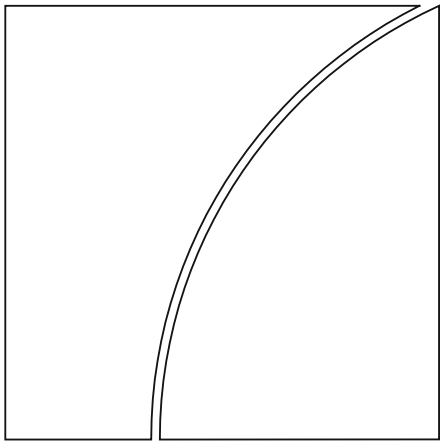

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Monetary policy according to households: perceptions, reactions, and channels

by Francesco Grigoli, Damiano Sandri, Yuriy Gorodnichenko and Olivier Coibion

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Keywords: monetary policy transmission, household expectations, inflation expectations, consumption, portfolio choice, survey evidence

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MONETARY POLICY ACCORDING TO HOUSEHOLDS: PERCEPTIONS, REACTIONS, AND CHANNELS

Francesco Grigoli
Georgetown University

Damiano Sandri
BIS and CEPR

Yuriy Gorodnichenko
UC Berkeley, NBER and CEPR

Olivier Coibion
UT Austin, NBER and CEPR

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Abstract

This paper studies how households perceive the transmission of monetary policy and how these perceptions affect their decisions. Using a large-scale survey of over 25,000 U.S. households combined with randomized information treatments, we measure how households expect changes in the federal funds rate to affect economic conditions and their own behavior. Households report that higher interest rates lead them to reduce their spending, particularly on durable goods. However, the mechanisms underlying this response differ markedly from those in standard macroeconomic models. Respondents expect monetary tightening to raise borrowing costs and inflation. In turn, consumption function estimates identified using information treatments reveal that households respond to higher expected inflation by reducing consumption. Household inflation expectations also emerge as a central driver of portfolio reallocations following monetary policy changes.

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Keywords: Monetary policy transmission, household expectations, inflation expectations, consumption, portfolio choice, survey evidence.

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1. Introduction

How does monetary policy transmit through the economy? One way is through the discrete actions of economic actors as they learn about and interpret the change in policy. Another is through the general equilibrium response of prices, which can induce behavioral changes even for those agents who remain uninformed about the policy change. In this paper, we provide a comprehensive decomposition of the channels through which households perceive monetary policy as affecting their behavior: when they learn that the central bank has changed the policy rate, how do they update their economic expectations, and how do those expectations changes affect their decisions?

To answer these questions, we make use of a large-scale survey of American households designed to study the effect of changes in the federal funds rate (FFR) on consumer behavior. We combine hypothetical questions with randomized information treatments. From these, we draw several conclusions. First, when households are asked how they would respond to a one-percentage-point increase in the FFR, they report that they would reduce both regular spending and their durable goods purchases, albeit by small amounts in the very short run and by more over the course of the year. Second, the primary mechanism behind this response is the belief that a higher federal funds rate leads to (or reflects) higher inflation. Higher inflation, holding other economic expectations constant, leads households to reduce their spending, consistent with Coibion, Gorodnichenko and Weber (2022) and Georgarakos et al. (2024). Other mechanisms, such as changes in saving or borrowing interest rates, effects on stock or housing prices, or wage expectations, appear to play a much smaller role in shaping households' responses. We also find that perceived changes in monetary policy affect households' intended portfolio allocations, with respondents indicating a shift away from stocks and toward bank accounts when they contemplate higher policy rates. Finally, we uncover a precautionary channel: changes in the federal funds rate, whether an increase or a decrease, induce households to seek additional income through labor market adjustments, suggesting that monetary policy actions signal higher perceived uncertainty.

A distinctive feature of our approach is that it allows us to quantify the role of different expectations in shaping household behavior following perceived changes in the federal funds rate. Our survey design includes multiple randomized information treatments that induce differential revisions in households' expectations about inflation, interest rates, asset prices, wages, and other macroeconomic variables. This variation allows us to *jointly* estimate how changes in these expectations affect households' spending and portfolio choices, effectively identifying the relative

importance of different expectations channels in shaping behavior. The power of combining these two steps is that neither alone would suffice: the first step tells us how a perceived change in monetary policy reshapes the full set of households' expectations, while the second tells us how each type of expectation independently affects behavior. Together they yield a complete decomposition of the transmission channel that is not possible from aggregate data or from either step in isolation. We find that revisions in inflation expectations play a predominant role relative to other channels. Moreover, the pattern of expectation revisions provides suggestive evidence that households interpret higher policy rates as contributing to higher inflation through higher borrowing costs for firms and consumers, consistent with the cost channel emphasized by Ravenna and Walsh (2006), rather than as an information signal about future inflation (Romer and Romer 2000).

These findings contrast with the standard transmission mechanisms emphasized in New Keynesian models. In those frameworks, increases in policy rates reduce consumption primarily through two channels. The first is the real interest rate (or the intertemporal substitution) channel: higher nominal rates combined with lower inflation raise the real interest rate, encouraging households to postpone consumption. The second is the income channel, operating through the effects of monetary policy on labor income and other components of household income. The relative importance of these channels depends on the specifics of the model and the degree of household heterogeneity. Our evidence points to a different mechanism. On the income side, we estimate that households' consumption decisions are highly sensitive to their expectations about future income. However, changes in the federal funds rate have little effect on income expectations because households do not perceive a meaningful pass-through from policy rates to wages. As a result, the income channel appears largely inactive in this context. At the same time, households tend to expect inflation to rise after an increase in the federal funds rate. But our estimates imply that higher inflation expectations reduce consumption, so ultimately this drives much of the estimated response of consumption to changes in the FFR.

To quantify the mechanisms through which perceived changes in monetary policy affect household behavior, our approach proceeds in two independent empirical steps. The first step is to identify how households revise their expectations in response to changes in the federal funds rate, which we do via hypothetical questions. The second step is to estimate more generally how revisions in expectations translate into changes in economic decisions, which we do through

randomized information treatments. The combination of these two steps then allows us to quantify the relative importance of different expectations channels in shaping household behavior.

In the first step, we examine how perceived increases in the federal funds rate affect households' beliefs about a range of macroeconomic variables. This step follows the approach in Andre et al. (2022), but we focus only on monetary policy and consider a much wider range of expectations than they do. For example, when presented with a hypothetical increase in the policy rate, households expect borrowing and saving interest rates to rise and economic conditions to worsen with higher unemployment and lower stock prices. Households also expect housing prices to rise but wages to remain largely unchanged. These patterns indicate that households associate monetary policy changes with a broad set of macroeconomic outcomes, but they do not view policy rates as having a direct effect on their future labor income. Overall, these perceived effects are broadly consistent with empirical evidence on the effects of changes in interest rates, especially given the price puzzle indicating that inflation often rises after interest rate hikes (Christiano, Eichenbaum and Evans 1999).

In the second step, we estimate how different expectations affect household spending. Specifically, we estimate a consumption function in which intended spending depends on households' expectations about inflation, income, interest rates, asset prices, and other macroeconomic variables. To identify these effects, we use an instrumental variables approach that exploits the multiple randomized information treatments in our survey, generating differential revisions in these expectations across respondents. This variation allows us to jointly estimate the pass-through from each type of expectation into consumption while holding other expectations constant. We find that households' spending decisions respond strongly to their expectations about future wages, consistent with standard consumption models in which anticipated income plays a central role in shaping consumption plans. Inflation expectations also have a significant effect on spending, with higher expected inflation associated with lower intended consumption when other expectations are held fixed. Higher borrowing interest rates lower durable goods purchase intentions, whereas higher saving interest rate expectations raise them, as through a wealth effect. These estimates therefore provide a general characterization of how households translate their economic expectations into consumption decisions. This speaks to an extensive literature that has tried to estimate consumption functions (Blundell, Pistaferri and Preston 2008,

Jappelli and Pistaferri 2010). Our contribution is to estimate the causal effect of different expectations on spending decisions jointly.

Because we also include questions on desired portfolio allocations, we can similarly assess how sensitive household portfolios are to different economic expectations, again using our information treatments as a source of exogenous variation in expectations. This yields several novel findings. For example, when households expect higher wage growth in the future, we see a sharp decline in the share of funds going to bank deposits and increases in cash holdings, consistent with households choosing to hold more cash to engage in more transactions. With more expected income in the future, they also see less need to maintain bank deposits and instead invest more in financial assets like bonds, gold and cryptocurrencies. Higher expected stock returns naturally lead to a reallocation toward stocks, but higher expected housing prices lead instead to a reallocation away from stocks, bonds and cryptocurrency into bank deposits, perhaps because they need to accumulate more funds for down payments or they expect their rental costs to rise (Chopra, Roth and Wohlfart 2025). These results build on a prior literature studying how individuals' expectations affect their investment decisions (Malmendier and Nagel 2011, Greenwood and Shleifer 2014, Giglio et al. 2021, Weber et al. 2023, Gorodnichenko and Yin 2024), but we are able to control for a wide range of expectations jointly and make causal statements about the expectations pass-through into portfolio shares.

Our analysis also relates to a growing literature studying how households form expectations and how these beliefs shape their economic decisions. A number of recent papers document that households' expectations about macroeconomic variables—such as inflation, income growth, or asset prices—play an important role in determining consumption, saving, and portfolio choices (e.g., Malmendier and Nagel 2016, Armona, Fuster and Zafar 2019, Coibion, Gorodnichenko and Weber 2022, D'Acunto, Hoang and Weber 2022, Coibion et al. 2023a). This work emphasizes that households' beliefs often differ from those embedded in standard macroeconomic models and that these beliefs can have meaningful effects on economic behavior. Our approach contributes to this literature by jointly estimating how revisions in multiple expectations translate into consumption and portfolio decisions. By exploiting randomized information treatments that generate differential revisions in beliefs, we can quantify the relative importance of different expectations in shaping household behavior.

In addition, our results speak to a broader literature studying the transmission of monetary policy to the real economy. A large body of work examines how changes in policy rates affect aggregate consumption and investment through financial conditions, borrowing costs, and general equilibrium adjustments in prices and wages (Bernanke and Gertler 1995, Christiano, Eichenbaum and Evans 2005, Gertler and Karadi 2015, Jarociński and Karadi 2020, Bauer and Swanson 2023). Much of the evidence is based on aggregate responses to identified monetary policy shocks (Romer and Romer 2000, 2004, Ramey 2016) and examines how household heterogeneity can affect the aggregate response (Kaplan, Moll and Violante 2018, Auclert 2019). By contrast, our analysis focuses directly on the expectations channel by examining how households interpret changes in policy rates and how those interpretations affect their economic decisions. In doing so, we provide evidence on the microeconomic mechanisms through which perceived monetary policy changes influence consumption and portfolio choices.

A closely related paper is Roth, Wiederholt, and Wohlfart (2023), who develop an elegant and tractable approach to quantifying the effects of monetary policy by feeding survey-measured expectation differences across policy counterfactuals directly into a heterogeneous agent model. Their key innovation is to remain agnostic about expectation formation by using measured expectations as sufficient statistics, bypassing the need to model how households form beliefs. Applied to forward guidance and conventional monetary policy in the United States, their approach yields quantitatively plausible consumption responses. Our paper is complementary to theirs in several important respects. First, they focus on eliciting expectations under specific, carefully controlled policy counterfactuals in order to compute model-consistent aggregate effects; our focus is instead on mapping out the full set of channels through which households perceive monetary policy as affecting their spending and portfolio decisions, without imposing a particular model structure on the consumption function. Second, and relatedly, we estimate the consumption function parameters directly from exogenous variation generated by our information treatments, rather than imposing them from a model. This allows us to identify which channels — inflation expectations, borrowing costs, income effects — are empirically relevant for household behavior, and to quantify their relative importance. We find that inflation expectations play a dominant role that would not be apparent from a standard New Keynesian consumption function, which is the framework Roth et al. employ. Third, our paper covers a broader range of household decisions, including portfolio allocation, labor supply responses, and debt

management, alongside consumption. Together, the two approaches are best seen as complementary: theirs offers a principled model-based aggregate quantification; ours offers a reduced-form empirical decomposition of the underlying channels.

The remainder of the paper proceeds as follows. Section 2 describes the survey design, including the hypothetical scenarios and randomized information treatments used to generate variation in households' expectations. Section 3 documents how perceived changes in the federal funds rate affect households' spending decisions. Section 4 presents the decomposition of the spending effects into different expectation channels, using estimates of the consumption function. Section 5 examines how perceived changes in monetary policy affect other decisions by households including portfolio allocations. Section 6 concludes.

2. Survey Description

This paper relies on the results of a large-scale household survey conducted in the United States through the online survey platform Cint. The first wave of the survey was administered between November 11 and November 24, 2024, to U.S. residents aged between 25 and 70. A shorter follow-up survey targeting a subset of the same individuals was conducted three months later, between February 9 and February 21, 2025. Respondents received a monetary incentive for completing the survey, and quotas were used to ensure that the sample was representative of the U.S. population along key demographic dimensions, including age, gender, and region.

The first-wave questionnaire (Appendix B) is structured into several modules designed to measure households' economic beliefs, expectations, and decision-making. After an initial set of screening questions intended to identify respondents paying attention to the questionnaire and to assess basic financial literacy, the survey collects detailed information on households' consumption and saving decisions. Respondents report their total monthly consumption as well as the allocation across broad spending categories such as housing, utilities, food, and healthcare. They are also asked whether they consider the present to be a good time to purchase durable goods, including a house, a vehicle, or major household items, and they report their total savings.

Households are presented with a set of hypothetical questions focused specifically on perceived effects of monetary policy. Respondents are first asked about the inflation rate targeted by the Federal Reserve. They are then presented with hypothetical changes in the federal funds rate—randomized across increases and decreases of one, two, or five percentage points—and

asked how these changes would affect several economic variables over the following year. These include interest rates on bank deposits, mortgage borrowing rates, wages, consumer prices, house prices, stock prices, and the unemployment rate. Respondents are also asked how such policy changes would affect their own spending, both overall and for durable goods. In addition, they are asked how likely they would be to take various actions in response to a change in the federal funds rate, such as asking for a pay raise, searching for a higher-paying job, working more hours, refinancing or repaying their mortgage, paying down credit card debt, taking on additional debt, searching more intensively for deals, or increasing savings.

