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Macroprudential policy and housing market expectations☆

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ABSTRACT

This paper studies how macroprudential policy changes affect consumers' housing market expectations and housing affordability perceptions in the United Kingdom. We conduct a large-scale online survey experiment presenting hypothetical changes of three borrower-based macroprudential tools: residential loan-to-value (LTV), buy-to-let LTV, and loan-to-income ratios. We find that policy tightening lowers house price expectations, reduces homebuying intentions, and worsens affordability assessments, while loosening has the opposite effects. The residential LTV ratio is the most effective tool. To interpret these findings, we embed our survey estimates into a dynamic model linking expectations, credit, and housing demand. The model shows that immediate belief shifts significantly amplify house price and consumption responses, highlighting the importance of expectations in the transmission of macroprudential policy.

1. Introduction

Following the 2007-08 Global Financial Crisis, macroprudential policies have been increasingly applied around the world to safeguard the stability of the financial sector (e.g., Claessens 2015, Carney et al. 2015). Since then, the empirical literature has provided evidence that mortgage credit expansion and the house price boom-bust cycle were among the main underlying causes of the crisis, associated with high mortgage defaults and overall negative effects (e.g., Schularick and Taylor 2012, Chakraborty et al. 2018, Mian et al. 2017, Favara and Imbs 2015, Di Maggio and Kermani 2017). Meanwhile, the theoretical literature advocates for macroprudential policies to limit pre-crisis household leverage, as unrestricted lending can lead to negative externalities during financial crises, with significant adverse effects on bank defaults, house prices, and aggregate activities (e.g., Lorenzoni 2008, Korinek and Simsek 2016, Farhi and Werning 2016, Favilukis et al. 2017, Ferrero et al. 2024).

The impact of macroprudential policies crucially depends on how these policies affect households' expectations and their subsequent behaviors.[1] Additionally, prior studies suggest that house price expectations play an important role in driving housing

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price dynamics (e.g., Case et al. 2012, Adam et al. 2012, Kuang 2014, Glaeser and Nathanson 2017, Mian and Sufi 2018) and investment and consumption behavior (e.g., Armona et al. 2019, Binder et al. 2025, Chopra et al. 2023). It is imperative for policymakers to understand how consumers form house price expectations following changes in macroprudential policies. This paper aims to address this issue through a novel empirical approach.

The recent UK housing market provides an interesting setting for our analysis. National house prices in the UK increased by approximately 10% per annum between 2021 and 2022. Meanwhile, British household finances are under growing pressure due to rising borrowing costs and energy prices, and a worsening economic outlook. Approximately half of all owner-occupier mortgages are exposed to rate rises in 2023; the share of households with high mortgage cost-of-living adjusted mortgage debt-servicing ratios is projected to increase significantly. These raise concerns about household debt vulnerabilities, default risks, and further spending squeeze (Bank of England, 2022), all of which point to potential instability in part of the financial sector. There are increasing discussions in the Financial Stability Reports of the Bank of England (BoE) regarding the use of macroprudential policies in concerns of housing affordability issues.[2]

This paper designs a large-scale survey experiment in the UK to study how consumers form house price expectations and evaluate housing affordability following changes in macroprudential policies. Our approach follows a growing literature using survey experiments to study expectation formation (Armona et al., 2019; D'Acunto et al., 2022; Fuster and Zafar, 2021, 2023; Coibion et al., 2023; Binder et al., 2025).[3] To the best of our knowledge, this is the first paper that analyzes the effects of macroprudential policies on housing market expectations.

The survey experiment is conducted through an online survey recruiting a large sample of the general UK population (approximately 3,300 participants). At the pre-treatment stage, we solicit consumers' household demographic information, including primary residency location, housing tenure, mortgage status, and their prior macroeconomic and house price expectations, and intention to buy houses. Next, participants are randomly assigned to a control group or one of six treatment groups that receive information about a hypothetical loosening or tightening of one of three major housing-related macroprudential policy tools.[4] These tools are: loan-to-income (LTI), residential loan-to-value (LTV-Own), and buy-to-let loan-to-value (LTV-BTL) ratio. Specifically, the hypothetical policy changes in the first two treatment groups are a 15 percentage point (p.p.) rise and a 15 p.p. fall in the LTV-Own ratio starting from 75%; in the next two treatment groups, a 15 p.p. increase and a 15 p.p decrease in the LTV-BTL ratio starting from 60%; and in the last two treatment groups, an increase and decrease of the LTI ratio by 0.8 from 4.2. At the post-treatment stage, we re-elicit consumers' house price expectations and intention to buy. Additionally, we ask for their assessment of housing affordability, mechanisms, and stock market perspectives.

In our analysis, we observed significant shifts in consumers' 1- and 5-year-ahead expectations of local house prices across various policy treatment groups, with the exception of the LTV-BTL ratio tightening group. Generally, a tightening (loosening) of a policy ratio drives down (up) consumers' house price expectations. The most pronounced impact was observed with a loosening of the LTV-Own ratio, from 75% to 90%, which resulted in an average annual increase of 1.9 p.p. in 1-year-ahead expectations and an average annual increase of 2.2 p.p. in 5-year-ahead expectations. Additionally, our text analysis of respondents' open-ended responses revealed that words such as 'larger deposit' and 'fewer able to afford' were frequently mentioned, indicating a prevalence of demand-side narratives in respondents' house price expectation formation.

A policy loosening (tightening) causes an average increase (decrease) in the intention to buy a home and improved (worsened) sentiments about housing market transactions, with the magnitude of the effects varying across different groups. For example, loosening (tightening) the LTV-Own ratio leads to a 9.2% increase (3.5% decline) in homebuying intention, whereas loosening (tightening) the LTI ratio yields a 4.2% increase (a 1% statistically insignificant decrease).[5] Furthermore, a policy tightening (loosening) leads to, on average, worsened (improved) affordability assessment.[6] Consumers' assessment of housing affordability depends on several factors. It is positively associated with the number of houses supplied in the market, and negatively associated with perceived house price growth, difficulty in saving for mortgage deposits, qualification for a mortgage, and the likelihood of a financial crisis.

To interpret these survey findings and quantify the macroeconomic implications of expectation shifts, we incorporate our experimental estimates into a dynamic macroeconomic model adapted from Adam et al. (2012). The model features a feedback loop between house price expectations, credit constraints, and housing market outcomes. We simulate two policy interventions aligned with our survey, loosening the residential LTV constraint from 75% to 90%, and tightening it from 75% to 60%, under two belief regimes. In the baseline, households update house price expectations gradually via adaptive learning. In the treatment scenario, beliefs jump immediately in response to the policy change by magnitudes calibrated to our survey's average treatment

[1] For example, Kaplan et al. (2020) show that given an exogenous change in macroprudential policy (maximum loan-to-value ratio), the dynamics of the economy differ substantially depending on the assumptions on shifts in housing beliefs.

[2] See, for example, the Financial Stability Reports of BoE in July and December 2022.

[3] Haaland et al. (2023) suggests that information provision experiments are particularly useful for studying policy-relevant questions, as they allow changing perceptions of real-world phenomena which themselves cannot be directly changed.

[4] Using a similar method, Fuster and Zafar (2021) study respondents' willingness to pay for a home under different financing scenarios and Andre et al. (2022) study how respondents' inflation and unemployment expectations respond to macroeconomic shocks.

[5] By contrast, loosening (tightening) the LTV-BTL ratio yields a 5.4% increase (a 0.3% statistically insignificant decline). Note that having an intention to buy a home is coded as 1 and 0 otherwise.

[6] A policy loosening has at least two opposing effects on affordability: easier to qualify for a mortgage (and make a downpayment), and more expensive future house prices. Our finding suggests that the former plays a dominant role in consumers' assessment of housing affordability.

effects. Model simulations reveal that immediate belief shifts substantially amplify house price dynamics and housing consumption responses relative to the baseline case. For instance, under LTV loosening, house prices surge by 40 p.p. when expectations react on impact, compared to only 11 p.p. otherwise. Overall, these results highlight the critical role of house price expectations in the transmission of macroprudential policies.

This paper contributes to several strands of literature. First, the paper speaks to a strand of literature that analyzes the effects of LTV ratios or macroprudential policies on housing markets. Fuster and Zafar (2016) and Bolliger et al. (2022) demonstrate that changes in LTV ratios or macroprudential policy can affect intention to buy houses and homeownership rates, respectively. Fuster and Zafar (2021) explore consumers' willingness to pay for a home under various financing scenarios, such as different downpayment requirements. Tripathy (2020) presents evidence that macroprudential regulation in Spain had spillover effects on the Mexican financial system through Mexican subsidiaries of Spanish banks, resulting in a contraction in credit supply and macroeconomic activity within the local non-tradable sector. Acharya et al. (2022), using Irish data, analyze the effects of changes in loan-to-income and LTV ratios on mortgage credits and house prices. They find, for instance, that policy tightening leads to the reallocation of mortgage credits from low- to high-income borrowers and from urban to rural counties, thus weakening the feedback between credit and house prices and slows house price growth in "hot" housing markets, which aligns with our analysis of house price expectations. Peydró et al. (2024) study the distributional effects of macroprudential policy that limits household leverage on mortgage and house price cycles, using British mortgage-register data. Using Toronto data, Han et al. (2021) find that an increase in the down payment requirement for homes selling for $1M or more causes excess bunching of homes listed at $1M and heightened bidding intensity for these homes. Greenwald and Guren (2021) develop a model illustrating the substantial impact of credit conditions on house prices in an economy with frictional rental markets. Our paper contributes to this literature by exploring a new channel: the expectation channel.

Second, our paper contributes to the literature on the formation of house price expectations (see Kuchler et al. (2023) for a survey article of this literature) and, more broadly, explores how consumer expectations affect housing market choices. Armona et al. (2019) find that house price expectations are consistent with short-term momentum in house price growth but not with long-term mean-reversion. Kuchler and Zafar (2019) highlight the significance of personal experiences in local house price growth. Kindermann et al. (2021) show that location and tenure are the most influential factors in explaining how housing price expectation are formed in Germany. Bailey et al. (2019) investigate the relationship between homebuyers' beliefs about future house price changes and their mortgage leverage choices. Andersen et al. (2023) find that households who expect higher inflation are more likely to choose fixed-rate mortgages while those who expect their own financial situation to improve are more likely to choose adjustable-rate mortgages (ARM). Badarinza et al. (2017) demonstrate that near-term (one-year) rational forecasts of future movements in ARM rates affect mortgage choices. Brunnermeier and Julliard (2008) provide evidence that consumers suffer from money illusion, which contributes to the mispricing of houses. Binder et al. (2025) delve into how US consumers' house price expectations respond to verbal and non-verbal communication of interest rate hikes, using several online surveys and experiments. Our paper extends this literature by studying public understanding and beliefs about the effects of several macroprudential policy tools on price expectations and consequent spending behavior.

Third, this paper relates to a growing literature that employs survey experiments to study the effects of policy changes on the expectations of private agents. Haaland et al. (2023) provides an excellent summary of recent studies that use survey experiments to investigate policy-relevant questions. Much of this work focuses on how communication regards monetary policy (Coibion et al., 2022, 2023; Kuang et al., 2025b,a) affects inflation expectations and household spending. Another related paper is (Beutel et al., 2021) which examines how communication about financial stability affects household beliefs and risk-taking behavior. In contrast, this paper investigates the effects of macroprudential policy and focuses on housing market beliefs.

