Monetary Policy Announcements and Household Expectations of the Future*

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Abstract

I study the impact of various measures of monetary policy announcements on household expectations between 2013 and 2021. I approach this through an event study and a local projections methodology that exploits the microdata found in the Survey of Consumer Expectations as well as the timing of the FOMC meeting announcements in this time period. Across the different measures of monetary policy, I find that, on average, a lack of a tightening announcement decreases household expectations of the one-year ahead path for interest rates on savings accounts by 3.1%, while tightening announcements increase one year inflation expectations by up to 3.6% and decrease their one-year ahead home price growth between 1.4 - 2.0%. This finding is corroborated by the local projections in a one year ahead time horizon and emphasizes the need for the central bank to improve on the timing of its communication strategy. Expectations of other variables such as household spending and various commodity prices are scarcely affected, results which stand in contrast to the literature in laboratory settings which find strong effects on information treatments about policy changes.

Keywords: households, monetary policy, central bank communication, macroeconomic expectations, survey data.

JEL Classification: E50, E70, D84.

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1 Introduction

> *[T]he Federal Reserve's ability to influence economic conditions today depends critically on its ability to shape expectations of the future, specifically by helping the public understand how it intends to conduct policy over time, and what the likely implications of those actions will be for economic conditions.*
>
> Vice Chair Janet L. Yellen, April 2013 (Yellen, 2013)

Household expectations about economic conditions, such as inflation, drive a wide range of decisions that include saving, borrowing, and consumption. To proactively manage economic overheating or slack, then, the central bank must strive to relay information about the future policy path while concurrently understanding how these expectations change. In theory, transparent communication makes policy decisions more predictable and creates more policy options at the effective lower bound (Blinder, 2009), but in practice, this effectiveness hinges on the communication actually changing beliefs of economic agents in the right direction and in the adequate amount of time. Recent studies on how effective the central bank is in steering expectations are contradictory: one strand finds that central bank communication is effective in changing not only the expectations of households but also their future behavior (Binder, 2017a; Kryvtsov and Petersen, 2021; Ehrmann and Wabitsch, 2022) while the competing narrative is that the same communication has little effect on both (Lamla and Vinogradov, 2019; Coibion et al., 2020c, 2022). This paper presents novel evidence on monetary policy announcement effectiveness on a variety of household expectations; it distinguishes between various types of monetary policy communications that are unified or multidimensional as well as exploiting microeconometric and time series methods to estimate these effects at different time horizons.

In this paper, I explore the effects of different types of monetary policy announcements by the Federal Open Market Committee (hereafter FOMC) on household expectations in the United States over the period 2013 to 2021. I use the micro data on household expectations from the Survey of Consumer Expectations by the Federal Reserve Bank of New York. Monetary policy announcement identification takes into account the competing considerations that a unified measure that is simple to interpret would be more easily digestible to the public while maintaining that policy has become more multidimensional ever since the global financial crisis of 2008-09. I contribute to the understanding of household reactions to policy decisions by testing whether these monetary policy

announcements have meaningful impacts on household beliefs, specifically future macroeconomic conditions, such as inflation, and their own financial conditions, such as income.

The key driver of the relevance of household expectations in economic analysis is that expectations will translate into behavior for saving, borrowing, and consumption; those behaviors cannot be directly observed given the context of this analysis but expectations about these variables can forewarn whether or not households will plan to react to monetary policy changes. The primacy of understanding how announcements affect household expectations is highlighted by the current economic climate. Recent years of low interest rates and lower bound constraints on the nominal interest rates by central banks lend themselves to an environment where managing public expectations is crucial (Coibion et al., 2020a,b,c); scholars and policymakers alike, such as in the introductory quote, have expressed the importance of understanding the efficacy of communication on guiding expectations.

The current literature in this space has discovered a number of relevant patterns that guide my approach. Lab experiments, such as the one's that are currently a mandate for the European Central Bank (Kryvtsov and Petersen, 2021), have given insights on how different types of communications can influence expectations for economic variables such as inflation. Haldane and McMahon (2018) show that populations without specialized background in economics can be effectively communicated with via simple messaging, and the academic literature has also made usage of randomized controlled trials (RCTs) to test communication strategies. Coibion et al. (2022) show that information provided in an RCT to a household relating to the Federal Reserve Bank's inflation target can be just as effective as the monetary policy announcements that are made by the FOMC. Combined, the literature gives rise to two stylized facts: (i) central banks need to have clear messaging if they are to be understood (indeed, announcements made by the FOMC are seldom simple in their structure; other monetary authorities, like the European Central Bank, publish statements that have been found to require up to 15 years of formal education to read (Coenen et al., 2017)); and (ii) in isolation, like in an experiment, the central bank is guaranteed to pass along their signal to the recipient and thus establish a causal interpretation. That isolated incidents result in causal interpretations can be a natural upside to this approach but it is also the largest downside of these studies for seldom are households isolated in the information they acquire in daily life.

This paper mutes the isolated experiment concern of the causality studies by analyzing the survey responses from the SCE relative to FOMC meeting announcements as an exogenous and unrelated occurrence; causality here is derived from the tight time window around the FOMC

meeting announcement and from the random timing in this window when the survey responses are elicited. I use a wide range of expectations afforded by the SCE to understand which household expectations are affected, if any. Further, I aggregate the panel data from the survey at the monthly level and use local projections to estimate the varying time effects of monetary policy announcements over a 12 month horizon; these medium run effects may help disentangle the immediate reactions (of which over- and under-reactions have been documented in this space) with longer term effects due to information rigidities.

My main results are that expectations for the probability in increasing interest rates one year ahead, one year ahead inflation, and one year ahead home price growth are robustly affected by a number of monetary policy measures. A one standard deviation tightening surprise in the Federal Funds Rate, for instance, leads to a downwards revision of one year ahead inflation expectations by 0.21% of its overall mean. This finding complements the results from Lewis et al. (2019) who discover a similar downward revision after a surprise Federal Funds Rate tightening using the Gallup consumer surveys. A one standard deviation surprise in the unified monetary policy measure leads to an upwards revision of one year ahead inflation expectations by 3.6% of its overall mean. Similar to Lewis et al. (2019) and Lamla and Vinogradov (2019), I find no effects of monetary policy announcements on longer term (24- to 36-months ahead) expectations for inflation, home price growth, or a variety of commodity prices that households would find relevant to their overall financial health. In the corroborating analysis, the local projections affirm the event study results and I find that there are delayed responses to the different measures of monetary policy; this implies that households take time to digest monetary policy announcements. Lastly, I also explore how these policy measures affect a proxy for media channels, namely using Google Trends. I find that the measures from the event study and local projections once more appear salient in affecting public interest, with changes in the Federal Funds Rate and in the unified monetary policy factor significantly increasing search intensity in public searches.

Outline. In the next section, I present the context that this research has in the literature in more detail. Section 3 presents the survey data and the measures of FOMC meeting announcements, as well as the process by which I narrow down the sample of my analysis. Section 4 lays out both of empirical specifications I follow for FOMC meeting announcement effects, with Section 5 presenting the baseline results. Section 6 provides a brief discussion into transmission channels, and Section 7 concludes.

2 Context in the Literature

This paper contributes to two active research areas. The first concerns itself with central bank communication with economic agents in the general sense. Ever since the global financial crisis, scholarship began to focus on the efficiency of monetary policy through its means of being disseminated amongst the public; Chairman Alan Greenspan, who once prided himself on *"mumbling with great incoherence"* when speaking about policy in a public setting (Resche, 2004), was by 2003 explicitly encouraging that the Fed manage expectations in a more transparent way (Blinder et al., 2008). Central banks have since been actively involved in setting expectations through their communications to the public.

Research coming out of central banks has focused on how different types of economic agents are able to process policy announcements in a variety of ways. Campbell et al. (2012) study how these types of announcements affect inflation and unemployment using the Blue Chip Indicators forecast survey and find downward revisions of these forecasts are preceded by tightening policy announcements; Blue Chip solicits projections for key economic variables, including quarterly changes in the CPI and the civilian unemployment rate, from about 50 private forecasters. Nakamura and Steinsson (2018) study the same but for Blue Chip forecasts of real GDP, finding that tightening policy announcements are associated with significant upward revisions in forecasts. Yet, for households, this story is not entirely explored. In fact, the prevailing sentiment is that communication is largely ineffective due to low media coverage and poor economic/financial literacy (Binder, 2017a,b). Corroborating this narrative, Coibion et al. (2020c) use the Michigan Survey of Consumers to find almost no change in the percentage of respondents who say they heard about the news even after selected major policy announcements such as the launch of QE1, QE2, or even the announcement of the 2% inflation target by the FOMC in 2012. On the other hand, experimental evidence documents that forecasts, or beliefs of the future, change once they are provided with direct information about monetary policy. Coibion et al. (2022) use the Nielsen Online survey to provide participants with a direct summary of the FOMC meeting outcome and find that this treatment has a meaningful effect on inflation expectations. Coibion et al. (2020a) use a randomized control trial in the Nielsen Homescan panel to see if Forward Guidance is effective and find that while information treatments about current and one year ahead interest rates are significant, treatments beyond one-year have no effect on households' expectations of inflation, mortgage rates, and unemployment. This complements work about the existence of

limited knowledge of interest rates and inflation and that communication from a central bank must take into account the heterogeneity of knowledge in its target audience (Rumler and Valderrama, 2019), but does little to clarify which narrative is true for announcements given in a vacuum.

Lewis et al. (2019) opt to use a high frequency approach through the daily Gallup Consumer Survey to assess FOMC policy news on household sentiment by using local projections. Of all the announcement shocks they subject their time series to between 2008 and 2017, they find that news covering the federal funds rate has significant negative effects on consumer confidence directly following FOMC meeting announcements; by contrast, they find no significant effect for surprises to announcements regarding forward guidance and asset purchases. Claus and Nguyen (2020) use a latent factor model relying on co-movements of elicited expectations on days the meeting announcements come out to identify unobserved news shocks driven by policy changes for Australian consumers; they find statistically significant reactions in economic conditions, unemployment, family finances and readiness to spend immediately following monetary policy shocks. I extend the local projections methodology from the former to include the US-based Survey of Consumer Expectations which specifically solicits expectations through an implied density forecast method, and use the shocks to different measures of monetary policy to analyze the medium-run dynamics of these expectations. To account for the unobserved news shocks driven by policy changes, I include a novel, unified measure of monetary policy news shocks proposed by Bu et al. (2021).

Lamla and Vinogradov (2019) use a random sample of the US population through a survey platform and find that monetary policy announcements have no effect on respondents' inflation and interest rate expectations, and have higher confidence in their grasp of what the true values of these variables are (read: less dispersion in their subjective uncertainty); the identification strategy rests on a tight, two-day window around FOMC meeting announcements for three years between 2015 and 2018. Fiore et al. (2021), who extend the observation window for household surveys to 42 days around an FOMC announcement, study expectation responses to different measures of monetary policy announcements but also isolate policy episodes such as the "Taper Tantrum" which occur too early on in my sample period (mid to late 2013) to be relevant; the study finds that only interest rate expectations are affected by FOMC meeting announcements. I extend this methodology of tight observation windows through the natural survey design and pair it with a larger sample of FOMC meeting announcements (a total of 68). I am also exploiting a different set of outcome variables solicited by the SCE, specifically interest rate expectations 12 months from survey date,

inflation expectations 12 months and 24 - 36 months from survey date, expected change in national home prices 12 months and 24 - 36 months from survey date, household income 12 months from survey data, household spending 12 months from survey date, and expected change in various commodity prices 12 months from survey date. These time horizons are set by the survey and gauge how respondents feel about future economic conditions from a macroeconomic and personal standpoint. These expectations represent a number of key variables whose relationship to each other is predicted by topics such as the standard consumption Euler equation and the Phillips curve.

The second area of research relates to exploring the efficacy of unconventional monetary policies on the short-term nominal interest rate when faced with a constraint of an effective lower bound. The main focus in this area has largely been related to financial market participants and professional forecasters, with some research branching out to explore the effects on the macroeconomy (Campbell et al., 2012; Giannoni et al., 2015). Campbell et al. (2019) specifically highlights the role of imperfect information as a source that limits the efficacy of policies such as forward guidance, citing that the central bank's power to shape expectations at longer horizons falls dramatically with the introduction of a noisy environment. On the other hand, studies such as Swanson (2021); Bu et al. (2021) argue that unconventional policies have been effective as substitutes for conventional policy, citing effects to both the macroeconomy and more nuanced measures such as home-ownership. The former explores the effect of forward guidance and quantitative easing on macro variables, finding that their effect has been commensurate to conventional policies during the effective lower bound environment, while the latter uses these unconventional policies to predict home-ownership sentiment. I focus on the interaction of these unconventional policies with household data to see how the general public is reacting instead.

3 Data

My analysis for FOMC meeting announcement effects combines expectations data from the NY Fed's Survey of Consumer Expectations (SCE) with monthly monetary policy shocks.