To measure the causal effects of information on beliefs and behavior, the survey includes various information treatments. Prior to receiving these treatments, respondents report their perceptions of current economic conditions, including the past-year changes in wages, consumer prices, house prices, and stock prices, as well as the current levels of bank deposit rates, mortgage rates, the unemployment rate, and the federal funds rate. Respondents are then randomly assigned to one of eight treatment groups or a control group. Each treatment group receives factual information about one specific macroeconomic variable: the current federal funds rate, recent wage growth, the unemployment rate, consumer price inflation, deposit interest rates, mortgage interest rates, house price growth, or stock price growth. The control group receives no such information. The control group and the treatment group receiving information about the federal funds rate are larger than the other groups, each representing roughly 22 percent of the sample, while the remaining treatment groups each account for about 8 percent of respondents.

After the treatments, both treated and control respondents are asked about their expectations for key macroeconomic variables over the following twelve months, including wages, consumer prices, house prices, stock prices, deposit rates, mortgage rates, and the unemployment rate. In the same section, respondents report their expected consumption over the next three months and over the following six to twelve months, their likelihood of purchasing durable goods, and their likelihood of undertaking various actions such as those described above. The survey also includes a portfolio allocation question in which respondents are asked how they would allocate a hypothetical $10,000 windfall across several asset classes, including cash, bank deposits, stocks, bonds, gold, and cryptocurrencies.

The questionnaire concludes with a set of background questions collecting demographic and socioeconomic information. Respondents report their educational attainment, political

orientation, employment status, household income, deposits and other financial assets, housing status, and outstanding credit card or consumer debt. To verify the accuracy of demographic information, respondents are also asked to report their year of birth so that it can be cross-checked with the age information provided earlier in the survey.

The questionnaire for the second survey wave (Appendix C) is considerably shorter and focuses primarily on realized behavior since the first wave. Respondents report their consumption over the previous three months, whether they have purchased durable goods, and whether they have taken actions that they previously indicated they might undertake, such as asking for a pay raise, searching for a better-paying job, increasing work hours, repaying debt, refinancing a mortgage, taking on additional debt, searching for bargains, or increasing savings. The survey also collects updated information on respondents' portfolio allocations across major asset classes.

In addition, the second wave reassesses respondents' perceptions of current economic conditions, including recent changes in wages, prices, house prices, and stock prices, as well as current deposit rates, mortgage rates, the unemployment rate, and the federal funds rate. The follow-up survey also includes several new hypothetical questions designed to better understand households' behavioral responses to changes in inflation and interest rates. For example, respondents are asked whether their spending would change if inflation were to increase and are randomly provided with alternative motivations—such as saving more to cope with higher future costs or spending more before prices rise further. Similar questions are asked about temporary and permanent changes in saving interest rates. Finally, respondents are asked about the direction of the effect of a Federal Reserve interest rate increase on consumer prices and are invited to select from a list of possible explanations for their answer.

The first wave contains responses from 26,968 individuals. Following Cint's standard data collection procedures, however, responses were initially gathered from a larger pool of 32,602 participants and subsequently filtered based on the following quality criteria. First, we removed 1,294 respondents who completed the survey in less than six minutes (the median completion time was twelve minutes) or in more than one hour. We also excluded 146 respondents who spent more than three minutes on the information treatment screens, suggesting that they were likely distracted or engaged in other tasks while completing the survey. Second, we excluded 3,460 respondents who reported highly implausible consumption levels—defined as monthly consumption below $50 or above $50,000—either for past spending or expected future spending.

Third, we excluded 734 respondents who reported negative values for current or expected unemployment rates. The second wave includes 4,461 individuals who also participated in the first survey wave.

To ensure that the sample closely reflects the demographic composition of the U.S. population, we construct survey weights that match the age and gender distribution of the United States based on U.S. Census data. Appendix Table 1 compares the demographic composition of our sample with that of the U.S. population based on the March 2024 CPS-ASEC dataset.[1] After applying the weighting procedure, the distribution of respondents across age groups and gender in the survey closely matches that observed in the U.S. population.

In addition to these initial quality filters, we apply data-cleaning procedures in the analysis to remove extreme responses that likely reflect typing errors or misunderstandings of specific questions. In the first wave, monthly consumption levels below $1,000 or above $20,000 are replaced with missing values, affecting 15.6 percent of the sample. Similarly, we replace with missing values reported yearly wage and price growth rates below –10 percent or above 30 percent (affecting 3.5 percent and 6.0 percent of responses, respectively). We apply analogous bounds to expectations about asset prices and macroeconomic variables: stock and house price growth rates below –50 percent or above 100 percent are replaced with missing values (0.03 percent of observations for each), while reported unemployment rates, saving interest rates, borrowing interest rates, and federal funds rates below zero or above 30 percent are also treated as missing (affecting 5.8 percent, 5.3 percent, 5.4 percent, and 6.7 percent of observations, respectively). Because many of these filters apply to the same respondents across different questions, these cleaning rules affect 9,952 individuals, corresponding to 37 percent of the first-wave sample.[2]

We apply similar cleaning procedures to the second wave. Monthly consumption values below $1,000 or above $20,000 are again replaced with missing values, affecting 8.2 percent of the sample. We also apply the same bounds to reported wage and price growth rates (affecting 4.9

[1] Because the Census data do not provide a directly comparable category for respondents selecting "other" as their gender, we exclude 53 such respondents when constructing the weights.

[2] Appendix Table 2 provides an overview of the sample composition by respondents' financial conditions, using sampling weights. About one-third of the respondents report after-tax income below 50,000 dollars, and fewer than 5% report income above 200,000 dollars; nearly two-thirds fall between 50,000 and 200,000 dollars. More than 60% of the respondents hold bank deposits below 250,000 dollars. 36% of respondents have other financial assets worth less than 10,000 dollars, while one-fifth report financial assets exceeding 200,000 dollars. About two thirds of respondents are homeowners; among them, 37% have fixed-rate mortgages and only 5% have variable-rate mortgages. Yet, more than half of the respondents report holding credit card debt or other loans.

percent and 14.6 percent of responses, respectively), to stock and house price growth rates (only one and four observations, respectively), and to reported unemployment, saving, and borrowing interest rates (affecting 10.4 percent, 7.8 percent, and 7.2 percent of responses, respectively). In total, these criteria affect 987 individuals, or 22.1 percent of the second-wave sample.

Table 1 summarizes respondents' reported consumption levels as well as their perceptions and expectations about key economic variables. The average household in the sample reports monthly consumption of approximately $3,700, with a median of $3,000. These values are very similar to the levels of expected consumption reported for the following three months and for the six-to-twelve-month horizon among respondents in the control group. They also closely match the consumption levels reported retrospectively in the second survey wave.

Respondents' perceptions of current economic conditions broadly align with actual macroeconomic conditions prevailing at the time of the survey, although some systematic biases are present. On average, respondents report the federal funds rate to be 5.3 percent, compared with the actual level of 4.6 percent. They report deposit and mortgage rates of 3.7 percent and 6.3 percent, respectively, compared with actual values of approximately 0.5 percent and 6.8 percent. The perceived unemployment rate averages 6.6 percent, compared with an actual rate of 4.1 percent. Respondents report that wages and consumer prices increased over the previous year by 3.0 percent and 6.5 percent, respectively, compared with realized values of 4.2 percent and 2.1 percent. House price growth is perceived to be about 8.2 percent, compared with an actual value of 5.9 percent. The largest discrepancy arises for stock price growth, which respondents estimate at 6.1 percent compared with an actual increase of approximately 35 percent. Finally, expectations of future economic conditions among respondents in the control group remain broadly similar to their pre-treatment perceptions, indicating that the treatments themselves are the primary source of variation in posterior beliefs.

3. The Effect of Perceived Changes in the FFR on Spending

This section studies how households adjust consumption intentions in response to changes in the federal funds rate. We begin with responses to hypothetical policy changes, which provide a direct measure of households' perceived sensitivity of consumption to interest rates. We then contrast these responses with evidence from randomized information treatments that convey information about actual monetary policy. Together, the results establish both the direction and the magnitude

of the household-level consumption response to perceived changes in monetary policy, as well as the extent to which this response varies across households.

3.1 Hypothetical changes in the Federal Funds Rate

In a first step, we focus on hypothetical questions that asked households to report the amount by which they would change their overall spending, as well as spending on durable goods, in response to different changes in the FFR. Specifically, we estimate

$$y_i^{hyp} = \alpha + \gamma FFR_i + \delta Z_i + error_i \quad (1)$$

where y_i^{hyp} is the hypothetical change in consumption of respondent i, FFR_i is the change in the FFR provided to respondent i, and Z_i is a vector of controls including gender, age, income, education, number of children, employment status, political affiliation, and race. All regressions are estimated with a Huber (1964) adjustment and sampling weights.

We report estimates of households' answers projected on the magnitude of the proposed change in the FFR (which was randomized across households) in Table 2. The first column shows that a one-percentage-point increase in the federal funds rate leads households to report that they would reduce their spending by less than 0.1 percentage point on average. While statistically significant, the estimate is economically small. The estimated effect on durable goods spending is almost twice as large (around 0.13 p.p. decline for a 1 p.p. increase in the FFR), statistically significant and again small in economic terms. By itself, this indicates that households perceive a direct, albeit limited, effect from interest rate changes by the central bank into their immediate spending decisions.

We then assess whether positive and negative interest rate changes have symmetric effects on spending decisions. To do so, we use the fact that different households were randomly assigned either positive or negative interest rate changes in the hypothetical question, and extend equation (1) to allow for asymmetric responses, as follows:

$$y_i^{hyp} = \alpha + (\gamma_1 + \gamma_2 FFR_i) \times D_i^+ + (\gamma_3 + \gamma_4 FFR_i) \times D_i^- + \delta Z_i + error_i \quad (2)$$

where D_i^+ and D_i^- are dummies for whether the change in the FFR is positive or negative, respectively. Columns (2) and (3) report the results. We can strongly reject the null of symmetric responses. In fact, all of the effect found in columns (1) and (2) comes from households who were

asked about *increases* in the Federal Funds Rate. For those asked about decreases, the effects on overall spending and durable goods purchases are both economically and statistically insignificant.

Finally, we separate households by the magnitude of the change in interest rates that they were presented with, namely small, medium or large, and estimate:

$$y_i^{hyp} = \alpha + (\gamma_1 + \gamma_2 FFR_i) \times D_i^{small} + (\gamma_3 + \gamma_4 FFR_i) \times D_i^{medium} + (\gamma_5 + \gamma_6 FFR_i) \times D_i^{large} + \delta Z_i + error_i \quad (3)$$

where D_i^{small}, D_i^{medium}, and D_i^{large} are dummies for whether the change in the FFR is either 1, 2, or 3 percentage points (p.p.), respectively. The results in columns (4) and (5) indicate that for overall spending we cannot statistically reject the null of equal pass-through into spending decisions, although the point estimate for large changes is about half that found for small interest rate changes. For durable goods spending, however, we find the same quantitative difference in pass-through between small and large changes and in this case, those differences are statistically significant.

Overall, the main takeaway is that households do perceive changes in monetary policy as having a direct effect on their spending decisions, but this seems to be driven almost exclusively by a belief that higher rates will lead them to reduce their overall spending and durable goods purchases. Interest rate cuts, in contrast, are viewed by households as having no direct effect on their spending decisions. Across the board, the average quantitative effects are small in economic terms.

3.2 Heterogeneous perceived pass-through of monetary policy into spending decisions

Do all households respond in the same way? Andre et al. (2022) documented that households hold very diverse opinions about how monetary policy affects the aggregate economy, so one might expect similar heterogeneity to occur with the perceived effects on their spending. To assess this point in our data, we compare the implied pass-through of interest rate changes into spending decisions for a wide range of sub-groups depending on observable characteristics. Specifically, we allow the coefficient on FFR in equation (1) to vary by sub-group G_i as follows:

$$y_i^{hyp} = \alpha + \gamma_1 FFR_i + \gamma_2 FFR_i \times G_i + \gamma_3 G_i + \delta Z_i + error_i \quad (4)$$

We report the results in Table 3. Columns (2) and (4) present the main results for heterogeneity when simultaneously controlling for a wide range of observables. As expected, we find that households disagree about the perceived pass-through of monetary policy into their

spending along many dimensions. For example, women and younger respondents see a smaller pass-through into their spending than do men or older respondents. More highly educated respondents and those with higher income tend to perceive a larger pass-through into their spending, whereas those with more wealth report a smaller pass-through. Households who hold more debt believe that monetary policy affects their spending more, especially for durables, than those with less debt.

But, for both overall spending and durables, the most quantitatively important source of heterogeneity is knowledge about the Federal Reserve and financial literacy. We assess respondents' basic knowledge about the Federal Reserve based on whether they recognize that the US central bank sets monetary policy rather than alternative options as illustrated in Panel A of Appendix Figure 1. Financial literacy is assessed by whether respondents understand how inflation and saving interest rates impact the purchasing power of bank deposits, as shown in Panel B of Appendix Figure 1. For respondents who satisfy both criteria, the pass-through of a one percentage point increase in the FFR is larger in absolute value by almost 14 basis points for overall spending than for other respondents, and by 19 basis points for durable goods purchases. When we control only for this one dimension of heterogeneity (columns (1) and (3)), we conclude that the average effect of the federal funds rate on spending decisions is driven almost exclusively by households who are financially literate and knowledgeable about the central bank. For other households, we cannot reject the null of no effect on overall spending and, for durables, the effect is statistically significant but economically small. Thus, it is primarily households with financial knowledge and at least a basic understanding of the central bank that perceive a clear effect of monetary policy on their spending decisions.

3.3 Information treatments and pass-through into actual spending

The results presented so far are based exclusively on hypothetical questions presented to households. A growing body of evidence suggests that hypotheticals often yield similar results as randomized controlled trials that aim to identify the same object, as described in Coibion and Gorodnichenko (2026). Still, it is helpful to establish whether this is indeed the case in this setting.