The paper is structured as follows. Section 2 describes our survey design and presents summary statistics. Section 3 presents the treatment effects of macroprudential policy changes on housing market expectations, intention to buy, and stock market perspectives. In Section 4, we discuss the effects of changes in macroprudential policy on housing affordability and associated mechanisms. Section 5 contrasts our findings with existing theoretical and empirical studies. Additionally, it utilizes a simple model to qualitatively illustrate a few major survey findings. Section 6 concludes.

2. Survey design and descriptive statistics

We conducted an experimental survey on Prolific, which opened on August 18th, 2022, inviting approximately 3,300 participants.[7] Section 2.1 outlines the survey flow in three stages, while Section 2.2 presents the details of macroprudential policy treatment scenarios. In Section 2.3, we describe the demographics of survey respondents and their pre-treatment expectations.

[7] Prolific is a UK-based platform for online subject recruitment explicitly designed for survey research. Many economists have recently recruited respondents from Prolific (e.g., Saccardo and Serra-Garcia 2023, Exley and Kessler 2022) to study the behaviors of the general public. Recruiting respondents from online panel providers is a common practice in economics and social science research (Haaland et al., 2023). Prolific requires paying a minimum wage to survey respondents and we pay our respondents above this threshold value. The respondents can exit the survey at any time.

2.1. Survey structure

The survey setup comprises three stages, illustrated in Figure A.1 in the Appendix.[8]

Pre-treatment The survey begins with brief instructions on how to answer each question type, followed by questions about respondents' location, homeownership, and mortgage status (whether they are mortgage-payers and, if so, the types of mortgages). In the pre-treatment stage, participants provide point and probabilistic forecasts of house price growth rates at their local authority (LA) over the next 12 months. Point forecasts are elicited using a slider to reduce noise and cognitive strain, while probabilistic forecasts gauge the level of uncertainty associated with house price predictions. Additionally, we solicit 5-year-ahead point forecasts of house price growth, as well as several 1-year-ahead macroeconomic forecasts. The survey also elicits respondents' intention to buy houses and the purpose of purchase, if applicable.

Treatments During the treatment stage, consumers are randomly allocated into one control and six treatment groups. We examine the three key borrower-based macroprudential policies in the UK, *mortgage loan-to-income* (LTI) ratio, *owner-occupier mortgage loan-to-value* (LTV-Own) ratio, and *buy-to-let mortgage loan-to-value* (LTV-BTL) ratio. Each policy is assessed under two scenarios: *tightening* and *loosening*. Further details on the policy treatments can be found in Section 2.2.

Post-treatment In the post-treatment stage, consumers answer questions based on the information about the policy change scenario they received. To address concerns about experimenter demand effects, we design open-ended and structured questions to elicit considerations that appear in their mind when answering these questions. Additionally, two attention checkers are included to screen out inattentive participants and bots.[9] We examine if consumers would alter their intention of buying a home after the treatment. If so, an open-ended question is used to capture the motivations behind the change in intention. We also elicit their perspectives on how the macroprudential policy change affects housing and stock market conditions. Next, consumers respond to quantitative and structured questions tracking their predictions of overall and categorical non-housing spending changes. They then provide updated point forecasts for house price growth over the next 12 months and 5 years, along with predictions for changes in rent expenses. An open-ended question is used to capture narratives of their 12-month-ahead house price growth forecasts. Finally, consumers evaluate the impact of this policy scenario on housing affordability and share their views on various mechanisms contributing to changes in affordability.

Drawing from recommendations by Kuchler et al. (2023), our survey incorporates various dimensions for the development of housing market expectation surveys. These include questions on point and probabilistic forecasts across different horizons, qualitative assessments of macroprudential policy impacts on housing markets and associated mechanisms, intentions to purchase homes, and their intended use (residential or investment). Open-ended questions are included to allow consumers to express their thoughts freely on home prices and purchase intentions. Additionally, respondents are asked about their expectations regarding other macroeconomic variables (e.g., inflation, interest rates, stock returns, and unemployment risk) to further explore their interconnections with housing market expectations.

Experimenter demand effects. Many survey experimental studies (e.g. Stantcheva 2021, Andre et al. 2022, de Quidt et al. 2018) explicitly incorporate strategies to mitigate experimenter demand effects (EDE) on survey outcomes. We prioritize addressing EDE and implement these strategies during the survey design phase. Specifically, we use open-ended questions to prompt respondents to recall mechanisms and thoughts related to the effect of the policy change on future house prices and their intention to buy. This approach reveals that changes in responses are driven by mechanism recall rather than EDE.[10] Appendix A.2 provides a detailed discussion of our efforts and strategies to mitigate EDE in our survey design.

2.2. Macroprudential policy treatment scenarios

Upon entering the group randomization, each treatment group receives the definition of a specific macroprudential policy. We begin by eliciting consumers' perceptions of the current value of this policy ratio. Following Andre et al. (2022), to isolate the effect of differences in respondents' information set on belief updating, we provide definitions of the relevant policies to control respondents' information set and to ensure that consumers receiving the same policy treatment make predictions on common ground.[11]

In each treatment group, consumers are prompted to consider either a tightening or loosening scenario for the macroprudential policy.[12] The magnitude of tightening or loosening is symmetric for each of the three policy tools. Specifically, the policy changes involve a 15 percentage point (p.p.) increase or decrease in the LTV-Own ratio from a base of 75%, a symmetric 15 p.p. change in the LTV-BTL ratio from 60%, and a change in the LTI ratio by 0.8 from a base of 4.2. To ensure engagement, consumers must spend at least 30 s on the screen before proceeding. We provide a brief explanation of each policy change to aid consumers' understanding. The details of macroprudential policy treatment scenarios are as follows.

[8] Appendix C presents the survey questionnaire.

[9] Respondents who fail the attention check are immediately directed to the end of the questionnaire and are dropped out. We also use Qualtric's bot checker to filter out bots. About 4% of the total respondents who entered into the survey were screened out.

[10] We also use a series of structural questions to elicit the mechanisms that are recalled by respondents when they are interpreting the effect of the policy change on housing market affordability.

[11] Note the definitions are provided to treatment groups only and not the control group.

[12] Since the scenarios considered are hypothetical policy changes, respondents are aware that there are no fundamental changes in the economic condition, and should not interpret the policy change as a response to changes in economic condition. Therefore, this type of information treatment does not suffer from endogeneity issues.

Mortgage loan-to-income ratio. In the introduction to the LTI ratio change scenario, consumers are informed of the current average mortgage LTI ratio. They are then randomly assigned to either an LTI *loosening* or *tightening* group. Consumers in the LTI loosening group receive the following instructions:

> "Consider now that the UK government implements a housing policy change that increases this ratio from 4.2 to 5. That is, suppose that your annual pre-tax income is £50,000. Before the policy change, the amount of mortgage you could get caps at £210,000. After the policy change, the amount of mortgage you could get would increase to £250,000".

Buy-to-let mortgage loan-to-value ratio. After briefly introducing the policy and its current value, consumers are prompted to consider either loosening or tightening the LTV-BTL ratio. In the scenario of loosening the LTV-BTL ratio, the following information is presented:

> "Consider now that the UK government implements a housing policy change that increases this ratio from 60% to 75%. That is, suppose that you plan to purchase a £200,000 property as an investment (e.g., to rent out). Before the policy change, you need a deposit of at least £80,000. After the policy change, the deposit needed would lower to £50,000".

Owner-occupier (residential) mortgage loan-to-value ratio. Consumers are given the definition of the LTV-Own ratio along with its current value. Those in the LTV-Own ratio loosening group receive the following instructions:

> "Consider now that the UK government implements a housing policy change that increases this ratio from 75% to 90%. That is, suppose that you plan to purchase a £400,000 property as your own home. Before the policy change, you need a deposit of at least £100,000. After the policy change, the deposit needed would lower to £40,000".

Instructions for the tightening scenario mirror those for the loosening scenario in each policy treatment. In theory, the effects of changes in macroprudential policies on house price expectations, homebuying intentions, and affordability assessments depend positively on the magnitude of changes in the policy ratios. To provide an upper-bound estimate for the policy effects, we calibrate the size of policy changes in treatment groups to match the historical extreme values of the respective policy ratios.[13] As a robustness check, we implemented an additional survey on Apr 8, 2025, with a sample of 2,500 participants representative of the UK population. In this wave, we varied the LTV-Own ratio by ± 5 and ± 10 percentage points to examine the sensitivity of respondents' expectations and behaviors to more moderate policy shifts.

2.3. Descriptive statistics

Demographic distribution. We construct sample weights to match the joint distribution of income and homeownership status in the UK population.[14] Panel A of Table 1 summarizes demographic information for both the pooled sample and each group. The weighted sample closely mirrors the characteristics of nationally representative surveys of the UK population. For instance, 56.5% of consumers are female, compared to 52.1% in the 2022 UK Household Longitudinal Study (UKHLS) General Population Sample. The median monthly income in our sample ranges between £3,000 and £3,999, identical to that in UKHLS. Additionally, the average age is 42 in our sample, close to 41.2 in UKHLS. The distribution of nations where our consumers reside resembles official statistics from the Office for National Statistics (ONS): 84.2% from England, 9.3% from Scotland, 4.4% from Wales, and 2.2% from Northern Ireland in our sample, compared to 84.3%, 8.2%, 4.6% and 2.8%, respectively, in the ONS data. A noticeable difference between our sample and the UK population is that about two-thirds of our sample holds at least a Bachelor's degree, while only 44.1% do in UKHLS. This is a typical feature of online survey samples, possibly due to a strong correlation between education and computer literacy or internet access in the UK population.[15] The last column of the table presents the p-value of the one-way ANOVA test, indicating that the differences across groups are not statistically significant at conventional levels.

Panel B of Table 1 presents pre-treatment point forecasts for each survey group, with standard deviations reported in parentheses. Once again, the one-way ANOVA test reveals no statistically significant differences in pre-treatment expectations across groups. On average, consumers expect house prices to grow by 6.9% over the next 12 months and at an annualized rate of 10% over the next 5 years.[16] Additionally, Figure B.1 in the Appendix depicts a strong positive correlation between 12-month- and 5-year-ahead annualized house price growth expectations.

[13] The IMF database on macroprudential policy measures documents numerous country-level episodes in which LTV ratio changes exceeded 10 percentage points. Notably, Denmark and Sweden implemented reductions of 15 p.p.; Israel, New Zealand, and Kuwait recorded cuts exceeding 20 p.p.; and Korea and the UAE enacted reductions of over 30 p.p.

[14] Details about the joint distribution of income and homeownership can be found in Appendix Table B.1. The minimum value of the weight is 0 and the maximum value is 1.58. The standard deviation of the weight is 0.49. Although our following analysis uses the weighted sample, results are quantitatively similar, and the statistical inference remains unchanged if the raw sample is used.

[15] Appendix Table B.2 compares the distribution in the sample (Column 1) versus the UKHLS (Column 2). The large p-values in Column (3) suggest that the distribution of our sample is not statistically different from the UK population.

[16] One concern is the asymmetry of the scale (−20% to 50%) in sliders used to elicit expectations, which can lead respondents to be more likely to report positive house price predictions (and thus upward-biased average predictions). We cross-validate house price predictions in our survey with the ones from the UK Residential Market Survey (RMS) conducted in April 2022. RMS asks qualitative questions regarding the expected direction of house price changes (i.e., higher, unchanged, or lower). A net balance of +62% of survey participants predicts house prices to be higher in a year's time, which is close to ours (+60% net balance). Moreover, we focus on the *revisions* in house price expectations, which may mitigate this concern. The high house price expectations could partly be due to high inflation expectations and perceived inflation persistence in the context of very high inflation.

Table 1
Summary statistics: demographics and pre-treatment expectations.