3.1 Survey of Consumer Expectations (SCE)

The Survey of Consumer Expectations (SCE) began in June 2013 and is a nationally representative online survey from the United States comprising of a rotating group of approximately between

1,200 and 1,400 household heads.[1] The objective from the New York Fed is to solicit households for a variety of quantitative measures over a wide range of economic outcomes (e.g. inflation, income, household finance, and interest rates).[2] Armantier et al. (2017b) provide the specific components of expectations solicitation and the survey design; a main feature is that households are phased out of the survey once they reach 12 months of participation and new respondents are drawn each month from a stratified sampling procedure designed to maintain a demographically and socioeconomically representative sample of the population. Table 1 compares the socioeconomic and demographic distribution of the SCE respondents in my analysis with the U.S. Population numbers as per the U.S. Census Bureau from the latest 2022 numbers. Each respondent answers the various sections of the survey which includes an expectations module on macroeconomic and household level variables. Adoption of the SCE has been used in applications to tackle economic questions from political economy work in polarization (Armantier et al., 2017a), analyzing trends in consumer credit access (Armantier et al., 2018), estimating the elasticity of inter-temporal substitution (Crump et al., 2020), and in forming dynamic models of expectations formations (Fuster et al., 2018; Bellemare et al., 2020). The sample used at the time of this paper is up to December 2021.

Besides demographic information, the SCE elicits various measures of beliefs that are at the one-year (12 months ahead) and three-year (24 - 36 months ahead) horizons. The variables I focus on in these horizons include their: (i) one year ahead probability of a higher interest rate, (ii - iii) one and three year ahead expected inflation rate, (iv) one year ahead expected home price change, (v) three year ahead expected home price point prediction, (vi) one year ahead expected change in household income, (vii) one year ahead expected change in household spending, and (viii) one year ahead expected commodity price change point prediction that includes how much more/less households expect to pay for gallon of gas, food, and medical care. I group responses (i - v) as Macroeconomic Expectations and responses (vi - viii) as Personal Financial Expectations.

Macroeconomic Expectations variables are elicited in particular ways which I expand on below. The probability of interest rates increasing over the next 12 months from survey date is elicited as a point forecast, and this method is also used for the three year (24 - 36 months ahead) point forecast for changes to average home prices and commodity prices. A key innovation in this survey, which makes this a unique data set to analyze, is the robust solicitation of consumer implied density forecasts for inflation and home price expectations. As of this writing, no other major household

[1] This phrasing of 'household head' is defined as being the main owner or renter of the household home.

[2] Reports and publications from the Federal Reserve Bank of New York using this data almost exclusively rely on using the survey-weighted interpolated mean of the series in question.

survey solicits expectations in this manner. For the 12 months and 24 - 36 months ahead inflation expectation, as well as the 12 months ahead home price change expectation, the survey respondent is presented with a set of probability bin ranges that they can answer which must sum up to 100%. The respondent is asked to assign probabilities that the variable of interest will *increase 12% or more, increase between 8% - 12%, increase between 4% - 8%, increase between 2% - 4%, increase between 0% - 2%, decrease between 0% - 2%, decrease between 2% - 4%, decrease between 4% - 8%, decrease between 8% - 12%, decrease 12% or more*. This implied density forecast from respondents is a much more robust method of measuring beliefs than point forecasts and requires more thinking to answer; to decrease the chance of error, respondents cannot go on with the survey if the probabilities do not sum to 100%. Solicitation of the expectations in this way not only allows to capture a respondents' individual inflation density mean, but also their individual inflation uncertainty. To obtain the mean and subjective uncertainty, Armantier et al. (2017b) approach the task by fitting a generalized beta distribution to responses. The mean implied by these distributions is used as the measure of household inflation expectations and I follow this practice in my analysis for consistency with other existing studies using SCE data; further following convention when using household survey data, I also trim the data at the 1% and 99% percentiles. Table 2 contains a more thorough write up of the selected expectation variables in the SCE that my analysis will make use of.

3.1.1 A Note about Panel Conditioning in the SCE

Throughout the survey, the SCE references a framework of probability that is used to give respondents a basis for answering when assigning a **percent chance**. Specifically, respondents are given the following guideline near the beginning of the survey.[3]:

> **Q3Intro:** In some of the following questions, we will ask you to think about the **percent chance** of something happening the future. Your answers can range from 0 to 100, where 0 means there is absolutely no chance, and 100 means that it is absolutely certain.
>
> For example, numbers like:
>
> - 2 and 5 percent may indicate *almost no chance*
> - 18 percent or so may mean *not much chance*
> - 47 or 52 percent change may be a *pretty even chance*

[3]Q3Intro copied verbatim as what a respondent would see from Armantier et al. (2017c, p. 5). The remaining questions of interest are found in the Appendix.

- 83 percent or so may mean a *very good chance*
- 95 or 98 percent chance may be *almost certain*

Repeated application of this kind of survey guidance can affect how a respondent thinks about their answers, and thus the responses given over time; this is known as panel conditioning. Binder (2019) and Zhao (2022) find this occurring with inflation forecasts and uncertainty in the survey used in this analysis, with respondents in the early phase of participation in survey rounds predictably revising their inflation expectations downwards the longer their tenure in the survey, until they flatten out. This occurs regardless of what the true inflation dynamics are. These kinds of patterns raise questions to the validity of using survey responses and their properties without some sort of guidance as to when conditioning effects taper off, if ever.

Altig et al. (2020) tackle this issue by a non-parametric specification that allows an unrestricted relationship between survey results and the number of previous completions in their Survey of Business Uncertainty, while Fiore et al. (2021) and Zhao (2022) look for equality in probability distributions using a Kolmogorov-Smirnov test. Without the uncertainty measures that the Survey of Business Uncertainty provides, I opt to follow the latter in order to test whether or not the empirical distributions of the survey tenure are statistically similar between cohorts who were surveyed before and those surveyed after an FOMC announcement meeting. This test helps me determine by how much to limit my sample so that panel conditioning due to longer survey tenure is not the reason trends in expectations unrelated to economic circumstances arise. Using the entire sample, I find that there is significant difference in the distribution of survey tenure between those surveyed ex-ante and those ex-post of the FOMC announcement meeting; the null hypothesis that the samples come from equal distributions is rejected with a p-value of 0.0024. Repeating this test on the range of survey tenures until I cannot reject the null (up through 12 months) leads me to limit the sample to respondents that have completed at least seven survey rounds. Then, the maximum number of observations that any household will have in the sample is if they do months seven through twelve, or six survey responses; the average tenure of my respondents throughout this time period is 9.16 months. Further, I only use surveys which have been completely filled out so that each respondent in my sample has given their expectation responses for all of the variables I include in my analysis; this strict condition brings the amount of total observations to 49,985.

Table 3 provides the descriptive statistics about each of the aforementioned expectations variables for the respondents who meet the criteria discussed. Generally, respondents expect higher interest rates in the next twelve months about one in three times, and they seem to overshoot the general

price stability mandate by the Federal Reserve (2%). Additionally, they expect house prices to continue rising, in the short and medium term. They generally expect that their percent increase in household income will not exceed their increase in household spending (implying that their dollar will not outpace inflation), and they expect the price of a gallon of gas and food to increase; for a commodity like medical care, there is more uncertainty about whether it will increase or not. Commodities like these last three can be thought of as a proxy for the headline inflation rate (Binder, 2018), which the Federal Reserve has been increasingly relying on to define its official price stability target (FOMC, 2022). Traditionally, monetary policy has focused on targeting the core inflation rate but recent considerations note that a core inflation target may have adverse or no effects on policy communication with the general public (Powell, 2022).

3.2 Monetary Policy Announcements

I select measures for monetary policy announcement shocks that are available during the sample period (June 2013 - December 2021) guided by recent discussions in this space that try to combine two important considerations. First, limited knowledge and willingness from the general public to pay attention to the way the central bank makes announcements calls to question whether there should be a unified measure that is simple to interpret for anyone without the assumed training. Second, a unified measure may not be informative enough to understand by which channel monetary policy is being effective (or not). Policy has become much more multi-dimensional ever since the Global Financial Crisis and one single FOMC announcement or decision may have different effects to the yield curve. To mediate between the two considerations, I adopt a number of monetary policy shock measures that range from naive to multidimensional.

I start with a simple approach by using the change in the Effective Federal Funds Rate, a measure that is calculated and simplified to reflect how it stands at the end of each month. Acknowledging that the effective lower bound places a constraint on this measure, I also take into account the change of the Shadow Rate. Both of these measures are easily accessible and can be extended to fit my sample period from Wu and Xia (2016). Being able to measure the change in these rates allow the analysis to capture varying treatment intensities.

To incorporate the multidimensional aspect of monetary policy during the sample period, I extend the analysis by considering the three monetary policy factors calculated in Swanson (2021) who applies a factor model to 2-, 5-, and 10-year Treasury yields, along with assets with maturities below one year. For the time period between 1991 and 2019, Swanson estimates the top three factors

which end up being able to explain 94% of the changes in interest rate responses in a 30 minute window around FOMC announcements. These factors, which deliver both a multi-dimensional view of monetary policy as well as a quantification of changes that financial market participants were not anticipating, correspond to the changes to the Federal Funds Rate (FFR), Forward Guidance (FG), and Large Scale Asset Purchases (LSAP), respectively. I follow the methodology and data sources in Bauer and Swanson (2022) to extend the three factors to the sample period for my analysis. By using these factors, then, I have a rough measure of the degree to which different policies implemented by the Federal Reserve affect respondent expectations.

The unified version of the multidimensional consideration would be to find a series that provides a single-factor, summary measure of the decisions taken, or not, during the FOMC policy announcements. For this, I also include the single-factor measures from Bu et al. (2021) which represents the combined effect of all the news that are outcomes on FOMC meeting days; this approach contains no significant information effect which is usually a confounding measure since FOMC meeting announcements contain both this and monetary policy shocks. This measure is also shown to represent an average effect of the changes to the Federal Funds Rate, Forward Guidance, and LSAPs following the FOMC meeting announcement.

I list the six monetary policy measures per FOMC Meeting days ranging from June 19, 2013 through December 15, 2021 in Table 4, and graph them through time in Figure 2. For readability, all the measures have been rounded to two decimal points in the table. For the analysis following in Section 4, all of the monetary policy measures have been standardized $\sim N(0, 1)$ so that the magnitudes of the coefficients in Section 5 can be compared since the objective is to see to what degree monetary policy is being processed by the general public (if at all). Also included are the number of days between two adjacent FOMC announcement meetings, as well as the number of responses that the survey gathered in the three week window before and after the meeting.

4 Empirical Specification of FOMC Announcement Effects

I follow a standard identification method for announcement effects on expectations of survey respondents that has been used in the literature. Event studies, such as in Lewis et al. (2019),Lamla and Vinogradov (2019),Fiore et al. (2021) or Swanson (2021), make usage of a set time window around survey responses given at various frequencies before and after the policy announcement is given. Specifically, I split the window into two three-week cohorts occurring before and after an FOMC

announcement meeting; this three-week time window maximizes the amount of observations the sample affords the analysis and I show the pattern of average responses for a subset of expectations in Figure 1. This window also is also guided by the days between FOMC announcements; the median amount of time between the 68 FOMC meeting announcements in my sample period is 42 days. If the meeting coincides with a day that survey responses are elicited, I leave them out of the analysis since I cannot determine the time that they were gathered relative to the meeting. Households are randomly assigned to three batches of when the survey module is sent out to them; each subsequent exposure to the survey is sent out to the households with the aim being that there are equal spacing between each round. This implicitly works so that no discernible pattern will exist when looking at which households are filling out the surveys in this three-week window.

Splitting up the observations into the two cohorts, those who give a response in the three-week window *before* the FOMC announcement meeting and those who give a response in the three-week window *after* the FOMC announcement meeting, I perform a baseline analysis on the following:

$$Y^{e}_{i,t} = \beta_t + \beta' \times C_{i,t} \times \mathbf{M_t} + \delta X_{i,t} + \varepsilon_{i,t} \tag{1}$$

where $Y^{e}_{i,t}$ is the response given by individual i over their expectation of the future variable at month t (grouped by Macroeconomic Expectations and Personal Financial Expectations) that is acquired from the both cohorts c, β' is a $1 \times k$ row vector of the coefficients of interest, $\mathbf{M_t}$ is a $k \times 1$ column vector of the monetary policy measures, and $C_{i,t}$ is a dummy variable that takes on the value of 1 if a response is elicited from an individual in the cohort after the FOMC meeting announcement, and 0 otherwise. Included are also the β_t cohort specific constants, a $\delta X_{i,t}$ term that includes month and individual respondent fixed effects as well as various household controls such as age, levels of household income, levels of education, state, household size, numeracy level, and region, and the $\varepsilon_{i,t}$ related error term; standard errors are clustered at the individual respondent level. I perform these regressions on the treatment of being in the different cohorts ("After FOMC") and interact this cohort with the various measures of naive to multidimensional monetary policy announcements: (i) a simple dummy variable indicating if the federal funds rate was increased (taking on a value of 1 if yes, 0 otherwise), (ii) the actual quantitative change in the federal funds rate, (iii) the change in the Shadow Rate (following the track by Wu and Xia (2016)), (iv) the three policy factors calculated in Swanson (2021), and (v) the unified measure of monetary policy as per Bu et al. (2021).

A note about controlling for individual and cohort specific effects: given the tenure component of individuals (up to five months of responses), individual respondent fixed effects will control for time invariant factors that could impact the level of expectations elicited. On a larger scale, the cohort specific fixed effects will control for all information that is common amongst the cohort groups; this control supports the assumption that my analysis is centered around, which is that the only differentiator is the information treatment provided by the FOMC meeting announcement.