For this purpose, we make use of the information treatments provided to households involving information about the federal funds rate. Because we know their prior belief, we can identify whether households are essentially being told that the interest rate is higher than they

thought (i.e., positive forecast error) or lower (i.e., negative forecast error). We capture the direction of the information treatment surprise using two indicator variables equal to one if the treatment implies a positive (negative) forecast error relative to prior and zero otherwise, FE_i^+ and FE_i^- respectively. We then regress the percentage change in consumption reported by households across the two waves, y_i^{rep}, on the interaction of the treatment indicator, T_i^{FFR}, and the indicators for whether the treatment was for higher or lower rates:[3]

$$y_i^{rep} = \alpha + (\gamma_1 + \gamma_2 T_i^{FFR}) \times FE_i^+ + (\gamma_3 + \gamma_4 T_i^{FFR}) \times FE_i^- + \delta Z_i + error_i \qquad (5)$$

The coefficients on these two interactions measure the average change in consumption of households after learning that the FFR was either higher or lower than they expected.

Results from these regressions are in Table 4, separating regular consumption from spending on durables. In columns (1) and (2), we use responses from all respondents in the control group and those who received the information treatment about the level of the FFR. Overall, we find little effect of treatment on subsequent spending. Based on the fact that Table 3 indicated that it is primarily households who are informed about monetary policy who respond, we then consider the same estimation for the subset of households who are financially literate and knowledgeable about the Fed. Consistent with the earlier results using hypotheticals, we find that learning that interest rates are higher (lower) than expected leads to reductions (increases) in spending on durables, whereas results for overall spending are imprecise and insignificant.

For households who learn that the interest rate is higher than expected, the average surprise is 1.5 percentage points. Given the estimated effect on durables, the implied pass-through of a one percentage point increase in the FFR into durable spending is therefore a reduction of 0.05 p.p. in durable consumption. For those learning that the interest rate is lower, the implied pass-through is an increase in durable spending of 0.08 p.p, implying a smaller pass-through than found in Table 2.

Overall, the results from the randomized controlled trial are broadly in line with those from hypothetical questions. However, the sample for the RCT is considerably smaller than for hypotheticals (about 4% of the latter). This results in lower statistical precision and limits our ability to analyze heterogeneity across subgroups.

[3] Specifically, y_i^{rep}, is defined as the percentage change in average household spending over the last 3 months between the first and second survey waves.

4. Perceived Transmission Channels of Monetary Policy

Why do households change consumption in response to monetary policy news? In this section, we decompose both qualitatively and quantitatively the different channels through which households believe that monetary policy will affect their spending decisions. We do so in two steps. First, we examine how monetary policy affects households' expectations about economic conditions. Second, we characterize how changes in expectations impact consumption decisions.

4.1 The perceived effects of monetary policy on expectations

Consumption is inherently forward-looking. Traditional models deliver a consumption function in which the optimal level of consumption today depends on the expected path of future income, interest rates, inflation, and the returns on households' assets. When households learn that the FFR has changed, they may change their beliefs along a number of different dimensions, each of which can in turn affect their spending decisions. To gauge how different expectations respond to a perceived change in the FFR, we asked households hypothetical questions like the following:

> Please think now about the effects on the broader economy. **If the Fed were to unexpectedly [Lower/Raise] the Federal Funds Rate by [1/2/5] percentage points**, what would be the impact on the following economic conditions over 1 year? Please use positive values for increases and negative for decreases.
>
a.	Wages	Change by [XXX] %
b.	Consumer prices	Change by [XXX] %
c.	House prices	Change by [XXX] %
d.	Stock prices	Change by [XXX] %
e.	Unemployment rate	Change by [XXX] percentage points

We also asked a similar question to measure the perceived pass-through of a change in the FFR into saving and borrowing interest rates.

To assess how households' expectations vary with the FFR, we then regress their answers to these questions on the hypothetical change in the FFR:

$$x_i^{s,hyp} = \alpha + \xi^s FFR_i + \delta Z_i + error_i \qquad (6)$$

where $x_i^{s,hyp}$ denotes the answer to hypothetical question s of respondent i. This is analogous to the approach we used in equation (1) to examine the consumption responses to hypothetical changes in the FFR.

Results are presented in Table 5. When households perceive a change in the FFR, they tend to see a positive but incomplete pass-through into both saving and borrowing interest rates (columns (1) and (2)). They also expect inflation to *rise* by about the same amount (column (3)), so that the perceived real interest rate that they face is largely unchanged, which is consistent with RCT evidence in Coibion et al. (2023b). Along with the broad-based increase in overall prices, households also think that housing prices will tend to rise (column (6)). On the labor market side, they see no meaningful pass-through of monetary policy into wages (column (4)), but they anticipate that higher policy rates will lead to a higher unemployment rate (column (5)). Finally, they perceive that a higher FFR will lead to a decline in stock prices (column (7)). As shown in the bottom panel of Table 5, the results are qualitatively similar for both higher and lower interest rates, although there are some quantitative asymmetries.

Along most dimensions, these beliefs align closely with the actual response of macroeconomic variables to monetary policy changes, including a partial pass-through into borrowing and saving interest rates, as well as the finding that contractionary monetary policy is followed by higher unemployment and lower stock prices, with almost no pass-through into wages (see e.g. Bernanke, Boivin and Eliasz 2005). The belief that housing prices will rise when the central bank raises interest rates is counterfactual. However, it can be understood by considering that households may erroneously infer that the total cost of buying a house rises when interest rates go up.

The fact that households seem to expect higher interest rates to raise inflation over the next year runs against the predictions of typical macroeconomic models (as found in Andre et al. 2022) but is consistent with the extensive empirical evidence of a "price puzzle" in monetary economics, especially over the first 12 months following the change in interest rates (Christiano, Eichenbaum and Evans 1999). In the follow-up wave, we asked a qualitative question to respondents about the response of prices to interest rates to confirm this finding. As shown in Panel A of Figure 1, over 60 percent of respondents confirmed that they thought higher interest rates would lead to higher prices. These respondents were also asked a follow-up question as to why they thought this would happen. The results, shown in Panel B of Figure 1, indicate that households primarily attribute the perceived inflationary effects of a policy rate hike to either firms raising prices due to their higher borrowing costs or the direct effect of credit becoming more expensive. The former is consistent with the cost channel of monetary policy explored in Ravenna and Walsh (2006) among

others. Thus, the results indicate that households' perceptions about the macroeconomic effects of monetary policy are primarily influenced by the cost channels of monetary policy rather than by demand-side considerations.

4.2 The consumption function

To know how changes in household expectations affect consumption, we need to estimate the pass-through of each expectation into consumption, i.e., we need to pin down the parameters of the consumption function. Doing so is empirically challenging since, in most cases, expectations and decisions are jointly determined so one cannot simply regress individuals' consumption decisions on their expectations, when these are observed. To get around this endogeneity, we exploit the fact that our survey included a number of different information treatments across different groups of individuals, each of which generated a different set of responses in beliefs. These treatments provide exogenous differential variation in expectations which we utilize to estimate the response of consumption to different expectations jointly.

Specifically, our survey included information treatments to different randomly selected groups of households on recent macroeconomic variables. For example, while one group was told about the FFR, as described in the previous section, other groups were provided information about recent values for wage growth, the unemployment rate, the inflation rate, interest rates on bank deposits or mortgage rates, house price growth, or changes in stock prices. After the treatments, all households were asked to report posterior beliefs about each of these expectations, including for the control group. They were also asked to provide their expected change in consumption over the next 3 months as well as over the next 6-12 months, along with their views about whether now is a good time to buy a house, a car, or other durable goods.

To estimate the pass-through of different expectations into consumption, we estimate IV regressions of these measures of expected spending, y_i^{post}, on households' posterior expectations, $x_{i,k}^{post}$:

$$y_i^{post} = \alpha + \beta y_i^{pre} + \sum_k \gamma_k x_{i,k}^{post} + \delta Z_i + error_i \qquad (7)$$

The posterior expectations of each variable k are instrumented with the information treatments:

$$x_{i,k}^{post} = b_0 + b_1 y_i^{pre} + \sum_k \mu_k x_{i,k}^{pre} + \sum_k \theta_k x_{i,k}^{pre} \times \mathbb{I}(i \in k) + \sum_k \zeta_k \times \mathbb{I}(i \in k) + \eta Z_i + error_i \quad (8)$$

where k indexes variables (wage expectations, interest rate expectations, etc.), and $\mathbb{I}(i \in k)$ is an indicator variable equal to one if respondent i is treated with information about variable k. Following the literature, we use Huber-robust regression in the first stage, then apply a jackknife procedure to control for any remaining outliers in the second stage of the regression. The coefficients γ_k provide a causal estimate of how changes in expectations translate into subsequent spending decisions. We focus on households' expected spending measures from the first wave – rather than on past self-reported consumption in the second wave – to maximize the number of observations. In the case of durable purchases, the regressions control for their reported prior beliefs about whether now is a good time to buy that specific durable good.

The identifying assumption underlying this IV approach is that the information treatments affect consumption only through the expectations we measure and include in equation (7). Since different treatments induce differential variation across the full set of measured expectations, this variation is sufficient to separately identify the causal effect of each expectation on consumption. The key concern is whether the treatments also shift expectations that we do not measure but which are correlated with the measured expectations and independently affect spending. If so, the estimated coefficients would capture not just the effect of the measured expectation but also the effect of any correlated unmeasured beliefs. We believe this concern is limited given the narrow and factual nature of the information provided but acknowledge it as a caveat in interpreting the estimated coefficients as the causal effect of each specific expectation in isolation.

Results are reported in Table 6. We find no measurable pass-through from expectations over the next 12 months into expected consumption over the next 3 months. Over the longer horizon of 6-12 months, some expectations have statistically significant effects on projected consumption. First, higher wage growth is predicted to raise consumption over time. The coefficient is not statistically different from one, indicating that households perceive wage growth as permanently raising income and consumption. Second, future house price increases are predicted to raise future consumption on average, with a pass-through which is relatively high, albeit imprecise. This could reflect either a wealth effect or a perceived rental cost-of-living channel driving up their spending (Chopra, Roth and Wohlfart 2025). Third, higher future

inflation is predicted to reduce future consumption. In the follow-up survey, we asked respondents a qualitative hypothetical question as to how higher future inflation would affect their spending and, as shown in Panel A of Figure 2, the vast majority indicated that they expected they would spend less in this scenario. One possible explanation is that households respond to the prospect of higher inflation by initially moderating spending, as they try to accumulate savings to better cope with higher living costs in the future. Another interpretation of this finding is that higher inflation is associated with more uncertainty about inflation, which can reduce expected spending, as found in e.g. Georgarakos et al. (2024) and Candia, Mitchell, and Pfajfar (2026). Because we do not measure consumers' uncertainty, we cannot distinguish between these channels here.

With durable goods, we find much more sensitivity to consumers' expectations. Higher wage growth is associated with households reporting that now is a good time to buy all types of durable goods whereas higher inflation has the opposite effect, although the latter is only statistically significant for houses. Higher expected unemployment leads consumers to report a lower propensity to buy durable goods. Higher borrowing interest rates dissuade consumers from purchasing durable goods, as expected. However, households report that higher interest rates on savings mean that it is a better time to buy durable goods, at odds with typical substitution intuition. One possible interpretation could be that, holding borrowing interest rates fixed, a higher saving interest rate induces a wealth effect which causes households to be more likely to purchase durable goods. In the follow-up survey, we again asked a hypothetical question about whether higher interest rates on savings, holding other macroeconomic conditions unchanged, would tend to make consumers spend more or less. As shown in Panel B of Figure 2, consumers mostly report either no change or a decline in spending regardless of whether the higher saving interest rates are expected to be temporary or permanent, a feature that is at odds with this interpretation of the RCT coefficient. Hence, while most of the estimated pass-through coefficients of expectations on consumption decisions are as expected, this one is not.

4.3 Quantifying the Different Channels Driving the Consumption Response

With estimates of how consumers revise their expectations in response to perceived changes in the FFR (μ_k in equation 8) and estimates of how each type of expectations affects consumption (γ_k in equation 7), we are now in a position to decompose the different channels driving households' consumption response to perceived changes in the FFR. To do so, we take the

estimated consumption functions from Table 6 and apply the predicted change in expectations from an increase in the FFR from Table 5. Each channel is the product of the predicted change in expectations times the estimated pass-through coefficient into consumption associated with that expectation. The sum across these channels yields the total predicted direct effect on consumption from a perceived change in the FFR by consumers.

We present this decomposition in Panel A of Figure 3 for consumption over the next 3 months as well as consumption over the next 6-12 months. For short-run consumption, the total predicted effect on consumption from the different channels is around -0.1% for a 1 p.p. increase in the FFR, almost identical to the average predicted response of consumers in the hypothetical questions (Table 2). As shown in the figure, the total predicted effect on consumption is very modest because all transmission channels are small at this time horizon. This reflects the fact that the estimated consumption function parameters in Table 6 are small at the 3-month horizon. The largest contributor to the -0.1% predicted drop in consumption is the effect of a higher borrowing rate, which accounts for most of the predicted decline in consumption.

At the 6-12 month horizon, the predicted total drop in consumption is much larger, around -0.35% for a 1 p.p. increase in the FFR. In this case, multiple channels are at work. The largest contributor in a quantitative sense is the expected rise in inflation, which accounts for a 30 basis point (b.p.) decline in consumption. The changes in interest rates on borrowing and savings are the next two largest contributors, each adding close to -0.1% to the decline in consumption. Pushing in the opposite direction is the perceived increase in housing prices, which is predicted to raise spending by around 10 b.p. over the same horizon. The other channels like stocks and wages are not contributing to expected changes in consumption. But the reasons for the two not having any effect on consumption are different. Changes in wages have large effects on consumption, but households do not perceive any pass-through of monetary policy into wages, so the combined effect is basically zero. For stocks, households anticipate that monetary policy will affect stock prices somewhat, but the pass-through of stock prices into consumption is very small. The same is true for unemployment. Hence, these channels do not contribute to households' expected response to a change in monetary policy. In short, households perceive monetary policy as impacting them primarily because of its effects on inflation and to a lesser extent via the impact on borrowing and savings rates. This highlights the key role inflation expectations play in the monetary policy transmission to household consumption. This pattern contrasts with the standard

New Keynesian prediction, in which the real interest rate channel and income effects dominate: in our data, neither channel plays a quantitatively important role in explaining household consumption responses to perceived monetary policy changes.

