Box 4.1

FINANCIAL CAPACITY AND FIRST-TIME HOME BUYERS WITH MORTGAGE FINANCING

Home ownership affordability is closely linked to the availability of mortgage financing and how comfortably households are able to meet prudent mortgage lending standards.[1] This box examines the extent to which households' financial capacity is associated with home ownership affordability for first-time buyers using mortgage financing in Spain. Moreover, this analysis contributes towards a comprehensive assessment of the economic implications of credit cycle fluctuations, as well as the potential use of regulatory limits on mortgage lending standards for households, also known as borrower-based measures (BBMs).

The literature available for different economies shows that prudent lending standards, based on loan and borrower characteristics, tend to help contain the build-up of financial vulnerabilities in expansionary phases of the credit cycle, both for borrower households and for banks. In the case of mortgage lending, these standards notably include the loan-to-price (LTP) and debt service-to-income (DSTI) ratios.

However, while such prudent standards may help mitigate financial vulnerabilities, they may also affect the composition of housing demand by altering mortgage lending conditions.[2] Recent literature on BBMs shows that such measures may lead to a reduction or reallocation of mortgage credit across borrowers, lenders and geographical areas, with potential distributional implications and effects on the buy/rent trade-off for principal residences. These depend both on how BBMs are designed (e.g. applying stricter limits to only a share of borrowers, a practice known as speed limits) and on macro-financial conditions.[3]

In this analysis, a household is considered to have low financial capacity when it does not meet certain requirements set by banks or by prudential regulations to access mortgage loans. Further, a distinction is drawn between low financial capacity determined by prior capacity to save (wealth) and that related to limitations on recurring repayment ability (income).[4]

This box seeks to empirically characterise how households' financial capacity to acquire their desired principal residence – the home they would purchase in the absence of binding financial limitations, given their observed characteristics – relates to the actual probability of transitioning from renting to owner-occupation of their principal residence in the short term. This approach is inspired by the classical economic literature on borrowing limitations and home ownership, which estimates unrealised demand for desired housing among households with sufficient financial capacity and extrapolates it to all households (regardless of housing tenure status or level of financial capacity).[5]

The empirical exercise in this box uses *Panel de Hogares, 2016-2023*. This is an extensive set of micro data provided to researchers by the Spanish Institute of Fiscal Studies (*Instituto de Estudios Fiscales*, attached to the Ministry of Finance). This database comprises information from the administrative records of the Spanish tax authorities, the National Statistics Institute (INE) and social security authorities. The information is available at the individual, household and financial asset or real estate property level, with a large number of variables and observations, and with strong representativeness by region, household type and income level.[6]

Drawing on these micro data, a panel comprising 7.7 million observations is constructed, enabling

1 Rosenthal (2002) uses US data to illustrate that home ownership crucially depends on borrowing constraints, the mortgage products available and prudent debt capacity. According to Banco de España estimates produced as part of this analysis, 67% of first-time housing purchases in the period 2017-23 were financed with mortgages.

2 Akinci and Olmstead-Rumsey (2018) and Kuttner and Shim (2016) demonstrate that BBMs through caps on LTV and DSTI ratios reduce credit risk, moderate credit cycles and affect access to mortgage credit.

3 See Carro, Galán, Martorell and Vegas (2025) for a detailed review of the existing literature on the effects of borrower-based macroprudential measures. See Peydró, Rodriguez-Tous, Tripathy and Uluc (2024) for analysis of the redistributive effects of macroprudential policies in the United Kingdom.

4 This approach is similar to that used in Mayordomo (2008) to analyse the effect of households' financial capacity on ownership status in Spain before the global financial crisis.

5 Linneman and Wachter (1989) and Haurin, Hendershott and Wachter (1997) identify households' unrealised demand for housing and quantify how credit constraints, mainly related to prior wealth, reduce principal residence ownership.