4.1 Local projections approach

While the baseline results focus on the survey responses by household participants in the immediate timing after FOMC meeting announcements, I would be remiss to disregard the effects of lagged reactions that are drawn from the literature surrounding information rigidities (Coibion and Gorodnichenko, 2015; Coibion et al., 2017). In that strand of literature, households have been found to often require time to process new information coming their way due to behavioral frictions which often take the form of delayed understanding or rational inattention. In this corroborative section, I extend my analysis to estimate the medium-term dynamic effects of policy announcements on my subset of household expectations following Lewis et al. (2019). Following the aggregation methods deployed by the New York Fed, I aggregate household expectations at a monthly frequency and estimate these policy announcement effects through local projections after Jordà (2005). For $0 \leq h \leq 12$ months,

$$Y^{e}_{t+h} = \beta'_{h} \times \mathbf{M}_{t} + \delta_{h} X_{t} + \epsilon_{t+h} \tag{2}$$

where $Y^{e}_{h,t}$ is the aggregated response given by households in month t over their expectations (still grouped by Macroeconomic Expectations and Personal Financial Expectations), β'_{h} is a $1 \times k$ row vector of the coefficients of interest, and $\mathbf{M_t}$ is a $k \times 1$ column vector of the monetary policy measures surprises at month t. Included is also the $\delta_{h} X_{t}$ term that includes three months of policy announcement surprises and two lags of the expectations variable (chosen by the Akaike Information Criteria), the short-term and long-term interest rate, and a credit spread. Within month values for the control variables are not included in order to allow effects of the announcements on all control variables, and I construct the 90% confidence bands using Newey-West standard errors to control for heteroskedasticity and serial correlation.

I scale the impulses in this section to correspond to a 25 basis-point change in the reference rate for each of the six measures of monetary policy; this selection follows the literature but is

entirely arbitrary. Monetary policy surprises of this type are rather rare and were most recently seen during the rate hikes of 2022 which is outside of the time range of this analysis. The advantage in scaling the responses to this fixed change in rates is that it will facilitate comparisons between the six measures. Lastly, I want to note that the stimulus provided by a 25 basis-point change in the different measures is not comparable across policy instruments as they would affect different parts of the economy.

5 Baseline Announcement Results

I break down the results from the baseline regression in Equation 1 in order of the expectations variables chosen. Each regression takes into account the treatment effect of it being solicited after the FOMC meeting announcement interacted with a dummy variable which tracks if the federal funds rate has increased or not month over month by denoting any increases with a 1 and 0 otherwise; then, "After FOMC" can be taken to mean the treatment effect for whenever the month over month values of the federal funds rate decreases or stays the same. Any increase in the federal funds rate is taken as a sort of tightening of monetary policy as per the FOMC meeting announcement.

Macroeconomic Variables. Table 5 shows the results of the model for the one year ahead and three year ahead (from survey date) inflation expectations. In columns (2) through (4), a lack of a tightening announcement leads a negative revision of the one year ahead inflation expectation variable, on average, when taken together with a detected change in the shadow rate, the monetary policy surprise factors, and the unified measure, respectively. In column (2), this suggests that variation in the shadow rate is not directly affecting inflation expectations but a lack of tightening is leading households to revise their expectations downward; in this case, the average downward revision is 0.066, which represents a 0.21% decrease from the overall mean. This same story is told in column (3) with an average downward revision of 0.097, representing a 3% decrease from the overall mean. In column (4), however, the unified measure of monetary policy has a significant effect on inflation expectations with an upward revision of 0.113 when a one standard deviation above the mean unified shock of this nature occurs. This represents a 3.6% upward revision from the overall mean in one year ahead inflation expectations. This unified measure is described as being an average of the monetary policy surprises from column (3), but also isolates the monetary policy shocks and includes 'news'. Then, the significance of this effect can be thought of as being driven by an external measure not captured by the traditional monetary policy factors in the literature but

rather a different kind of news on monetary policy. As for the three year ahead inflation expectation variables, all columns (5) through (8) have coefficients that are close to zero and not significant, which supports other previous findings that policy announcements generally have short lived effects on inflation expectations Fiore et al. (2021).

Table 6 shows the results of the model for the one year ahead and three year ahead (from survey date) home price expectations. While the method for eliciting both responses differs (the one year ahead one uses the subjective probability distribution approach detailed in Section 3), the answers for both are the same: where do respondents think average home prices nationwide will be at in the two time horizons? Columns (1) through (4) show the results for the one year ahead home price change and finds that positive changes in the federal funds rate, the federal funds rate factor, the large scale asset purchase factor, and the unified measure of monetary policy all decrease the expectation of home price changes. Specifically in column (1), for every one standard deviation above its mean, a positive month over month change in the federal funds rate decreases the one year ahead home price change expectation by -0.06 percentage points; the mean home price growth expectation is 4.22%, so this effect corresponds to an expected 1.42% decline. Similarly, in column (3), the effect of the one year ahead home price growth expectation corresponds to an expected 1.54% and 2.06% decline to the home price growth rate in response to a one standard deviation tightening of the federal funds rate factor and large scale asset purchase factor, respectively. Lastly, in column (4), this effect corresponds to a 1.47% decline to the home price growth rate in response to a one standard deviation tightening of the unified monetary policy measure. With a number of the monetary policy measures confirming a similar story, one year ahead expectations for home price growth arguably decline with tightening policy; this corroborates recent advances that suggest home ownership forces households to pay more attention to interest rates and monetary policy due to their investment (Ahn et al., 2022). As shown in columns (5) through (8), none of the monetary policy measures affect the three year ahead home price point prediction in a significant way.

Table 7 shows the results of the model for the one year ahead (from survey date) probability of an increase in interest rates. Since the response is elicited as a probability of an increase, it is not possible to take the results as a quantitative conjecture on the marginal effects of the monetary policy announcement on the household expectations as a level of this variable; instead, I can draw conclusions about the relative impact of different measures to conclude if any one monetary policy method is significantly affecting this expectation variable. Column (1) shows that the estimated probability of increases to the interest rates on savings accounts over the next 12 months of the

survey date falls by 0.98 percentage points, on average, when no tightening announcement is given. The average probability of interest rates for savings accounts rising in the next twelve months for the entire range is 31.44, so this effect represents a 3.12% decrease in the probability of rising interest rates for this time horizon. When an increase of the federal funds rate occurs, the significance of the effect vanishes (albeit positive at about 2.29). Changes in the shadow rate as proposed by Wu and Xia (2016) also yield a similar story with no effect detected both in the no tightening announcement dummy and the interaction with the quantitative change in the shadow rate in column (2). Moving forward with the high-frequency financial market monetary policy announcement factors proposed by Swanson (2021), I break up the dimensions in column (3) and find that only the federal funds rate factor robustly affects the probability of a higher interest rate in twelve months. Specifically, a federal funds rate factor one above its mean by one standard deviation significantly increases expectations of a higher interest rate on savings accounts by 0.62 percentage points, on average. Looking again at the average probability of interest rates for savings accounts rising in the next twelve months for the entire sample, this effect represents a 1.98% increase in the probability of rising interest rates for this time horizon. Variation in the other two factors concerning with forward guidance and large scale asset purchases do not affect interest rate expectations significantly. Lastly, I present column (4) with the unified factor from Bu et al. (2021) which is constructed as a measure that averages the aforementioned monetary policy factors along with all the relevant news given on that day (and, as the authors state, "has no significant information shock effect"). Conditional on being treated by the FOMC meeting announcement, the probability of interest rates for savings accounts rising in the next twelve months rises by 0.427 percentage points for a one standard deviation unified monetary policy shock above its mean. Compared to the mean of the entire range, this represents a 1.36% increase in the probability of rising interest rates for this time horizon. In all, the lack of a tightening announcement has a larger relative impact on respondents expecting an increase in the probability of higher interest rates on savings accounts than any of the other policy measures.

Together, the results from the aforementioned paragraphs suggest that expectations about the interest rate on savings accounts, one year ahead inflation expectations, and one year ahead home price growth expectations all are affected by the various measures of monetary policy changes. Expectations about interest rates are affected by policy tightening/easing on the federal funds rate and its related high frequency monetary policy federal funds rate factor as per Swanson (2021), as well as by the unified measure of monetary policy that takes into account other relevant news passed

along the day of the FOMC meeting announcement as per Bu et al. (2021). One year ahead inflation expectations are only affected by this same unified measure which captures news on monetary policy but does not disentangle its source. One year ahead home price growth expectations are affected by policy tightening/easing on the federal funds rate and its related federal funds rate factor, the large scale asset purchase factor, and the unified measure.

Personal Financial Variables. Table 8 shows the results of the model for the one year ahead (from survey date) percent change in household income and spending. In other words, how much are these measures of forecasted income and spending being affected by the monetary policy announcements? As evidenced from columns (1) through (8), the answer is hardly. All coefficients are generally close to zero and not significant. This corroborates a narrative that has been found in the literature, namely, that the central bank, by focusing on core inflation, leaves out spending variables that have larger weights for households as in D'Acunto et al. (2019). These results support the claim that households do not connect changes in measures of monetary policy to their daily spending and income. Additionally, this empirical finding stands in contrast to the laboratory experiments that found significant effects on announcements for household employment and consumption expectations in a noisy environment (Kryvtsov and Petersen, 2021; Coibion et al., 2022); even with the tight window around the FOMC meeting announcement, news is not as easily interpreted outside of these lab settings.

To further break down the claim in the preceding paragraph, Table 9 shows the results of the model for the one year ahead (from survey date) percent change in three household relevant commodity prices: a gallon of gas, food, and medical care. Columns (1) through (4), for a gallon of gas, are all close to zero and insignificant coefficients to either tightening or easing monetary policy. The same goes for columns (5) through (8) for food, and columns (9) through (12) for medical care. Regardless of the commodity chosen in this subset, the monetary policy measures are not affecting household expectations. Households, on average, do not connect how different kinds of policy announcements can filter through to their daily purchases.

5.1 Baseline Local Projections Approach

Figures 3 through 8 show the local projections for each of the aggregated monthly expectations variables to the measures of monetary policy through the method introduced in section 4.1. The confidence bands are following Lewis et al. (2019) and correspond to 90%, using Newey-West

standard errors to control for heteroskedasticity and serial correlation. The responses are scaled such that impacts correspond to a 25 basis-point change.

Figures 3 and 4 show the response of the various expectations to the changes in the federal funds rate and shadow rate, respectively, as calculated by Wu and Xia (2016). A positive surprise to both leads to a significant effect on income; the change in the federal funds rate affects after income expectations positively after several months and peaking at 7, while the change in shadow rate decreases income expectations slightly. Neither effect is large relative to the average expectation of increasing income one year ahead which sits at 3.89% for the whole sample. Shadow rate surprises also decrease inflation expectations for the 24- and 36-months ahead horizon but only become significant after a couple of months, peaking at around the 8 month horizon (again, the relative effect is small). Combined with the fact that changes corresponding to 25 basis-points are equal to about 4x and 1.5x the standard deviations for the delta federal funds rate and delta shadow rate shocks, these effects are marginally significant at best. Curiously, the change in federal funds on expectations on a gallon of gas are significant, peaking around 4 months at 0.5 which represent a 8.1% increase in the one year ahead expectations for the price of a gallon of gas. This, however, decreases by almost the same amount 9 months after.

The Swanson (2021) monetary policy shock factors are shown in figures 5 through 7. The first finding, in Figure 5, is that there is a counter-intuitive permanent (to the month range) response in the probability of higher interest rates one year ahead to a positive surprise in the federal funds rate factor. Unlike the immediate and significant response that increased the probability in rising interest rates along with an increase in this factor as shown in Table 7, the local projection shows a negative response that appears 4 months after the announcement and stays significant through the 12 month range, peaking at 7 months valued at -0.75. Given that the probability of increasing interest rates is 31.44, this represents a 2.4% decrease. On the flip side, the surprise also leads to a delayed increase in other expectations measures including one year ahead inflation, 24- to 36-months ahead inflation, one year ahead income and spending, and one year ahead price growth of food. The other factors, shown in figures 6 and 7, are generally small and have no significant effect.

Lastly, the Bu et al. (2021) are shown in Figure 8. Here, too, the response in the probability of higher interest rates one year ahead to a positive surprise in the unified measure is negative, delayed but significant from months 6 through 10. It peaks at around month 8 with a value of

-0.10, representing a 2.6% decrease from the average throughout the whole sample. The other expectations variables responses are generally small and have only marginally significant effects.

Overall, the evidence presented in this section is broadly in line with the results from the previous section except that I decompose the timing that these effects take place for these variables. The change in federal funds rate, federal funds rate factor, and the unified measure again come out as significant, the others have no or only smaller (and mostly delayed) effects. Expectations for interest rates, inflation in the short run (one year ahead), and income all have varying degrees of a significant response to these various policies.

