefficient FTBs – 0.23		0.7
Kelly et al. (2018), Favara and Imbs (2015) Coefficient (2015) – 0.15		0.3

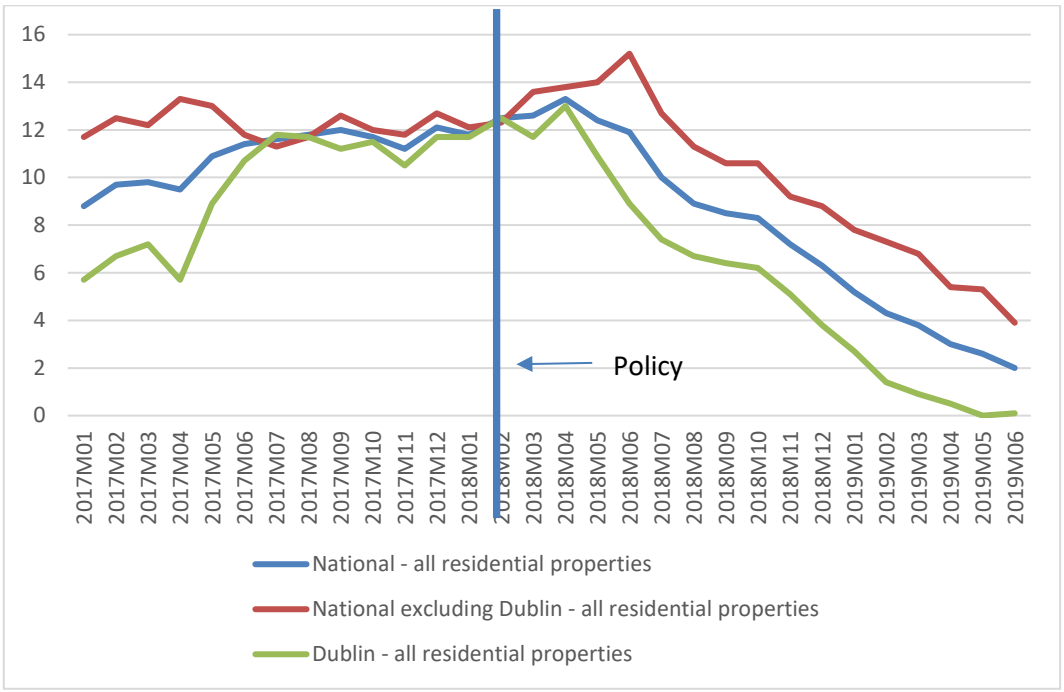
Source: DHLGH, Banking and Payments Federation (BPFI) and CSO data.

Given the increase in the overall house price index between January 2018 and June 2019 was only 6 per cent based on Central Statistics Office (CSO) data, it is highly unlikely that the lending under the scheme to date has had any material impact on market prices.[36] Indeed, since the inception of the scheme prices have begun to moderate substantially (Figure 5.6), suggesting that other factors (outside the scheme) have been driving the dynamics of the housing market and putting downward pressure on price growth. Given that the scheme did not have many drawdowns until after June 2018, the full lending activity has come at a time of falling price inflation. It is therefore unlikely, with the low volume of the scheme relative to the overall market, that any inflationary pressures have occurred due to the RIHL lending.

35 We use data to the end of June 2019 as these were the most recent available to us when the analysis was completed.

36 The residential property price register is for all properties. It does not provide an index for FTB-specific houses, which is hedonically adjusted. While data for average prices for FTBs are available, the lack of a hedonic transformed series makes their use problematic.

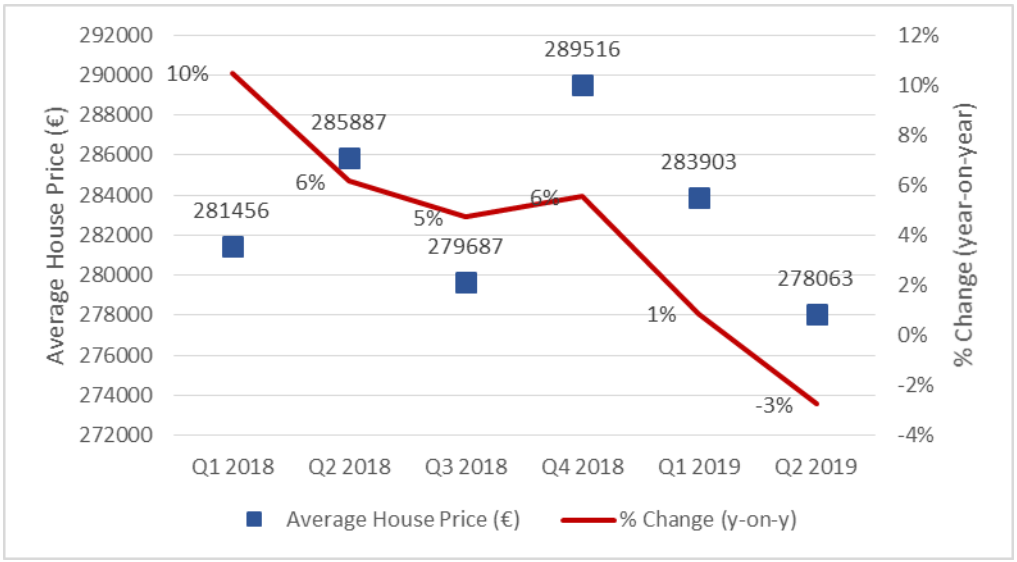
FIGURE 5.6 HOUSE PRICE GROWTH SINCE 2017



Source: CSO house price data.

Indeed, if we focus on the average FTB house price (no FTB index is available from the CSO) as presented in Figure 5.7, it is clear that the price level has been dropping throughout 2019 and the growth rate moderating over the period of the scheme.

FIGURE 5.7 AVERAGE FTB HOUSE PRICES – Q1 2018–Q2 2019



Source: Authors' analysis of CSO house price data.

Assessment of distributional bunching

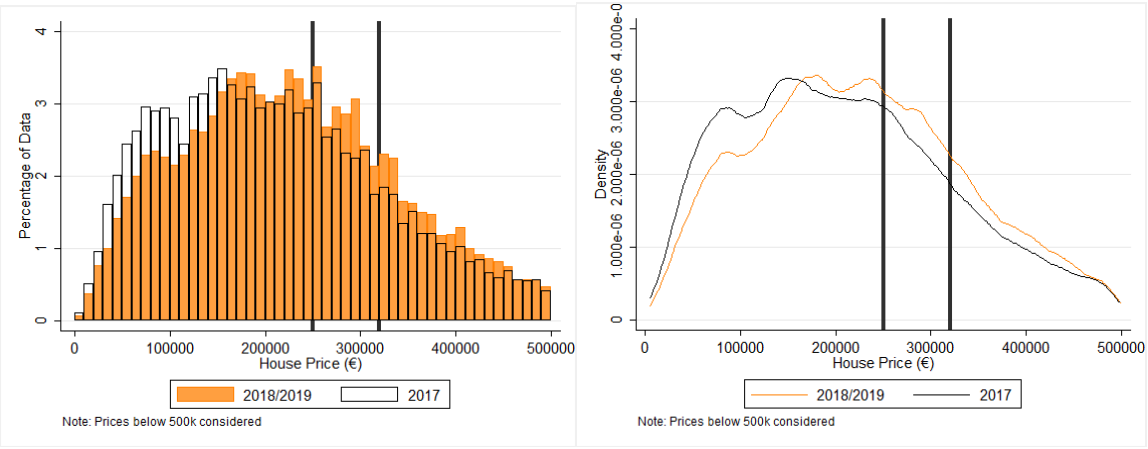
Another way to assess the potential impacts of the lending scheme on house prices is to explore whether the policy caused a 'bunching' of house purchases under the thresholds that would be allowed under the scheme. As the purchases eligible for RIHL borrowers are capped at €320,000 or €250,000 depending on the county, any impact on house prices would manifest itself in an acceleration of prices and increase in transactions below, or at, these points.