(1)	Full sample (2)	Control (3)	T1 (4)	T2 (5)	T3 (6)	T4 (7)	T5 (8)	T6 (9)	p-val
Observation	3,312	541	480	440	463	468	461	459	
Panel A: Personal background									
HH monthly income < £2,000	24.3%	21.0%	24.6%	24.0%	25.4%	26.2%	26.4%	23.5%	0.92
HH monthly income < £5,000	79.6%	81.4%	76.2%	78.5%	80.2%	77.7%	81.9%	81.0%	0.13
Homeowner	69.8%	71.1%	71.0%	67.2%	71.4%	70.8%	67.2%	69.4%	0.69
Mortgage payer (out of homeowner)	75.4%	76.3%	76.6%	75.7%	71.7%	73.5%	75.6%	78.1%	0.36
At least bachelor's degree	66.1%	64.5%	61.5%	64.8%	70.1%	69.7%	65.0%	67.6%	0.38
Liquid asset holdings < £5,000	41.2%	39.7%	40.2%	40.2%	42.7%	37.5%	45.5%	42.7%	0.75
Liquid asset holdings < £50,000	81.9%	81.1%	82.0%	82.2%	83.0%	81.0%	81.3%	82.9%	0.12
HH size ≤ 5	76.3%	79.8%	75.9%	76.3%	77.2%	76.8%	73.3%	74.3%	0.36
Married	49.9%	50.4%	52.2%	50.6%	47.6%	47.1%	50.3%	51.0%	0.69
Have children	51.7%	50.9%	52.2%	55.1%	45.7%	52.6%	52.5%	52.7%	0.17
Age (in years)	42.0	42.0	41.7	41.9	41.8	42.2	42.1	42.2	0.99
	(13.6)	(13.7)	(13.4)	(13.4)	(13.2)	(13.6)	(13.8)	(13.8)	
Female	56.5%	51.5%	55.5%	56.9%	57.0%	55.7%	60.5%	59.3%	0.33
Regions									
England	84.2%	83.7%	84.2%	85.4%	83.9%	83.9%	81.9%	86.3%	0.56
Scotland	9.3%	10.0%	9.3%	6.8%	9.5%	8.8%	11.6%	8.7%	0.34
Wales	4.4%	4.3%	4.4%	4.7%	4.6%	3.9%	4.6%	4.2%	0.99
Northern Ireland	2.2%	2.1%	2.1%	3.2%	2.1%	3.4%	2.0%	0.8%	0.15
Panel B: Pre-treatment expectation									
Expected HP growth	6.9%	6.4%	7.2%	7.9%	6.6%	6.1%	7.1%	6.9%	0.16
over the next 12 months	(10.0)	(9.8)	(10.3)	(10.2)	(10.2)	(9.5)	(9.5)	(10.7)	
Expected annual HP growth	10.0%	9.9%	10.9%	10.7%	10.4%	9.7%	9.6%	9.1%	0.22
over the next 5 years	(10.3)	(10.1)	(10.5)	(10.7)	(10.9)	(10.1)	(10.1)	(9.9)	
Expected inflation	11.1%	11.1%	11.2%	10.9%	11.4%	10.7%	10.8%	11.3%	0.17
over the next 12 months	(4.8)	(4.8)	(5.1)	(4.6)	(4.8)	(5.0)	(4.9)	(4.6)	
Own unemployment risk	20.6%	21.1%	20.6%	20.1%	20.6%	21.0%	22.2%	19.0%	0.76
in 12 months	(27.9)	(28.5)	(27.9)	(27.0)	(27.7)	(28.3)	(29.7)	(26.2)	
Expected 5-year fixed-rate mortgage	5.6%	5.6%	5.5%	5.6%	5.7%	5.6%	5.7%	5.7%	0.53
in 12 months	(1.4)	(1.3)	(1.4)	(1.4)	(1.3)	(1.4)	(1.5)	(1.5)	
Expected average stock return	5.9%	5.9%	6.2%	5.8%	5.8%	5.8%	5.6%	6.0%	0.86
over the next 12 months	(6.1)	(6.2)	(5.9)	(6.2)	(6.4)	(5.5)	(5.7)	(6.6)	

Notes: T1: LTI tightening. T2: LTI loosening. T3: LTV-BTL tightening. T4: LTV-BTL loosening. T5: LTV-Own tightening. T6: LTV-Own loosening. Sampling weights are used. Column (9) in both panels report the *p*-value of the one-way ANOVA test of the equality of each row variable across all control and treatment groups. The mean values of continuous variables are reported in Panel B. Statistics regarding house price growth expectations over the next 12 months and 5 years are calculated using point forecasts from the survey. We also perform ANOVA tests on respondents' perceptions of the current value of the relevant policy and find that the difference in perception between the tightening and loosening groups is not significant for all three pairs of treatment groups.

Past local house price growth and house price expectations. To examine the relationship between households' house price expectations and their past experiences, we regress consumers' pre-treatment 1-year ahead house price growth expectations on the past house price growth rate at their local authority (LA) or county level, based on house price index data from HM Land Registry. The results are reported in Panels A and B of Appendix Table B.4.[17] We find that households' 1-year-ahead house price growth expectations are positively associated with actual local house price growth during the past 12 months. This association remains robust after controlling for additional pre-treatment macroeconomic expectations.[18] Previous studies, such as D'Acunto et al. (2021), have shown that grocery shopping experience can influence households' inflation expectation formation. Similarly, Kuchler and Zafar (2019) demonstrate that personal experiences of local house prices play a crucial role in forming expectations about national outcomes. Our findings further support the importance of local experiences in shaping local house price expectations, consistent with the findings of Case et al. (2012), who observed that local house price expectations are related to recent local growth trends.

Assessing the prevalence of binding constraints. To estimate the share of survey respondents facing binding credit constraints, we use self-reported income and liquidity ranges, converted by lower-bound, mid-point, and upper-bound values, to generate nine income-liquidity combinations for each individual. For each scenario, we calculate the respondent's maximum borrowing capacity as the minimum of two limits: (1) the LTV-constraint, derived from the applicable LTV ratio (Own or BTL) times the average local property price, and (2) the LTI-constraint, calculated as the LTI ratio multiplied by annual income. A respondent is classified as

[17] To benchmark against Armona et al. (2019), we estimate home price momentum from UK administrative data (2005–2022) using their AR(1) specification. The one-year lag coefficient is 0.18 (vs. 0.53 in the U.S.), and respondents' subjective updating is 0.10, well below both the objective UK momentum and the 0.20 subjective coefficient in the U.S. study. Our survey's timing—mid-2022, as UK rates were rising and home prices declining—likely contributed to weaker momentum and more muted updating.

[18] We find a significantly positive association between 1-year-ahead house price growth expectations and local house price growths during the past 5 or 10 years, both at the county and local authority level.

binding if their total purchasing power, borrowing capacity, plus liquidity, is insufficient to cover the average house price in their local authority. This classification is repeated across all three liquidity values and for both residential and investment property purchases, which face different LTV caps. Appendix Table B.3 reports the proportion of respondents who are constrained under each scenario. Overall, our estimates suggest that about 55%–65% of participants are constrained to purchase a residential house given the policy ratios and average house prices in 2023.

Other macroeconomic expectations. We solicited expectations regarding other macroeconomic variables. The mean expected inflation over the next 12 months is 11.1%, higher than the mean expected growth rate of house prices. Consumers expect a hike in the mortgage rate to 5.6% and a stock market return of 5.9% over the next 12 months.[19] Overall, the demographics of survey participants broadly align with the UK general population. We do not observe heterogeneity in individual characteristics or pre-treatment expectations across control and treatment groups, suggesting the validity of our sample for studying the effects of policy treatment.

3. Effects of policy treatments

This section assesses the impacts of policy treatments across three dimensions: house price expectations (Section 3.1), intention to purchase a home (Section 3.2), and perspectives on stock markets and other aspects of housing markets (Section 3.3).

3.1. Effect on house price expectations

Our primary focus is to assess how consumers adjust their house price expectations following randomized policy treatments. Fig. 1 displays cumulative distributions of consumers' revisions in house price growth expectations. Each row in the figure corresponds to treatment groups receiving information on LTI, LTV-BTL, and LTV-Own ratios, respectively, from top to bottom. The left and right columns depict expectation revisions over the next 12 months and 5 years, respectively. Solid red lines represent policy-tightening scenarios, while dashed blue lines represent policy-loosening scenarios. Appendix Figure B.2 illustrates kernel density distributions.

The distributions of expectation revisions on house price growth are notably varied across all policy treatment scenarios, indicating significant heterogeneity among consumers in assessing the effects of changes in macroprudential policies on future house prices. Generally, policy loosening treatments (dashed blue lines) lead to a larger proportion of consumers revising their house price growth expectations upward and a smaller proportion revising expectations downward compared to policy tightening (solid red lines). In the right column, the distributions of revisions to 5-year-ahead house price growth expectations in policy-tightening groups are noticeably more dispersed, as indicated by flatter CDFs, than those in policy-loosening groups. This suggests a greater disagreement among consumers regarding the effects of policy tightening on house price growth in the longer run.

Furthermore, we tested the *equality* and *asymmetry* of distributions between tightening and loosening of each policy using the Kolmogorov–Smirnov (KS) test. Firstly, the equality of distributions is consistently rejected across all panels at 1% significance levels, indicating that loosening and tightening of each policy result in statistically different revisions in house price expectations over both the short and long run. Secondly, we examined the asymmetric effects of tightening and loosening a policy ratio by assessing whether the distribution of negated values of policy tightening is statistically different from the distribution of policy loosening (H0: -tightening = loosening). For all three policy ratios, the p-values are less than 1%, suggesting asymmetric effects of tightening and loosening a ratio.

To estimate the average treatment effects (ATE) of different policy scenarios on house price growth expectations, we follow Coibion et al. (2022) and consider the following specification:

$$\mathbb{E}_i^{\text{post}}\,\text{HP}_{+ky} - \mathbb{E}_i^{\text{prior}}\text{HP}_{+ky} = \alpha_0 + \Sigma_{j=1}^{6}\alpha_j \times \mathbb{1}\left\{i \in \text{Treat}_j\right\} + \phi X_i + \eta Z_i + \epsilon_i, \tag{3.1}$$

where i indexes consumers, $\mathbb{E}^{\text{prior}}$ and $\mathbb{E}^{\text{post}}$ denote prior and posterior expectations, HP_{+ky} measures the annualized k-year-ahead house price change, and $\mathbb{1}\left\{i \in \text{Treat}_j\right\}$ is an indicator function that equals 1 if consumer i is randomly assigned into treatment group j and 0 otherwise. We control for individual demographic fixed effects (X_i) as well as their expectations of other macroeconomic variables (Z_i). Individual demographic fixed effects include gender, employed status indicator, the highest level of education, pre-tax total household income (binned), marital status, homeownership status, total liquid asset holdings (binned), having children or not, and household size. Expectations of other macroeconomic variables include inflation, average stock market return, 5-year fixed rate mortgage rate, and the probability of being unemployed over the next 12 months. The inclusion of controls is optional and only affects the precision of the estimates because treatment assignment is random.

Table 2 reports the estimate of α_j, which identifies the average revision in expectations of participants in treatment group j relative to the control group. Columns (1)–(3) and (4)–(6) report ATE on 1-year and 5-year house price expectations, respectively. In our estimation, we use sampling weights and winsorize the top and bottom 1% of revisions in house price expectation. On average, consumers anticipate a rise in housing prices following a policy loosening and a fall in prices following a policy tightening. One exception is the lowering of the LTV-BTL ratio, which does not significantly affect house price expectations. Our results remain robust with or without controlling for demographic fixed effects or other macroeconomic expectations, or using the sub-sample of respondents with high financial literacy.