6 Discussion on the Role of Media

As mentioned in section 2, the literature in this space has focused around doing laboratory experiments or event study approaches that take on the form similar to this analysis for various expectation solicitations. the former has researchers providing information to survey respondents that allow the analysis to estimate the effect of that isolated information treatment. In event study frameworks, like this, there is no way to account for the noise that enters a households' information set when developing responses. I can control for things like panel conditioning, as in section 3.1.1, but I do not know nor can control what a household sees. It would be difficult to argue that the FOMC meeting announcement is the only source of information a household is subjected to, whether it by their press conferences or website information. Instead, in this section, I want to briefly explore the possibility of news reaching households using traditional media to see if the types of coverage announcements receive affect the expectations solicited.[4] An in depth analysis exploring these kinds of media channels would deviate the central question of this analysis and so instead I opt to use a simple measure of news coverage by using Google Trends data. Google Trends measures and analyzes the popularity of different searches done on the internet across time and, by searching relevant keywords, can provide a simple measure of how popular different policy announcements are and when. While simple, this can be seen as a proxy for a more robust media transmission channel.

I show the search interest for different keyboards related to the FOMC and the Federal Reserve's policies during the time range between June 2013 and December 2021 in Figure 9. Google Trends

[4]For some introductory work in this space, we can look at Bianchi et al. (2019) who look at the role of Twitter in affecting central bank independence and Lüdering and Tillmann (2020) who do a textual analysis of monetary policy news coverage for asset prices

normalizes searches to a relative intensity of 100, to which other searches are scaled to. For example, in sub-figure (b) when it shows "Quantitative Easing", we see the largest search interest for this term following the remarks made by then Federal Reserve Chair Ben Bernanke in the later months of 2013 about scaling back its bond purchasing program. Similarly, for inflation in sub-figure (a), we see the largest interest for inflation near the tail end of 2021 when the onset of COVID-19 began to circulate fears.

To measure the effects of different types of policy announcements on search interest, I opt to regress these interest time series on the absolute values of the monetary policy announcements such that it allows me to take into account their magnitude but not their direction. Generated interest is the measure from Google Trends, not if the coverage is good or bad. I assume that the household is subjected to all of these measures at the same time as opposed to the tiered approach I used in the event study and local projection analysis.

Table 10 shows the simple regression results from the aforementioned analysis. Column (1) indicates that a change in the Federal Funds Rate announcement is significantly related with higher search intensity for the keyword of "FOMC"; this higher intensity can translate to higher public interest in understanding what the FOMC announcement means for the future. Column (2) shows that a similar story happens here for the search "Federal Funds Rate", with changes in the Federal Funds Rate, the Forward Guidance factor as per Swanson (2021), and the unified monetary policy measure by Bu et al. (2021) all significantly affecting the search intensity. One curious direction comes from the Forward Guidance Factor which has a negative impact on search intensity for the "Federal Funds Rate" term. Given that Forward Guidance as a policy tool is not easily understood by the general public, this suggests that a confusing policy detracts from public interest in the relevant monetary policy target.

Overall, the results confirm that announcements regarding changes in the federal funds rate as well as the unified measure are more likely to reach the general public and therefore households that are surveyed, leading to more general interest than any of the other policy measures.

7 Conclusion

In this paper, I analyze the effect of various measures of monetary policy via FOMC meeting announcements on household expectations. Current research on exploring household expectations often contradicts each other, with one school of thought completely refuting the efficacy of monetary

policy on affecting expectations and the other suggesting there are different channels by which it does. Regardless of this contradiction, considering household expectations as a means to gauge the efficacy of central bank communication is timely not only from the policy perspective (as per the mandates by the most recent Federal Reserve Chairs, Janet Yellen and Jerome Powell) but also because they matter for economic activity. For instance, households often take part of wage bargaining processes that imply they take income, spending, and savings decisions that are influenced heavily by their expectations about future conditions.

This analysis makes usage of the Survey of Consumer Expectations and exploits a timing window surrounding an FOMC meeting announcement. By comparing the responses in this window before and after the announcement, I find that monetary policy announcements robustly affect household expectations of the future for interest rates, one year ahead inflation, and one year ahead home price growth. These effects are found by using a range of monetary policy measures going from simple to multidimensional. This result stands in contrast to the aforementioned literature in experimental settings; noise matters and information is lost when households are being subjected to a variety of different news. A quick analysis of Google Trends search intensity also yields a similar story.

Additionally, I explore the timing of the announcement effects by using a local projections approach and again find that there are significant responses to interest rate and one year ahead inflation expectation. In this analysis, one year ahead income expectations also show a degree of significant responses to monetary policy announcements. The key takeaway from both the event study and local projections approach is that not all these measures are understood equally. Changes in the federal funds rate, the federal funds rate factor, and the unified measure of policy that contains no additional information effect all continuously come out as significant for a number of household expectations. However, no wider range of expectations for commodity prices, spending levels, or house growth in the long run are affected; households are not connecting how policies may affect their economic circumstances in the future as strongly as the literature using other event studies may suggest.

These findings contribute to the discussion about the efficacy of central bank communication with the general public, particularly highlighting that there are communication challenges that exist for the central bank moving forward. While measures taken as unconventional have been heavily relied on for the better part of the last 15 years, there is scant evidence that these policies are understood by the general public and do not generate the kind of interest in the policy targets the central bank aims for. As such, are there channels by which expectations are generated more

routinely for households? And, if so, are expectations changing in a systematic way that reflects how the central bank aims to conduct policy over time? I leave these questions for further research.

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Table 1. SCE Respondent Characteristics vs US Population

	SCE	Population		SCE	Population
Age			**Race and Ethnicity**		
Under 40	27.3%	37.3%	White (Non-Hispanic)	70.6%	60.1%
40 - 60	37.8%	29.3%	Black or African American (Non-Hispanic)	10.9%	12.5%
Over 60	34.9%	33.4%	Hispanic/Latino/Spanish Origin	12.7%	18.5%
			Asian or Other	5.8%	8.9%
Gender			**Household Income**		
Male	52.5%	50.8%	Under $50K	35.8%	37.8%
Female	47.5%	49.2%	$50K to $100K	36.5%	28.6%
			Over $100K	27.7%	33.6%
Region			**Education**		
Midwest	23.9%	20.7%	High School or Less	11.7%	37.9%
Northeast	21.8%	17.3%	Some College	31.7%	27.1%
South	32.7%	38.3%	College or More	56.6%	35.0%
West	21.6%	23.7%			

Notes: SCE column is representing the subset of the survey respondents as per those with a tenure of 7 months or more; Population column represents the values for the U.S. population as obtained from the U.S. Census Bureau. Total number of individual respondents is 10,741 over the time range June 2013 through December 2021. Besides a disparity in the education category, the sampling done by the New York Fed, once filtered to account for the correct type of tenure and provided that the respondent answers all parts of the survey, provides a distribution that is relatively similar to the U.S. population.

Table 2. Selected Expectation Variables, Abbreviations and Ranges in the SCE

Catalog	(Short) Question Text	Variable	Range
[Macroeconomic Expectations]			
Q5new	What do you think is the percent chance that **12 months from now** the interest rate in the U.S. will be higher than it is now?	One Year Ahead Probability of Higher Interest Rate	0-100%
Q9	Now we would like you to think about the different things that may happen to inflation **over the next 12 months**... In your view, what would you say is the percent chance that, **over the next 12 months...**	One Year Ahead Expected Inflation Rate	$\mathbb{R}$, sum to 100%
Q9c	And in your view, what would you say is the percent change that, **over the 24 and 36 months from survey date], ...**	Three Year Ahead Expected Inflation Rate	$\mathbb{R}$, sum to 100%
C1	And in your view, what would you say is the percent chance that, **over the next 12 months**, the average home price nationwide will...	One Year Ahead Expected Home Price Change	$\mathbb{R}$, sum to 100%
C2part2	**Over the 12-month period between 24 and 36 months from survey date**, I expect the average home price to [increase/decrease] by _%	Three Year Ahead Expected Home Price Point Prediction	$\mathbb{R}$
[Personal and Financial Expectations]			
Q25v2part2	**Over the next 12 months**, I expect my total household income to [increase/decrease] by _%	One Year Ahead Expected Change in Household Income	$\mathbb{R}$
Q26v2part2	**Over the next 12 months**, I expect my total household spending to [increase/decrease] by _%	One Year Ahead Expected Change in Household Spending	$\mathbb{R}$
C4Info	**Twelve months from now**, what do you think will have happened to the price of the following items: (i) gallon of gas, (ii) food, (iii) medical care	One Year Ahead Expected Commodity Price Change Point Prediction	$\mathbb{R}$

Notes: Expectations solicited from the SCE, time range from June 2013 through December 2021. Questions Q5new, Q25v2part2, Q26v2part2, C2part2, and C4Info are all point predictions as respondents are asked by how much the average variable will change over the specified time period and they give a single-value forecast. Questions Q9, Q9c, and C1 are presented alongside probability bins that ask about the percent chance that the variable will increase/decrease by either 12% or more; by 8% to 12%; by 4% to 8%; by 2% to 4%; by 0% to 2%. A generalized beta distribution is fitted to the responses of each participant, and then the mean of this distribution is calculated to obtain the expectation.

Table 3. SCE Descriptive Statistics

	Panel	Mean	S.D.	Min	Max
Macroeconomic Expectations					
Interest Rate 12mo Ahead	Overall	31.44	(25.72)	0.00	100.00
	Between		(22.03)	0.00	100.00
	Within		(13.72)	-75.13	83.33
Inflation Rate 12mo Ahead	Overall	3.84	(4.90)	-25.20	36.30
	Between		(4.25)	-25.20	27.60
	Within		(2.71)	-38.50	37.00
Inflation Rate 24-36mo Ahead	Overall	3.72	(4.97)	-27.00	36.30
	Between		(4.30)	-25.20	26.70
	Within		(2.80)	-39.20	41.70
Home Price Change 12mo Ahead	Overall	4.22	(5.62)	-25.20	36.30
	Between		(4.78)	-25.20	27.80
	Within		(3.31)	-41.70	40.00
Home Price Point Change 24-36mo Ahead	Overall	5.09	(5.87)	-10.00	20.00
	Between		(4.68)	-10.00	20.00
	Within		(3.45)	-15.65	24.97
Personal Financial Expectations					
Household Income 12mo Ahead	Overall	3.89	(5.74)	-20.00	35.00
	Between		(4.98)	-20.00	30.00
	Within		(4.17)	-24.79	27.98
Household Spending 12mo Ahead	Overall	4.01	(6.33)	-20.00	25.00
	Between		(5.67)	-20.00	25.00
	Within		(4.31)	-22.45	29.65
Commodity Price Change 12mo Ahead					
Gallon of Gas	Overall	6.18	(6.51)	-5.00	25.00
	Between		(5.97)	-5.00	25
	Within		(5.46)	-2.12	5.09
Food	Overall	5.65	(4.24)	-1.00	20.00
	Between		(4.09)	1.00	20.00
	Within		(3.95)	1.00	15.00
Medical Care	Overall	11.03	(9.85)	-30.00	40.00
	Between		(10.73)	-10.00	40.00
	Within		(7.89)	-10.00	23.00
Total Observations					49,985
Number of Unique Respondents					10,741
Average Tenure (Month) of Respondents					9.16

Notes: Descriptive statistics of the panel data obtained from the SCE. Respondents are included if they have completed 7 months or more of the survey, and are phased out by the survey design to complete no more than 12 months.