To explore whether any effect of the policy can be identified in this manner, we take data from the Property Price Register (PPR), split them into time periods and by housing type, and visually investigate whether any distributional changes that could be attributed to the policy are observed. We focus on all buyer types here for two reasons. The first is purely data-driven, as no FTB identifier is available in the PPR. The second is that using all data is more appropriate as FTBs compete with second and subsequent buyers, as well as investors, and thus any impact on the market must account for cross-buyer-type market dynamics in the aggregate.

Figure 5.8 presents the histogram (left) and kernel density plot (right) of the house price distribution (in euro levels) over time for 2018/2019 (the period in which the policy was in operation) and 2017 (the pre-policy period). The histogram splits the distribution into buckets of €10,000 from 0 to €500,000. Each bucket represents the share of total house prices that occurred in this price bracket. If the policy had a considerable impact on the market, two side-effects on the distribution would be evident. First, a large bunching of transactions at or just below the maximum house price thresholds, which we have here depicted as solid black lines at €250,000 and €320,000, would be expected. Second, we would expect this bunching not to be evident in the pre-policy period.

It must be noted that given the increase in house prices over time, we do expect the overall distribution for the period 2018/2019 to have moved to the right of the 2017 distribution. This movement would be expected in the absence of the policy and would reflect the overall growth in nominal house prices over time. These differences would be even more evident once smoothed by a kernel density function, which is also presented. Figure 5.9 presents the histograms (left) and kernel density plots (right) for the overall national market, including new and second-hand properties.

FIGURE 5.8 HISTOGRAM AND KERNEL DENSITY PLOTS OF ALL HOUSE PRICES 2017–2019



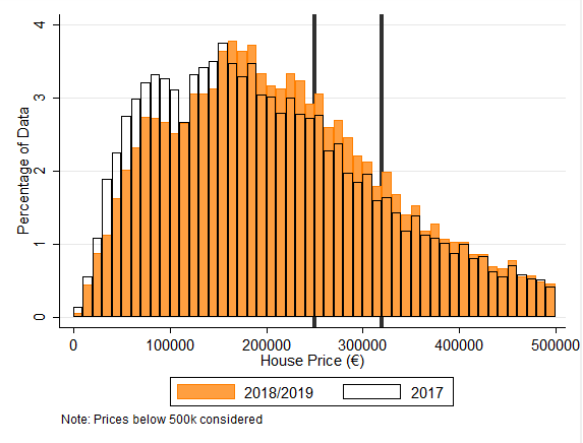
Source: Authors' analysis of PPR data.

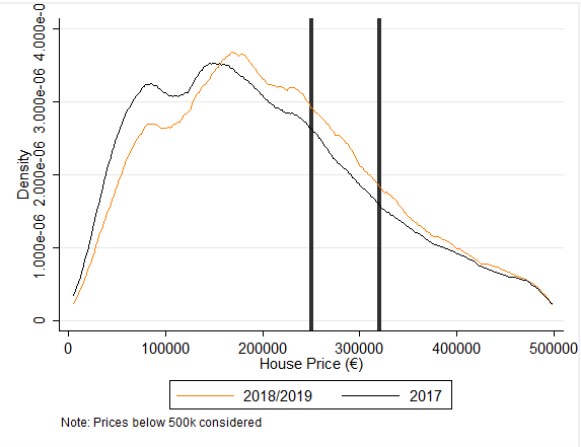
On visual inspection of the distributional shapes, while there are clusters at particular price points in the 2018/2019 distribution, these do not appear to be bunching excessively at the scheme limits. There is some bunching just below the €250,000 threshold but, given that our analysis of the loan-level data in Chapter 3 indicates that very few loans are at this level, it is unlikely that this is caused by the scheme. For the higher limit, analysis of the density plot suggests no evidence of kinks in the distribution at the limit. Indeed, the trend density in the two periods appears to be reasonably steady over time. This evidence would suggest that the scheme has not had any material side-effects on the overall price distribution.

Figure 5.9 splits the distribution between new and second-hand properties. For existing properties, a similar conclusion to the overall market is evident. There do appear to be some differences in the distributional shape for the new properties market; however, given that relatively few RIHL loans have been provided for new properties, it is implausible that this is related to the policy.

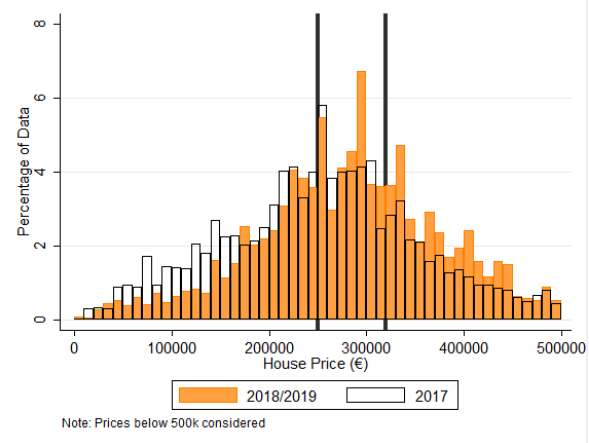
FIGURE 5.9 HISTOGRAMS AND KERNEL DENSITY PLOTS OF ALL HOUSE PRICES 2017–2019

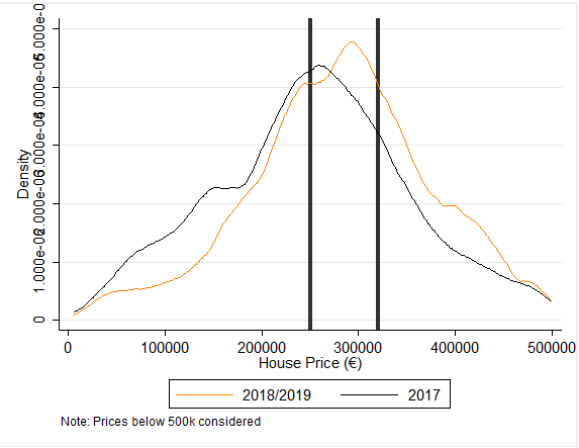
Existing properties





New properties





Source: Authors' analysis of PPR data.

Given the concentration of the use of the scheme in the GDA and other urban areas, it is useful to split this analysis by the different regions to appraise whether the scheme had regional specific effects. Having an effect on a specific geographic market does not mean that the overall national house price distribution has been affected, but provides some insight into localised economic impacts of the policies if they arise. To do this, we focus on three groupings: (1) the cluster of counties for which the house price limit was €320,000; (2) the counties for which the house price limit was €250,000; and (3) Dublin, which has received a large majority of the allocations to date. The charts relating to this assessment are presented in Appendix I. Looking across these regions, there do not appear to be any distortions that are consistent with the effects described above, which would have occurred had the introduction of the RIHL policy impacted the market.

It must be noted that an inspection such as this is not a full causal identification of the effects of the policy, which would require a more thorough and rigorous

econometric analysis. This is outside the scope of this report but, where data were available, such an analysis would be important future research. This should be coupled with an assessment of the impact of credit across the house price distribution, in particular relating to FTB house prices.

The impact of the scheme on house prices nationally depends on the current level of drawdowns over the 17 months from inception to June 2018 (€178m). If the drawdowns were to accelerate rapidly, in a short space of time, this might have an impact on the market nationally or on specific areas of the price distribution in certain locations. The scheme funding has been increased to €563m in total. If this was to be allocated fully within the remainder of 2019, any stimulatory effects would have to be re-evaluated based on the market conditions. However, the drawdowns to September 2019 indicate approximately 1250 loans at just under €218m, which does not point to a major acceleration from June 2019.