[19] Consumers are informed of the current rate of 5-year fixed-rate mortgage (4%) and the average rate of stock market return over the past 12 months (8%) before making predictions.

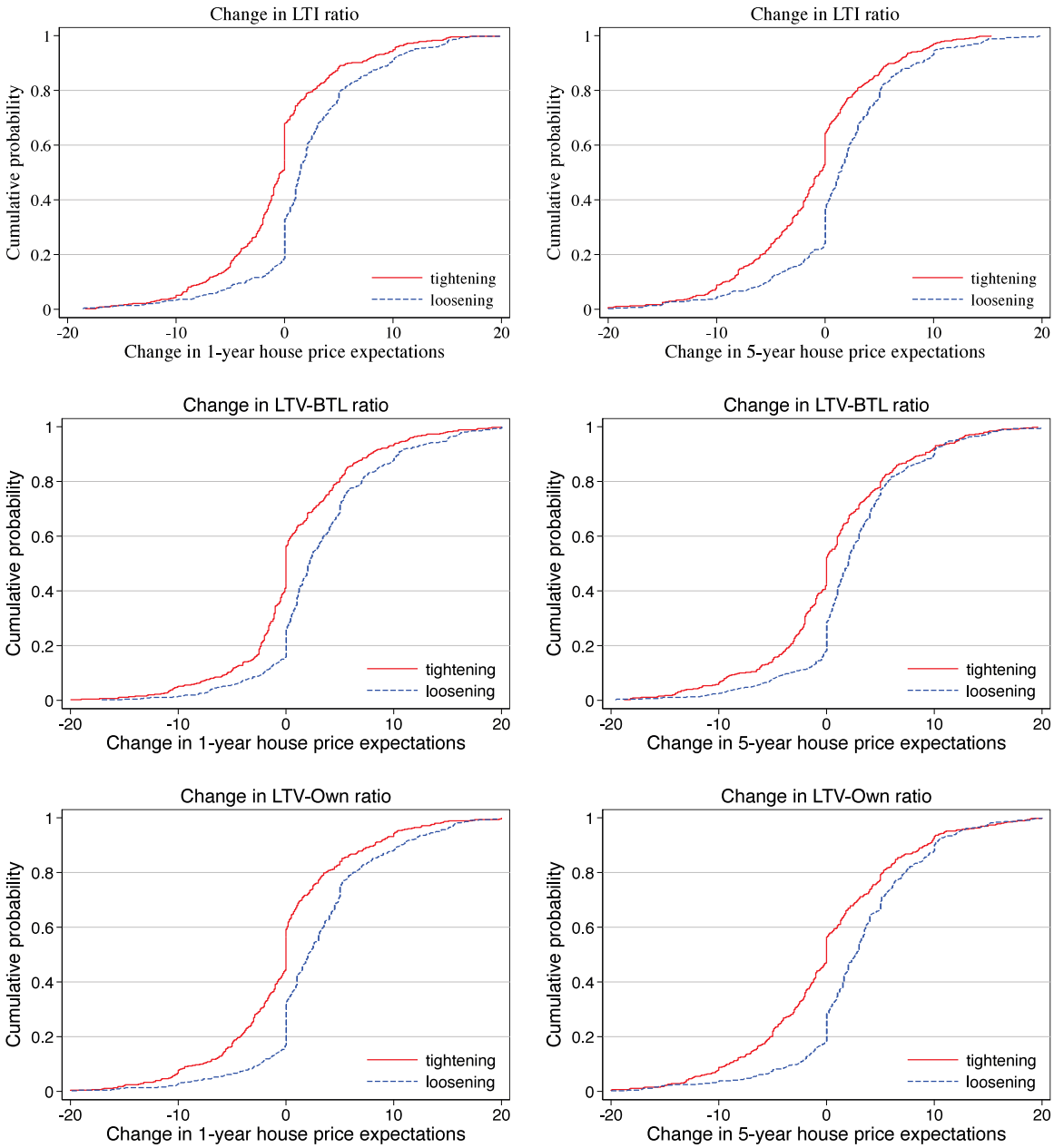

Fig. 1. Cumulative distribution plots of treatment effects.
Notes: This figure presents cumulative distributions of consumers' revisions to house price change expectations. The left (right) column illustrates the distributions of 1-year-ahead (5-year-ahead) house price change expectations. From top to bottom, each row corresponds to treatment groups receiving information on loan-to-income (LTI), buy-to-let loan-to-value (LTV-BTL), and owner-occupier loan-to-value (LTV-Own) ratios, respectively. Solid red (dashed blue) lines represent the distributions of revisions to house price change expectations under policy tightening (loosening).

Our estimation suggests asymmetric responses to policy tightening versus loosening. A loosening in the LTV-BTL ratio significantly increases house price expectations, while a tightening has an insignificant impact. Additionally, the response to LTI ratio

Table 2
Treatment effects on house price expectations.

Dependent variable:	1-year-ahead revision, $\Delta\mathbb{E}(HP_{+1y})$			5-year-ahead revision, $\Delta\mathbb{E}(HP_{+5y})$		
	(1)	(2)	(3)	(4)	(5)	(6)
Control	−0.582	−0.807	0.430	0.034	−0.153	0.421
	(0.479)	(0.498)	(0.718)	(0.551)	(0.561)	(0.844)
Treatment effects relative to control:						
T1 (lower LTI)	−1.512***	−1.486***	−1.669***	−2.058***	−2.024***	−1.795***
	(0.317)	(0.321)	(0.411)	(0.364)	(0.366)	(0.507)
T2 (higher LTI)	1.131***	1.206***	1.540***	0.730**	0.704*	1.144**
	(0.320)	(0.323)	(0.461)	(0.358)	(0.365)	(0.490)
T3 (lower LTV-BTL)	−0.314	−0.267	−0.125	−0.643*	−0.619	−1.012**
	(0.330)	(0.334)	(0.431)	(0.389)	(0.390)	(0.509)
T4 (higher LTV-BTL)	1.910***	2.018***	2.536***	1.454***	1.592***	1.685***
	(0.318)	(0.323)	(0.405)	(0.342)	(0.346)	(0.454)
T5 (lower LTV-Own)	−1.070***	−1.052***	−1.184***	−1.117***	−1.142***	−1.229**
	(0.342)	(0.345)	(0.459)	(0.388)	(0.390)	(0.518)
T6 (higher LTV-Own)	1.763***	1.858***	2.275***	2.137***	2.201***	1.945***
	(0.323)	(0.324)	(0.389)	(0.348)	(0.345)	(0.457)
Demographics	✓	✓		✓	✓	
N	3137	3113	1350	3135	3109	1342
Adjusted R-squared	0.07	0.07	0.12	0.06	0.08	0.10

Notes: This table reports average treatment effects of macroprudential policy changes on 1- and 5-year housing price expectations using equation (3.1). Columns (1) and (4) report estimation results for 1- and 5-year-ahead annualized house price expectations without including control variables. Columns (2) and (5) include demographic controls. Columns (3) and (6) use the sub-sample of respondents who have better knowledge of finance and economics (i.e., respondents who accurately answer all three questions that test their financial literacy). Average treatment effects are reported relative to the control group. Regressions use sampling weights. Robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

tightening is significantly larger than that to LTI ratio loosening. In contrast, the opposite pattern is observed regarding changes in the LTV-Own ratio.[20] Overall, loosening of the LTV-Own policy generates the largest effects on house price expectations.[21]

To test the sensitivity of our findings to more modest policy changes, we conducted a robustness wave in which we varied the LTV-Own ratio by ±5 and ±10 percentage points. As reported in Table 3, these smaller adjustments also result in statistically significant revisions in house price expectations. A 5 p.p. increase led to upward revisions of 0.43 to 0.79 percentage points in 1-year-ahead expectations, while a 10 p.p. increase produced effects between 1.27 and 2.10 percentage points. Conversely, tightening the LTV-Own ratio by −5 p.p. or −10 p.p. significantly reduced expectations, with magnitudes comparable to those found in our original ±15 p.p. scenarios. These results reinforce the direction and robustness of our earlier findings, suggesting that the effects observed under the larger policy shocks are consistent with proportional responses rather than outliers.

Heterogeneous treatment effects. We first investigate heterogeneous treatment effects based on past local house price growth experiences. Presumably, policymakers may aim for stronger policy impacts in areas that have undergone more rapid house price growth in recent years. These areas are also likely to be where more homebuyers are already nearing their financial constraints. Specifically, we compare respondents living in local authorities that fall into the top and bottom 30th, 40th, and 50th percentiles of 1-year house price growth prior to the survey. Appendix Tables B.5 and B.6 report consistent patterns across both short-term and medium-term expectations. In areas with stronger past price growth, macroprudential loosening, particularly with higher LTV-Own ratios (T6), generates significantly larger upward revisions in 5-year-ahead house price expectations (see Column (3) of Table B.6). Conversely, policy tightening (T1, T3, T5) produces significantly more pronounced downward 1-year-ahead revisions in these high-growth areas. These effects are generally muted or insignificant in low-growth areas, suggesting that respondents' expectations are more responsive to policy changes when local housing markets have recently experienced strong momentum.

Tables B.7 and B.8 in the Appendix explore the heterogeneity in the effect of policy treatments on 1- and 5-year-ahead house price change expectations across different demographic groups. Various differences in the magnitude of expectation revisions are observed. The loosening of the LTV-Own ratio generally exerts the strongest effects on 1- and 5-year-ahead house price expectations across all demographics.

Narratives and reasons to change house price prediction. After re-eliciting consumers' post-treatment house price predictions, we solicit their primary considerations and reasons to make such predictions, encapsulated as their housing market narratives. To summarize key patterns in respondents' open-ended reasoning, we apply a TF-IDF-based *n*-gram analysis and visualize the results as a heatmap. After standard preprocessing (e.g., lowercasing, removing punctuation, numbers, stopwords, and question-specific

[20] We test the equality between the mean of revisions in house price expectations under policy tightening and the negative of the mean under corresponding loosening. For every policy, the testing results suggest an asymmetric effect at a 1% significance level.

[21] The control group coefficient is non-zero but statistically insignificant, reflecting natural variation unrelated to treatments—a common feature in survey experiments (e.g. Armona et al., 2019; Coibion et al., 2022). The estimates of the control group are small relative to the effects of the treatment, which capture changes in policy-induced belief net of this baseline variation.

Table 3
Treatment effects on house price expectations: Varying LTV-Own ratios.