6 Information is available on tax residents in Spain's common fiscal regime. Tax residents in Navarre and the Basque Country are not included. The information is stratified by 17 regions (including Ceuta and Melilla), ten household types based on household composition and nine income brackets, yielding a total of 1,530 strata for which the data provided is representative at a 99% confidence level. For the year 2023 the panel includes 1.19 (3.55) million households (individuals), accounting for 6.66% (7.83%) of total households (individuals). For more information, see Instituto de Estudios Fiscales (2025).

comprehensive monitoring of households between 2017 and 2023, with detailed information on each type of asset held (including principal residence) and debt in both the current and previous year, as well as different income, employment history, investment and spending components, along with regional, household and sociodemographic census details.[7] The location of the individuals' properties and principal residence is identified at the census section level, supporting the inclusion of relatively granular territorial controls in the analysis.

For the purposes of this box, it is important to note that the outstanding debt principal (including the primary residence mortgage) is directly observed in the above-mentioned administrative micro data, whereas interest rates and debt maturities are imputed using cell-matching procedures[8] drawing on mortgage transaction data from the Banco de España's Central Credit Register (CCR), using observable variables for the household and its environment. These data are used to construct consistent measures of mortgage debt burden and, in particular, the DSTI ratio (in annual terms), enabling differentiated approximations of financial capacity linked to constraints associated with the ability to pay recurring mortgage instalments and the availability of prior savings.

The analysis in this box is structured in four stages: (i) estimation of the desired price of the principal residence to be purchased with mortgage financing; (ii) construction of an indicator of financial capacity to purchase the desired principal residence under prudent mortgage lending standards commonly applied by banks; (iii) estimation of the relationship between the financial capacity indicator and the observed decision to buy or rent; and (iv) a counterfactual exercise that varies the threshold determining the presence of financial constraints and determines their impact on the number of first-time buyers with mortgage financing.

Desired price estimation

The first stage of the analysis involves estimating the price of the principal residence that each household would like to purchase using mortgage credit, based on its observed sociodemographic, employment, economic and geographical characteristics. The sample comprises first-time buyers acquiring a principal, owner-occupied residence with mortgage financing. Within this group, two types of households are distinguished. The first are buyers with high financial capacity who arrange a mortgage that is comfortably affordable for them.

Individuals are considered to have high financial capacity in terms of wealth if their total net wealth (i.e. total assets less outstanding debts) prior to the purchase is sufficient to cover a 20% down payment on the principal residence (LTP ratio of no more than 80%), the standard transaction costs and taxes, and the equivalent of one year of household consumption. To be classified as having high financial capacity in terms of income, individuals must be able to access a mortgage with an LTP ratio of no more than 80% and a DSTI ratio below 35%.[9] The price paid by these high

7 A cohabitation unit or household identifier is constructed that groups different individuals who, in a given year, share the same effective living arrangement. In the case of owner-occupiers, the unit is defined by grouping all of the co-owners together. For other situations of non-ownership of principal residence, the unit is defined using the principal residence (or the associated cadastral references) and tenure status, distinguishing between market rentals, below-market rentals, dwellings provided free of charge by family members and young people still living at the family home. For dwellings rented under shared (non-single family) arrangements, multiple separate units are identified within the same dwelling. Young people still living at the family home are individually identified as independent units when they reside with family members who are owner-occupiers or main tenants and they lack an independent living arrangement.

8 Cell-matching involves imputing the interest rate and average maturity of outstanding debts observed in the *Panel de Hogares* micro data using transactions recorded in the same year in the CCR micro data for households with comparable characteristics in terms of outstanding principal, net income, LTP ratio, employment type (self-employed, salaried worker, civil servant), age, number of joint borrowers, province, municipality size, tightness of the real estate market in the postal code, dwelling size and whether it is a new build. Regressions for interest rates and maturities are estimated in the CCR micro data based on these observable characteristics. The coefficients estimated are then applied to the *Panel de Hogares* micro data to predict, drawing on the same observable values, the interest rate and maturity of outstanding debts observed in the latter database. Each cell of characteristics groups a specific range of values for each of these variables, such that households sharing the same category are assumed to be subject to comparable supply and demand conditions. This approach is used as both the CCR and *Panel de Hogares* data are duly anonymised and no direct link can be drawn between these different micro databases.