5.4.2 Broader macro-financial considerations

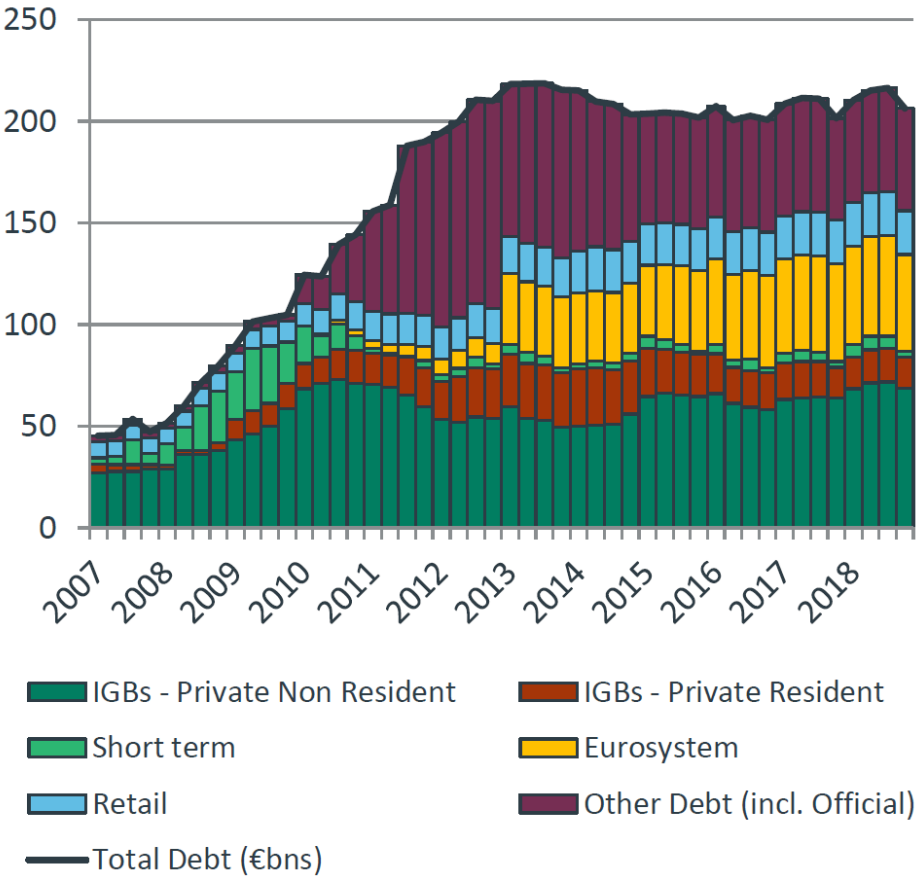
Two broader macro-financial considerations arise relating to the impact of the loan facility on overall government indebtedness and on systemic risk in the mortgage market more generally.

Contribution to government debt

It has been confirmed in interdepartmental documentation that the Rebuilding Ireland Home Loan (RIHL) activity does not impact the general government balance. The effect on the general government debt is determined by the extent to which borrowing by the HFA to fund the scheme requires additional borrowing by the NTMA.

The risk that arises from the first consideration is whether the borrowing facility would materially increase the overall level of government debt, which would increase vulnerabilities and lower the borrowing capacity of the sovereign. Total government debt is currently standing at approximately €200bn (see Figure 5.10). Given the total facility to June has exposures of €363m, with drawdowns of €178m, it is unlikely that this level of lending would lead to any major government indebtedness risks. If the volume of lending through the scheme were to rise considerably, this issue would need to be revisited. Managing this risk would suggest that a clear and limited annual lending volume that does not materially increase the total debt stock is warranted. If the scheme is to continue on an annualised basis, given the long-term structure of mortgage debt, the overall portfolio level of debt should be tracked carefully.

FIGURE 5.10 GOVERNMENT INDEBTEDNESS – NTMA DATA



Source: NTMA Investor Briefing, August 2019.

Systemic risk in the mortgage market

The risk that the RIHL scheme could add to systemic risks in the mortgage market relates to the extent to which higher originating credit conditions on these loans would lead borrowers to have fewer buffers with which to absorb shocks or lead to house price credit spirals. In this case, if a negative economic event occurs, and these loans sour, the higher default rate could propagate through the system, leading to a rise in systemic risk.

Even with a high default level, the low share of such loans in the total new FTB lending market (RIHL represents less than 3 per cent of the total lending) would indicate that the ability to contribute to systemic risk is low at present. For example, even if all loans were to default, this would lead to an overall default contribution of less than 3 per cent of the new lending in the period since RIHL began. A position paper prepared by the Central Bank of Ireland (CBI) for the Financial Stability Group also noted a low level of systemic risk of the scheme given its current parameters (Financial Stability Group, 2019).

5.5 OTHER CONSIDERATIONS

With RIHL, the main risks relate to credit losses by the LAs. Extending considerable additional loans (relative to its current loan exposure) naturally exposes the public authority sector to additional risks. For LAs where the lending is large relative to their size, any considerable loan losses could hamper their ability to provide other services as they will still be liable to pay the HFA funding. This was noted as a risk in the consultations for this review by an LA. Central facility allocations should be cognisant of this when issuing drawing amounts.

It must be noted, given the current volume of the scheme, that the main risk is that of credit defaults and loan losses. As the borrowing households wouldn't necessarily borrow a similar valued mortgage in the open market, the risk arising is not fully a transfer of risk from private to public and rather should be seen as an increase in credit risk exposures for some LAs: i.e. banks are not passing off risk; rather the state is taking risk in order to support homeownership. However, the cost to the state of the housing need for these households is not eliminated without the scheme. Indeed, many of these households may end up entitled to state supports given the income profile of applications and the social housing income qualification criteria, which is a direct cost to the exchequer. Our discussion of the credit risk assessments and management in Chapter 4 outlines the main risks of the scheme.

5.6 CHAPTER CONCLUSIONS

- Drawdowns from the scheme to June 2019 amounted to €178m. This represents approximately 3 per cent of total FTB lending for this period. Our assessment of house price dynamics, simulations for house price impacts and assessment of distributional changes in house prices suggests that the scheme has not had an impact on house prices nationally to date given the current drawdowns. A further €40m was lent out in Q3, bringing the total lending to 1250 loans at a value of €218m.

- Demand for the scheme appears to have outstripped the original scheme volume of €200m over a 3 year period and approvals have continued above this figure. Following this increase in demand, the DHLGH received sanction to increase the scheme size to €563 across 2018 and 2019. Careful monitoring of allocations, approvals and drawdowns should be undertaken on a timely basis to ensure that scheme commitments stay within the sanctioned amount.

- The geographic concentration of demand is greatest in the urban areas and excess demand may exist in these areas. This poses challenges for the current system of allowances at an LA level. If an alternative mechanism could be developed to ensure activity remains within the sanctioned amount, it would be potentially more efficient to move away from a strict LA-level allowance.

- It has been proposed that in future the overall size of the scheme will be limited to 5 per cent of total FTB credit. This has the benefit of ensuring that the scheme does not become so large as to present major macro-financial risks or impact the broader market. However, a drawback is that it ties the level of scheme lending to the commercial market. If the commercial market undergoes a credit crunch, this may lower how much lending can be achieved, at precisely the point when the credit gap is greatest and the state may wish to act counter-cyclically. Monitoring compliance with this in real time may be difficult and present challenges in matching demand to approvals and drawdowns. In lieu of this, an annualised minimum level in addition to the 5 per cent limit target that is set with respect to, but not bound to, the level of market lending might be preferable. For example, the rule could be that RIHL lending is limited to 5 per cent of FTB lending or approximately €200m per annum, whichever is greater.

- The interest rates set by the scheme are lower than those in the commercial market, and offer longer fixed terms. It is a clear benefit to borrowers to have low and predictable interest rates. However, two issues must be considered for pricing. This product is aimed at lower-income households, who are unable to access credit commercially; existing evidence would suggest these households carry a higher credit risk. Furthermore, a scheme that acts in essence as lender of last resort credit would normally carry a mark-up over the market price so as to ensure no distortions to borrowers' incentives and to maximise the benefit of the scheme by ensuring it is targeted at those who most require these supports.[37] Given both of these considerations, we recommend raising the base interest rate to above the level for the most comparable fixed term product in the market (currently 10 years) for future iterations of the scheme to compensate for credit risks in the targeted borrower cohort and to ensure that market distortions are minimised. Pricing can be cognisant of the cost of the MPI cover at 0.5550 per cent. Raising the interest rate will tighten the existing 35 per cent net income restriction, which is a positive step from a credit risk perspective.

- The level of pricing of the cost of funds to the LA from the HFA is in line with the cost to the state of long-term credit. For the HFA, any term risk or interest rate misalignment risk can therefore be mitigated through hedging should they wish. However, given the fluctuation in the cost of long-term funding to the state, future facilities under the scheme should constantly review the base funding rate and ensure that it is in line with long-term funding costs. Operationally, a closer mapping of loan drawdowns with LA facility drawdown would better help the HFA to understand the exposures.