Dependent variable:	1-year-ahead revision, $\Delta E(\text{HP}_{+1y})$			5-year-ahead revision, $\Delta E(\text{HP}_{+5y})$		
	(1)	(2)	(3)	(4)	(5)	(6)
Control	1.238	0.962	0.812	1.477	1.195	0.959
	(0.135)	(0.126)	(0.158)	(0.179)	(0.181)	(0.217)
Treatment effects relative to control:						
Up 5%	0.434*	0.748***	0.793***	1.268***	1.297***	1.381***
	(0.227)	(0.188)	(0.219)	(0.215)	(0.230)	(0.272)
Up 10%	1.333***	1.366***	1.268***	1.749***	1.876***	2.095***
	(0.193)	(0.187)	(0.212)	(0.214)	(0.215)	(0.264)
Down 5%	−1.058***	−0.808***	−0.863***	−1.609***	−1.645***	−1.493***
	(0.194)	(0.192)	(0.225)	(0.239)	(0.250)	(0.268)
Down 10%	−1.078***	−1.015***	−1.111***	−1.966***	−1.797***	−1.634***
	(0.211)	(0.200)	(0.259)	(0.248)	(0.257)	(0.333)
Demographics		✓	✓		✓	✓
N	2399	2351	1239	2399	2351	1239
Adjusted R^2	0.248	0.235	0.231	0.331	0.309	0.347

Notes: This table reports estimated average treatment effects of changes in LTV-Own ratio on 1- and 5-year housing price expectations using the following econometric specification: $\Delta E_i(\text{HP}) = \alpha_0 + \sum_{j=1}^{4} \alpha_j \cdot \mathbb{1}\{i \in \text{Group}_j\} + \delta X_i + \varepsilon_i$, where $\Delta E_i(\text{HP}) = \mathbb{E}_i^{\text{post}}\text{HP} - \mathbb{E}_i^{\text{prior}}\text{HP}$ denotes the revision in house price expectations and X_i are demographic fixed effects. Columns (1) and (4) report results without controls. Columns (2) and (5) include controls. Columns (3) and (6) use the sub-sample of respondents with high financial literacy (i.e., those who correctly answer all three financial literacy questions). Effects are reported relative to the control group. Robust standard errors in parentheses. Regressions use sampling weights. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

terms), we concatenate responses by treatment group and compute TF-IDF scores for unigrams, bigrams, and trigrams (n = 1–3). This approach highlights phrases that are frequent within a group and distinctive across groups. We then extract the top n-grams for each group and display their relative salience in a heatmap.

As shown in Appendix Figure B.3, treatments with lower LTV ratios lead to more frequent use of affordability-related language, including phrases like "larger deposit" and "fewer able (to) afford". In contrast, looser LTI policies trigger more references to borrowing terms such as "higher mortgage" and "increase mortgage". Buy-to-let treatments elicit investor-oriented reasoning, including "rental properties", "second home", and "investors". These patterns suggest that respondents are not responding randomly but rather articulate economically meaningful narratives consistent with the framing of each policy intervention.

In summary, macroprudential policies notably impact consumers' expectations of local house prices over both 1- and 5-year horizons. Generally, a tightening (loosening) of a policy tends to lower (raise) consumers' house price expectations. Interestingly, we observe that changes in the LTV-Own ratio have geographically heterogeneous effects on house price growth expectations, with a more pronounced impact in hot markets. Additionally, changes in the LTV-BTL ratio exhibit asymmetric impacts, as a policy loosening significantly increases house price expectations, while a tightening has only a limited impact. Considering that most home-buyers in the UK seek homes for their own residential use (as indicated in Appendix Table B.9), the LTV-Own ratio appears to be the most relevant policy in this context.

3.2. Effect on intention to buy homes

We estimate the average treatment effects of policy changes on revisions in intentions to buy homes. While literature exists on the effects of borrowing constraints on the decision to buy homes and house prices, such as the studies by Fuster and Zafar (2016) and Acharya et al. (2022), the effects of LTV-BTL and LTI policies on the intention to buy houses remain unexplored. This section addresses this gap.[22]

Policy treatment effects on intention to buy. We ask consumers about their intentions to buy a home before the policy treatment. About 13.2% of all individuals indicated an intention to buy houses. If they expressed such an intention, we followed up by inquiring about the type of home they planned to purchase. We re-elicit consumers' intention to buy in the post-treatment stage. Based on this information, we constructed a new variable named "*change in intention*" to capture the revisions in households' intention to buy homes after the policy treatment. If a consumer who initially intended to buy a home no longer plans to do so post-treatment, we code "*change in intention*" as −1. Conversely, if a consumer without an initial intention develops an interest in buying a home, we code "*change in intention*" as 1. If a consumer's intention remains unchanged, we code "*change in intention*" as 0. We estimated the following regression model:

$$\text{Change in intention}_i = \Sigma_{j=1}^{6} \alpha_j \times \mathbb{1}\left\{i \in \text{Treat}_j\right\} + \phi X_i + \epsilon_i, \tag{3.2}$$

where $\mathbb{1}\left\{i \in \text{Treat}_j\right\}$ is an indicator for treatment group assignment. We include X_i to control for the same set of demographic fixed effects as in Eq. (3.1).

[22] In addition, to the best of our knowledge, the effects of LTV-Own policy changes on the intention to buy a home have not been studied for the UK.

Table 4
Treatment effect on intention to buy.

Dependent variable:	Change in intention to buy		
	Pooled	Tightening policies	Loosening policies
	(1)	(2)	(3)
T1 (lower LTI)	−0.010	−0.008	
	(0.012)	(0.012)	
T2 (higher LTI)	0.042**		0.031**
	(0.017)		(0.012)
		Relative to T1:	
T3 (lower LTV-BTL)	−0.003	−0.004	
	(0.015)	(0.015)	
			Relative to T2:
T4 (higher LTV-BTL)	0.054***		0.013
	(0.018)		(0.018)
T5 (lower LTV-Own)	−0.035**	−0.041**	
	(0.017)	(0.017)	
T6 (higher LTV-Own)	0.092***		0.051***
	(0.018)		(0.019)
Demographics	✓	✓	✓
Observations	2,746	1,390	1,356
Adjusted R-squared	0.02	0.03	0.01

Notes: This table reports treatment effects of macroprudential policy changes on intentions to buy homes using OLS estimation of Eq. (3.2). Column (1) compares the average treatment effects on the intention to buy using T1 (lower LTI) as the base group. Columns (2) and (3) compare the treatment effects of the three tightening and loosening policies, respectively. Column (2) uses T1 as the base group and reports differences in T3 (lower LTV-BTL) and T5 (lower LTV-Own) relative to T1. Column (3) uses T2 (higher LTI) as the base group and reports the differences in T4 (higher LTV-BTL) and T6 (higher LTV-Own) relative to T2. Regressions use sampling weights. Robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

Table 4 presents the treatment effects on how consumers change their intentions in each group. Column (1) reports the average treatment effects on participants' home-purchase intentions. Notably, under policy loosening scenarios (T2, T4, and T6), there is a noticeable increase in the intention to buy a home. For each policy, the increase in the intention to buy a home after a loosening is larger in magnitude than the decrease in intention following a tightening. Tightening the LTI or LTV-BTL ratio does not significantly reduce consumers' intentions. Although tightening the LTV-Own ratio reduces home-purchase intentions noticeably, the effect magnitude (−3.5%) is less than half the magnitude of loosening the LTV-Own ratio (9.2%).[23]

Furthermore, we compare the strengths of different macroprudential policies in influencing consumers' home-purchasing intentions, using treatments T1 (LTI tightening) and T2 (LTI loosening) as the base group in columns (2) and (3) for tightening and loosening policies, respectively. As columns (2) and (3) suggest, tightening (loosening) the residential LTV ratio more effectively reduces (boosts) consumers' home-purchase intentions than the other two policies. Adjusting the LTV-Own ratio, on average, is more effective in changing consumers' intention to buy compared to adjusting the LTV-BTL ratio, consistent with the fact that most consumers intend to buy a home for residential purposes rather than for buy-to-let investment, as shown in Appendix Table B.9.[24]

Narratives and reasons to change intention to buy. After querying about intention to buy in the post-treatment section, if consumers altered their intention, we employed an open-ended question to capture their narratives and reasons for the change. Appendix FigureB.4 presents the heatmap showing the most distinctive terms per treatment group on reasoning terms for changes in intention to buy. We observe some distinct patterns. Affordability-related phrases like "afford deposit" and "saving" are most salient under LTV treatments. Relaxed LTI treatments elicit language such as "salary", "income", and "higher mortgage", suggesting enhanced borrowing capacity. Buy-to-let LTV policies prompt investment-related reasoning. These patterns show that even among a small subset of affected respondents, open-ended responses provide rich, treatment-specific insight into perceived constraints and opportunities in housing decisions.

3.3. Effect on housing and stock market perspectives

To elucidate consumers' evaluations regarding the impact of various macroprudential policies on housing markets, we devised a series of structured questions. These questions inquire about consumers' perspectives on whether a macroprudential policy change would result in a *"better time"* or *"worse time"* to purchase, sell, and remortgage homes compared to before the policy change. Moreover, to explore the spillover effects of housing market sentiments on the stock market, we asked consumers whether it would be a better or worse time to invest in the stock market.

[23] For interpretability, Appendix Table B.10 and B.11 report the marginal treatment effects on intention to buy using ordered logit and ordered probit regressions, respectively.

[24] Table B.9 shows no heterogeneity in the intention to buy homes across different groups in the pre-treatment stage, as reported in column (1). Columns (2)–(4) demonstrate that among the vast majority of consumers with an intention to buy, around 86 percent planned to purchase their main home, while only around 11.1 percent intended to purchase a home for buy-to-let investment purposes (with only a small fraction expressing an intention to purchase their second home).

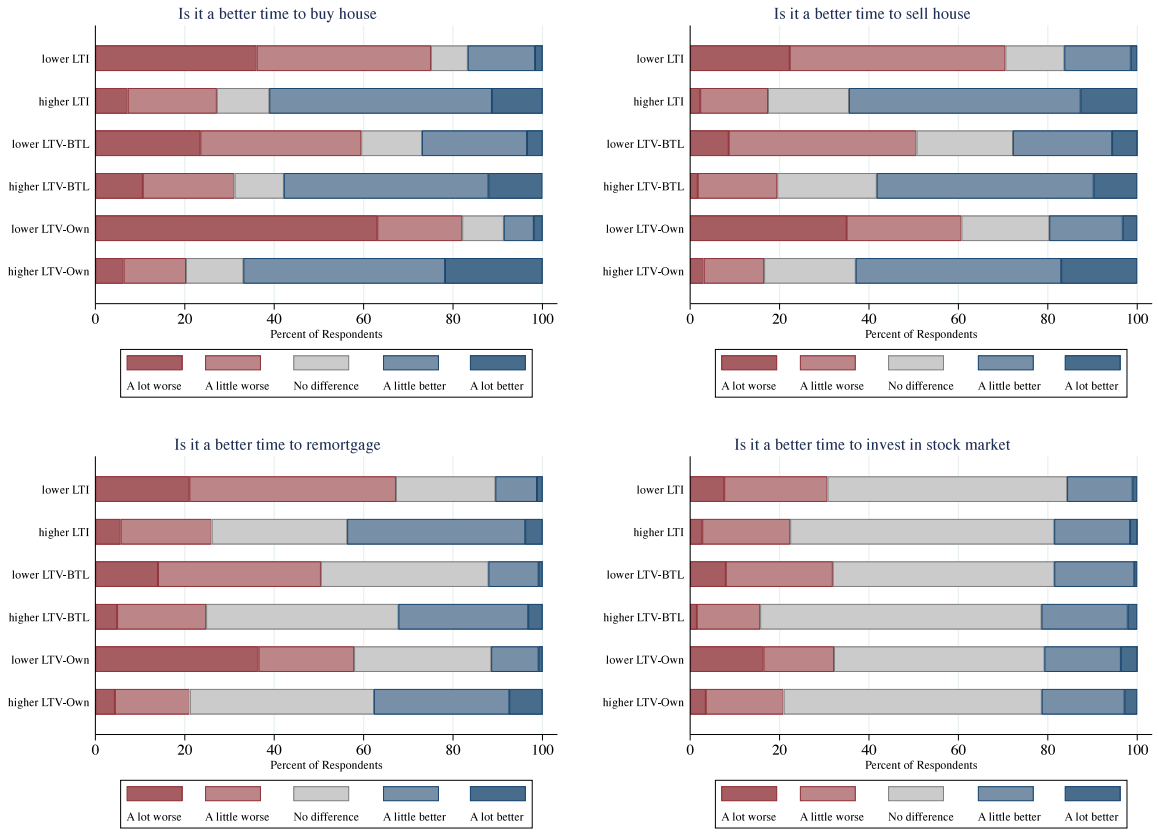

Fig. 2. Is it a better time to?.
Notes: This figure plots consumers' perspectives on various aspects of housing and stock markets under each policy treatment. We consider 4 perspectives on housing markets and stock markets, namely buying homes, selling homes, remortgaging, and stock investments. Each subplot represents one of the perspectives and each bar in subplots represents one policy treatment group. It plots the proportions of consumers that select each of the answer options. From left to right along each bar, the choices are "A lot worse", "A little worse", "No difference", "A little better", and "A lot better".