Table 4. Monetary Policy Measures per FOMC Meeting

		Wu and Xia (2016)		Swanson (2021) Factors			Bu et al. (2021)		
FOMC Meeting	Days Since Previous	Δ FFR	Δ Shadow Rate	FFR	FG	LSAP	UMPS	Before	After
Jun 19, 2013	-	-0.02	0.30	0.16	1.28	1.96	0.05	154	142
Jul 31, 2013	42	0.02	-0.55	0.09	0.08	-0.23	0.02	178	302
Sep 18, 2013	49	-0.01	-0.14	0.08	-1.34	-2.55	-0.05	314	244
Oct 30, 2013	42	0.01	-0.05	0.10	0.08	0.33	-0.01	259	437
Dec 18, 2013	49	0.00	-0.13	0.21	0.02	0.63	-0.01	311	189
Jan 29, 2014	42	0.00	-0.24	0.22	-0.04	-0.24	0.01	183	393
Mar 19, 2014	49	0.00	-0.08	0.06	1.04	0.57	0.10	315	219
Apr 30, 2014	42	0.03	-0.27	0.15	0.12	0.04	-0.01	341	356
Jun 18, 2014	49	0.01	0.10	0.09	0.41	-0.16	-0.02	323	319
Jul 30, 2014	42	-0.01	0.05	0.15	-0.09	-0.23	-0.03	457	483
Sep 17, 2014	49	0.00	0.09	0.07	0.75	0.16	0.01	423	316
Oct 29, 2014	42	0.00	0.00	0.09	0.88	-0.01	0.07	418	417
Dec 17, 2014	49	-0.02	0.35	0.29	-1.54	0.50	0.02	317	334
Jan 28, 2015	42	0.00	0.15	0.16	-0.14	-0.14	0.02	396	420
Mar 18, 2015	49	0.00	0.17	0.19	-2.42	-0.77	-0.04	310	339
Apr 29, 2015	42	0.02	0.21	0.20	0.31	0.87	-0.04	404	387
Jun 17, 2015	49	0.00	0.03	0.09	-0.65	0.14	-0.07	342	353
Jul 29, 2015	42	0.00	0.11	0.06	0.48	0.20	0.00	370	335
Sep 17, 2015	50	-0.01	0.18	-0.53	-1.53	-0.64	-0.04	323	315
Oct 28, 2015	41	0.00	0.21	0.11	1.80	-0.05	0.06	390	351
Dec 16, 2015	49	0.12	0.26	0.31	-0.02	-0.54	0.02	353	273
Jan 27, 2016	42	0.09	0.14	0.01	-0.46	-0.06	-0.02	392	361
Mar 16, 2016	49	-0.04	-0.02	-0.11	-1.81	0.04	-0.07	333	275
Apr 27, 2016	42	0.05	-0.10	0.10	0.33	-0.25	0.00	370	364
Jun 15, 2016	49	0.01	-0.07	0.04	-0.78	0.19	-0.03	336	319
Jul 27, 2016	42	0.00	0.05	0.09	0.16	-0.32	0.01	368	326
Sep 21, 2016	56	-0.01	0.06	-0.39	-0.18	-0.47	0.02	333	343
Nov 2, 2016	42	0.00	-0.09	0.12	0.18	-0.05	-0.01	340	366
Dec 14, 2016	42	0.24	-0.01	0.03	1.39	0.24	0.08	327	376
Feb 1, 2017	49	0.01	0.01	0.13	-0.38	0.13	0.00	401	444
Mar 15, 2017	42	0.25	0.24	0.25	-1.31	0.03	-0.02	401	376
May 3, 2017	49	0.00	0.18	0.19	0.40	0.00	0.03	322	364
Jun 14, 2017	42	0.23	0.03	0.32	0.35	0.01	0.03	330	355
Jul 26, 2017	42	0.01	0.02	0.10	-0.21	-0.21	-0.03	404	339
Sep 20, 2017	56	-0.01	0.00	0.05	1.17	-0.12	0.03	370	332
Nov 1, 2017	42	0.00	0.13	0.14	0.14	0.02	0.03	373	354
Dec 13, 2017	42	0.26	0.12	0.20	-0.21	-0.17	-0.01	378	296
Jan 31, 2018	49	0.01	-0.01	0.18	0.25	0.16	0.04	376	445
Mar 21, 2018	49	0.32	0.10	0.12	0.11	0.37	-0.01	380	367
May 2, 2018	42	0.01	0.06	0.16	-0.19	-0.10	-0.02	302	383
Jun 13, 2018	42	0.21	0.12	0.02	0.84	0.10	0.01	370	349
Aug 1, 2018	49	0.00	0.09	0.19	-0.05	-0.06	-0.01	332	402
Sep 26, 2018	56	0.27	0.15	0.31	-0.19	0.04	0.01	343	386
Nov 8, 2018	43	0.00	0.10	0.13	0.27	-0.06	0.02	330	379
Dec 19, 2018	41	0.20	0.13	0.50	-0.04	-0.48	0.04	323	357
Jan 30, 2019	42	0.00	-0.04	0.13	-0.67	0.08	-0.05	383	424
Mar 20, 2019	49	0.03	-0.05	0.36	-1.22	-0.18	-0.02	408	310
May 1, 2019	42	-0.05	0.01	-0.02	-0.69	0.06	0.04	391	420
Jun 19, 2019	49	0.00	-0.23	0.48	-2.02	0.71	-0.05	422	353
Jul 31, 2019	42	0.00	-0.01	0.15	0.14	-0.07	0.06	358	345
Sep 18, 2019	49	-0.23	-0.06	0.12	-0.13	-0.03	0.04	393	334
Oct 30, 2019	42	-0.32	-0.30	0.12	-0.19	-0.12	0.02	418	355
Dec 11, 2019	42	-0.01	-0.03	-0.12	0.20	0.10	0.00	356	369
Jan 29, 2020	49	0.04	0.02	-0.10	-0.13	0.08	0.00	391	422
Apr 29, 2020	91	-0.03	-0.19	0.12	-0.10	-0.03	-0.04	403	426
Jun 10, 2020	42	0.03	-0.08	0.12	-0.22	-0.06	0.00	279	392
Jul 29, 2020	49	0.02	-0.15	0.13	-0.04	-0.10	-0.03	387	407
Sep 16, 2020	49	0.00	-0.18	-0.15	0.09	0.06	-0.01	248	358
Nov 5, 2020	50	0.00	-0.40	0.12	0.17	-0.08	0.02	319	350
Dec 16, 2020	41	0.00	-0.06	-0.12	0.00	0.11	-0.01	307	312
Jan 27, 2021	42	-0.02	-0.13	0.12	-0.16	-0.11	0.01	381	374
Mar 17, 2021	49	-0.01	-1.08	0.13	0.17	-0.05	-0.06	291	338
Apr 28, 2021	42	-0.01	-0.24	0.12	-0.13	0.04	-0.02	353	360
Jun 16, 2021	49	0.03	0.17	0.10	-0.53	-0.07	0.06	328	309
Jul 28, 2021	42	-0.01	-0.06	-0.14	0.07	0.02	-0.01	315	334
Sep 22, 2021	56	0.00	-0.01	0.14	0.31	-0.09	0.03	283	334
Nov 3, 2021	42	0.00	-0.15	-0.14	0.00	0.11	0.00	299	347
Dec 15, 2021	42	0.00	0.69	0.21	-0.10	-0.13	-0.02	321	318
Shock Mean		0.02	-0.01	0.07	-0.05	-0.01	0.00		
Shock S.D.		0.06	0.15	0.13	0.56	0.32	0.03		

Notes: FOMC Meeting indicates the day of an FOMC conference as categorized by the Federal Reserve Board website. All estimates have been rounded to two decimal points in this table for ease of readability. The change in the Effective Federal Funds Rate and the change in the Shadow Rate are direct extensions of the data from Wu and Xia (2016) which has been discontinued after February 2022 but does not affect the analysis. The three factors from Swanson (2021) include FFR (Federal Funds Rate), FG (Forward Guidance), and LSAP (Large Scale Asset Purchases); after June 19, 2019, the factors have been extended from their original estimation by using the methodology and data sources from Bauer and Swanson (2022). Bu et al. (2021) provide the Unified Monetary Policy Shock (UMPS) measure that contains no significant information effect.

Table 5. [Results] Macroeconomic Expectations: Inflation (12m and 24-36m)

	12m Ahead, Expected Inflation Rate				24-36m Ahead, Expected Inflation Rate			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
After FOMC	-0.048	-0.066*	-0.097*	-0.084**	-0.077	-0.083	-0.109	-0.034
	(0.038)	(0.039)	(0.055)	(0.040)	(0.082)	(0.041)	(0.054)	(0.039)
After FOMC ×Δ FFR	0.080				0.011			
	(0.105)				(0.099)			
After FOMC ×Δ Shadow Rate		-0.013				-0.020		
		(0.063)				(0.061)		
After FOMC × Federal Funds Rate Factor			0.002				-0.018	
			(0.062)				(0.055)	
After FOMC × Forward Guidance Factor			-0.042				-0.095	
			(0.040)				(0.069)	
After FOMC × Large Scale Asset Purchases Factor			0.023				-0.007	
			(0.087)				(0.012)	
After FOMC × Unified Factor				0.113*				-0.090
				(0.061)				(0.055)
Individual and FOMC Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Total Observations	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985
Number of Respondents	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741
R^2	0.611	0.611	0.611	0.611	0.593	0.593	0.593	0.593

Notes: Fixed effects regressions. Columns (1), (2), (5), and (6) use the monetary policy measures for the Federal Funds Rate and Shadow Rate as measured in Wu and Xia (2016). Columns (3) and (7) use the monetary policy factors as measured in Swanson (2021). Columns (4) and (8) use the unified policy shock as measured in Bu et al. (2021). Standard errors are in parenthesis and are clustered at the respondent level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 6. [Results] Macroeconomic Expectations: Home Prices (12m Change and 24-36m Point Prediction)

	12mo Ahead, Price Change				24-36m Ahead,Point Prediction			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
After FOMC	-0.137	-0.064**	-0.195**	-0.051**	-0.012	-0.067	-0.045	-0.055
	(0.095)	(0.024)	(0.089)	(0.040)	(0.098)	(0.043)	(0.031)	(0.037)
After FOMC ×Δ FFR	-0.060*				-0.109			
	(0.036)				(0.087)			
After FOMC ×Δ Shadow Rate		-0.044				-0.028		
		(0.058)				(0.049)		
After FOMC × Federal Funds Rate Factor			-0.065*				-0.043	
			(0.035)				(0.027)	
After FOMC × Forward Guidance Factor			-0.043				-0.035	
			(0.036)				(0.047)	
After FOMC × Large Scale Asset Purchases Factor			-0.087*				0.055	
			(0.049)				(0.041)	
After FOMC × Unified Factor				-0.062**				-0.052
				(0.027)				(0.046)
Individual and FOMC Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Total Observations	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985
Number of Respondents	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741
R^2	0.581	0.581	0.581	0.581	0.509	0.509	0.509	0.509

Notes: Fixed effects regressions. Columns (1), (2), (5), and (6) use the monetary policy measures for the Federal Funds Rate and Shadow Rate as measured in Wu and Xia (2016). Columns (3) and (7) use the monetary policy factors as measured in Swanson (2021). Columns (4) and (8) use the unified policy shock as measured in Bu et al. (2021). Standard errors are in parenthesis and are clustered at the respondent level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 7. [Results] Macroeconomic Expectations: Interest Rate, 12m

	12mo Ahead, Higher Interest Rate			
	(1)	(2)	(3)	(4)
After FOMC	-0.975**	0.051	0.073	0.053
	(0.379)	(0.120)	(0.120)	(0.120)
After FOMC ×Δ FFR	2.286			
	(0.741)			
After FOMC ×Δ Shadow Rate		0.406		
		(0.156)		
After FOMC × Federal Funds Rate Factor			0.623***	
			(0.211)	
After FOMC × Forward Guidance Factor			0.199	
			(0.194)	
After FOMC × Large Scale Asset Purchases Factor			0.287	
			(0.175)	
After FOMC × Unified Factor				0.427*
				(0.194)
Individual and FOMC Fixed Effects	✓	✓	✓	✓
Total Observations	49,985	49,985	49,985	49,985
Number of Respondents	10, 741	10, 741	10, 741	10, 741
R^2	0.643	0.643	0.643	0.643

Notes: Fixed effects regressions. Columns (1) and (2) use the monetary policy measures for the Federal Funds Rate and Shadow Rate as measured in Wu and Xia (2016). Column (3) uses the monetary policy factors as measured in Swanson (2021). Column (4) uses the unified policy shock as measured in Bu et al. (2021). Standard errors are in parenthesis and are clustered at the respondent level.
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 8. [Results] Personal Financial Expectations: 12mo Ahead Percent Change in Household Income and Spending

	12mo Ahead, Income				12mo Ahead, Spending			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
After FOMC	0.024	-0.049	-0.053	-0.065	-0.108	0.087	0.071	0.046
	(0.097)	(0.056)	(0.043)	(0.059)	(0.149)	(0.056)	(0.049)	(0.031)
After FOMC ×Δ FFR	-0.304				0.066			
	(0.056)				(0.115)			
After FOMC ×Δ Shadow Rate		0.025				-0.005		
		(0.041)				(0.047)		
After FOMC × Federal Funds Rate Factor			-0.025				0.066	
			(0.044)				(0.041)	
After FOMC × Forward Guidance Factor			0.023				0.024	
			(0.067)				(0.039)	
After FOMC × Large Scale Asset Purchases Factor			-0.057				0.165	
			(0.039)				(0.099)	
After FOMC × Unified Factor				-0.005				0.069
				(0.051)				(0.077)
Individual and FOMC Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Total Observations	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985
Number of Respondents	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741
R^2	0.698	0.698	0.698	0.698	0.603	0.603	0.603	0.603

Notes: Fixed effects regressions. Columns (1), (2), (5), and (6) use the monetary policy measures for the Federal Funds Rate and Shadow Rate as measured in Wu and Xia (2016). Columns (3) and (7) use the monetary policy factors as measured in Swanson (2021). Columns (4) and (8) use the unified policy shock as measured in Bu et al. (2021). Standard errors are in parenthesis and are clustered at the respondent level.
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 9. [Results] Personal Financial Expectations: 12mo Ahead Percent Change Commodity Prices

	Gallon of Gas				Food				Medical Care			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
After FOMC	-0.007	0.002	0.008	-0.009	-0.014	0.034	0.061	-0.008	-0.023	0.042	-0.020	-0.113
	(0.061)	(0.001)	(0.006)	(0.006)	(0.019)	(0.022)	(0.042)	(0.005)	(0.035)	(0.025)	(0.015)	(0.087)
After FOMC ×Δ FFR	0.043				0.019				0.007			
	(0.055)				(0.033)				(0.016)			
After FOMC ×Δ Shadow Rate		0.010				-0.031				-0.001		
		(0.018)				(0.313)				(0.019)		
After FOMC × Federal Funds Rate Factor			-0.026				0.004				0.085	
			(0.016)				(0.003)				(0.074)	
After FOMC × Forward Guidance Factor			-0.077				-0.009				0.127	
			(0.055)				(0.014)				(0.159)	
After FOMC × Large Scale Asset Purchases Factor			-0.410				-0.071				0.0122	
			(0.246)				(0.043)				(0.097)	
After FOMC × Unified Factor				-0.008				-0.054				-0.136
				(0.121)				(0.060)				(0.149)
Individual and FOMC Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total Observations	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985	49,985
Number of Respondents	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741	10,741
R^2	0.476	0.476	0.476	0.476	0.574	0.574	0.574	0.574	0.398	0.398	0.398	0.398