- The level of the scheme at present does not appear to pose considerable risks to government indebtedness or other macro-financial considerations. If the volume of lending increases markedly in excess of the current share of FTB lending, this should be reappraised.

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[37] Indeed, other government supports for enterprises such as the Credit Guarantee Scheme and the Microfinance Loan Scheme set interest rates above the market price for bank lending.

- In any re-parameterisation of the scheme, policymakers should be cognisant of ensuring continuity and minimising market distortions.

CHAPTER 6

Conclusions and policy implications

The aim of this study has been to provide a high-level review of (i) the degree to which the Rebuilding Ireland Home Loan (RIHL) scheme has met its objectives, (ii) the ongoing market need for the intervention, (iii) the impact on the broader market, and (iv) selected operational considerations such as credit risk and funding assessments.

In this chapter, we first provide a summary of the main findings of each of the analytical topics. Second, we present an outline for bridging and eliminating data gaps that have been identified as part of this review. We also provide suggestions for monitoring and stress testing of the credit risks going forward.

6.1 SUMMARY OF MAIN FINDINGS

Market demand and scheme calibration

- The RIHL loan scheme had approximately €363m in drawdowns (€178m) or live approvals (€185m) from February 2018 to June 2019. Drawdowns to June 2019 accounted for 3 per cent of first-time buyer (FTB) lending. Our analysis of the scheme covers this period (February 2018–June 2019). As an update, a further €40m was drawn down in Q3 2019, bringing total drawdowns as of end September 2019 to €218m, with total outstanding live approvals of €196m (total funds €414m).

- Microsimulation research indicates a credit gap in the Irish FTB mortgage market, which could be met under prudent credit risk assessment. *Both* income and equity constraints are evident, suggesting that separate policies covering loan availability and deposit supports are merited.

- There is a clear role for RIHL in alleviating a portion of this unmet mortgage demand on an ongoing basis. Estimates suggest that the instrument could provide a minimum of 1000 loans, valued at €200m per annum at current market prices.

- It is clear that RIHL would be expected to improve housing affordability for recipients relative to renting at new market prices or purchasing under commercial terms. Mortgages with a fixed term for the duration of the loan are welcome in order to remove interest rate risk for households and improve payment predictability.

- Residential mortgage lending, i.e. loans issued by regulated lenders, is concentrated at higher levels of the income distribution and RIHL offers credit to lower-income households.

- At present, there is little evidence to support an increase in the €320,000 house price cap in urban areas given the targeting of the scheme to low- to middle-income households.

In these areas, the limitation of single borrower income thresholds of €50,000 would appear binding and could be revisited.

- The house price cap of €250,000 for other areas would appear to be well in excess of most market prices in many counties and should be lowered markedly. The potential for a lower third tier, which would distinguish more urban areas in the €250,000 group (such as Limerick and Waterford) from more rural counties, should be considered.

Credit risk and credit assessment

- The scheme has aligned its loan-to-value (LTV) ratio with the level set by the Central Bank of Ireland (CBI) for FTBs, 90 per cent. Such an alignment is prudent.

- The credit assessment includes a maximum debt service to income (DSTI) ratio, which is used internationally by many countries as a macroprudential tool. The calibration of the RIHL limit at a maximum of 35 per cent would appear to be in the prudent range relative to international norms. The maximum tightens to 30 per cent for lower-income households, which is sensible. A tightening of the open allowance for lending above the cap should be explored.

- As of June 2019, the default rate for RIHL loans (in arrears of 90 days or more) was 0.4 per cent, which is identical to the default rate on commercial loans with a similar vintage from CBI data.

- No data on LTV or loan-to-income (LTI) ratios at origination are available to analyse, and this data gap should be addressed with haste. Requested LTI data have been reviewed using microdata from the Housing Agency.

- It is likely that the default rate on the RIHL loans will exceed that on market loans over time. As the aim of the scheme is to extend credit to low-income households, once sufficient credit policy safeguards are followed at origination, a marginally higher default rate on RIHL loans would not necessarily undermine the achievement of the scheme objectives. A withdrawal of RIHL lending for areas with arrears greater than 5 per cent of the portfolio has been introduced to safeguard against high portfolio losses that may arise.

- A strong feature of the scheme is the centralised credit assessment. However, operationally, it is at the discretion of local authority (LA) credit committees to make the final decision on the application. The data indicate approvals have exceeded the level suggested by the underwriters in some LAs. Without access to adequate microdata at origination, it is not possible to assess whether this has already exposed the current portfolio to higher risks. The Department of Housing, Local Government and Heritage (DHLGH) has already taken welcome steps to address this issue by ensuring that deviations from the underwriting assessment are reported and explained. Some further options for strengthening such safeguards could be considered along with further credit-risk-minimising rules.

- Given the scale of the RIHL scheme relative to previous LA lending, it would be prudent to take stock of the policies, procedures and capacity of LAs to manage and absorb loan delinquencies.

Market impact, scheme funding and interest rate pricing

- Drawdowns from the scheme to June 2019 amounted to €178m, approximately 3 per cent of total FTB lending for this period. Our analysis suggests that the scheme has not had any material impact on house prices nationally to date, given the current level of drawdowns.

- Demand for the scheme appears to have outstripped the original scheme volume of €200m over a 3 year period and approvals have continued above this figure. Following this increase in demand, the DHLGH received sanction to increase the scheme size to €563 across 2018 and 2019. Careful monitoring of allocations, approvals and drawdowns should be undertaken on a timely basis to ensure that scheme commitments stay within the sanctioned amount.

- The geographic concentration of demand is greatest in the urban areas and excess demand may exist in these areas. This poses challenges for the current system of allowances at LA level. If an alternative mechanism could be developed to ensure activity remains within the sanctioned amount, it would be potentially more efficient to move away from a strict LA level allowance.

- The DHLGH has agreed a scheme value limit which restricts lending to 5 per cent of total FTB credit. Such a restriction is welcome. However, directly anchoring it to the broader market restricts the ability to use the instrument counter-cyclically, i.e. if credit supply restricts the borrowing capacity of FTBs, the 5 per cent limit could be temporarily revisited. A blended rule could set a 5 per cent cap with a minimum of approximately €200m per annum, whichever is greater.

- For any loan product, the pricing of the interest rate is critical. The interest rates set by the scheme are lower, and at longer terms, than products in the market. This provides an affordability boost for recipient borrowers, in particular as the low fixed rate-term is for the duration of the loan.

- However, two further points must be considered for pricing. First, interest rates should be set to adequately compensate for credit risks and second, pricing should be such as to minimise distortions to borrower incentives and maximise the benefit of the scheme to those who most require these supports. Therefore, the base interest rate should be increased to above the rate in the market for the closest fixed-rate product to the RIHL terms (currently 10 years). This is consistent with lender of last resort pricing. Pricing can be cognisant of the cost of the mortgage protection insurance (MPI) product at 0.5550 per cent. Raising the rate will also increase the stringency of the existing 35 per cent net income limit, as it will increase the repayment for a given term and loan balance. This will enhance the credit risk assessment.

- The level of pricing of the cost of funds to the LA from the Housing Finance Agency (HFA) is in line with the cost to the state of long-term finance. Term risk or interest rate misalignment risk can therefore be mitigated through hedging. Future facilities under the scheme should constantly review the base funding rate to align it to long-term funding costs.

- The level of the scheme at present does not appear to pose considerable risks to government indebtedness or other macro-financial considerations. If lending increases markedly above the current share of FTB lending that is accounted for by the RIHL product, this should be reappraised.

- In any re-parameterisation of the scheme, policymakers should be cognisant of ensuring continuity and minimising market or borrower incentive distortions.

In concluding this analysis, we find a clear gap that RIHL can address on the demand side of the market. In undertaking parameter changes or recalibrations of the scheme, policymakers should be cognisant of ensuring its continuation with minimum disruption to the market. This will provide more clarity for households who are looking to access the loan, in particular around the issue of applications and approvals in principle, which may span any date of parameter change.