Policy treatment effects on market perspectives. Fig. 2 provides an overview of consumers' perspectives on the housing and stock market under each policy treatment. Generally, consumers are more optimistic (or pessimistic) and perceive it as a better (or worse) time to purchase, sell, and remortgage homes following a policy loosening (or tightening).[25] For each policy-tightening scenario, more than half of consumers anticipate a worse time to purchase, sell, and remortgage homes. Additionally, a larger proportion of consumers expect a worse time to invest in the stock market following a policy tightening compared to a policy loosening.

The treatment effects of different policies on consumers' perspectives of housing markets (buying, selling, and remortgaging houses) and stock markets are reported in Table B.12 in the Appendix. To construct dependent variables, consumers' perspectives are recoded from *"a lot worse"* to *"a lot better"* using a scale from −2 to 2, respectively. This ensures that more positive (negative) values correspond to more positive (negative) perspectives, with perspectives centered at 0 (i.e., *"no difference"*). We find that: (1) various types of policies affect consumers' perspectives differently, and (2) tightening or loosening the same policy ratio significantly alters consumers' housing market perspectives in opposite directions (with a p-value < 0.05 in most cases). For instance, consumers' perspective on buying homes turns negative following a LTI ratio tightening, whereas it becomes positive following a LTI ratio loosening.[26] Furthermore, the average sentiment regarding investing in the stock market notably declines following a policy tightening.

[25] Note that a policy tightening, such as a tightening in the residential LTV ratio or in the LTI ratio, applies to both new purchases and remortgages. As is suggested by the bottom left panel of Fig. 2, people indeed think that these tighter limits also apply to remortgages.

[26] The only exception is the tightening of the LTV-BTL ratio, which affects consumers' perspectives on the housing market to a smaller extent (consistent with the result in Table 2 that this policy does not have a significant effect on house price expectations).

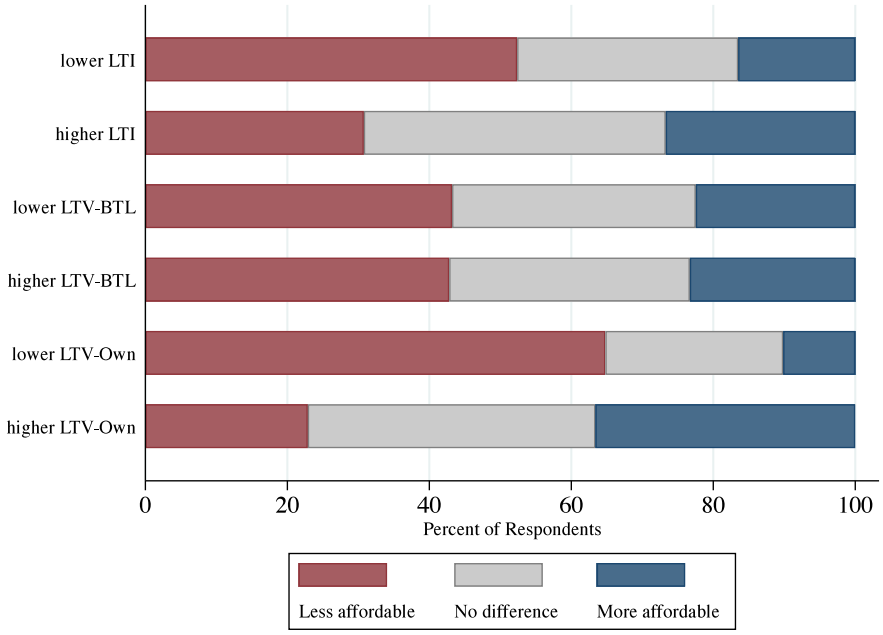

Fig. 3. Change in Housing Affordability.
Notes: This figure plots consumers' evaluation of housing affordability under each policy treatment. The red area to the left of each bar represents the proportion of consumers who select housing market would become "less affordable" under the policy change; the gray area in the middle of each bar represents the proportion selecting "no difference" in housing affordability; the blue area to the right of each bar represents the proportion selecting housing market would become "more affordable".

In summary, macroprudential policy loosening (tightening) increases (decreases) households' actual intention to buy houses, while also improving (worsening) their sentiment about selling, buying, and remortgaging conditions in the housing market. Moreover, sentiments in the housing market spill over into sentiments about stock market investments.

4. Housing affordability and evaluations of mechanisms

4.1. Housing affordability

Housing affordability is emerging as a critical issue in the UK. With an acceleration in house price growth during the pandemic, an increasing proportion of households are finding themselves priced out of the market. A change in macroprudential policy introduces two countervailing forces. On one hand, tightening (or loosening) of macroprudential policy imposes stricter (or more relaxed) credit conditions, making it more (or less) difficult for households to qualify for a mortgage loan. On the other hand, policy tightening (loosening) leads to housing price decreases (or increases), making homeownership more (or less) accessible. Given these opposing forces, the impact of macroprudential policy tools on housing affordability remains uncertain. To investigate this, we solicit consumers' evaluations of housing affordability in the post-treatment stage.

Fig. 3 illustrates evaluations of changes in housing affordability by consumers from different treatment groups. Changes in the LTV-Own ratio have the most significant impact on housing affordability evaluations. Among consumers in the LTV-Own tightening group, 62.4% find housing less affordable after the policy change, while only 24.3% of those in the LTV-Own loosening group share this view.[27] Overall, the direct effect, which pertains to households' borrowing conditions, appears to dominate the indirect effect, which operates through house price changes.[28]

4.2. Evaluations of mechanisms

We now focus on understanding the factors that potentially influence consumers' evaluations of housing affordability. To achieve this, we include a series of mechanism assessment questions aimed at capturing the various factors that may impact consumers'

[27] The corresponding shares are 50.2%, 31.6%, 41.5%, and 41.0% for the LTI tightening, LTI loosening, LTV-BTL tightening, and LTV-BTL loosening group, respectively. There is little difference in affordability assessment between LTV-BTL loosening and tightening groups.

[28] An alternative interpretation is that households may have difficulty visualizing the effects of future price changes when evaluating the consequences of policy changes today, discounting the effects coming from this channel.

Table 5
House affordability and housing market evaluation.

Dependent variable:	Housing affordability			
	(1) LTI	(2) LTV- BTL	(3) LTV-Own	(4) Pooled
Evaluation of policy impact				
Acceleration of house price growth	−0.114***	−0.257***	−0.128***	−0.164***
	(0.035)	(0.034)	(0.033)	(0.019)
Difficulty in saving for mortgage deposit	−0.056	−0.194***	−0.243***	−0.163***
	(0.043)	(0.043)	(0.050)	(0.025)
Difficulty in qualifying for a mortgage	−0.142***	−0.050	−0.076	−0.101***
	(0.038)	(0.043)	(0.048)	(0.024)
Choice of house size	0.127***	0.205***	0.169***	0.182***
	(0.042)	(0.046)	(0.048)	(0.026)
More houses available on market	0.162***	0.176***	0.028	0.123***
	(0.036)	(0.033)	(0.034)	(0.019)
Acceleration of rent growth	−0.022	0.000	−0.089**	−0.046**
	(0.044)	(0.034)	(0.043)	(0.023)
Likelihood of achieving the policy	0.035	−0.022	−0.038	−0.002
	(0.050)	(0.048)	(0.048)	(0.028)
Likelihood of being unemployed	−0.101*	−0.081*	−0.034	−0.069**
	(0.053)	(0.048)	(0.051)	(0.029)
Likelihood of financial crisis	−0.108**	−0.134***	−0.107**	−0.124***
	(0.047)	(0.045)	(0.044)	(0.026)
Constant	0.008	0.093***	0.012	0.051**
	(0.040)	(0.035)	(0.038)	(0.022)
Demographics	✓	✓	✓	✓
Observations	911	921	911	2,745
Adjusted R-squared	0.15	0.30	0.23	0.21

Notes: This table reports associations between respondents' evaluation of impacts of policy treatment on various aspects of mechanisms and their evaluation of housing affordability. If respondents believe an increase in housing affordability or a favorable change in the mechanism, it takes a value of 1; if they believe a deterioration, it takes a value of −1; if they believe no change, it takes a value of 0. Columns (1)–(3) report these associations for each type of policy and column (4) reports the results of the pooled sample. Regressions use sampling weights. Robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

affordability evaluations. Consumers are asked to respond to a set of structured questions designed to directly gauge their assessments of policy impacts on several critical aspects of the housing market mechanisms. These aspects include house prices and rent growth, difficulties in saving for a mortgage deposit or qualifying for a mortgage, choices of house size, and the availability of houses on the market. Additionally, we gather their evaluations of economic conditions, such as the likelihood of unemployment, and financial stability, such as the likelihood of a financial crisis, under the assigned policy scenario. Appendix Figures B.5 and B.6 provide a summary of consumers' evaluations of different mechanisms related to the assessment of housing affordability following macroprudential policy changes.[29]

We estimate the following regression model to assess the impact of each mechanism on housing affordability:

$$\text{Housing affordability}_i = \alpha + \sum_i \beta_i \text{ Change in mechanism}_i + \epsilon_i. \tag{4.1}$$

Here, the dependent and independent variables are coded similarly: a value of 1 indicates that consumers believe in an increase in housing affordability or a favorable change in a mechanism under the assigned policy scenario, −1 indicates a belief in deterioration, and 0 indicates no change.

Table 5 illustrates how consumers' assessments of policy impacts on various mechanisms are linked to their evaluations of housing affordability. Columns (1)–(3) present the associations for each macroprudential policy ratio. OLS regressions indicate that, across all three types of treatment policies, an anticipated "acceleration of house price growth" and an expected "increase in the likelihood of financial crisis" are significantly and negatively associated with consumers' evaluations of housing affordability, while an expected increase in house size ("Choice of house size") is significantly and positively associated with their affordability evaluations.

Furthermore, among consumers receiving LTI and LTV-BTL policy treatments, an expected "increase in the number of houses available on the market" is positively associated with affordability evaluations, while an expected "increase in the likelihood of being unemployed" is negatively associated with their evaluations. Additionally, an expected "increase in difficulty in saving for mortgage deposits" is negatively associated with affordability evaluations for both LTV-BTL and LTV-Own policy treatments. Affordability

[29] For instance, in all treatment groups, the respondents think that any policy change, either tightening or loosening, makes a financial crisis more likely. As the UK experienced large house price appreciations in recent years and houses have become a lot less affordable, the respondents in policy loosening groups may be led to believe that a policy loosening will fuel further house price appreciation and hence increase the likelihood of a price crash and financial crisis. Analogously, for the respondents in the tightening groups, a tightening may indicate that the government is worried about a housing bubble and a financial crisis.

Table 6
Decomposition of changes in intention to buy.