We do a similar exercise with households' perceptions about whether now is a good or bad time to buy durable goods. As shown in Panel B of Figure 3, for each type of durable good, the same three channels dominate as was the case with regular spending: borrowing and saving interest rates, as well as expected inflation. However, the effect of borrowing and saving interest rates come close to cancelling out across durable goods, so the key driver behind the fact that a higher FFR leads households to postpone durable goods purchases is how they change their inflation expectations. Hence, for both durable and non-durable goods and services, household inflation expectations drive much of the direct pass-through of monetary policy into consumption decisions.

4.4 Heterogeneity in Transmission

In doing these decompositions, we did not allow for any heterogeneity: we used one set of coefficients for the consumption function and one set of expectations changes to the FFR. But in principle, households could differ along both margins. Some could change their economic expectations very differently when facing a change in the FFR, while others could have very different responses of consumption to the same expectations change. How important is the variation in consumption responses across individuals and where does it stem from?

There is a lot of heterogeneity in individuals' perceived consumption responses to a change in the FFR. For example, using households' responses to the hypothetical question about how much their spending would change when the FFR changes (as used in Table 2), we find a standard deviation of 2% when we normalize all responses to a 1 p.p. increase in the FFR. Thus, some households believe they would significantly increase their spending whereas others believe they would significantly decrease their spending after an increase in the FFR, even though the average response is quite small and negative.

What underlies this heterogeneity? Since the pass-through coefficients of the consumption function are estimated from the RCT using the whole sample, we cannot measure heterogeneity in these coefficients. However, we do observe the individual variation in how economic expectations respond to a change in the FFR. Thus, we can ask whether heterogeneity in beliefs

is sufficient to explain the variation in consumption responses. To do so, we construct predicted levels of individuals' consumption responses by taking the sum across the products of individuals' expectations changes to the FFR and the common pass-through coefficients of beliefs. In other words, we assume that everyone has the same consumption function, but allow for each individual's expectations to respond differently to a change in the FFR.

In Panel A of Figure 4, we plot a binscatter comparing households' consumption changes coming from the hypothetical question versus the predicted 6-month changes in consumption we compute assuming heterogeneity in beliefs but common coefficients in the consumption function. The correlation is positive but small. In Panel B of Figure 4, we again construct predicted 6-month changes in consumption assuming heterogeneity in beliefs, but now impose zero pass-through coefficients in the consumption for those expectations where the estimated coefficients were statistically indistinguishable from zero. We can now observe a strong positive correlation between the two measures of consumption responses. This suggests that heterogeneity in beliefs to a change in monetary policy can successfully explain some of the variation in consumption responses that we observe. Panels C-E do the same using durable goods. In this case, we compare households' predictions for how they would change their durable good spending from the hypothetical questions to our predicted value of how they would assess whether now is a good or bad time to buy each durable good. Across the three types of durable goods, we again observe a strong positive correlation. We interpret these results as confirming that heterogeneous expectations responses to monetary policy are a key determinant of the cross-sectional variation in consumption responses to changes in monetary policy. Of course, this does not rule out the importance of other factors (e.g., borrowing constraints).

4.5 Summary

In this section, we have examined how changes in monetary policy affect household spending decisions, distinguishing between how monetary policy affects household expectations and how expectations in turn affect consumption decisions. We find that households anticipate a delayed effect on their overall spending, driven primarily by an expected change in inflation. This highlights the key role played by inflation expectations in shaping the direct effect of monetary policy on household spending decisions. Of course, households make many other decisions

beyond spending. In the next section, we consider some of these other margins of adjustment faced by households and how they respond to a perceived change in monetary policy.

5. Additional Household Decisions

Monetary policy decisions can affect consumers along many margins beyond consumption, such as labor supply (Graves, Huckfeldt and Swanson 2023), wage bargaining (Arseneau and Chugh 2007, Soskice and Iversen 2000), mortgage refinancing (Eichenbaum, Rebelo and Wong 2022, Cloyne, Ferreira and Surico 2020), or portfolio allocation (Luetticke 2021). In this section, we delve into how households expect to respond to changes in monetary policy along these different dimensions. We do so through a combination of methods. First, we asked consumers how they would respond hypothetically to a change in the FFR along many different margins, similar to what we did for consumption. However, to keep the survey tractable, we requested only qualitative answers. Specifically, respondents were asked the following:

> **If the Fed were to unexpectedly [Increase/Decrease] the Federal Funds Rate by [1/2/5] percentage points**, how likely would you be to do the following?
>
a.	Ask for a pay raise	[Not likely at all, unlikely, likely, very likely]
b.	Look for a higher paying job	[Not likely at all, unlikely, likely, very likely]
c.	Work more hours	[Not likely at all, unlikely, likely, very likely]
d.	Pay down my mortgage	[Not likely at all, unlikely, likely, very likely]
e.	Refinance my mortgage	[Not likely at all, unlikely, likely, very likely]
f.	Pay down credit card debt	[Not likely at all, unlikely, likely, very likely]
g.	Take on more debt	[Not likely at all, unlikely, likely, very likely]
h.	Shop more intensively looking for deals	[Not likely at all, unlikely, likely, very likely]
i.	Save more money	[Not likely at all, unlikely, likely, very likely]

As before, we evaluate how households expect to respond to a change in monetary policy by regressing their reported answer (on a scale of 1 to 4) on the change in the FFR presented to them:

$$y_{m,i}^{hyp} = \alpha_m + \gamma_m FFR_i + \delta_m Z_i + error_i \qquad (9)$$

where $y_{m,i}^{hyp}$ is the hypothetical change in margin m. The coefficient γ_m can then be interpreted as the response to a 1 p.p. increase in the FFR. We present results from these Huber-robust regressions in Table 7.

On the labor market front, our baseline result is that households would respond to a contractionary monetary policy action by becoming more likely to ask for a pay raise, look for a higher-paying job, and work more hours. However, when we split responses based on whether

respondents were presented with positive or negative changes in the FFR, a more nuanced interpretation arises. In particular, households report that they would become more likely to ask for a pay raise, look for a higher-paying job and work more hours regardless of whether the Federal Reserve was raising or cutting the FFR: any change in the FFR would induce the same response. This suggests that what is driving households here is a *precautionary* mechanism. Changes in the FFR signal greater uncertainty, which households respond to by trying to generate more income for themselves along multiple labor market margins. Other margins of adjustment display strong asymmetries as well. For example, households report that they would be increasingly likely to look for deals when interest rates rise or fall by larger magnitudes.

For more financial margins, households seem to respond primarily to decreases in the FFR rather than increases. As expected, individuals report that they are more likely to refinance their mortgage when interest rates decline. In addition, they are willing to take on more debt at low interest rates, consistent with intertemporal substitution effects. We also find evidence that a reduction in interest rates encourages households to save more money and pay down their credit card and mortgage debt, reflecting more relaxed budget constraints under lower interest rates. For each of these, the effects are driven exclusively by interest rate cuts: higher levels of the FFR are not expected to affect households' behavior directly.

The survey also allows us to study how monetary policy influences households' financial portfolio allocation. Following the information treatments, survey participants were asked how they would allocate a hypothetical $10,000 across cash, bank deposits, stocks, bonds, bitcoin and other cryptocurrencies or gold and other precious metals. These questions capture their marginal investment preferences. Because the question was asked after the treatments, we can regress their answers on their posterior economic expectations, instrumented with treatment indicators, just as was done with consumption plans in Table 6. We also control for the share of bank deposits in their actual financial portfolios. These results are presented in Table 8 and reveal how household's portfolio decisions are influenced by individual expectations about the macroeconomic environment, holding all others constant. To the best of our knowledge, we are the first to estimate simultaneously the effect of these different macroeconomic expectations on households' desired financial portfolios. Furthermore, by combining these estimates with our earlier findings of how monetary policy affects households' expectations (Table 5), we can measure the total effects of

FFR changes on households' portfolios and decompose the underlying transmission channels, as done for consumption in Figure 3. We plot the results in Figure 5.

The main result is that an increase in the FFR leads households to shift their financial portfolio away from stocks and into bank deposits. This effect operates via 3 main channels. First, like in the case of household consumption, inflation expectations play a critical role in driving the portfolio reallocation. Recall that households expect an FFR increase to lift inflation (Table 5). In turn, table 8 shows that higher expected inflation leads to a significant reduction in stock holdings, likely because households associate higher inflation with a general deterioration of economic conditions. Households also respond to higher inflation by reducing bond holdings. In contrast, they invest in gold and crypto assets indicating that households consider these assets as good hedges against inflation. Note that an expected increase in the unemployment rate triggers similar portfolio dynamics, reducing stock holdings while raising gold investment. However, the quantitative effects are much more modest compared to those operating via inflation expectations.

Second, the portfolio reallocation from stocks to deposits is supported by the perception that an increase in the FFR rate reduces stock returns (Table 5). Households respond to such expectations by strongly reallocating their funds away from stocks (Table 8). Every one percentage point decline in stock returns leads households to reduce the portfolio share allocated to stocks by about 2 percentage points. These effects are offset by increases in cash, bank deposits, and gold holdings. This is consistent with prior evidence in e.g. Weber et al. (2023).

Third, an increase in the FFR leads to a shift from stocks to deposits via house price effects. Households expect an FFR hike to raise house prices (Table 5). As shown in Table 8, households respond by selling stocks, bonds and cryptocurrency while increasing deposit holdings, perhaps because they need to accumulate more funds for down payments or they expect their rental costs to rise (Chopra, Roth and Wohlfart 2025).

Regarding the effects of other expectations on household portfolios, Table 8 shows that wage growth expectations can significantly influence households' financial decisions. Specifically, when households expect higher wage growth in the future, they sharply reduce bank deposits, while increasing cash, bonds, gold and crypto holdings. One interpretation is that households choose to hold more cash to engage in more transactions, since consumption is expected to increase with higher wages. With more expected income in the future, they also see less need to maintain bank deposits and instead invest more in financial assets like bonds, gold

and cryptocurrencies. However, these effects are not driving households' portfolio responses to monetary policy because households do not perceive a clear relation between FFR changes and wage growth (Table 5). Expected changes in borrowing and saving rates associated with monetary policy are also largely inconsequential for households' portfolio decisions. This is because expected increases in saving and borrowing rates tend to have broadly offsetting effects on households' portfolios (Table 8).

6. Conclusion

This paper studies how households perceive the transmission of monetary policy and how these perceptions shape their economic decisions. Using a large-scale survey of U.S. households combined with randomized information treatments, we measure both how households believe monetary policy affects the broader economy and how these beliefs translate into changes in their own behavior. Our approach identifies the direct, partial equilibrium effects of monetary policy operating through households' expectations. While much of the empirical literature focuses on the general equilibrium responses of macroeconomic aggregates to monetary policy shocks, our survey design allows us to isolate how households interpret policy changes and how these perceived changes affect their decisions before broader equilibrium adjustments occur.

We find that households perceive monetary policy as having a direct but modest effect on their spending decisions. In hypothetical scenarios, households report that increases in the federal funds rate would lead them to reduce spending, particularly on durable goods, whereas decreases in rates generate little reported response. Consistent with these patterns, randomized information treatments indicating that interest rates are higher or lower than expected lead to corresponding adjustments in durable spending among financially literate households. When we examine the mechanisms underlying these responses, we find that households expect higher interest rates to raise borrowing costs, increase unemployment, and lower stock prices. At the same time, they tend to expect higher interest rates to raise inflation over the following year. When we combine these expectation responses with estimated consumption functions, inflation expectations emerge as a central driver of the perceived effect of monetary policy on household spending.

These findings highlight that households appear to interpret monetary policy primarily through cost-based channels rather than through the intertemporal substitution mechanisms

emphasized in many macroeconomic models. Because expectations are a key input into forward-looking behavior, understanding how households form and update beliefs about monetary policy is essential for understanding the transmission of policy to the real economy.

These findings also raise questions about the role of communication in monetary policy transmission. When households learn about rate changes primarily through media coverage that emphasizes borrowing costs and the immediate effects on credit markets, the cost-channel interpretation we document may be amplified relative to what a fully informed household would conclude. This suggests that the inflation expectations channel we identify is not simply a structural feature of how households respond to monetary policy but may depend importantly on how policy actions are framed and transmitted to the public. A central bank that successfully communicates the disinflationary intent of rate hikes, and the mechanisms through which tighter policy reduces inflation, might induce households to revise their inflation expectations downward rather than upward, substantially altering the transmission channel and its quantitative importance. Conversely, relying on general media coverage to transmit the effects of policy changes risks reinforcing the cost-channel narrative, with households responding to higher rates by anticipating higher prices rather than lower ones. Understanding how communication shapes the relative importance of different transmission channels, and whether central banks can deliberately shift households away from the cost-channel interpretation, is therefore an important question for future work.