Notes: Fixed effects regressions. Columns (1) (2) use the monetary policy measures for the Federal Funds Rate and Shadow Rate as measured in Wu and Xia (2016). Column (3) uses the monetary policy factors as measured in Swanson (2021). Column (4) uses the unified policy shock as measured in Bu et al. (2021). Standard errors are in parenthesis and are clustered at the respondent level.
* p < 0.10, ** p < 0.05, *** p < 0.01

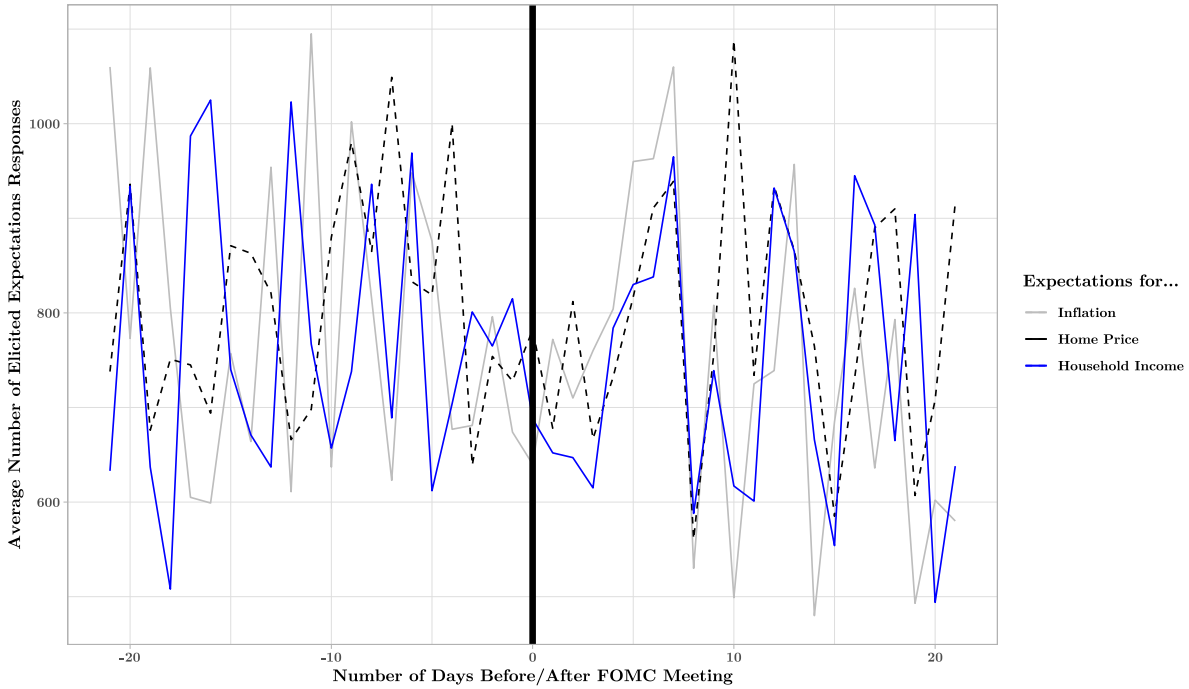
Table 10. [Results] Monetary Policy Announcements and Google Trends Search Intensities

	FOMC	Federal Funds Rate	Inflation	Quantitative Easing	Monetary Policy
	(1)	(2)	(3)	(4)	(5)
Δ FFR	54.43**	77.31***	-10.70	-22.84	-0.60
	(24.56)	(27.51)	(23.79)	(31.74)	(22.10)
Δ Shadow Rate	-5.39	2.91	12.49	6.75	-5.77
	(10.71)	(11.99)	(10.37)	(13.84)	(9.63)
Federal Funds Rate Factor	-14.73	9.51	-20.69	17.63	22.47
	(14.05)	(15.74)	(13.61)	(18.16)	(12.64)
Forward Guidance Factor	-3.65	-10.98**	0.04	0.42	-6.13
	(4.05)	(4.54)	(3.92)	(5.24)	(3.64)
Large Scale Asset Purchases Factor	-5.26	-1.54	0.59	-1.97	5.08
	(5.04)	(5.65)	(4.89)	(6.52)	(4.54)
Unified Factor	43.63	233.53**	-5.71	109.84	56.86
	(82.71)	(92.62)	(80.10)	(106.88)	(74.41)
R^2	0.074	0.175	0.044	0.036	0.082
F Ratio	1.269	3.395	0.741	0.596	1.421

Notes: Results based on regressing the absolute value of various types of monetary policy announcement measures on Google Trends Search Interest (by relative intensity) over June 2013 through December 2021. The keywords are "FOMC", "Federal Funds Rate", "Inflation", "Quantitative Easing" (which is a stand in for "Large Scale Asset Purchases due to the relative popularity and interchangeability of the two words), and "Monetary Policy". Robust standard errors are in parentheses.

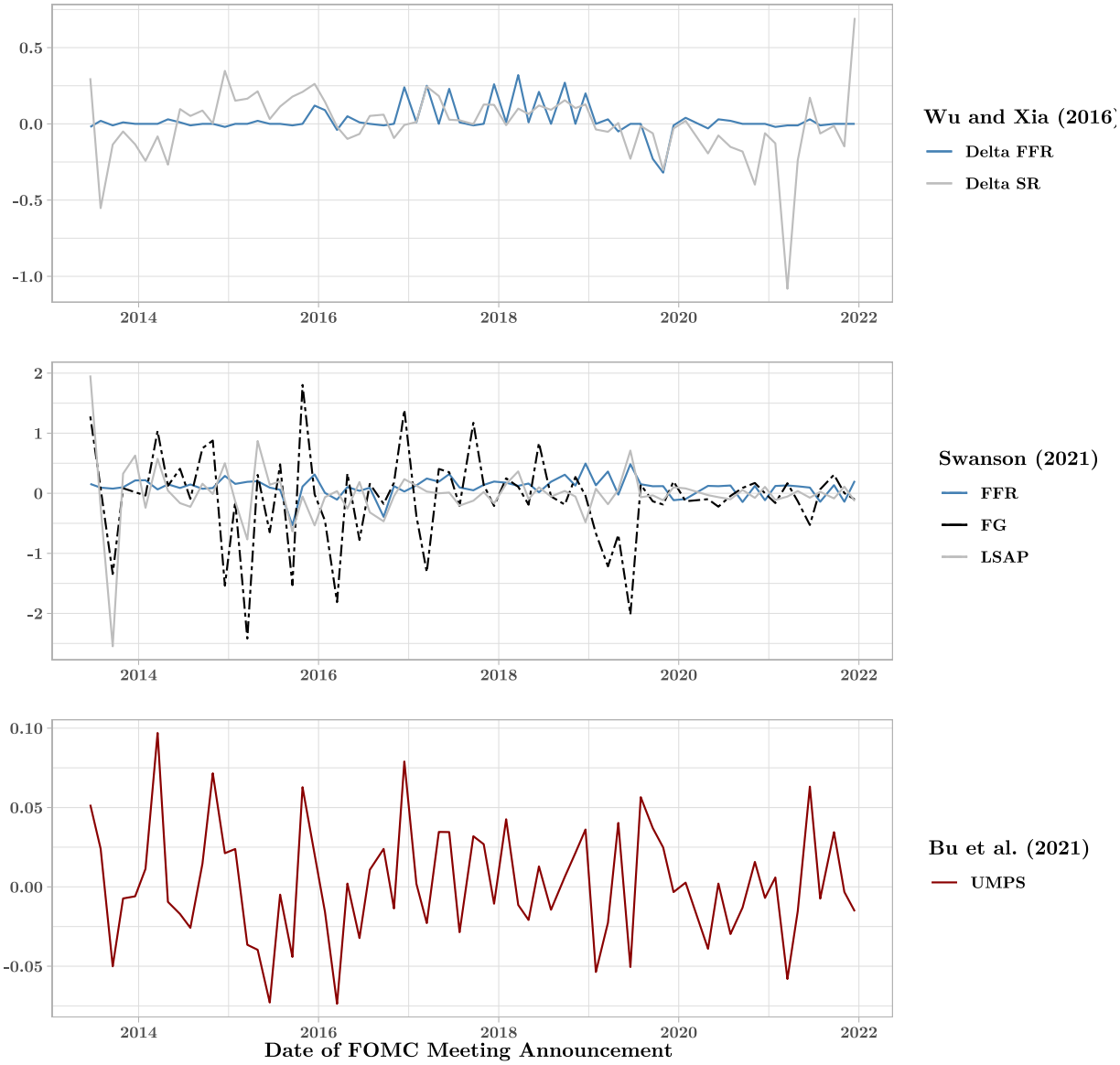
* p < 0.10, ** p < 0.05, *** p < 0.001

Figure 1: Average Responses surrounding Event Study FOMC Time Window



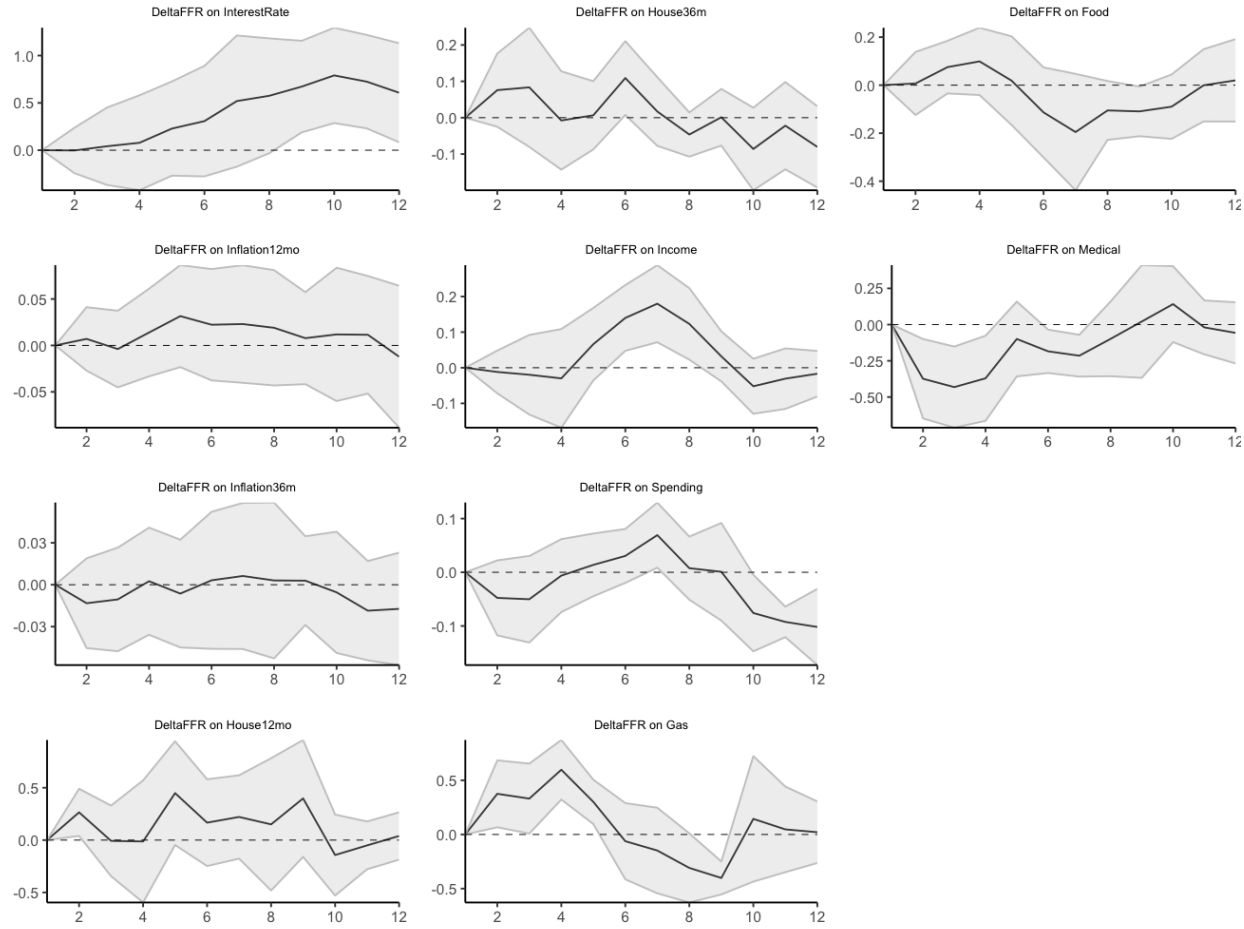
Notes: Average number of responses across a subset of the elicited expectations from the SCE. The thick black line represents the day of the FOMC meeting announcement; the symmetrical number of responses around this set time window of three-weeks before and after captures about the same number of responses for nearly all the expectations variables, including the ones not included in this figure. The subset here represents solicited expectations for One Year Ahead Expected Inflation Rate from survey date, Home One Year Ahead Expected Home Price Change from survey date, and One Year Ahead Expected Change in Household Income from survey date.