While we identify a demand-side gap that RIHL can address, the critical bottleneck in the Irish housing market is the level of housing supply, i.e. building or bringing back into use more housing units, in particular at the low end of the price distribution. Given the clear structural excess demand for housing, demand-side instruments are likely to be relatively more inflationary when supply is tight. Policies addressing the supply side will be more effective for the overall market than demand-side measures.

6.2 DATA GAPS AND MONITORING

Through the course of this review a number of data gaps have been identified which, if addressed, would considerably strengthen the management of the credit risk of the scheme as well as its targeting and functionality. A range of data sources have been reviewed and these are listed in Table 2.2. These include monthly submissions to the DHLGH by the LGMA on the RIHL loans, the loan-level data held by the Department in relation to existing LA drawdowns and the summary data provided by the Housing Agency relating to the underwriting activity. Furthermore, working through the process of matching and reconciling the different datasets provides additional insights into where and how data could be best collected to help understand and safeguard the policy.

The following data gaps have been identified.

- No centralised database is available that captures the loan exposures, monitors credit performance, and contains collateral values and originating borrower characteristics. In particular, no data are available to analyse centrally on LTV, LTI or DSTI ratios on the originated loans.
- The Housing Agency database, which maintains a limited number of fields relative to the overall application, is not available to the DHLGH officials for analysis, nor is it available to all LAs. These data, from the underwriting assessment, are critical to understanding the credit risk, efficacy of the policy and the correct targeting of the scheme.
- At present, borrowers can apply to multiple LAs and potentially receive different credit outcomes. LAs cannot monitor applications to other areas or request data from the underwriters for applications to other schemes.

A working group should be established to outline data requirements and ensure that data gaps are eliminated. This would fully review the data collected on specific fields and ensure that proper data collection is undertaken. This group would ensure that data protection issues are complied with. One suggestion is to match the loan records with the Property Price Register (PPR) if no collateral values are currently stored by LAs. Standardised collection templates should be followed by all LAs and any inconsistencies in reporting and data collection across LAs should be identified and standardised.

A considerable strength in the current data architecture is that the DHLGH already receives loan-level data from all the LAs. This provides a ready-made mechanism to collect and deliver new data and can be used to receive all required information on the loan performance, characteristics and some limited borrower fields needed for credit risk assessments. However, the use of the RIHL loan identifier included in the DGI loan-level data can be inconsistent, with some LAs not systematically classifying loans. This is a serious data gap that should be addressed.

Furthermore, given the considerable complexity (both operationally and from a compliance and oversight perspective) of running a major loan scheme, serious consideration should be given to enhancing the resources available to the DHLGH and other agencies in running this scheme.

6.2.1 Ongoing stress testing and monitoring

It is good practice in terms of understanding loan portfolio risks and planning for economic shocks to undertake regular credit stress tests to provide estimates of the potential loan losses under various macroeconomic scenarios. For example, the European Banking Authority undertakes biannual stress tests of the main systemically important credit institutions in Europe with a view to exploring their capital adequacy. Risks relating to house price changes, unemployment increases and interest rate rises are key considerations.

The collection of microdata proposed above should facilitate the development of regular portfolio stress tests of the LAs and assess the exposure of the loans to economic risks. Research should be undertaken to develop the database and model for such analysis.

Furthermore, following the stress testing, the data can also then be used to explore whether the parameters of the scheme are still fit for purpose relative to the overall policy objectives. The use of such granular microdata is now central to good policymaking and evaluation nationally and internationally, and should be leveraged to its maximum for this scheme. The use of microdata by the CBI in the calibration of macroprudential measures and in the stress testing of bank mortgage portfolios is a good example of this.

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APPENDIX I

Additional charts and tables

TABLE A.1 CORRIGAN ET AL. SENSITIVITY CHECK – TENTH PERCENTILE OF HOUSE PRICE DISTRIBUTION

	Baseline	Tenth percentile house price sensitivity check
Flow of bankable demand		
Implied additional no. loans (approvals)		
10%	1869	2589
30%	5608	7766
50%	9347	12943
Implied additional value loans (€bn)		
10%	0.39	0.48
30%	1.17	1.44
50%	1.95	2.4
Implied RIHL loans (approvals)		
Implied additional no. loans		
10%	1163	1375
30%	3489	4125
50%	5815	6875
Implied additional value loans (€bn)		
10%	0.2	0.23
30%	0.59	0.675
50%	0.98	1.125

Source: Corrigan et al. (forthcoming).

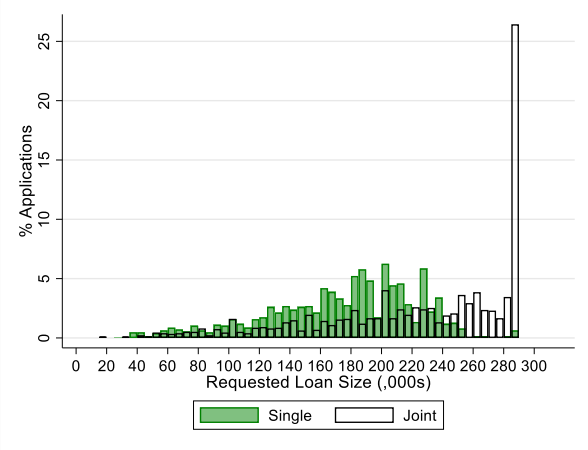
TABLE A.2 COMPARISON OF KEY MEASURES BETWEEN APPROVED AND REJECTED APPLICANTS

	Recommended for approval	Recommended to reject
Mean income	44,188	40,246
Median income	43,848	39,310
Mean age	36	37
% in permanent employment	94.8	90.3
Mean total savings	23,443	17,740
Mean ReLTI	4.26	4.43

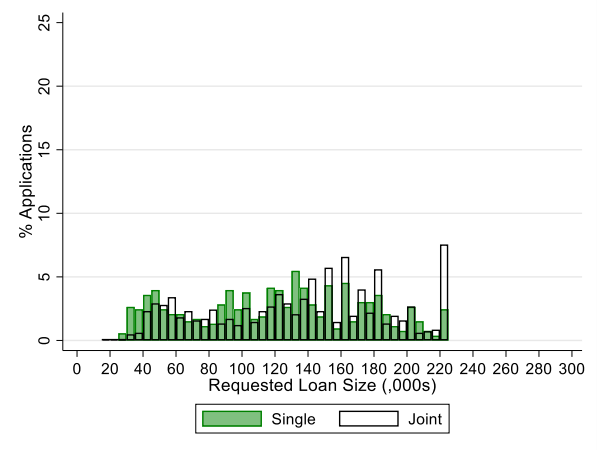
Source: Housing Agency microdata.

FIGURE A.1 REQUESTED LOAN SIZE DISTRIBUTION BY NUMBER OF APPLICANTS IN €320,000 AND €250,000 HOUSE PRICE THRESHOLD AREAS

(a) €320k areas



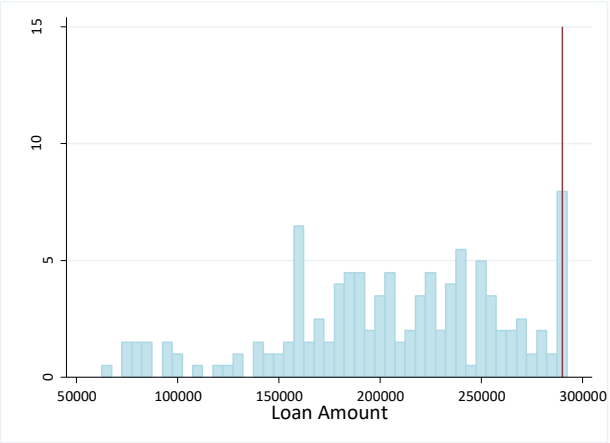
(b) €250k areas



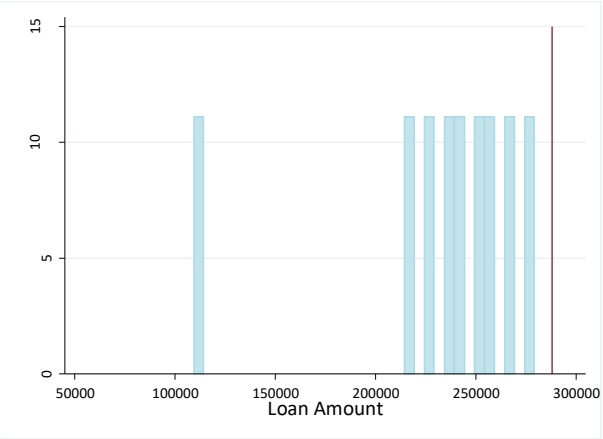
Source: Housing Agency microdata. All valid applications.