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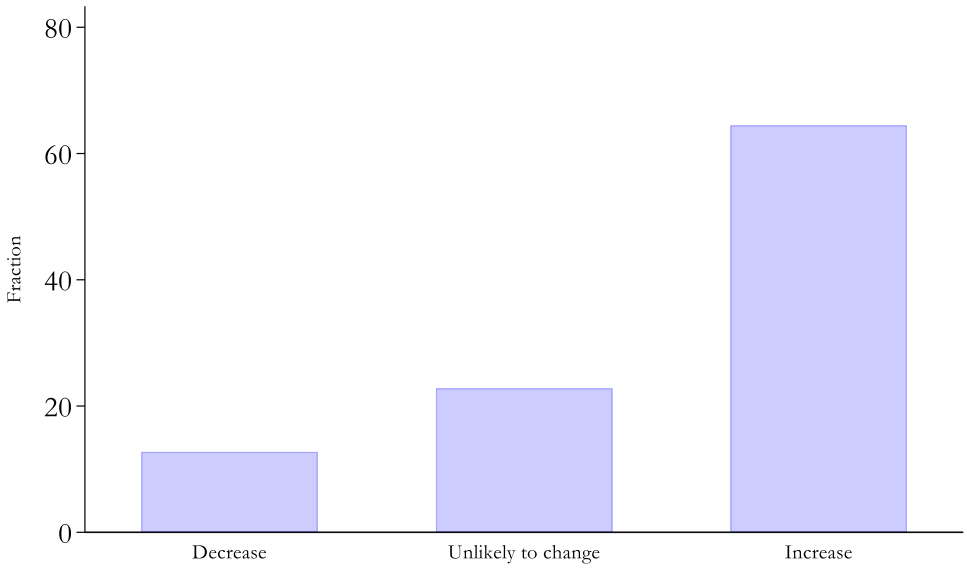
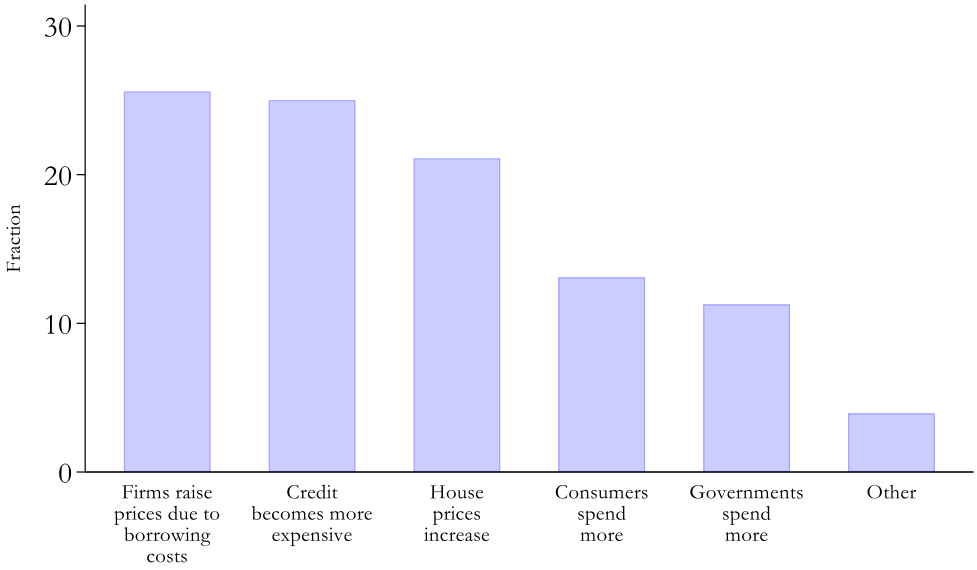
Figure 1. Hypothetical effects of FFR increases on consumer prices

Panel A. Expected impact on prices (percent of participants)



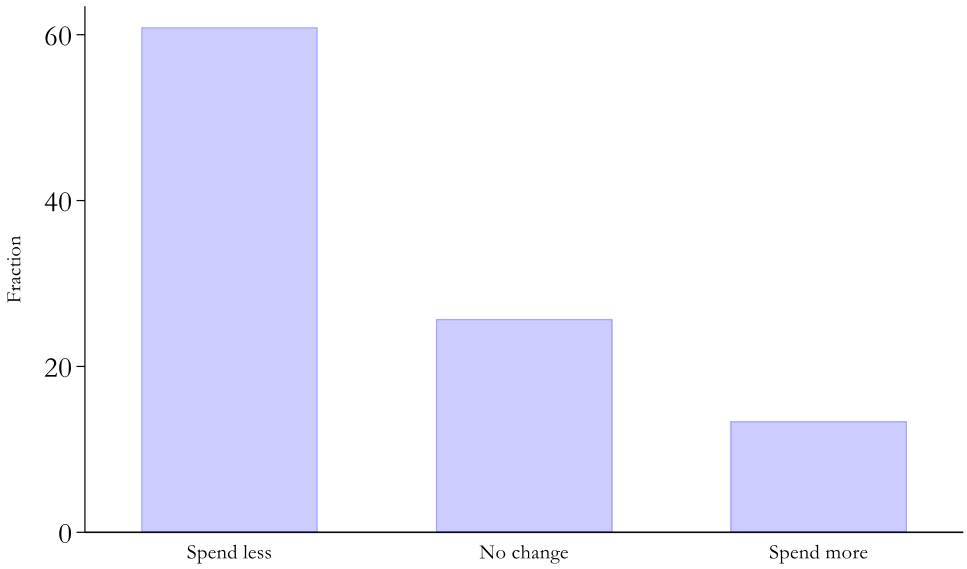
Panel B. Reasons to expect price increases (percent of answers)



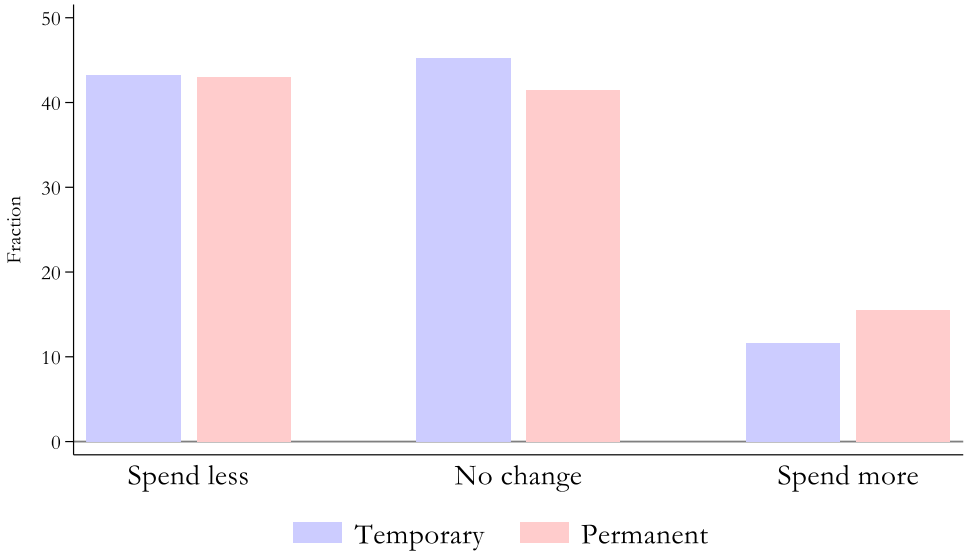
Notes: The figures report statistics obtained with sampling weights. When asked about the reasons for which they expect price increases, respondents could select multiple options. Panel B reports the shares of responses.

Figure 2. Hypothetical effects of inflation and interest rate changes on consumption

Panel A. Consumption response to higher inflation



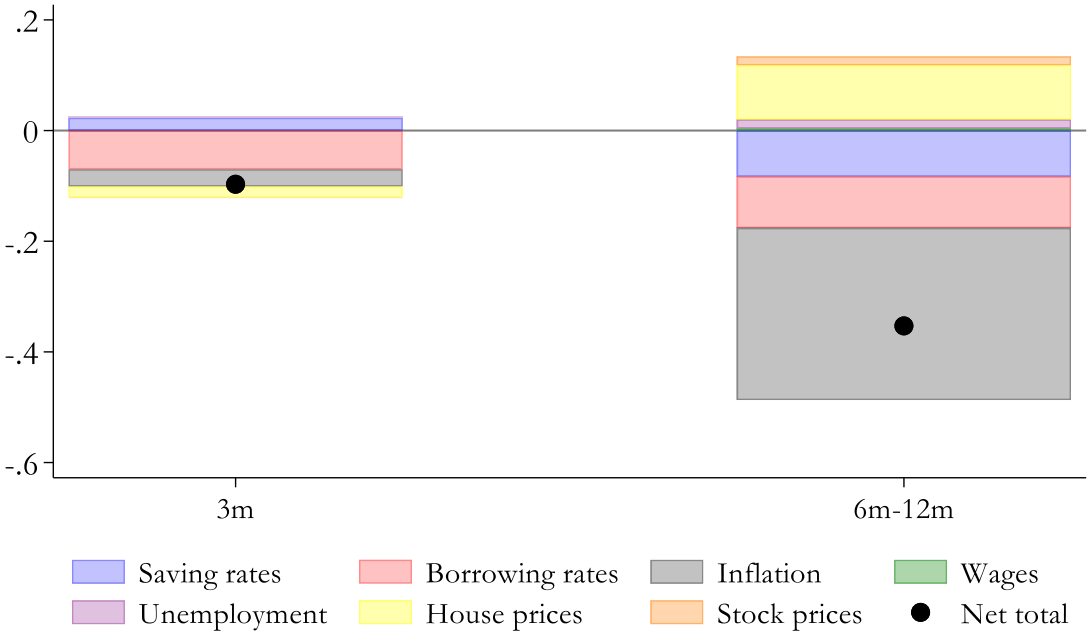
Panel B. Consumption response to higher saving interest rates



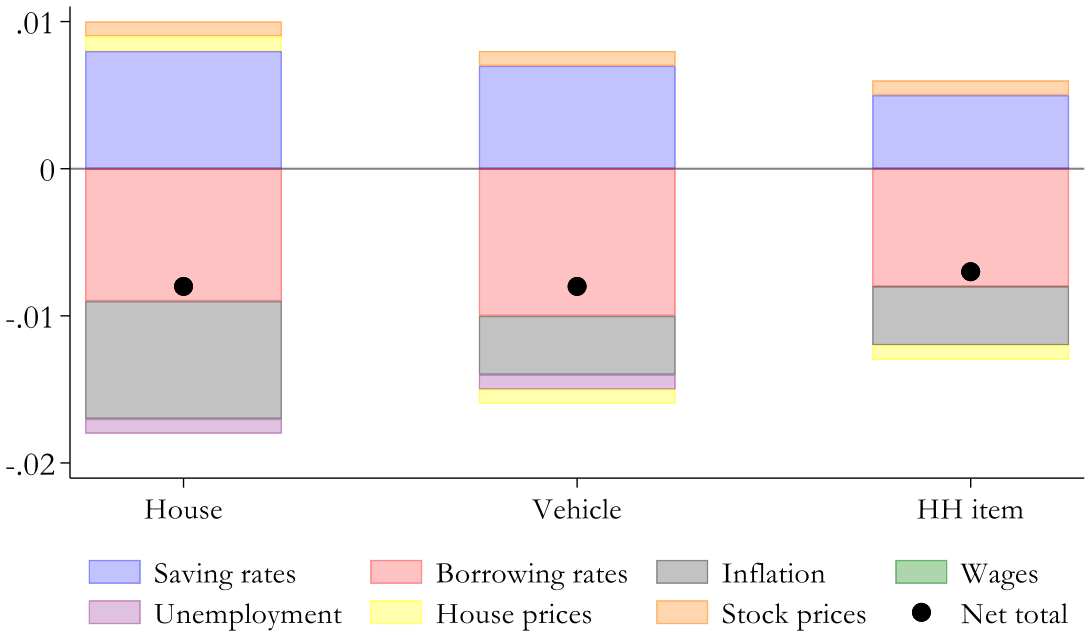
Notes: The figures report statistics obtained with sampling weights.

Figure 3: Monetary policy impact and transmission channels to household consumption

Panel A. Total consumption



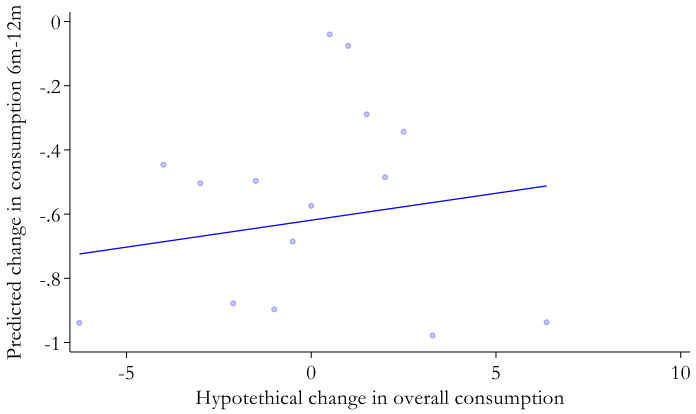
Panel B. Durable consumption



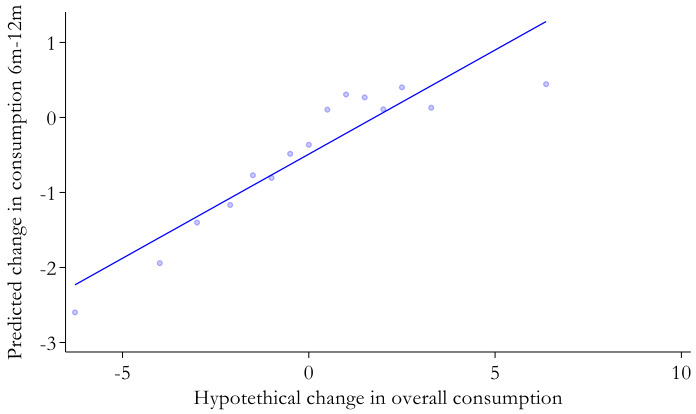
Notes: percent change in consumption (or the change in the likelihood category of durable consumption) as a result of a one percentage point increase in the FFR, obtained as the product between the coefficients of Table 5 and the coefficients of Table 6.

Figure 4: Hypothetical versus predicted change in overall consumption.