9 The thresholds used to classify first-time buyers as having high or low financial capacity coincide with those used by macroprudential authorities in several economies to identify mortgages as high risk, and with those used by Spanish banks in their standard mortgage lending practices. Looking at the proportion of mortgages extended in the period at each LTP limit, the 80% threshold dominates, accounting for 24% of all transactions. The next most widely used threshold is an LTP of 90%, which accounts for 11% of transactions. In addition, calculations based on CCR data show that, for mortgages extended between 2016 and 2025, the share originated at an LTV of exactly 80% is about half the share originated at an LTP of 80%, indicating that the LTP lending standard takes prevalence over LTV in Spanish mortgage lending practices.

financial capacity households (either in terms of wealth or income) when obtaining mortgage credit is considered a valid proxy for the desired price of the principal residence to be purchased with mortgage financing.

The second group consists of low financial capacity buyers who arrange a mortgage to purchase a principal residence at a price that is potentially influenced by limitations on their financial capacity and, therefore, may not fully reflect the price at which they would actually prefer to buy using mortgage credit. Specifically, these are households with insufficient total net wealth prior to the purchase to cover a down payment of 20% of the dwelling actually purchased (plus the associated costs and taxes), in addition to the equivalent of one year of household consumption, or households that could not take out a mortgage for 80% of the house price they actually bought with a DSTI ratio below 35%. It is important to clarify that exceeding these thresholds and being classified as low financial capacity households in this analysis does not automatically rule out the possibility of a mortgage-financed house purchase (e.g. a bank may choose to apply looser standards in certain cases or the buyer may receive family support), but it is indicative of the household facing significant financial capacity limitations in their first-time buyer decisions.[10]

To identify the relationship between the asking price of the main residence to be purchased by a household taking out a mortgage and the household's characteristics excluding the financial capacity limitations, the desired house price is estimated using only the high financial capacity group. To do so, a censored regression is performed (where the thresholds are defined by the various above-mentioned levels of financial capacity) in which the dependent variable is the price of the principal residence purchased with mortgage financing and the explanatory variables are the sociodemographic, employment, economic and territorial characteristics of the household.[11]

While high financial capacity households actually buy principal residences with mortgage financing at very similar prices to those desired (Chart 1), low financial capacity households that manage to purchase a principal residence by taking out a mortgage do so systematically below the desired price (Chart 2).[12] This conclusion is supported by the median differences by household type. For high financial capacity households, the median difference between the observed house price and the desired price is barely €1,000, while for low financial capacity households the median difference between the price of the principal residence they actually buy and that they would like to buy, based on their particular characteristics, is some €45,000.[13] In other words, some households with low financial capacity to purchase their desired principal residence with a mortgage ultimately become homeowners, but do so by buying a house at a considerably lower price.

Constructing the financial capacity indicator

Based on the imputed desired price, an indicator of financial capacity to purchase the desired house is

10 The thresholds selected to categorise first-time buyers with mortgages by financial capacity are independent of the lending standards actually faced by each household. For example, even if a household actually takes out a mortgage with an LTP ratio above 80% or a DSTI ratio greater than 35%, it would be classified as having high financial capacity if its total net wealth prior to the purchase and its income suffice to purchase the home they actually purchase (and cover the costs and taxes associated with the transaction, in addition to at least one full year of household consumption) under prudent credit standards, i.e. with an LTP ratio below 80% and a DSTI ratio of less than 35%.

11 A censored regression is a type of statistical model designed for situations in which the actual value of the dependent variable is not fully observable because it is limited by one or more thresholds. In the case of housing, this occurs because the desired value is only observed for households with high financial capacity that purchase a property, while for low financial capacity households or those that rent this value is not observable.

12 The estimated desired price is a conditional average statistical prediction for households with certain characteristics, not an observable individual preference. Therefore, even among high financial capacity households it is common to observe purchases above or below such value, due to unobserved heterogeneity, search or bargaining frictions or voluntary decisions (e.g. lower debt or higher liquidity). In addition, having high financial capacity is defined as the ability to finance the home actually purchased under prudent lending standards, not by the obligation to take out the maximum mortgage loan or always desire a higher price. Therefore, the tight median adjustment and the overlapping of the distributions indicate that, for high financial capacity households, the observed price is a good proxy for the desired value estimated according to their characteristics and location. The deviations observed mainly reflect idiosyncratic dispersion, not binding financial capacity limitations. By contrast, low financial capacity households systematically buy houses whose prices are clearly lower than the estimated desired prices.