Dependent variable:	Change in intention to buy		
	OLS	Ordered logit	Ordered probit
Direct channels	−0.019***	−0.326***	−0.146***
	(0.004)	(0.063)	(0.029)
Price expectations	0.013**	0.246**	0.111***
	(0.005)	(0.099)	(0.042)
Equilibrium outcomes	−0.011***	−0.199***	−0.084***
	(0.004)	(0.071)	(0.031)
Observations	2739	2739	2739

Notes: This table decomposes changes in intention to buy into three channels: (i) direct policy channel, including difficulty in saving for a deposit, qualifying for a mortgage, and sizing up houses; (ii) price expectations; and (iii) equilibrium outcomes, including the number of houses available on the market, expected rent growth, perceived likelihood of unemployment, and perceived risk of a financial crisis. Columns (1)–(3) employ OLS estimation, ordered logit model, and ordered probit model, respectively. Robust standard errors clustered at the regional level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

evaluations of consumers are negatively associated with an expected "increase in difficulty in qualifying for a mortgage" if they receive LTI policy treatments and an expected "acceleration in rent growth" if they receive LTV-Own policy treatments.[30]

Column (4) presents the associations when pooling the full sample of consumers. Overall, these housing market evaluations are all significantly associated with consumers' housing affordability evaluation, with "the likelihood of achieving the policy" being the only exception. Our findings suggest that consumers' recall of mechanisms can influence their evaluations of the impact of macroprudential policies on the housing market. This aligns with Binder et al. (2025), where consumers' recall of mechanisms was associated with their predictions of the effects of interest rate hikes on house price expectations.

Next, we use these mechanism questions to further evaluate how each type of perceived channel maps into respondents' intentions to buy. Specifically, we quantify the extent to which three types of mechanisms, namely the direct effects of policy changes, house price expectations, and perceived general equilibrium outcomes, jointly explain changes in intention to buy houses.

The three explanatory variables in the decomposition correspond to distinct channels embedded in the experimental design. The direct policy channel is measured as the aggregate of indicators capturing whether respondents report that the policy has made it harder to save for a deposit, qualify for a mortgage, or afford larger or better-located properties. The price expectation variable is taken directly from the respondents' stated directional expectations of house price growth acceleration. The equilibrium outcomes index aggregates broader market equilibrium conditions, computed as the aggregates of four components: the expected number of houses available for sale, expected rent growth, perceived likelihood of becoming unemployed, and perceived risk of a financial crisis.

To unpack the mechanisms behind changes in home-buying intentions, Table 6 presents a decomposition of these three channels. Across all three estimation models, OLS, ordered logit, and ordered probit, we observe consistent and statistically significant estimates. The direct policy channel exerts a negative effect on respondents' intention to buy, reflecting the tightening of individual purchasing capacity. In contrast, expectations of rising house prices are positively associated with increased buying intention, suggesting speculative motives or urgency in response to anticipated appreciation. The aggregate effect of deteriorating equilibrium conditions, including tighter housing supply, rising rents, and heightened macro-financial risks, is likewise negative, indicating a broad-based dampening of demand.

Based on average marginal effects from the ordered probit model, house price expectations account for approximately 30% of the total explained change in home-buying intention, highlighting the substantial role of beliefs about future prices in driving demand-side responses. Appendix Figure B.7 shows the relative attribution of house price expectations across all six treatment groups. The figure illustrates substantial heterogeneity: while price expectations explain over 50% of the observed change in intention to buy under several treatment arms, particularly for higher LTI and LTV-Own constraints, their contribution is markedly smaller in other cases, such as under tighter LTV-BTL constraints. These differences illustrate that the importance of house price expectations in home-buying decisions varies significantly with the type and stringency of macroprudential policy.

Finally, we explore how changes in macroprudential policy impact household spending intentions by examining the relationship between changes in house price expectations and changes in spending plans.[31] Our estimation results indicate that a 1 p.p. increase in the 1-year-ahead house price expectation is associated with an average increase in consumers' planned non-housing spending of 0.23–0.55 p.p. in the next year. When considering 5-year-ahead house price expectations, the magnitude is slightly larger, ranging from 0.49 to 0.75 p.p.[32] These findings align broadly with recent survey evidence from the US housing market (e.g. Qian 2023).[33]

[30] As a robustness check, we replicate the housing affordability analysis by separating each treatment group and examining individual mechanisms through which respondents perceive affordability to change. Results reported in Appendix Table B.13 reveal a highly consistent pattern.

[31] We estimate the following regression: Total Spending Change$_i = \beta\ \Delta\mathbb{E}_i \mathrm{HP}_{+ky} + \mathrm{Controls}_i + \epsilon_i$, where the dependent variable is households' reported changes in non-housing-related spending plans due to the policy change. The main regressor of interest is revisions in house price growth expectations. The coefficient β measures the elasticity of planned non-housing spending with respect to house price expectations. Appendix Table B.14 reports the estimation results.

[32] Note that we interpret our results only as associations between changes in house price expectations and spending plans, rather than causal evidence.

A European-based study by Christelis et al. (2021) suggests a much smaller housing wealth effect due to a very small intensive margin response. Similarly, our study also finds a limited intensive margin response, as about 33% of households do not report any changes in spending plans despite revisions in house price expectations. Additionally, we find no statistically significant differences in planned spending across treatment groups. While our results indicate that household spending plans change endogenously with house price expectations, the overall average effects of macroprudential policy changes on households' spending may be limited.

5. Discussions

In Section 5.1, we compare the effects on house price expectations with those on actual housing prices. Additionally, we empirically investigate the effects of macroprudential policy changes on housing prices and housing affordability in the UK, demonstrating consistency with our survey findings. Furthermore, in Section 5.2, we utilize a simple model to illustrate the effect of house price expectation in creating house price movements.

5.1. Effects of macroprudential policy on actual housing prices

We begin by examining how changes in credit constraints affect house prices in models incorporating housing dynamics. Fuster and Zafar (2021) calculate the semi-elasticity of housing price growth in response to alterations in the loan-to-value (LTV) ratio using a simple user-cost model. Their analysis reveals that when the discount rate is very close to the after-tax mortgage rate, housing prices exhibit minimal sensitivity to changes in LTV ratios. Specifically, with a discount rate of 0.1, the semi-elasticity of housing price growth with respect to the LTV ratio is approximately 0.82%. In our survey, households' 5-year cumulative house price expectations range from 5% to 12% following a 15% change in the LTV ratio, aligning with the predictions of the user-cost model under a relatively modest discount rate.

Various empirical studies investigate the impacts of macroprudential policies on housing prices. For instance, Acharya et al. (2022) analyze the effects of the introduction of LTV and LTI limits for residential mortgages by Irish banks in 2015 on mortgage credits and house prices. Pre-regulation, average house price growth stood at approximately 14% year-on-year (YoY), with a notable upward trajectory. Following the policy implementation, house price growth stabilized at below 10%. The effects of the policy changes were more pronounced in hot housing markets, where pre-regulation growth rates exceeded 20%, dropping to around 4% post-regulation. Conversely, house price growth in cold markets remained relatively unchanged. Additionally, Peydró et al. (2024) examine the distributional effects of a macroprudential policy implemented in 2014, which imposed a 15% limit on lenders' high LTI mortgages. They find that the policy resulted in reduced credit availability for low-income borrowers and moderated house price growth in affected areas. Moreover, during a negative aggregate shock, such as the Brexit referendum, policy-affected regions experienced better house price growth and lowered mortgage defaults among low-income borrowers.

Subsequently, we empirically investigate the impacts of macroprudential policy changes on housing prices and affordability using data provided by the Bank of England (BoE). The Financial Conduct Authority reports the distribution of residential loans across various LTV and LTI ratios quarterly since 2007Q1. We estimate several structural vector autoregressive (VAR) models to assess how changes in loan distributions affect housing prices and affordability. House price index and price-to-earning ratio data, serving as a measure of affordability, are sourced from the Building Society Association, while mortgage rate data is obtained from the BoE.

We construct a two-variable structural VAR model, with house price growth or price-to-earning ratios ordered first and LTI or LTV shares ordered last. The model includes four lags of the two dependent variables, along with concurrent and four lags of mortgage rates as control variables. Specifically, we assess the effects of two types of shocks using a Cholesky decomposition: (1) a one percent increase in the share of loans with residential LTV ratios above 75%, and (2) a one unit increase in the share of loans with LTI multipliers exceeding 4. Both types of changes correspond to a relaxation of macroprudential policies. Appendix Figure B.8a presents the impulse response functions (IRFs) of house price growth and price-to-earning ratios to an increase in the share of loans with LTV-own ratios above 75%. The IRFs indicate that such increases effectively elevate housing prices and affordability persistently for 2–3 years. Conversely, Appendix Figure B.8b shows the IRFs of house price growth and price-to-earning ratios to an increase in the share of loans with LTI multipliers exceeding 4, which do not suggest significant responses in housing prices or affordability. This finding aligns with our survey results, where a loosening in the LTV ratio exhibits a greater effectiveness in elevating house price expectations compared to a loosening in the LTI ratio.

5.2. Effects of macroprudential policy through the lens of a simple model

Our survey reveals that changes in macroprudential policy, especially regarding the residential LTV ratio, can yield important effects. Specifically, house price growth expectations exhibit heightened sensitivity to the tightening or loosening of the residential LTV ratio (see Table 2). In this section we use a simple model, as developed in Adam et al. (2012), which incorporates a dynamic feedback loop between house price expectations, credit, and house prices, to understand the role of expectations in the macroeconomic response of these policy changes. Interested readers are directed to their paper for detailed model specifications. Hereafter, we provide a succinct overview of the model alongside a discussion of the key equations, demonstrating that model simulations under changes in the LTV ratio align with our survey findings.

[33] Chopra et al. (2023) study the role of *future* house price expectations on households' *current* spending decisions and find that homeowners' spending is inelastic to home price expectations, while renters reduce their spending when expecting higher home price growth. Our outcomes are different as we look at future spending.

Model. The model is an open economy model with learning dynamics and endogenous housing supply. Households derive utility from consumption and housing services while facing an endogenous borrowing constraint, where houses serve as collateral. The maximum borrowing capacity is a fraction of the expected liquidation value of the housing collateral

$$b_t \leq \theta \frac{E_t q_{t+1}}{R} H_t, \tag{5.1}$$

where b_t, θ, q_t, H_t, and R are household borrowing, steady-state LTV ratio, house price, housing stock, and interest rate, respectively.[34] Optimal behavior yields the following housing pricing equation

$$q_t = \rho E_t q_{t+1} + \xi_t G'(H_t), \tag{5.2}$$

where ρ is a composite parameter determined by factors such as the subjective discount factor, LTV ratio, and housing depreciation rate. Notably, ρ is an increasing function of the LTV ratio θ (as per their equation (15)). A loosening (tightening) in the LTV ratio, i.e., an increase (decrease) in θ, results in a corresponding increase (decrease) in ρ. The parameter ξ_t captures housing preference, while G denotes the housing service production function with housing stock as its input.

Beliefs. Households are uncertain about how house prices relate to economic fundamentals, thus their subjective probability distribution about house prices may not be exactly equal to the true equilibrium distribution. Agents have near-rational beliefs about house prices, perceiving that log house price follows a random walk with drift process, where the drift term itself follows a random walk process. Optimal behavior dictates that they update beliefs about house price behavior by applying Bayes' rule to market outcomes, as depicted by the equation

$$\ln m_t = \ln m_{t-1} + g(\ln \frac{q_{t-1}}{q_{t-2}} - \ln m_{t-1}), \tag{5.3}$$

where $\frac{q_{t-1}}{q_{t-2}}$ is the gross house price growth rate in period $t-1$, and $\ln m_t$ is households' belief about the persistent component of house price growth rates. Parameter g is the gain parameter, which measures the speed of learning. According to Eq. (5.3), house price growth expectations are a weighted average of past house price growth rates, with weights exponentially decaying over time. This belief updating is consistent with the findings of Case et al. (2012), who observed that local house price expectations are positively related to recent local growth trends. Additionally, it is in line with the experimental evidence documented in Armona et al. (2019), suggesting that house price expectations are revised in a way consistent with short-term momentum in house price growth, yet inconsistent with long-run mean reversion.