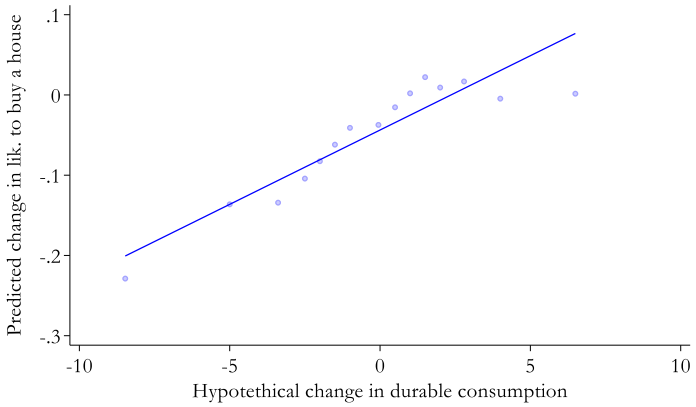
Panel A. Using all consumption function coefficients



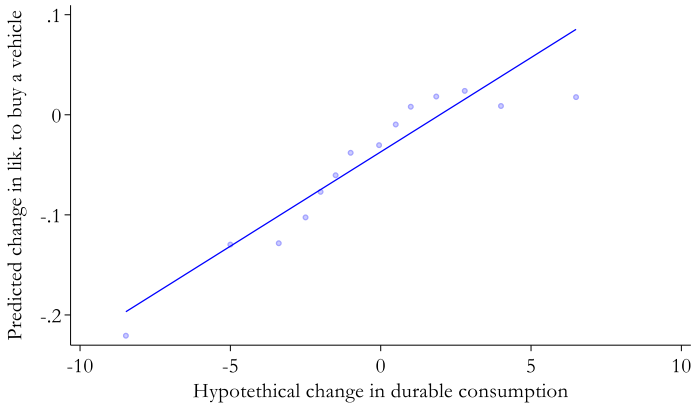
Panel B. Using only the statistically significant coefficients



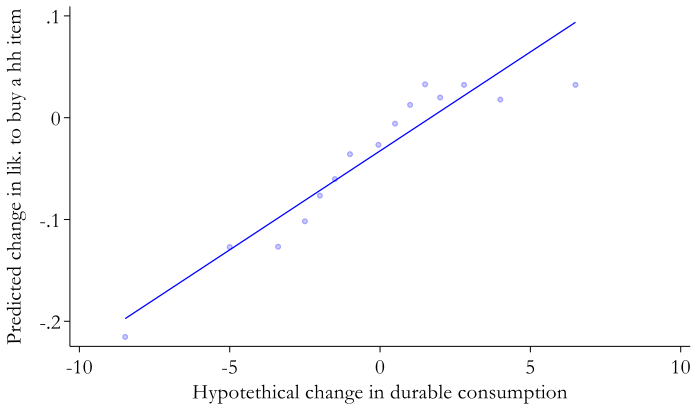
Panel C. Likelihood of buying a house



Panel D. Likelihood of buying a vehicle

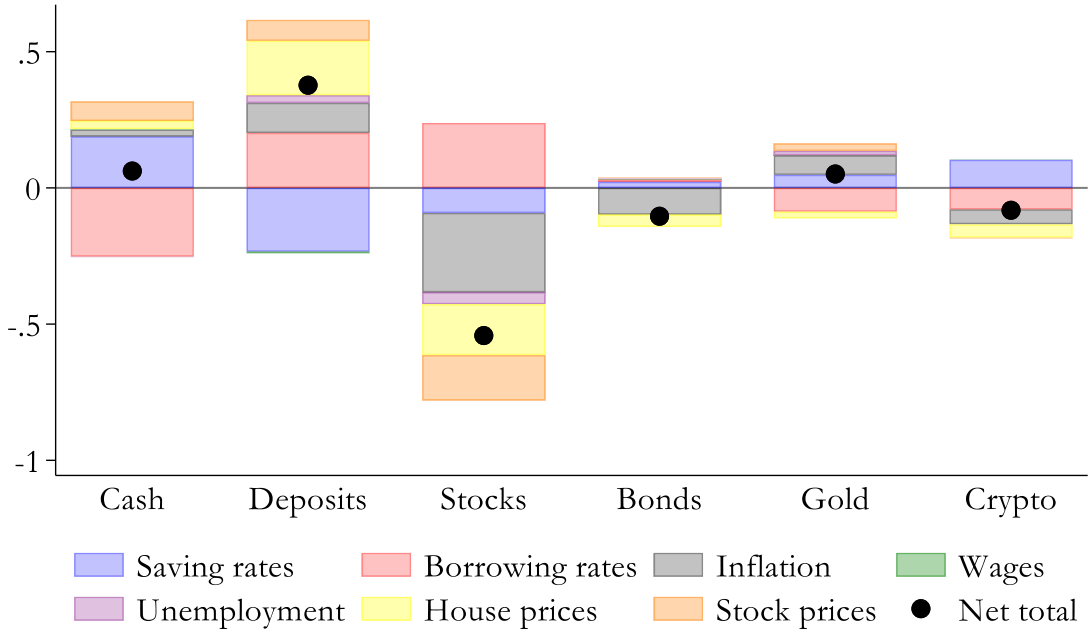


Panel E. Likelihood of buying a household item



Notes: the figures compare the hypothetical change in overall (durable) consumption in response to an FFR shock to the predicted change in consumption (likelihood to buy a durable good) under the same consumption function.

Figure 5: Monetary policy impact and transmission channels to household portfolios



Notes: percent change in portfolio allocation as a result of a one percentage point increase in the FFR, obtained as the product between the coefficients of Table 5 and the coefficients of Table 8.

Table 1: Households' consumption and economic perceptions and expectations

	Median	Mean	St.dev.
Average monthly consumption levels			
Over the last 12 months (pre-treatment)	$3,000	$3,665	$2,621
Expected over next 3 months (post-treatment)	$3,000	$3,746	$2,599
Expected over next 6–12 months (post-treatment)	$3,100	$3,867	$2,722
Over the last 3 months (2nd survey wave)	$3,100	$3,866	$2,755
Perceptions of current economic conditions (pre-treatment)			
Wage growth over last 12 months	2.0	3.0	4.5
Inflation over last 12 months	5.0	6.5	5.8
House price growth over last 12 months	5.0	8.2	7.7
Stock price growth over last 12 months	4.0	6.1	7.9
Current deposit rates	3.0	3.7	4.1
Current mortgage rates	6.0	6.3	4.4
Current unemployment rate	4.0	6.6	5.8
Current federal funds rate	4.5	5.3	4.5
Expectations of future economic conditions (post-treatment)			
Wage growth over next 12 months	2.0	3.1	4.5
Inflation over next 12 months	4.0	4.8	5.8
House price growth over next 12 months	4.0	5.4	7.7
Stock price growth over next 12 months	4.0	5.4	7.9
Deposit rates in 12 months	3.0	3.8	4.1
Mortgage rates in 12 months	5.0	6.1	4.4
Unemployment rate in 12 months	5.0	6.6	5.8

Notes: The table reports statistics obtained with sampling weights. Values for the variables collected before the information treatments are based on the full sample of respondents. Values for the variables collected after treatments and in the second survey wave are based only on the respondents in the control group.

Table 2: Hypothetical effects of FFR changes on consumption spending

	Overall	Durable	Asymmetries		Non-linearities	
			Overall	Durable	Overall	Durable
	(1)	(2)	(3)	(4)	(5)	(6)
Change in FFR	-0.079***	-0.132***				
	(0.007)	(0.007)				
Change in FFR × D (= positive FFR changes)			-0.121***	-0.133***		
			(0.032)	(0.032)		
Change in FFR × D (= negative FFR changes)			0.032	0.005		
			(0.029)	(0.029)		
Change in FFR × D (= small FFR change)					-0.112***	-0.205***
					(0.027)	(0.028)
Change in FFR × D (= medium FFR change)					-0.091***	-0.143***
					(0.011)	(0.012)
Change in FFR × D (= large FFR change)					-0.067***	-0.111***
					(0.011)	(0.011)
Observations	25,256	25,240	25,244	25,234	25,244	25,234
R-squared	0.093	0.089	0.097	0.090	0.097	0.090
Wald test pos-neg			12.691***	10.347***		
Wald test small-med					0.516	4.323**
Wald test medium-large					2.298	4.123**
Wald test small-large					2.363	10.097***

Notes: The table reports the results of Huber robust regressions with sampling weights. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. The regressions also control for the dummies used in the interaction terms. Robust standard errors are in parentheses. "Small FFR changes" refer to FFR changes by 1 percentage point in absolute value, "medium FFR changes" by 2 percentage points, and "large FFR changes" by 3 percentage points. ***, **,* denote statistical significance at 1, 5, and 10 percent levels.

Table 3: Hypothetical effects of FFR changes on consumption by respondents' characteristics

	Overall		Durable	
	(1)	(2)	(3)	(4)
Change in FFR	-0.013	0.040	-0.043***	0.047
	(0.011)	(0.029)	(0.010)	(0.029)
Change in FFR × knowledge of Fed and fin. lit.	-0.136***	-0.115***	-0.190***	-0.161***
	(0.014)	(0.016)	(0.014)	(0.016)
Change in FFR × woman		0.032**		0.017
		(0.015)		(0.015)
Change in FFR × 50 years old or older		-0.039**		-0.062***
		(0.017)		(0.017)
Change in FFR × married		-0.007		0.008
		(0.016)		(0.016)
Change in FFR × with children		0.004		-0.013
		(0.016)		(0.016)
Change in FFR × non-white		0.031*		0.020
		(0.018)		(0.018)
Change in FFR × democrat		0.013		0.016
		(0.018)		(0.018)
Change in FFR × republican		-0.043**		-0.024
		(0.018)		(0.018)
Change in FFR × employed		0.008		-0.006
		(0.017)		(0.017)
Change in FFR × graduate education		-0.039**		-0.028*
		(0.016)		(0.016)
Change in FFR × above median income		-0.022		-0.011
		(0.033)		(0.034)
Change in FFR × above median wealth		0.046***		0.006
		(0.017)		(0.017)
Change in FFR × with debt		-0.077***		-0.089***
		(0.016)		(0.016)
Observations	25,243	25,241	25,227	25,226
R-squared	0.101	0.103	0.098	0.100

Notes: The table reports the results of Huber robust regressions with sampling weights. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. The regressions also control for the dummies used in the interaction terms. Heteroskedasticity robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

Table 4: Impact of FFR treatment on self-reported past consumption

	All respondents		With Fed knowledge and fin. lit.	
	Percent change in consumption	Durable consumption	Percent change in consumption	Durable consumption
	(1)	(2)	(3)	(4)
T FFR x D (= positive FFR shocks)	0.993	0.006	3.588	-0.031**
	(2.041)	(0.015)	(2.402)	(0.015)
T FFR x D (= negative FFR shocks)	4.062*	0.026	5.037*	0.044**
	(2.332)	(0.019)	(2.785)	(0.021)
Observations	1,570	1,903	888	1,043
R-squared	0.018	0.417	0.042	0.321
Wald test pos-neg	0.968	0.694	0.157	8.303***

Notes: The table reports the results of OLS regressions with sampling weights. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. The regressions also control for the dummies used in the interaction terms. Heteroskedasticity robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

Table 5: Hypothetical effects of FFR changes on household expectations

	Saving interest rates	Borrowing interest rates	Consumer prices	Wages	Unemp. rate	House prices	Stock prices
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Change in FFR	0.210***	0.291***	0.245***	0.003	0.150***	0.203***	-0.072***
	(0.007)	(0.009)	(0.007)	(0.006)	(0.007)	(0.009)	(0.008)
Observations	25,258	25,259	25,243	25,132	25,257	25,257	25,257
R-squared	0.129	0.133	0.127	0.081	0.085	0.097	0.083
Change in FFR × D (= positive FFR changes)	0.162***	0.213***	0.310***	0.028	0.135***	0.227***	-0.026
	(0.031)	(0.038)	(0.031)	(0.026)	(0.031)	(0.037)	(0.033)
Change in FFR × D (= negative FFR changes)	0.272***	0.240***	0.132***	0.028	0.058**	0.104***	-0.015
	(0.029)	(0.034)	(0.029)	(0.025)	(0.029)	(0.035)	(0.032)
Observations	25,257	25,259	25,249	25,127	25,255	25,257	25,257
R-squared	0.146	0.138	0.153	0.096	0.092	0.121	0.089
Wald test	6.673***	0.284	17.665***	0.000	3.253*	5.854**	0.055

Notes: The table reports the results of Huber robust regressions with sampling weights. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. Heteroskedasticity robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

Table 6: IV-based estimation of the consumption function

	Percent change in consumption		Time to buy durables		
	3m	6m-12m	House	Vehicle	HH item
	(1)	(2)	(3)	(4)	(5)
Posterior beliefs about saving interest rates	0.110	-0.393	0.039***	0.035***	0.023***
	(0.216)	(0.309)	(0.007)	(0.008)	(0.008)
Posterior beliefs about borrowing interest rates	-0.241	-0.319	-0.032***	-0.034***	-0.028***
	(0.159)	(0.250)	(0.005)	(0.006)	(0.006)
Posterior beliefs about inflation	-0.127	-1.267***	-0.034***	-0.015	-0.016
	(0.196)	(0.324)	(0.008)	(0.011)	(0.011)
Posterior beliefs about wage growth	-0.017	1.409***	0.109***	0.098***	0.100***
	(0.253)	(0.387)	(0.009)	(0.011)	(0.011)
Posterior beliefs about unemployment rate	0.010	0.104	-0.009***	-0.008***	-0.002
	(0.060)	(0.107)	(0.002)	(0.002)	(0.003)
Posterior beliefs about house price change	-0.099	0.481**	0.004	-0.006	-0.007
	(0.131)	(0.224)	(0.005)	(0.007)	(0.007)
Posterior beliefs about stock price change	0.017	-0.219	-0.018***	-0.009**	-0.009*
	(0.097)	(0.146)	(0.004)	(0.005)	(0.005)
Prior on good time to buy house			0.249***		
			(0.009)		
Prior on good time to buy vehicle				0.317***	
				(0.009)	
Prior on good time to buy major HH item					0.324***
					(0.008)
Observations	13,952	13,837	16,750	16,750	16,744
R-squared	0.006	0.007	0.197	0.213	0.211
F-statistic	29.70	29.29	32.66	32.65	32.87

Notes: The table reports the results of IV regressions using Huber robust regressions with sampling weights and a jackknife procedure. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. Heteroskedasticity robust standard errors are in parentheses. ***, **,* denote statistical significance at 1, 5, and 10 percent levels.