Figure 2: Measures of Monetary Policy Announcements (Shocks)



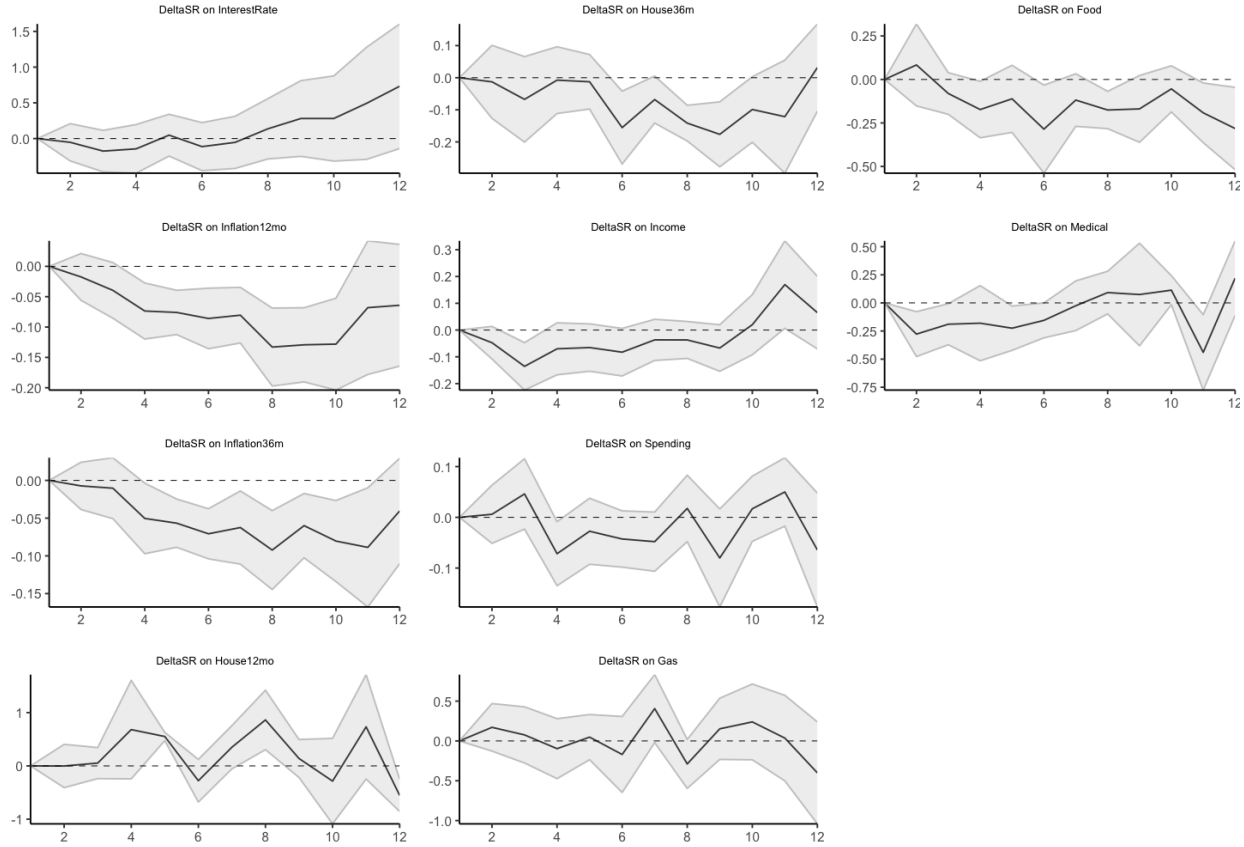
Notes: Six measures of monetary policy that are used as the exogenous shocks to expectations for the analysis. The top panel shows the month over month change in the Federal Funds Rate and the Shadow Rate as calculated by Wu and Xia (2016). The middle panel shows the Swanson (2021) monetary policy surprise factors with an extension to December 2021 by using the methodology outlined in Bauer and Swanson (2022). Lastly, the unified measure of monetary policy announcements are taken from the shock series of Bu et al. (2021).

Figure 3: Expectation Impact following Announcement (Changes in Federal Funds Rate)



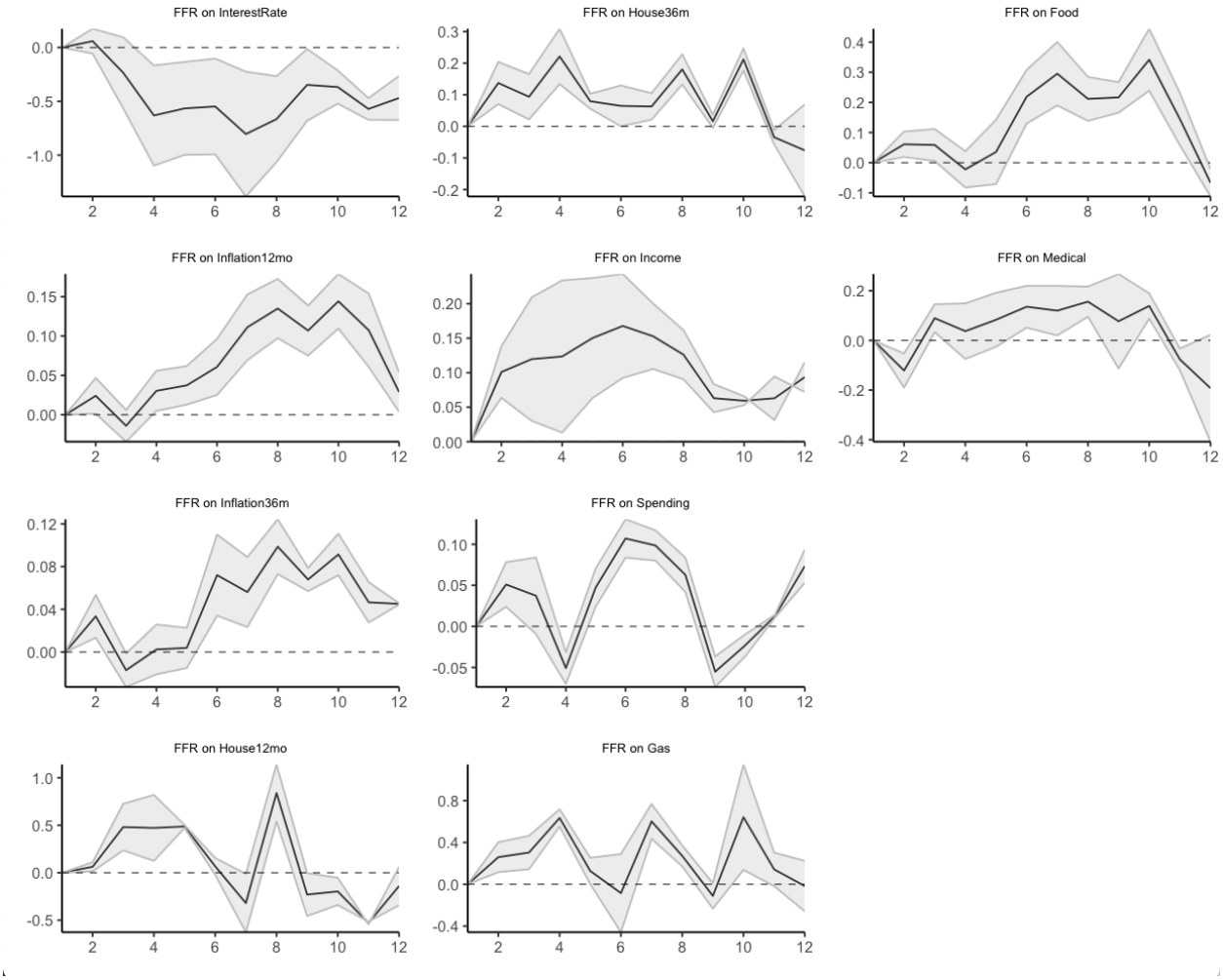
Notes: Estimates based on local projections for up to twelve months in Equation 2 of the various expectations variables in the SCE analysis on the monetary policy surprise coming from the change in the Federal Funds Rate calculated by Wu and Xia (2016). Responses are scaled to a shock corresponding to a 25 basis-point increase in the respective rate. Changes in the response variable correspond to the distinct level each expectation is elicited in, such as probability of interest rate increasing for the top left panel. Shaded areas denote 90% Newey-West confidence intervals.

Figure 4: Expectation Impact following Announcement (Changes in Shadow Rate)



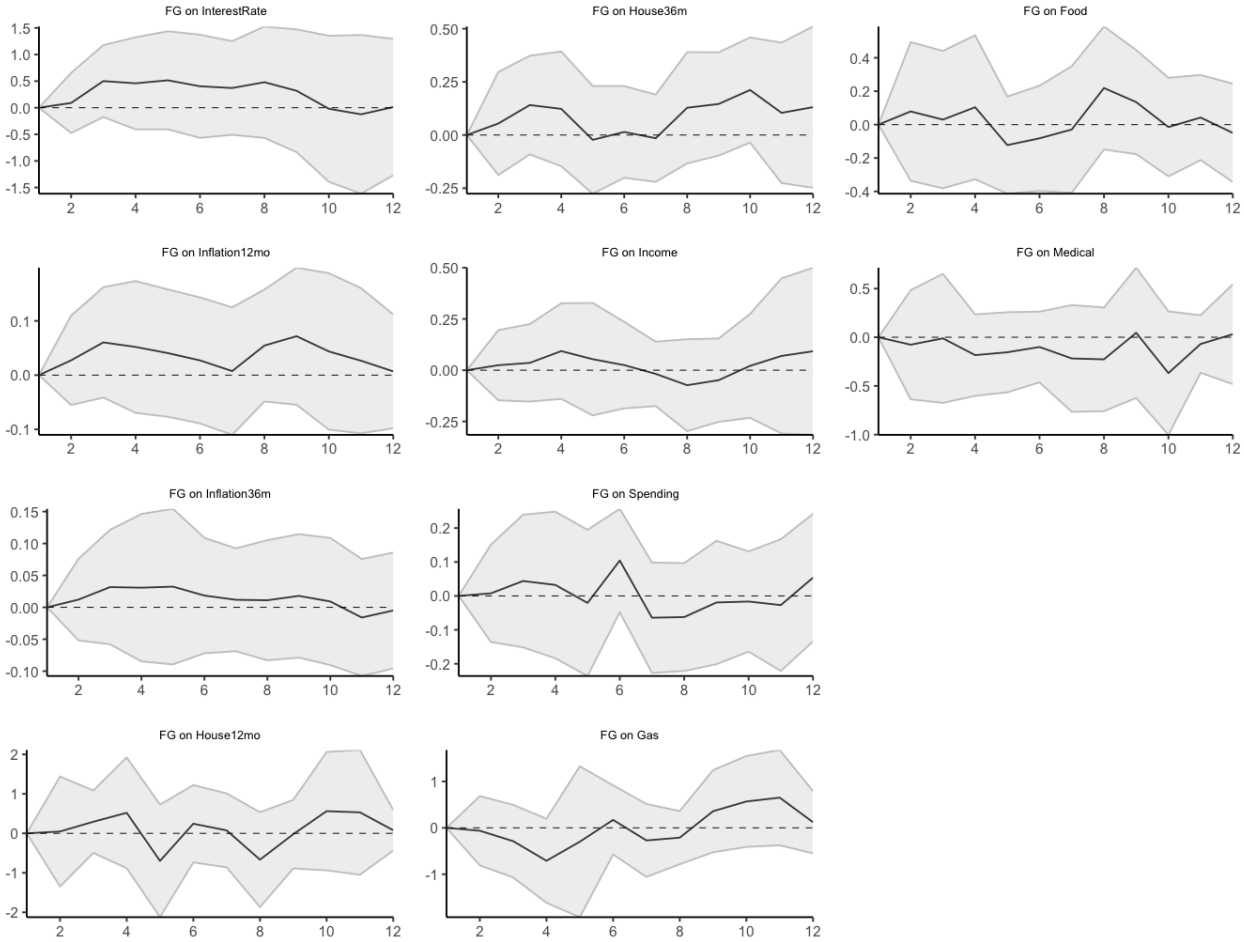
Notes: Estimates based on local projections for up to twelve months in Equation 2 of the various expectations variables in the SCE analysis on the monetary policy surprise coming from the change in the Shadow Rate calculated by Wu and Xia (2016). Responses are scaled to a shock corresponding to a 25 basis-point increase in the respective rate. Changes in the response variable correspond to the distinct level each expectation is elicited in, such as probability of interest rate increasing for the top left panel. Shaded areas denote 90% Newey-West confidence intervals.