Equilibrium under learning. The actual house price under learning is

$$q_t = \frac{\xi G'(H^{ss})}{1 - \rho m_t}, \tag{5.4}$$

where $\xi G'(H^{ss})$ is the steady-state marginal utility of housing service.[35] Realized house price growth is

$$\ln \frac{q_t}{q_{t-1}} = \ln \frac{1 - \rho m_{t-1}}{1 - \rho m_t} + \ln \epsilon_t, \tag{5.5}$$

where ϵ_t is a housing preference shock.

A key characteristic of house prices under learning is that the dynamic feedback between expectations of price growth and actual price growth. Eq. (5.4) illustrates that higher expected growth m_t results in higher prices, consequently leading to higher realized price growth. This, in turn, increases expectations for the next period through the belief updating rule (5.3). As demonstrated in Adam et al. (2012), this mechanism can generate a significant degree of additional propagation and contribute to the boom and bust dynamics in house prices, wherein price dynamics temporarily diverge from their fundamental value.

Simulation and calibration. We use the model to evaluate the macroeconomic effects of changes in residential loan-to-value (LTV) ratios and to quantify the role of house price expectation in shaping these effects. The model is initialized at its steady state prior to any policy change intervention and then subjected to two policy change scenarios aligned with our survey experiment: a policy loosening, where the LTV limit increases from 75% to 90%, and a policy tightening, where the LTV limit decreases from 75% to 60%.

For each of the two policy changes, we simulate two distinct belief environments, a baseline and a treatment scenario, resulting in four total simulation cases. In all scenarios, the policy change is implemented by adjusting the LTV ratio, either loosening (from 75% to 90%) or tightening (from 75% to 60%). In the baseline scenarios, households do not revise their house price expectations directly in response to the policy change. Instead, expectations evolve gradually through an adaptive learning mechanism, based on realized house price dynamics over time. In contrast, the treatment scenarios incorporate both the LTV policy change and an immediate shift in expectations. The magnitude of this initial adjustment is calibrated using the average treatment effects from our survey experiment (Column (2) in Table 2), with one-year-ahead house price expectations decreasing by 1.1 percentage points under

[34] Note that Eqs. (5.1), (5.2), (5.3), (5.4), and (5.5) are equations (5), (14), (33), (34), (35) in Adam et al. (2012), respectively.

[35] This equation can be obtained by combining the belief updating Eq. (5.3) and pricing Eq. (5.2). Moreover, we assume there are no preference shocks (normalized to 1) and the marginal utility of housing is close to a constant in the simulation, as in Adam et al. (2012).

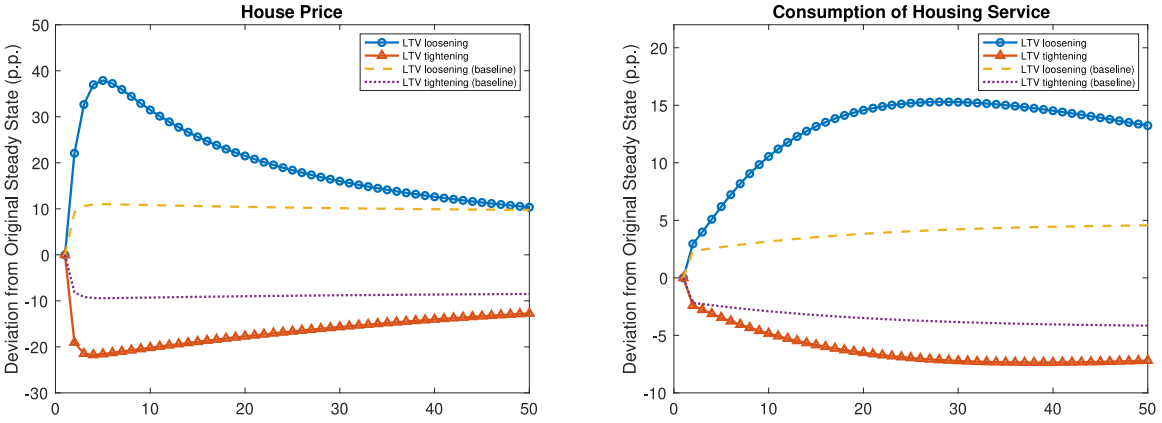

Fig. 4. Model-Implied Responses of House Price and Consumption of Housing Service under LTV Loosening and Tightening with and without Expectation Updating.

Notes: Each panel shows the deviation of the respective variable from its original steady state. Solid lines incorporate survey-implied expectation shifts under LTV policy changes; dashed lines represent baseline scenarios without belief updates. Expectation amplification significantly drives price and consumption responses.

policy tightening and increasing by 1.9 percentage points under loosening. After the initial update, expectations continue to evolve through the same adaptive learning process used in the baseline.[36]

This structure allows us to isolate the amplification effects of expectations in both directions of policy change. Comparing outcomes across the baseline and treatment scenarios under the same policy change isolates the impact of house price belief updating, over and above gradual adaptive learning based on realized house prices. In particular, we assess how forward-looking beliefs shift influence the dynamics of house prices and the consumption of housing services.

Results. Fig. 4 presents the model-implied responses of house prices (left panel) and consumption of housing services (right panel) under residential LTV loosening and tightening scenarios. Each panel compares baseline (dashed lines) and treatment (solid lines) simulations. In both cases, the LTV policy change is implemented through a shift in the collateral constraint parameter θ. The difference lies in expectation formation: in the baseline, households update beliefs gradually via adaptive learning; in the treatment, expectations respond immediately by amounts calibrated from our survey experiment.

The left panel shows that anticipatory belief shifts significantly amplify house price dynamics. Under LTV loosening, house prices jump by around 40 p.p. in the treatment case compared to 11 p.p. in the baseline. For tightening, the corresponding fall is roughly 22 p.p. with belief updating and 9 p.p. without. The right panel shows that housing consumption follows a similar pattern but more gradually, consistent with the inertial response of the housing stock.

Fig. 5 helps explain these dynamics by plotting one-year-ahead house price growth expectations. In the treatment cases, expectations jump on impact — by around 1.9% for loosening and slightly above 1% for tightening — then evolve gradually via belief updating (Eq. (5.3)). These expectations feed directly into realized house price growth (Eqs. (5.4) and (5.5)), reinforcing the initial effect through a feedback loop. In the baseline, this loop is weaker: beliefs start flat and adjust only after observing actual price changes.

This mechanism explains the amplification in the treatment scenarios. An initial optimism in expected growth raises house prices, which raises realized growth and thus expectations in subsequent periods. However, once belief revisions taper off, realized growth falls short of expectations, leading to a reversal and gradual convergence toward the new steady state. Consumption of housing services, driven by the accumulated housing stock (as in equation (7) of Adam et al. (2012)), follows a smoother hump-shaped path in both scenarios.

Overall, the comparison underscores the central role of expectations in macroprudential transmission: when beliefs adjust on impact, policy effects are stronger, faster, and more persistent than under gradual, backward-looking learning.

6. Conclusions

Since the Global Financial Crisis of 2007–08, national authorities have increasingly utilized macroprudential policy tools to mitigate systemic risks and bolster financial resilience. However, there is limited research on public understanding and beliefs regarding the effects of these policies, particularly their impacts on housing market expectations. This paper addresses this gap by conducting a large-scale survey experiment in the UK, offering new causal evidence on how changes in three major borrower-based

[36] The gain parameter is calibrated to be 0.02 for all scenarios. The choice of the gain parameter is consistent with the literature, e.g., Eusepi and Preston (2011), Kuang and Mitra (2016), and Kuang and Mitra (2024). The results are not sensitive to the choice of the gain parameter.

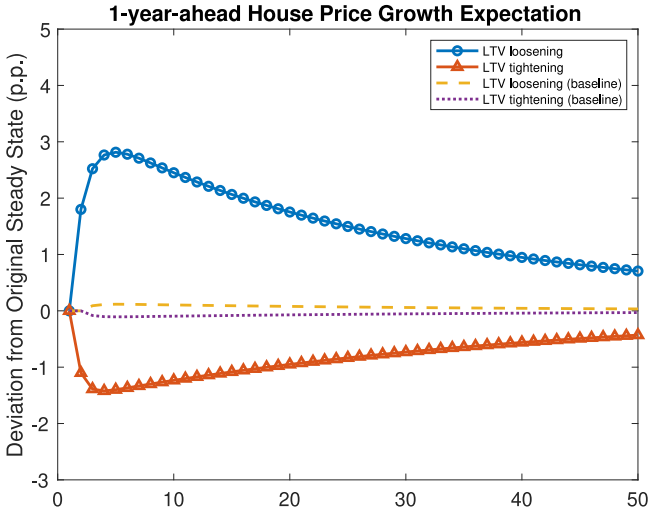

Fig. 5. Model-Implied Responses of 1-year-ahead House Price Expectation under LTV Loosening and Tightening with and without Expectation Updating.

Notes: This figure displays the model-implied dynamics of 1-year-ahead house price growth expectations under changes in LTV policy. Solid lines reflect scenarios where beliefs update based on survey evidence; dashed lines represent the baseline with no belief shifts. Expectations rise substantially under loosening and fall under tightening.

macroprudential policies—loan-to-income, residential loan-to-value (LTV), and buy-to-let LTV ratios—affect consumers' housing market expectations, homebuying intentions, affordability evaluations, and stock market perspectives.

Our study provides insights into the design and implementation of macroprudential policies that extend beyond documenting belief changes. First, residential LTV ratios emerge as the most effective macroprudential tool, generating significant changes in house price expectations and the strongest effects on homebuying intentions, affordability perceptions, and broader financial sentiment compared to other instruments, suggesting that policymakers should prioritize this lever when seeking to influence housing markets. Second, policy effectiveness varies significantly across market conditions, with households in "hot" markets showing amplified responses to macroprudential changes, underscoring the importance of tailoring policy implementation to local market dynamics. Third, house price expectations play a critical role in policy transmission, with our model simulations showing that immediate belief shifts can amplify policy effects by up to threefold, highlighting the fact that clear policy communication becomes a powerful tool for enhancing macroprudential effectiveness.

More specifically, we find that the residential LTV ratio is the most influential tool in shaping housing market expectations and homebuying intentions. Adjustments in the buy-to-let LTV ratio yield asymmetric impacts, with a policy loosening significantly elevating house price expectations and homebuying intentions, while a tightening does not have a significant effect. There exists notable heterogeneity in the current public understanding of the effects of macroprudential policies across households. This diversity in awareness could potentially lead to misallocation of investments and exacerbate inequality. Lastly, revisions in house price expectations resulting from changes in macroprudential policies have spillover effects on other facets of the economy, such as stock market investments.

From a policy perspective, our findings suggest that central banks should prioritize residential LTV ratios when seeking to influence housing market sentiment and activity, while recognizing that policy effectiveness varies significantly across regional market conditions. Moreover, the substantial role of expectations in amplifying policy effects underscores the importance of clear communication strategies that account for how different stakeholder groups interpret and respond to macroprudential announcements.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.euroecorev.2025.105191.

Data availability

Data will be made available on request.

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