FIGURE A.2 DISTRIBUTION OF LOAN SIZE FOR RIHL ISSUED LOANS TO JUNE 2019 FOR DUBLIN LAS

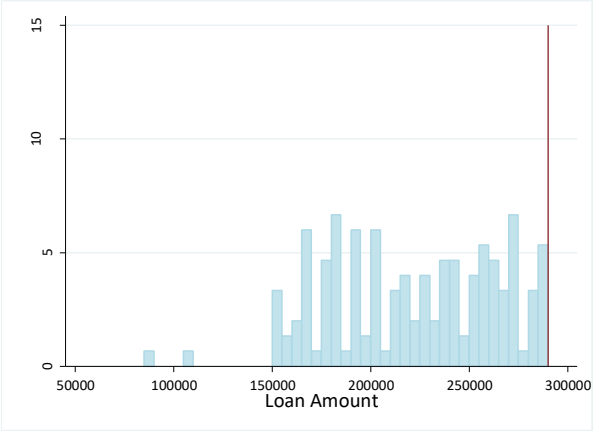
(a) Dublin City



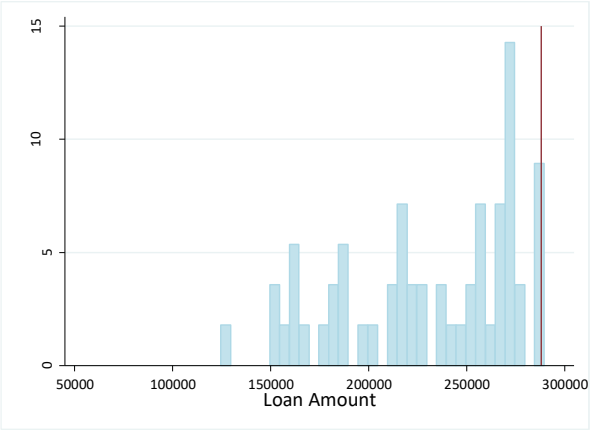
(b) DLR



(c) Fingal



(d) South Dublin

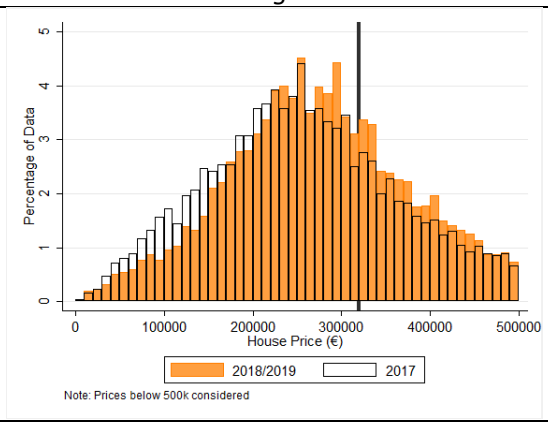


Source: *Authors' calculations based on DGI loan-level data.*
Notes: *This uses all LA loans issued under 2% or 2.25% interest rates since 1 February 2018.*

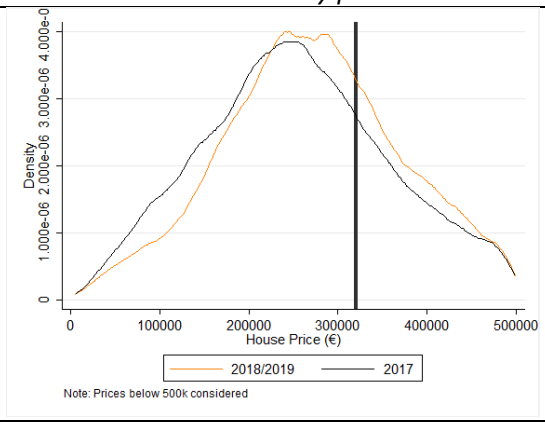
FIGURE A.3 HISTOGRAM AND KERNEL DENSITY PLOTS OF HOUSE PRICES 2017–2019 – COUNTIES WITH RIHL HOUSE PRICE CAPPED AT €320,000