Table 7: Impact of FFR changes on labor decisions, shopping habits, and debt management

	Ask for pay raise	Look for a higher-paying job	Work more hours	Look for deals	Save more money	Take on more debt	Pay down credit card	Pay down mortgage	Refinance mortgage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Change in FFR	0.042***	0.039***	0.043***	0.060***	-0.031***	0.008***	-0.010***	-0.023***	-0.049***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Observations	26,030	26,030	26,030	26,030	26,030	26,030	26,030	26,030	26,030
R-squared	0.192	0.207	0.193	0.038	0.089	0.102	0.038	0.097	0.122
Change in FFR × D (= pos. FFR changes)	0.055***	0.042***	0.044***	0.023**	-0.015	0.004	0.013	0.005	0.008
	(0.011)	(0.011)	(0.011)	(0.010)	(0.011)	(0.012)	(0.012)	(0.011)	(0.011)
Change in FFR × D (= neg. FFR changes)	-0.024**	-0.041***	-0.023**	-0.029***	-0.038***	-0.044***	-0.034***	-0.024**	-0.077***
	(0.029)	(0.034)	(0.029)	(0.025)	(0.029)	(0.035)	(0.012)	(0.012)	(0.012)
Observations	26,030	26,030	26,030	26,030	26,030	26,030	26,030	26,030	26,030
R-squared	0.895	0.904	0.904	0.932	0.917	0.835	0.892	0.867	0.846
Wald test	26.430***	27.179***	17.805***	11.521***	2.252	8.434***	7.408***	3.373*	27.033***

Notes: The table reports the results of Huber robust regressions with sampling weights. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. Heteroskedasticity robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

Table 8: IV-based estimation of the portfolio allocation function

	Cash	Deposits	Stocks	Bonds	Gold	Crypto
	(1)	(2)	(3)	(4)	(5)	(6)
Posterior beliefs about saving rates	0.901***	-1.115***	-0.438**	0.104	0.231**	0.489***
	(0.218)	(0.290)	(0.190)	(0.087)	(0.105)	(0.105)
Posterior beliefs about borrowing rates	-0.866***	0.693***	0.817***	0.027	-0.300***	-0.272***
	(0.165)	(0.222)	(0.137)	(0.064)	(0.083)	(0.079)
Posterior beliefs about inflation	0.100	0.448	-1.184***	-0.400***	0.290**	-0.219*
	(0.269)	(0.425)	(0.277)	(0.110)	(0.142)	(0.117)
Posterior beliefs about wage growth	0.606**	-2.092***	-0.150	0.955***	0.467***	0.684***
	(0.292)	(0.401)	(0.259)	(0.120)	(0.146)	(0.141)
Posterior beliefs about unemployment rate	-0.017	0.189*	-0.290***	0.019	0.109***	-0.004
	(0.068)	(0.096)	(0.055)	(0.028)	(0.035)	(0.031)
Posterior beliefs about house price change	0.149	0.982***	-0.920***	-0.221***	-0.125	-0.234***
	(0.185)	(0.297)	(0.192)	(0.073)	(0.089)	(0.079)
Posterior beliefs about stock price change	-0.982***	-1.076***	2.313***	-0.042	-0.382***	0.064
	(0.110)	(0.187)	(0.161)	(0.054)	(0.059)	(0.059)
Share of deposits in total assets	0.023**	0.098***	-0.134***	-0.010***	0.013***	0.015***
	(0.009)	(0.012)	(0.008)	(0.004)	(0.004)	(0.004)
Observations	16,713	16,757	16,728	16,695	16,686	16,686
R-squared	0.048	0.079	0.102	-0.001	0.031	0.102
F-statistic	31.83	31.97	32.28	31.35	31.35	33.32

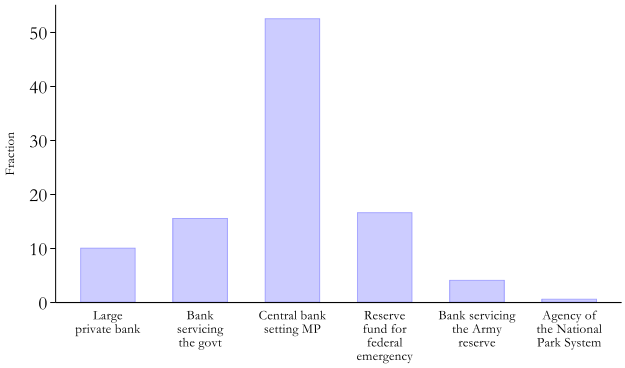
Notes: The table reports the results of Huber robust regressions with sampling weights. All regressions include controls for gender, age, income, education, number of children, employment status, political affiliation, and race. Heteroskedasticity robust standard errors are in parentheses. ***, **, * denote statistical significance at 1, 5, and 10 percent levels.

Online Appendix

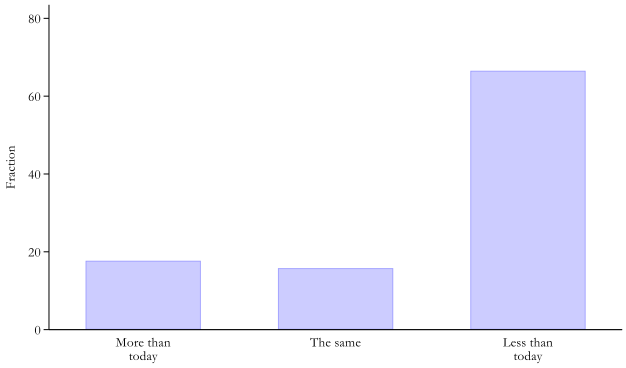
Appendix A. Additional tables and figures

Appendix Figure 1: Knowledge of the Federal Reserve (percent of respondents)

Panel A. What is the Fed?



Panel B. Financial literacy



Notes: The figures report statistics with sampling weights. The left panel is based on question 3 in the first wave survey. The right panel reports answers to question 4 “Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?”

Appendix Table 1: Composition of the respondents' sample

	U.S. Population	Wave 1	Wave 2
Age group			
25-29	11.1	10.6	4.5
30-39	23.6	24.5	14.5
40-49	21.5	23.3	20.3
50-59	21.0	18.9	23.6
60-65	13.1	11.4	17.5
66-70	9.6	11.3	19.6
Gender			
Men	49.3	45.4	46.0
Women	50.7	54.6	54.0
Race			
White	59.6	70.4	75.1
Other	40.4	29.6	24.9
Employment status			
Employed	71.5	74.3	65.7
Unemployed and other	28.5	25.7	34.3
U.S. population (thousands)	268,571k		
U.S. age 25-70 (thousands)	188,998k		
Sample size		26,915	4,651

Notes: U.S. statistics are from CPS-ASEC dataset (as of March 2024). National statistics for the U.S. population from the BLSE dataset for 2023.

Appendix Table 2: Survey respondents' financial conditions

	Percentage of respondents		Percentage of respondents
After-tax income		*Bank deposits*	
Less than 20k	5.8%	Less than 10k	19.0%
20k-50k	25.6%	10k-25k	12.6%
50k–100k	38.9%	25k–50k	8.8%
100k–200k	24.8%	50k–75k	6.8%
More than 200k	4.8%	75k–100k	8.2%
		100k–250k	6.3%
		More than 250k	38.3%
Housing situation			
Owners	67.1%	*Other financial assets*	
Renters and others	32.9%	Less than 10k	36.4%
		10k-25k	12.3%
		25k–50k	8.5%
Debt holders		50k–75k	6.4%
Fixed rate mortgage	36.7%	75k–100k	5.9%
Variable rate mortgage	4.9%	100k–200k	9.1%
Credit card debt and loans	56.8%	More than 200k	21.3%

Notes: The table reports statistics obtained with sampling weights.

Appendix B. First wave survey questionnaire

Screening questions

- Do you have bank deposits of at least 2,000 dollars?
  [yes, no]

  Disregard respondents with no banking deposits

- The next question is about the following problem. In questionnaires like ours, sometimes there are participants who do not carefully read the questions and just quickly click through the survey. This means that there are a lot of random answers which compromise the results of research studies. To show that you read our questions carefully, please enter turquoise as your answer to the next question instead of your favorite color. What is your favorite color?
  [yellow, red, green, turquoise, blue, brown, grey, black, other]

  Disregard respondents that do not select "turquoise"

Introductory note

Thank you very much for participating in this survey, which is expected to take about 10/15 minutes. The survey is designed to gather your perspectives on how the economy works and your consumption behavior. As such, there are no correct or incorrect responses. We would be grateful if you could answer the questions in a single session without distractions. We highly value your time and attention.

2. How old are you?
   [XXX] years old

Fed knowledge and financial literacy

3. What do you think the U.S. Federal Reserve (also known as the Fed) is?
   [**randomize:** One of the largest private banks in the US, a bank that provides services to the federal government, the US central bank setting monetary policy, a reserve fund to be used in case of a federal emergency, a bank that provides services to members of the United States Army Reserve, an agency of the National Park System]

4. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
   [more than today, the same, less than today]

In the next few questions, we would like to learn more about your **household's recent consumption**.

Pre-treatment consumption and saving decisions

5. Thinking about the past 12 months, how much money has your household generally **spent** <u>per month</u> on the following categories?
   a. Rent or mortgage payments $[XXX]
   b. Utilities $[XXX]
   c. Food $[XXX]
   d. Childcare and education $[XXX]

e. Healthcare (insurance payments and out-of-pocket expenses) $[XXX]
f. Gas, diesel, and other fuel $[XXX]
g. Everything else $[XXX]

6. Based on your answers, your household generally spends $[XXX] per month. Does this seem correct, or would you like to change it?
[Correct, change to $XXX per month]

7. Thinking again about the past 12 months, how much money has your household generally **saved** per month?
$[XXX] per month

8. Do you think now is a good or bad time for people like you to buy any of the following items?
   a. A house [good time, bad time, I don't know]
   b. New vehicle (car, pickup, van or SUV) [good time, bad time, I don't know]
   c. Major household items (furniture, appliances) [good time, bad time, I don't know]

Hypothetical questions to assess consumption function

* = Q5 answer, **randomize** & = {increases, decreases}; **randomize** # = {1, 2, 5};

9. [Respondents are randomly split in 4 groups]

   a. You said that your household average consumption is **$[*]** per month. Assume that your **household net income & by #%** next year more than you currently expect. If all other economic conditions (for example, inflation and interest rates) continue to evolve as you expect, what would be your new monthly consumption?
   [New consumption: $[XXX] per month]

   b. You said that your household average consumption is **$[*]** per month. Assume that **consumer prices & by #%** next year more than you currently expect. If all other economic conditions (for example, your income and interest rates) continue to evolve as you expect, what would be your new monthly consumption?
   [New consumption: $[XXX] per month]

   c. You said that your household average consumption is **$[*]** per month. Assume that the **interest rate on your savings & by # percentage points** per year. If all other economic conditions (for example, your income and inflation) continue to evolve as you expect, what would be your new consumption in the next 3 months and then in the next 6-12 months:
      - New consumption in the next 3 months: $[XXX] per month
      - New consumption in the next 6-12 months: $[XXX] per month

   d. You said that your household average consumption is **$[*]** per month. Assume that the **interest rate on your debt** (credit card, mortgage) **& by # percentage points** per year. If all other economic conditions (for example, your income and inflation) continue to evolve as you expect, what would be your new monthly consumption?
   [New consumption: $[XXX] per month]

Hypothetical questions to assess monetary policy effects

Thank you for your answers so far. Now we would like to understand how decisions by the **Federal Reserve (or the Fed)** affect your perceptions about the economic outlook and your behavior. The Fed is the central bank of the United States, tasked to set monetary policy to control inflation and support employment. The Fed conducts monetary policy by changing the **Federal Funds Rate**. This is an interest rate that affects saving and borrowing rates in the economy.

By doing so, the Fed influences the cost at which people borrow money or the interest income that people earn on their savings.

10. Can you guess the level of inflation targeted by the Fed?
    [XXX %, I don't know]

    For Q10-Q13, the values for & and # were assigned as follows.

    For all people in the control group (i) and treatment group (ii), & = increase and # = 2.

    For people in the other treatment groups, **randomize:** {& = increase, # = 1}, {& = increase, # = 3}, {& = decrease, # = 1}, {& = decrease, # = 2}, {& = decrease, # = 3}

    In Q10, Q11, and Q12, respondents were provided with a drop-down menu ranging from -10 to 10 to record their answers.

11. Suppose **the Fed unexpectedly & the Federal Funds Rate by # percentage points**. What do you think would be the impact on the following interest rates? Please use positive values for increases and negative for decreases.
    a. Interest rates on bank deposits — Change by [XXX] percentage points
    b. 30-year fixed mortgage rates — Change by [XXX] percentage points

12. Please think now about the effects on the broader economy. **If the Fed were to unexpectedly & the Federal Funds Rate by # percentage points**, what would be the impact on the following economic conditions over 1 year? Please use positive values for increases and negative for decreases.
    a. Wages — Change by [XXX] %
    b. Consumer prices — Change by [XXX] %
    c. House prices — Change by [XXX] %
    d. Stock prices — Change by [XXX] %
    e. Unemployment rate — Change by [XXX] percentage points

13. Finally, please think how you would personally react. **If the Fed were to unexpectedly & the Federal Funds Rate by # percentage points**, how would you change your consumption? Please use positive values for increases and negative for decreases.
    a. Overall spending — Change by [XXX] %
    b. Spending on durable goods — Change by [XXX] %
    (for example cars, electronics, furniture, home appliances)

14. **If the Fed were to unexpectedly & the Federal Funds Rate by # percentage points**, how likely would you be to do the following?
    j. Ask for a pay raise — [Not likely at all, unlikely, likely, very likely]
    k. Look for a higher paying job — [Not likely at all, unlikely, likely, very likely]
    l. Work more hours — [Not likely at all, unlikely, likely, very likely]
    m. Pay down my mortgage — [Not likely at all, unlikely, likely, very likely]
    n. Refinance my mortgage — [Not likely at all, unlikely, likely, very likely]
    o. Pay down credit card debt — [Not likely at all, unlikely, likely, very likely]
    p. Take on more debt — [Not likely at all, unlikely, likely, very likely]
    q. Look for deals — [Not likely at all, unlikely, likely, very likely]
    r. Save more money — [Not likely at all, unlikely, likely, very likely]

Pre-treatment beliefs

In the next few questions, we would like to learn about your perceptions regarding **the current economic situation**.

15. How do you think these economic indicators have changed over the past 12 months? Please use positive values for increases and negative for decreases.
    a. Wages — Changed by [XXX] %

b. Consumer prices — Changed by [XXX] %
c. House prices — Changed by [XXX] %
d. Stock prices — Changed by [XXX] %

16. What do you think the current level of these economic indicators is?
    a. Interest rates on bank deposits — [XXX] %
    b. 30-year fixed mortgage rates — [XXX] %
    c. Unemployment rate — [XXX] %

17. What do you think the current level of the Federal Funds Rate is? This is the interest rate set by the Fed. [XXX] %

Information treatments

[Respondents are randomly split in 9 groups. The control (i) and FFR treatment (ii) groups include 22% of the respondents each. The other groups include 8% of the respondents each.]