13 In line with the findings of Araujo, Barroso and González (2020), who estimate for Brazil that low financial capacity borrowers buy houses that are 30% cheaper, thereby staying under the LTV ceiling. And also in line with Tzur-Ilan (2018), who estimates for Israel that those affected by LTV limits buy cheaper homes, reporting how financial capacity limitations induce shifts towards lower quality neighbourhoods or smaller houses.

Chart 1
Mortgage-financed first-time house purchases.
Price distribution: high financial capacity households (a) (b)

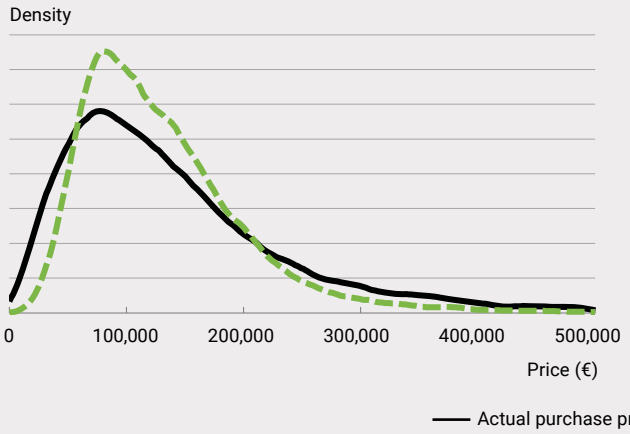
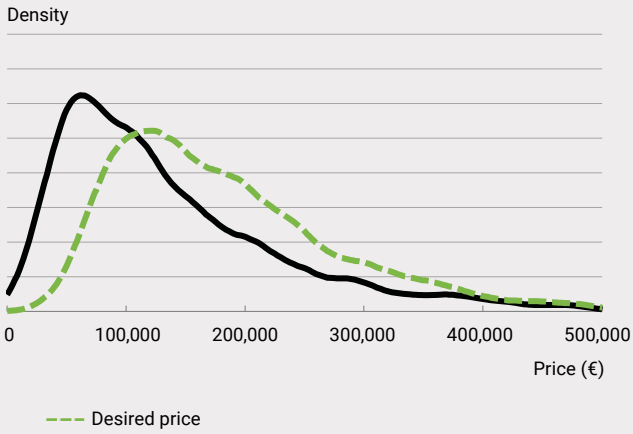
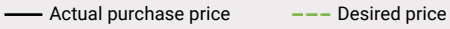


Chart 2
Mortgage-financed first-time house purchases.
Price distribution: low financial capacity households (a) (c)





SOURCES: *Panel de Hogares* (AEAT, INE, Seg. Social) and Banco de España. Sample period: 2016-23.

a The desired price of the home is estimated using a linear regression of the logarithm of the observed first-time buyer mortgage-financed purchase price, censored by the presence of financial capacity limitations commonly observed in banks' practices for mortgage lending to households. The model includes variables expressed in logarithms for income, wealth and rental prices at the census section level, controls for inheritances and gifts, and a broad set of categorical sociodemographic, employment and territorial variables. The desired price is obtained by exponentially rescaling the predicted price following the estimation for each household, based on its cell of characteristics.
b High financial capacity households: first-time buyers with mortgage financing whose total net wealth prior to the purchase exceeds the value of a 20% down payment on the home actually purchased plus the associated taxes and transaction costs, and whose mortgage repayments on a potential mortgage covering 80% of that house price, together with other outstanding repayments, would not exceed 35% of their net income.
c Low financial capacity households: first-time buyers with mortgage financing whose total net wealth prior to the purchase does not exceed the value of a 20% down payment on the home actually purchased plus the associated taxes and transaction costs, or whose mortgage repayments on a potential mortgage covering 80% of that house price, together with other outstanding repayments, would exceed 35% of their net income.

constructed. It compares the desired price with the maximum mortgage principal compatible with prudent lending standards (LTP ≤ 80% and DSTI ≤ 35%) according to the household's wealth and income. A household is classified as having low financial capacity when, to purchase its desired principal residence, it would have to exceed one or more of these thresholds to arrange its mortgage, with a further distinction of whether the financial capacity limitation is insufficient wealth (down payment) or income (ability to pay). This distinction is consistent with the comparative evidence that emphasises the role of down payment and liquidity requirements as frequent barriers to mortgage-financed home ownership.[14]

During the period under analysis, each year around 86% of renter households or households purchasing their first home with mortgage financing faced wealth-related financial capacity limitations on the potential mortgage-financed purchase of their desired principal residence under prudent lending standards. Around 35% of these households encountered income limitations to cover the regular instalments of their potential mortgage.