Overall

Histogram

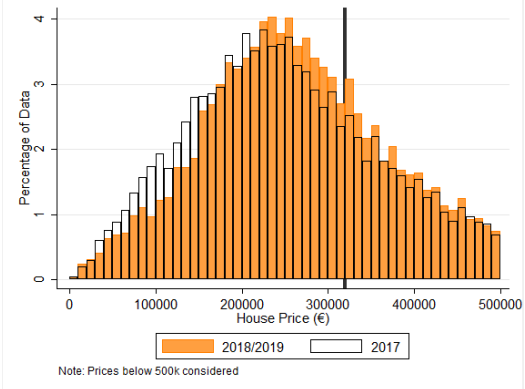


Kernel density plot

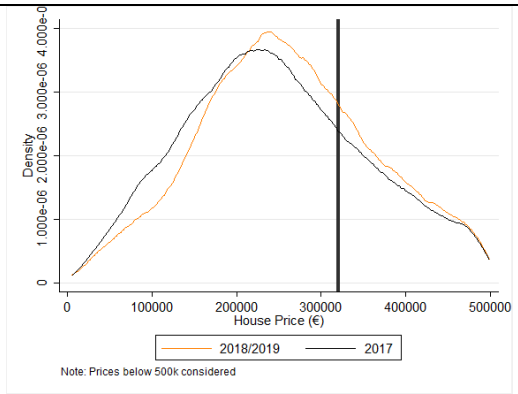


Existing properties

Histogram

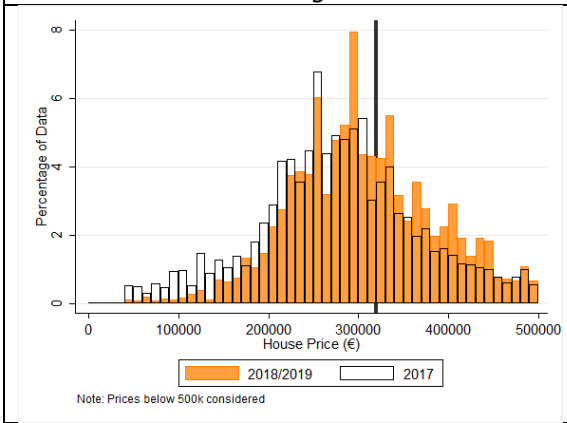


Kernel density plot

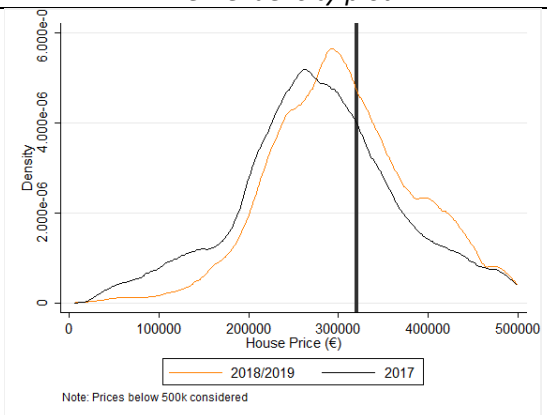


New properties

Histogram

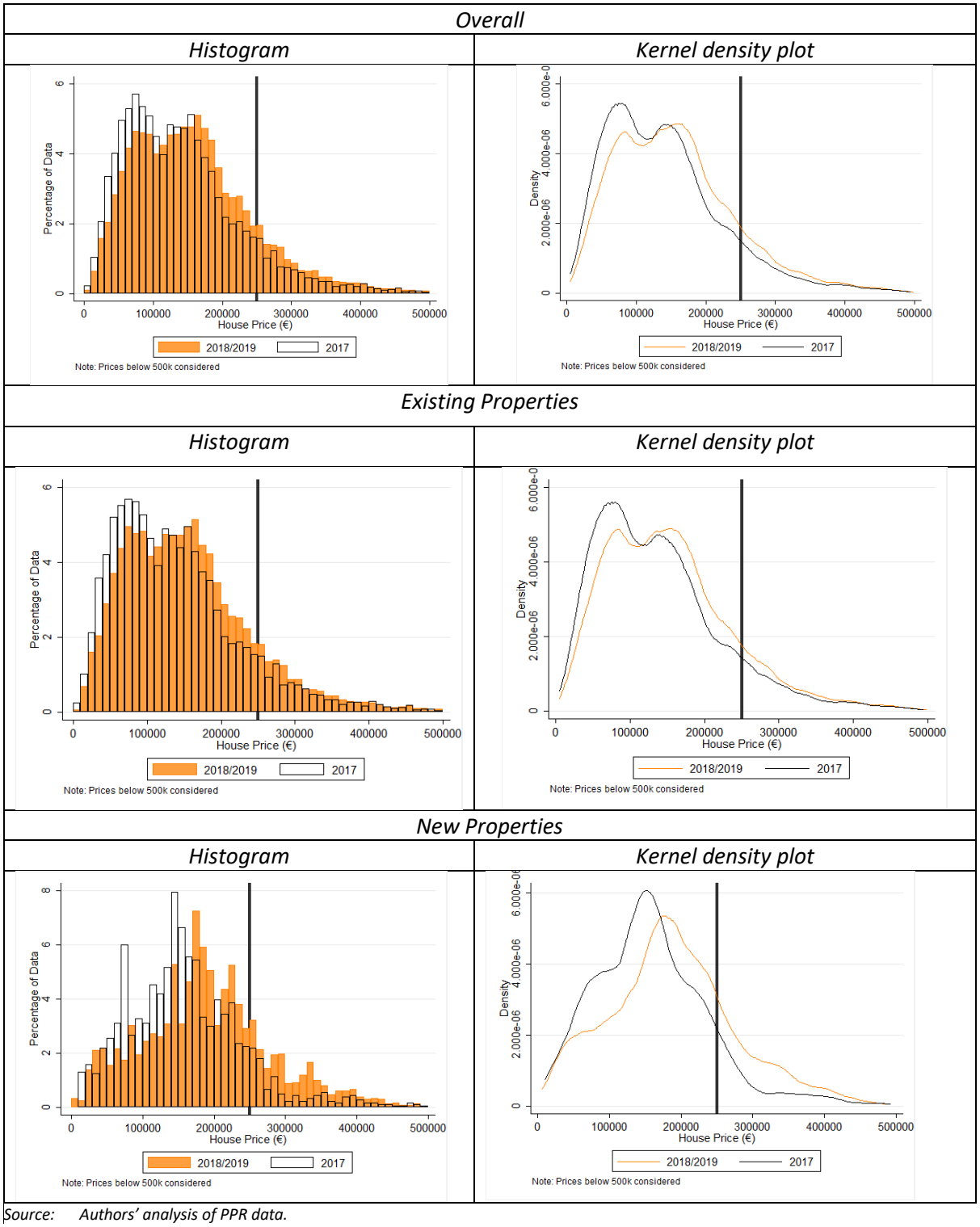


Kernel density plot



Source: Authors' analysis of Property Price Register data.

FIGURE A.4 HISTOGRAM AND KERNEL DENSITY PLOTS OF HOUSE PRICES 2017–2019 – COUNTIES WITH RIHL HOUSE PRICE CAPPED AT €250,000

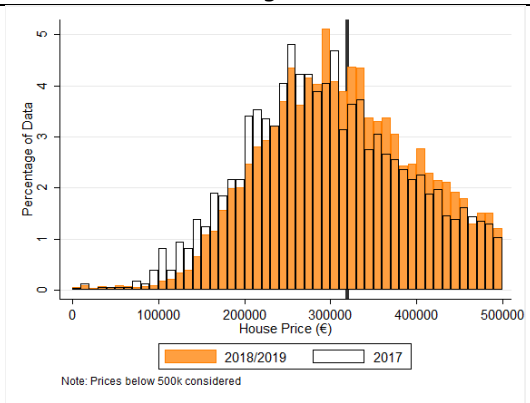


Source: Authors' analysis of PPR data.

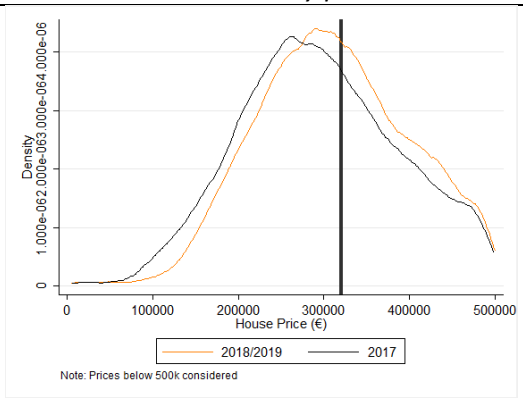
FIGURE A.5 HISTOGRAM AND KERNEL DENSITY PLOTS OF HOUSE PRICES 2017–2019 – DUBLIN