So far, we have collected information about your recent consumption level and perceptions about the economic situation. In the remaining few questions, we would like you to **think about the future**, to learn more about your perceptions of the economic outlook and consumption plans.

i. [No information provided to Control group]

Monetary policy

ii. As you think about your answers, please consider that **the current Federal Funds Rate (the interest rate set by the Fed) is 4.6%.**

Labor income

iii. As you think about your answers, please consider that **over the past 12 months, wages have increased by 4.2%.**
iv. As you think about your answers, please consider that **the current unemployment rate is 4.1%.**

Inflation

v. As you think about your answers, please consider that **over the past 12 months, consumer prices have increased by 2.1%.** This is also known as the current inflation rate.

Interest rates

vi. As you think about your answers, please consider that **current average interest rates on bank deposits are 0.5%.**
vii. As you think about your answers, please consider that **the current interest rate on a 30-year fixed-rate mortgage is 6.8%.**

Asset prices

viii. As you think about your answers, please consider that **over the past 12 months, house prices have increased by 5.9%**.
ix. As you think about your answers, please consider that **over the past 12 months, stock prices have increased by 35%**.

Post-treatment expectations and intentions

Expectations

18. How do you expect that these economic indicators will vary over the next 12 months? Please use positive values for increases and negative for decreases.
    a. Wages — Will change by [XXX] %
    b. Consumer prices — Will change by [XXX] %
    c. House prices — Will change by [XXX] %
    d. Stock prices — Will change by [XXX] %

19. What do you think will be the level of these economic indicators in 12 months?
    a. Interest rates on bank deposits — [XXX] %
    b. 30-year fixed mortgage rates — [XXX] %
    c. Unemployment rate — [XXX] %

Consumption intentions

20. Earlier in the survey, you mentioned that over the last year your household average consumption was **$[*]** per month. Thinking about the future, what do you expect will happen to your monthly household consumption in the next 3 months and then between 6 and 12 months from now?
    a. Consumption in the next 3 months: — $[XXX] per month
    b. Consumption in the next 6-12 months: — $[XXX] per month

21. How likely are you to purchase any of the following items over the next 3 months?
    d. A house — [Not likely at all, unlikely, likely, very likely]
    e. New vehicle (car, pickup, van or SUV) — [Not likely at all, unlikely, likely, very likely]
    f. Major household items (furniture, appliances) — [Not likely at all, unlikely, likely, very likely]

Labor market and borrowing intentions

22. How likely are you to do the following over the next 3 months?
    a. Ask for a pay raise — [Not likely at all, unlikely, likely, very likely]
    b. Look for a higher paying job — [Not likely at all, unlikely, likely, very likely]
    c. Work more hours — [Not likely at all, unlikely, likely, very likely]
    d. Pay down my mortgage — [Not likely at all, unlikely, likely, very likely]
    e. Refinance my mortgage — [Not likely at all, unlikely, likely, very likely]
    f. Pay down credit card debt — [Not likely at all, unlikely, likely, very likely]
    g. Take on more debt — [Not likely at all, unlikely, likely, very likely]
    h. Shop more intensively looking for deals — [Not likely at all, unlikely, likely, very likely]
    i. Save more money — [Not likely at all, unlikely, likely, very likely]

Investment intentions

23. Imagine that you receive a one-time gift of $10,000 to save or invest in financial assets. Please indicate how you would allocate this amount across these asset categories. Note that your answers should sum to $10,000.
    a. Cash — $[XXX]
    b. Bank deposits or money market accounts — $[XXX]
    c. Stocks — $[XXX]
    d. Bonds — $[XXX]
    e. Gold and precious metals — $[XXX]
    f. Bitcoin and/or other crypto assets — $[XXX]
    Total (should sum up to $10,000) — $[XXX]

Additional background information

We would like to conclude the survey by gathering some background information about yourself.

Demographic information

24. Where do you currently live?
    [US states and DC]

25. What is your gender?
    [man, woman, other]

26. What is your marital status?
    [Single, married, legally separated or divorced, widowed]

27. How many children do you have?
    [XXX] children

28. What is your race/ethnicity?
    [white, African American/black, Hispanic/Latino, Asian/Asian American, mixed race, other]

Education

29. What is the highest level of formal education you attained?
    [primary education or less, some high school, high school degree/GED, some college, 2-year college degree, 4-year college degree, master's degree, doctoral degree, professional degree (JD, MD, MBA)]

Political leaning

30. Generally speaking, do you think of yourself as a…?
    [Democrat, Republican, Independent, Other]

Economic information

31. What is your current employment status?
    [Full-time employee, part-time employee, self-employed or business owner, unemployed and looking for work, student, not working and not looking for a job, retiree]

    [*If employed*]

    a. How many jobs do you have?
       [XXX] jobs
    b. How many hours do you work in a typical week?
       [XXX] hours
    c. Are you able to adjust your salary by working more or fewer hours?
       [Yes, I can choose my hours; No, my employer sets my hours]

32. What is your annual net household income (that is, after taxes and retirement deductions)?
    [0 - 20k, 20k - 50k, 50k - 100k, 100k - 200k, above 200k]

33. How much money does your household have in bank deposits?
    [0 - 10k, 10k - 25k, 25k - 50k, 50k - 75k, 75k - 100k, 100k - 250k, above 250k]

34. How much money does your household have in other financial assets (such as brokerage accounts, retirement accounts, gold, crypto assets, etc.)?
    [0 - 10k, 10k - 25k, 25k - 50k, 50k - 75k, 75k - 100k, 100k - 200k, 200k - 500k, 500k - 1m, above 1m]

35. What is your housing situation (house, apartment)?
    [own with fixed-rate mortgage; own with adjustable-rate mortgage; own without mortgage; rent; social housing; other]

    [*If "own without mortgage"*]
    a. How much is the value of your house/apartment?
       $[XXX]

    [*If "own with fixed-rate mortgage" OR "own with adjustable-rate mortgage"*]

a. How much is the value of your house/apartment?
   $[XXX]
b. What is the residual unpaid value of the mortgage on your house/apartment?
   $[XXX]

36. How much credit card debt or consumer loans (excluding mortgages) do you have?
    [$XXX, no debt]

37. In which year were you born?
    [XXX]

Appendix C. Second wave survey questionnaire

Introductory note

Thank you very much for participating in this survey, which is expected to take about 5-7 minutes. This survey follows up on the questionnaire that you completed last November. It is designed to gather information about your recent spending decisions and your perspectives on the economy. We would be grateful if you could answer the questions in a single session without distractions. We highly value your time and attention.

Decisions since 1st survey wave

1. Thinking about the **past 3 months**, how much money has your household generally spent per month on the following categories?

a.	Rent or mortgage payments	$[XXX]
b.	Utilities	$[XXX]
c.	Food	$[XXX]
d.	Childcare and education	$[XXX]
e.	Healthcare (insurance payments and out-of-pocket expenses)	$[XXX]
f.	Gas, diesel, and other fuel	$[XXX]
g.	Everything else	$[XXX]

2. Based on your answers, your household has generally spent $[XXX] per month, during the past 3 months. Does this seem correct, or would you like to change it?
[Correct, change to $XXX per month]

3. Thinking again about the **past 3 months**, have you purchased any of the following items?

g.	A house	[yes, no]
h.	New vehicle (car, pickup, van or SUV)	[yes, no]
i.	Major household items (furniture, appliances)	[yes, no]

4. Over the **past 3 months**, have you done any of the following?

j.	Asked for a pay raise	[yes, no]
k.	Looked for a higher paying job	[yes, no]
l.	Worked more hours than in the past	[yes, no]
m.	Paid down my mortgage	[yes, no]
n.	Refinanced my mortgage	[yes, no]
o.	Paid down credit card debt	[yes, no]
p.	Taken on more debt	[yes, no]
q.	Searched more intensively for deals than in the past	[yes, no]
r.	Saved more money than in the past	[yes, no]

Portfolio allocation

5. How are your savings (including retirement accounts) allocated across the following categories? Please note that the sum should add up to 100%.

g.	Cash	[XXX]%
h.	Bank deposits or money market accounts	[XXX]%
i.	Stocks	[XXX]%
j.	Bonds	[XXX]%
k.	Gold and precious metals	[XXX]%
l.	Bitcoin and/or other crypto assets	[XXX]%
	Total (should sum up to 100%)	[XXX]%

Perceptions of economic conditions

Now, we would like to learn about your views on the economy.

6. How do you think these economic indicators have changed **over the past 12 months**? Please use positive values for increases and negative for decreases.
   e. Wages — Changed by [XXX] %
   f. Consumer prices — Changed by [XXX] %
   g. House prices — Changed by [XXX] %
   h. Stock prices — Changed by [XXX] %

7. What do you think the **current level** of these economic indicators is?
   d. Interest rates on bank deposits — [XXX] %
   e. 30-year fixed mortgage rates — [XXX] %
   f. Unemployment rate — [XXX] %

8. What do you think the **current level** of the Federal Funds Rate is? This is the interest rate set by the Federal Reserve (or the Fed) to conduct monetary policy.
   [XXX] %

Hypothetical questions

In the next few questions, we would like you to consider a few simple hypothetical scenarios.

9. [Split survey participants in 2 groups]

   a. Suppose that **consumer prices start to increase at a faster pace** while other economic conditions (your income, the unemployment rate, interest rates, etc.) continue to evolve as you expect. How would you adjust your consumption spending over the next 3 months?
      - I would spend less
      - I would not change my spending
      - I would spend more

   b. Suppose that **consumer prices start to increase at a faster pace** while other economic conditions (your income, the unemployment rate, interest rates, etc.) continue to evolve as you expect. How would you adjust your consumption spending over the next 3 months?
      - I would spend less and save more to cope with higher future costs
      - I would not change my spending
      - I would spend more to buy more goods before prices increase further

Now, please consider if and how you would adjust your consumption spending if **the interest rate on your savings accounts were to increase**. We will first ask about a scenario where the interest rate increases only temporarily, and then about a scenario where the interest rate increases permanently.

[For Q10 and Q11, split survey participants in 2 groups. The first group should receive Q10a and Q11a. The second group should receive Q10b and Q11b.]

10.
   a. Suppose that the **interest rate on your saving account increases temporarily**, say for 3 months, while other economic conditions (consumer prices, your income, the unemployment rate, etc.) continue to evolve as you expect. How would you adjust your consumption spending over the next 3 months?
      - I would spend less

- I would not change my spending
- I would spend more

b. Suppose that the **interest rate on your saving account increases temporarily**, say for 3 months, while other economic conditions (consumer prices, your income, the unemployment rate, etc.) continue to evolve as you expect. How would you adjust your consumption spending over the next 3 months?
   - I would spend less to place more money in my saving account given the higher interest rate
   - I would not change my spending
   - I would spend more since I would earn more interest income on my deposits

11.

a. Suppose that the **interest rate on your saving account increases permanently** while other economic conditions (consumer prices, your income, the unemployment rate, etc.) continue to evolve as you expect. How would you adjust your consumption spending over the next 3 months?
   - I would spend less
   - I would not change my spending
   - I would spend more

b. Suppose that the **interest rate on your saving account increases permanently** while other economic conditions (consumer prices, your income, the unemployment rate, etc.) continue to evolve as you expect. How would you adjust your consumption spending over the next 3 months?
   - I would spend less to place more money in my saving account given the higher interest rate
   - I would not change my spending
   - I would spend more since I would earn more interest income on my deposits

Finally, we would like to ask you about the effects of the Federal Reserve's decisions. The Federal Reserve (or the Fed) is the central bank of the United States, tasked to set monetary policy. The Fed controls the **Federal Funds Rate** which influences the cost at which people borrow money and the interest income that people earn on their savings.

12. Suppose the **Fed unexpectedly increases the Federal Funds Rate.** What do you think is more likely to happen to consumer prices?
    a. Consumer prices would decrease
    b. Consumer prices are unlikely to change
    c. Consumer prices would increase

    [If a.]

    Why do you think that prices would decrease if the Fed were to raise the Federal Funds Rate? Select all that apply: [randomize]

    a) Firms would lower prices because of lower borrowing costs
    b) House prices would decrease
    c) Consumers would spend less
    d) Governments would spend less
    e) Credit would become less expensive
    f) Other

    [If c.]

    Why do you think that prices would increase if the Fed were to raise the Federal Funds Rate? Select all that apply: [randomize]

    - Firms would raise prices because of higher borrowing costs
    - House prices would increase
    - Consumers would spend more
    - Governments would spend more
    - Credit would become more expensive

- Other

Background information

We would like to conclude the survey by gathering some background information about yourself.

13. What is the interest rate that you currently earn on your bank deposits?

14. Do you think that your bank offers a higher or lower interest rate on deposits than other banks?
    a. My bank offers a lower interest rate
    b. My bank offers a similar interest rate to other banks
    c. My bank offers a higher interest rate

15. What is your current employment status?
    [Full-time employee, part-time employee, self-employed or business owner, unemployed and looking for work, student, not working and not looking for a job, retiree]

16. Does your household have total financial investments (excluding housing) worth more than one month of combined household income?
    a. Yes
    b. No

17. How much money does your household have in bank deposits?
    [0 - 10k, 10k - 25k, 25k - 50k, 50k - 75k, 75k - 100k, 100k - 250k, above 250k]

18. How much money does your household have in other financial assets (such as brokerage accounts, retirement accounts, gold, crypto assets, etc.)?
    [0 - 10k, 10k - 25k, 25k - 50k, 50k - 75k, 75k - 100k, 100k - 200k, 200k - 500k, 500k - 1m, above 1m]

19. What is your housing situation (house, apartment)?
    [own with fixed-rate mortgage; own with adjustable-rate mortgage; own without mortgage; rent; social housing; other]

    [*If "own with fixed-rate mortgage" or "own with adjustable-rate mortgage" or "own without mortgage"]*
    b. How much is the value of your house/apartment?
    $[XXX]

    [*If "own with fixed-rate mortgage" or "own with adjustable-rate mortgage"]*

    c. What is the residual unpaid value of the mortgage on your house/apartment?
    $[XXX]

20. How much credit card debt or consumer loans (excluding mortgages) do you have?
    [$XXX, no debt]

21. In which year were you born?
    [XXX]