Estimating the relationship between the financial capacity indicator and the decision to purchase or rent

The financial capacity indicator for the mortgage-financed purchase of the desired principal residence is then used to estimate the change in the probability of mortgage-financed first-time house purchases depending on financial capacity.

For renter households that have not previously been homeowners (or received the dwelling as inheritance or a

14 Engelhardt (1996) and Boar, Gorea and Midrigan (2022) document how the most common barriers to home ownership are not only preferences or permanent income, but also the down payment requirements (prior savings for initial payment or down payment) and liquidity limitations associated with mortgage credit.

Chart 3
Estimated average annual probabilty of becoming a first-time buyer with a mortgage, by financial capacity (a) (b)

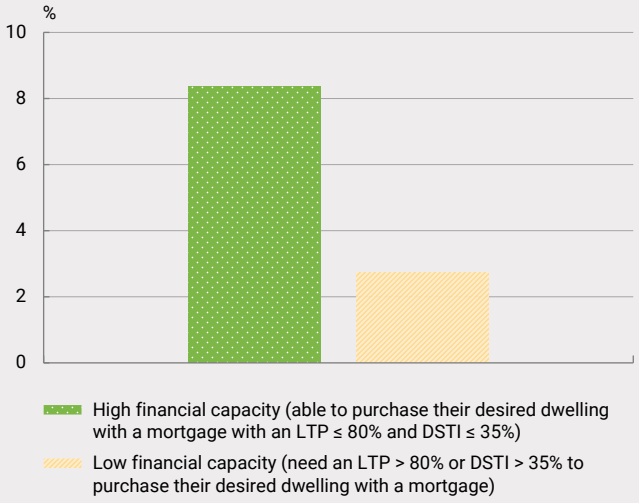
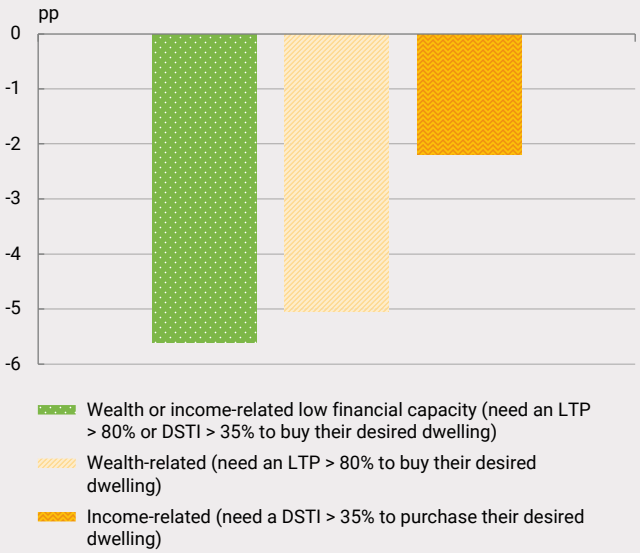


Chart 4
Marginal effect of financial capacity on the estimated annual probability of buying the principal residence with mortgage credit (a) (b)



SOURCES: *Panel de Hogares* (AEAT, INE and Social Security) and Banco de España. Sample period: 2016-23.