Overall

Histogram

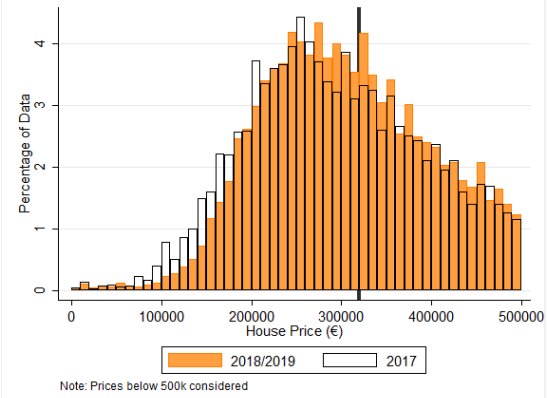


Kernel density plot

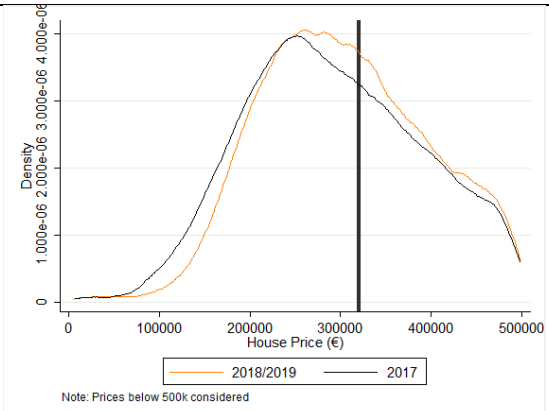


Existing properties

Histogram

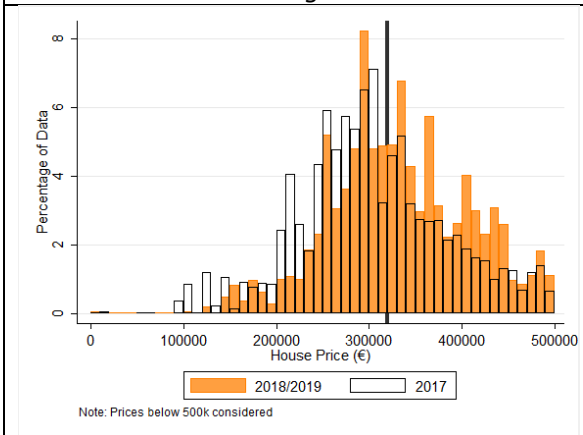


Kernel density plot

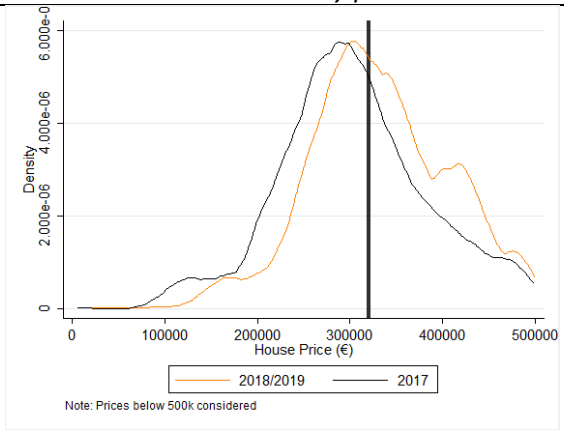


New Properties

Histogram



Kernel density plot

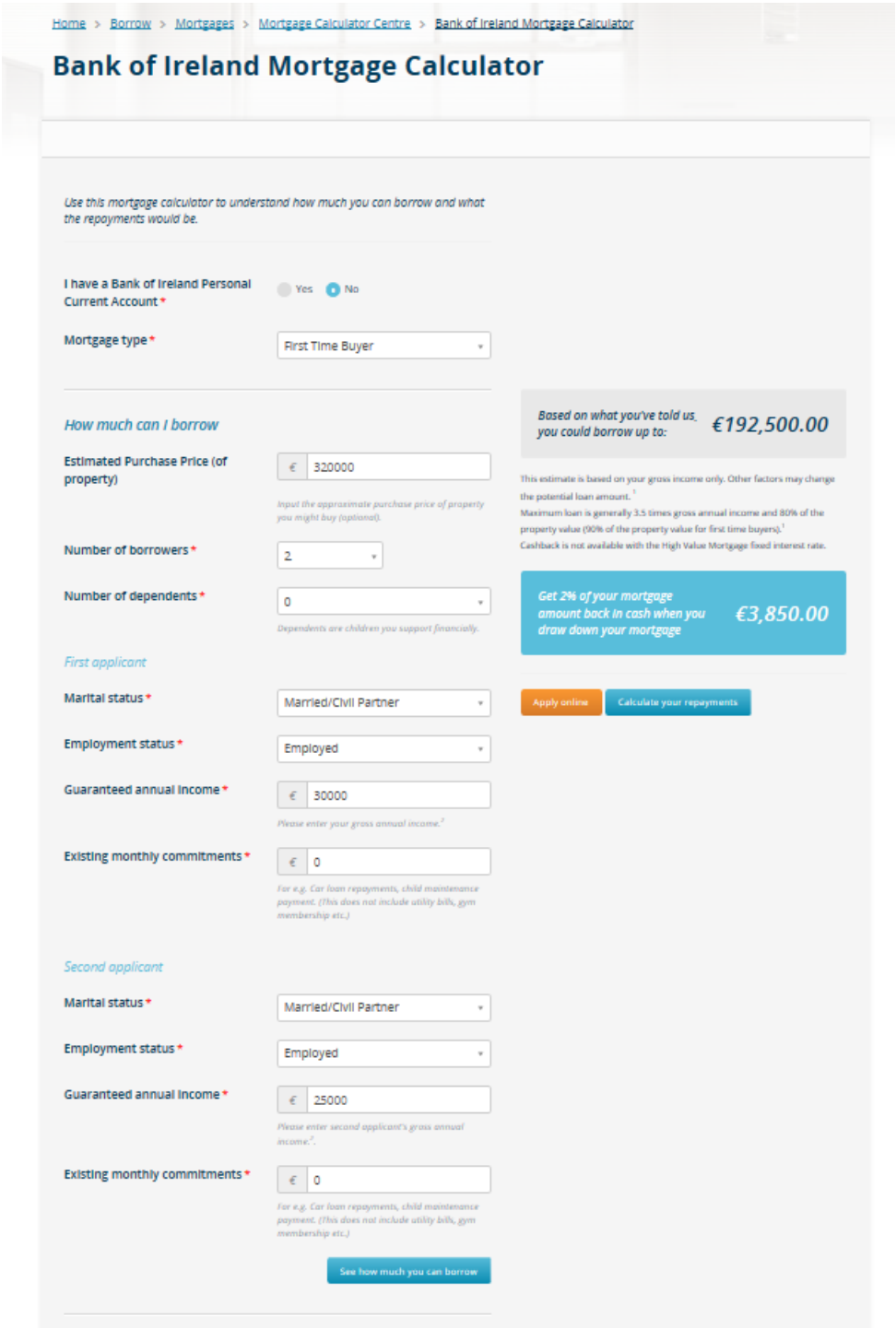


Source: Authors' analysis of PPR data.

APPENDIX II

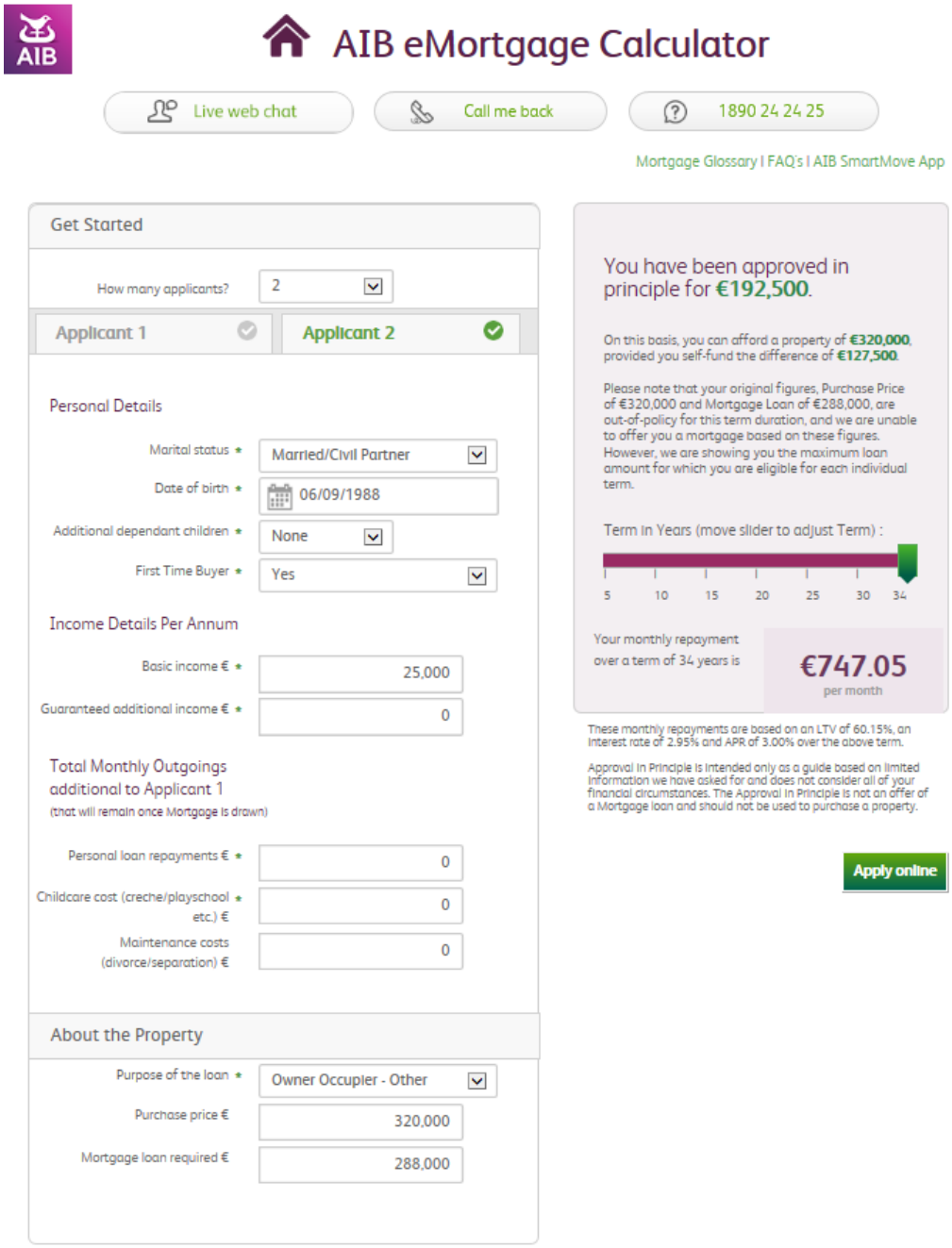
Online mortgage calculator examples

FIGURE A.6 BANK OF IRELAND MORTGAGE CALCULATOR EXAMPLE



Source: Bank of Ireland website.

FIGURE A.7 AIB MORTGAGE CALCULATOR EXAMPLE



Source: AIB website.

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