a Savings-related (net wealth) high financial capacity is determined by needing an LTP ≤ 80% to be able to finance the purchase of the desired principal residence (plus the associated taxes and transaction costs) in addition to being able to cover one year of household consumption. Income-related high financial capacity is determined by needing a DSTI ≤ 35% to be able to finance the purchase of the desired principal residence. The information on the renter households considered in each year of this analysis comprises households that in the year in question were not yet homeowners and faced the decision of: i) buying their principal residence with mortgage credit or ii) continuing to rent. The proposed analysis is thus limited to independent households that are not yet homeowners, as they are directly affected by potential macroprudential BBMs. Using this sample means excluding 82% of the population from the analysis. 68% of the population is not considered because they are either already homeowners or they become owners without a mortgage (or by inheriting/gift). The other 14% is excluded because they still live with their parents. On the information available, the relevant decision for the latter population group is to either remain as they are or to rent housing, but not to become homeowners with mortgage credit. Of the sample used, 8% of households have high financial capacity for the mortgage-financed purchase of their desired dwelling.

b The estimated probabilities and marginal effects of changing from high to low financial capacity are obtained using probit models of mortgage-financed first-time house purchases, estimated using sample weights and robust standard errors. The different financial capacity categories (high or low) are incorporated as categorical variables. Controls include household characteristics (number of joint borrowers, members and dependants), sociodemographic characteristics (age, gender, marital status, educational attainment level, nationality and country of birth) and employment and wealth characteristics (employment status, civil servant, pensioner, source of main income, company control and NACE sector of main activity), as well as province, municipality size (nine categories) and real estate market tightness in the census section of the property (five categories).

gift), and controlling for all their observable characteristics, the estimated annual average probability of households becoming first-time homeowners (with mortgage financing) is around 8.4% for high financial capacity households versus 2.8% for those with low financial capacity to access their desired principal residence using mortgage financing (Chart 3). Therefore, lower financial capacity to purchase the desired principal residence is associated with a reduction in the estimated annual average probability of a mortgage-financed house purchase of approximately 5.6 percentage points (pp), which represents an equivalent increase in the probability of opting to rent. Analysing the different financial capacity limitations separately, wealth has a greater estimated effect than income, in line with the prior evidence for Spain and the classical literature on down payment difficulties (Chart 4).[15]

15 In line with the findings in Linneman and Wachter (1989), Engelhardt (1996), Haurin, Hendershott and Wachter (1997) and Mayordomo (2008). The papers show that the need to save up for a down payment creates binding liquidity (net wealth) limitations, even for households with sufficient income, reinforcing the finding that wealth plays a greater role than income when deciding on home ownership.

Chart 5
Decrease in first-time house purchases with mortgage credit, by different LTP thresholds (a)

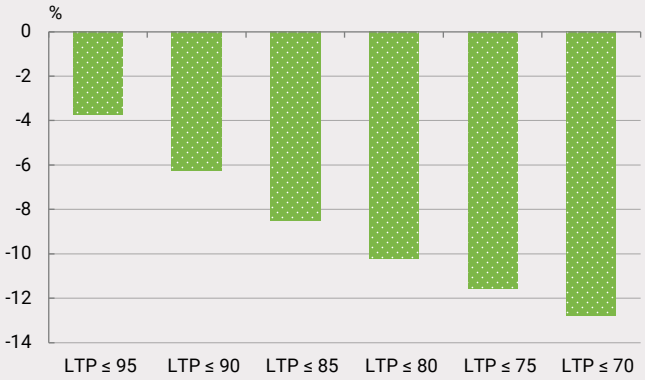
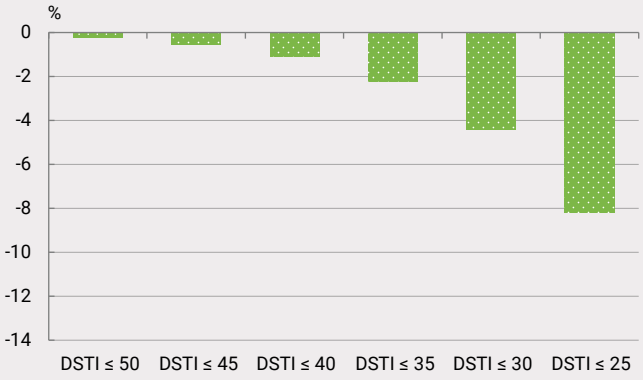


Chart 6
Decrease in first-time house purchases with mortgage credit, by different DSTI thresholds (a)



SOURCES: *Panel de Hogares* (AEAT, INE, Social Security) and Banco de España. Sample period: 2016-23.

a Drawing on renter households that, in a given year, must decide between (1) buying their first home with mortgage credit or (2) continuing to rent, the probability of a mortgage-financed purchase is estimated for different groups of households defined by discrete 5 pp intervals of the LTP or DSTI ratios needed to purchase the desired dwelling. A probit model, which controls for the main sociodemographic, employment, economic and geographical characteristics of the household, is used to estimate the decrease in this probability for each group in a counterfactual scenario in which a financial constraint (1) affects households in intervals above the threshold considered and (2) reduces their financial capacity to the average estimated level of groups with higher LTP or DSTI ratios. Comparing the actual and counterfactual probabilities estimated with this model, weighted by the proportion of each group in the sample, enables the quantification of the aggregate impact of the introduction of these financial constraints on the probability of becoming a first-time home buyer with mortgage credit.

Counterfactual exercise changing the threshold determining the existence of financial constraints

Lastly, this box presents two counterfactual exercises that show how the number of mortgage-financing first-time buyers could change depending on different alternative LTP and DSTI thresholds that define financial constraints. These alternative thresholds are analysed separately for each lending standard. The number of first-time buyers of their principal residence arranging a mortgage would decrease by 10.2% if a wealth constraint of an LTP of 80% were introduced. Were the LTP threshold 90%, the decline would be 6.2% (Chart 5).[16] This results in the probability of a renter household becoming a first-time homeowner (with mortgage financing) decreasing from 3.39% to 3.05% if a wealth constraint of an LTP threshold of 80% is introduced, or to 3.18% if the LTP threshold were 90%.

A similar exercise for different financial constraint thresholds based on the DSTI ratio suggests that the effects on actual mortgage-financed first-time house purchases are more moderate than the effects of wealth constraints. For example, the percentage of such purchases would fall by 2.2% if there were an income constraint of a DSTI threshold of 35%. Were the DSTI threshold 30%, the decline would be 4.4% (Chart 6). Thus, the probability of a renter household becoming a first-time homeowner would fall from 3.39% to 3.32% were an income constraint based on a DSTI threshold of 35% to be introduced, and to 3.24% were such threshold set at 30%. Overall, the empirical findings presented in this box show a negative relationship between financial capacity limitations based on prudent lending standards and becoming a first-time homeowner in the short term. The wealth channel – linked to the ability to make a sufficient down payment – emerges as a key factor in this process. The desired home-based approach also shows that, while high financial capacity households acquire dwellings of a value similar to the desired price, low financial capacity households tend to opt for lower-priced properties or remain renters.[17]

16 In line with Aastveit, Juelsrud and Wold (2020), who find that an LTV threshold of 80% prompts a 6% reduction in the annual probability of a mortgage-financed house purchase with micro data for Norway.

17 Andrew (2012) shows for the United Kingdom that in many cases financial capacity limitations prevent the purchase of the desired dwelling, forcing households to make lower-value purchases or to opt to continue renting.

However, these findings should be interpreted with caution, as the analysis identifies empirical associations and does not incorporate possible general equilibrium endogenous adjustments to key variables such as house prices (purchase and rental prices), credit supply and the behaviour of households and financial institutions, including their consumption and investment decisions.[18] For example, a higher degree of financial constraint could, on the one hand, reduce the ability to pay of first-time buyers who arrange a mortgage and over time give rise to a moderation in house prices associated with lower demand, partially offsetting the direct effects of the constraint and limiting the persistent increase in renter households. On the other, the shift towards the rental market could drive rental prices up and raise the return on buy-to-let real estate investment, introducing a further channel of demand for house purchases. The overall effect in the medium and long term will depend on the interplay of these general equilibrium mechanisms. In light of all the above, the simulations presented in this box should be construed as short-term indicative empirical approximations. In any event, the estimated order of magnitude is significant and highlights that, beyond the direct benefits of the borrower-based macroprudential measures in terms of the greater resilience of mortgage-indebted households and of the banking sector, the net effect on macro-financial stability will also depend on how the financial conditions of renter households may be affected and their relative importance in the total population.

18 See Box 2.1 of the Autumn 2025 *Financial Stability Report,* "Financial burden associated with the main residence and household consumption".