Figure 5: Expectation Impact following Announcement (Federal Funds Rate)



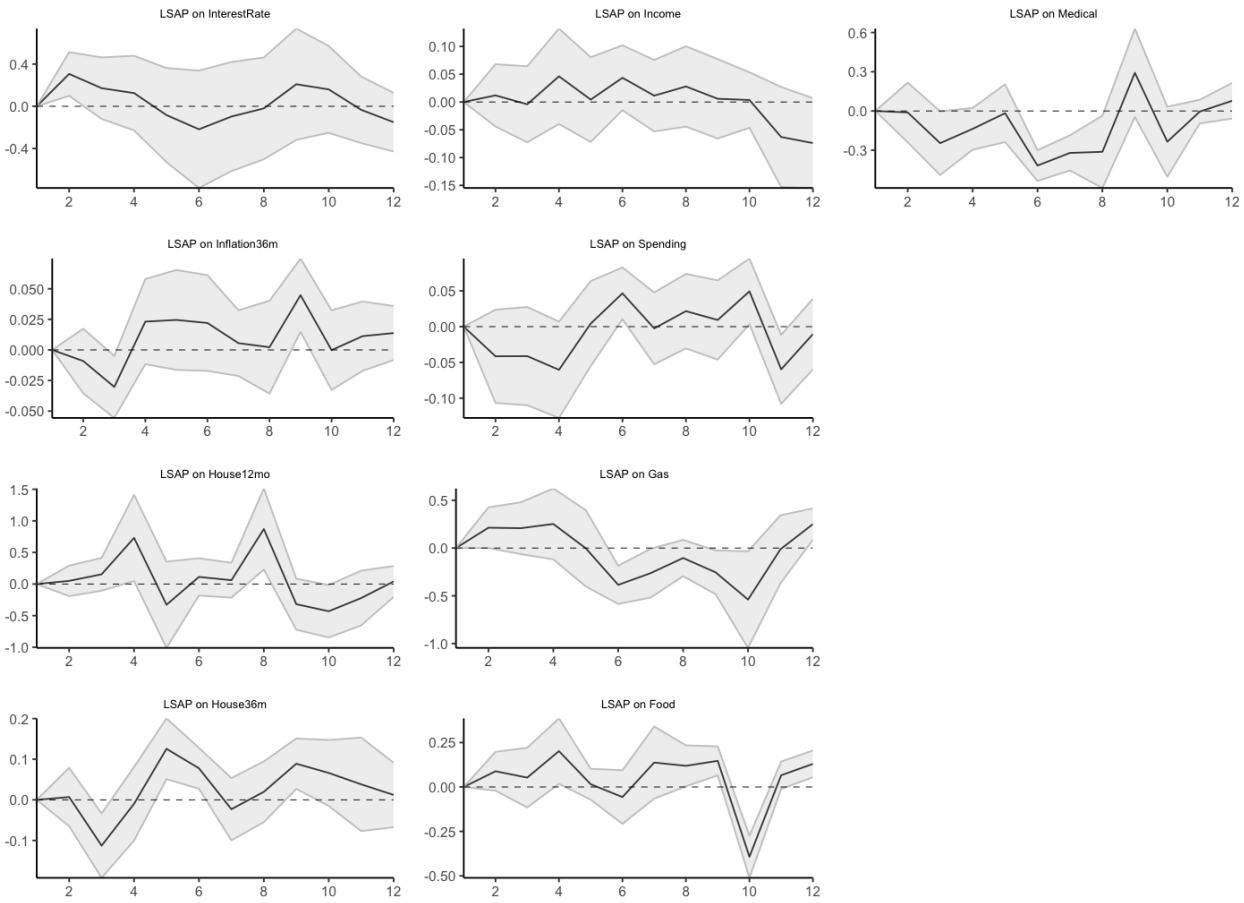
Notes: Estimates based on local projections for up to twelve months in Equation 2 of the various expectations variables in the SCE analysis on the monetary policy surprise coming from the the Federal Funds Rate factor by Swanson (2021). Responses are scaled to a shock corresponding to a 25 basis-point increase in the respective rate. Changes in the response variable correspond to the distinct level each expectation is elicited in, such as probability of interest rate increasing for the top left panel. Shaded areas denote 90% Newey-West confidence intervals.

Figure 6: Expectation Impact following Announcement (Forward Guidance)



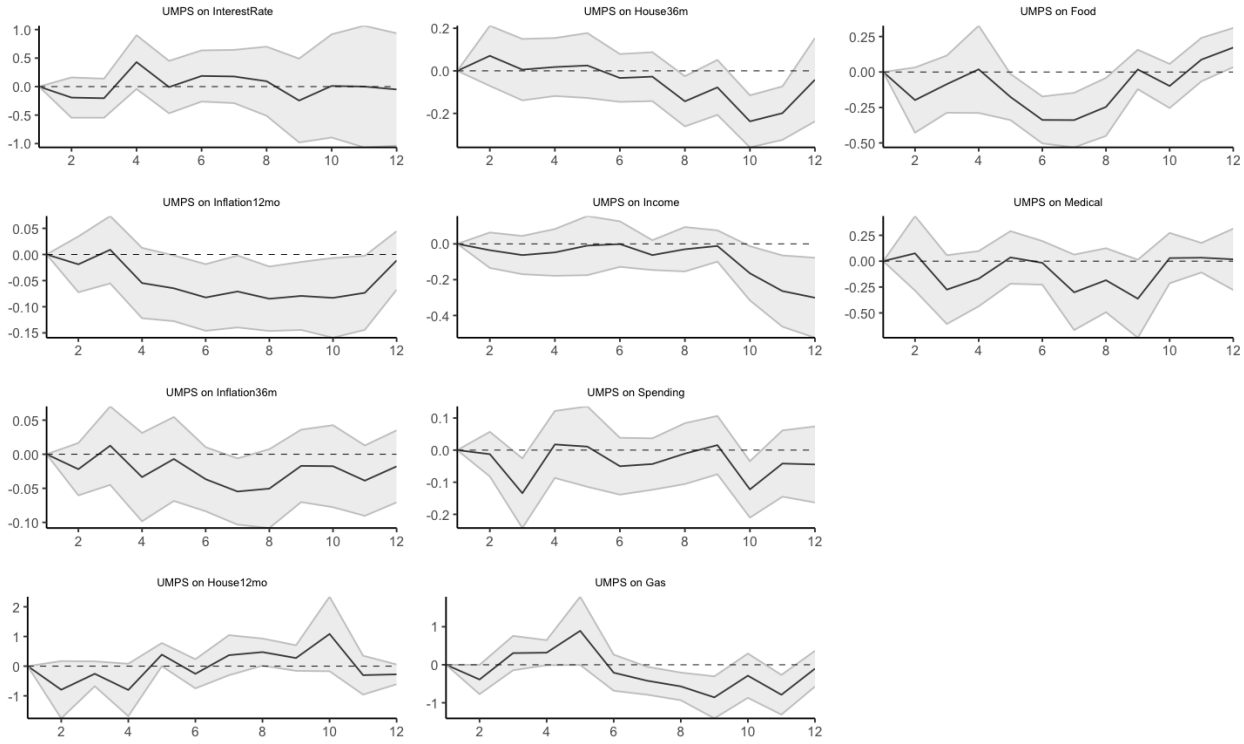
Notes: Estimates based on local projections for up to twelve months in Equation 2 of the various expectations variables in the SCE analysis on the monetary policy surprise coming from the the Forward Guidance factor by Swanson (2021). Responses are scaled to a shock corresponding to a 25 basis-point increase in the respective rate. Changes in the response variable correspond to the distinct level each expectation is elicited in, such as probability of interest rate increasing for the top left panel. Shaded areas denote 90% Newey-West confidence intervals.

Figure 7: Expectation Impact following Announcement (Large Scale Asset Purchases)



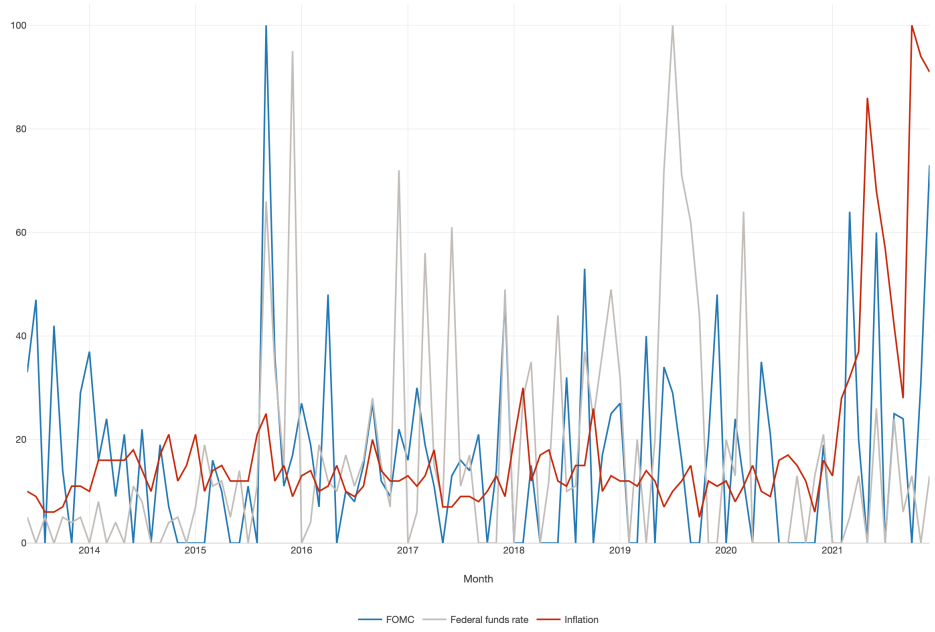
Notes: Estimates based on local projections for up to twelve months in Equation 2 of the various expectations variables in the SCE analysis on the monetary policy surprise coming from the the Large Scale Asset Purchases factor by Swanson (2021). Responses are scaled to a shock corresponding to a 25 basis-point increase in the respective rate. Changes in the response variable correspond to the distinct level each expectation is elicited in, such as probability of interest rate increasing for the top left panel. Shaded areas denote 90% Newey-West confidence intervals.

Figure 8: Expectation Impact following Announcement (Unified Policy Measure)

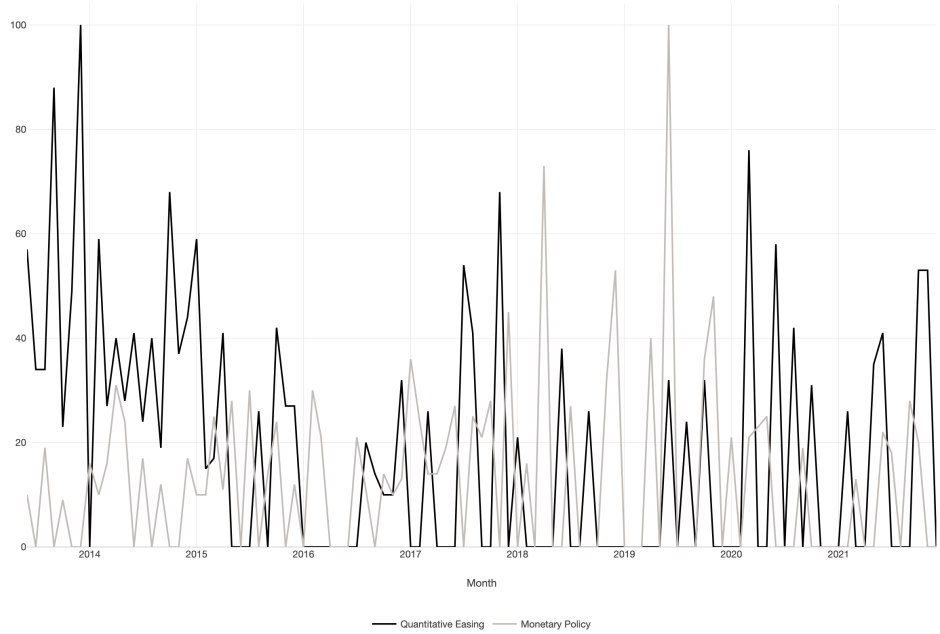


Notes: Estimates based on local projections for up to twelve months in Equation 2 of the various expectations variables in the SCE analysis on the monetary policy surprise coming from the the unified policy measure by Bu et al. (2021). Responses are scaled to a shock corresponding to a 25 basis-point increase in the respective rate. Changes in the response variable correspond to the distinct level each expectation is elicited in, such as probability of interest rate increasing for the top left panel. Shaded areas denote 90% Newey-West confidence intervals.

Figure 9: Search Intensity for five keywords surrounding the FOMC via Google Trends



(a)



(b)

Notes: (a) Keywords here are "FOMC", "Federal Funds Rate", and "Inflation". (b) Keywords here are "Quantitative Easing" and "Monetary Policy". The time period covers the event study analysis from June 2013 to December 2021. Google Trends creates a point of relative intensity (=100) to show the highest intensity and scales the rest of the intensities relative to this.

A Selected Questions from the SCE Module

Q5new

What do you think is the percent change **12 months from now** the average interest rate on savings accounts will be *higher* than it is now?

Instruction H2

Ruler & Box

If no response: error E1

Q9

Now we would like you to think about the different things that may happen to inflation **over the next 12 months**. We realize that this question may take a little more effort.

In your view, what would you say is the percent chance that, over the next 12 months. . .

Instruction H4.

The rate of inflation will be 12% or higher (bin 1)	___ percent chance
The rate of inflation will be between 8% and 12% (bin 2)	___ percent chance
The rate of inflation will be between 4% and 8% (bin 3)	___ percent chance
The rate of inflation will be between 2% and 4% (bin 4)	___ percent chance
The rate of inflation will be between 0% and 2% (bin 5)	___ percent chance
The rate of deflation (opposite of inflation) 0% and 2% (bin 6)	___ percent chance
The rate of deflation (opposite of inflation) 2% and 4% (bin 7)	___ percent chance
The rate of deflation (opposite of inflation) 4% and 8% (bin 8)	___ percent chance
The rate of deflation (opposite of inflation) 8% and 12% (bin 9)	___ percent chance
The rate of deflation (opposite of inflation) will be 12% or higher (bin 10)	___ percent chance
TOTAL	**100**

If no response: error E1

If sum not equal to 100: "Your total adds up to XX" followed by error msg E3.

Q9c

And in your view, what you say is the percent change that, **over the [Month, Year - 24 months from survey date] and [Month, Year - 36 months from survey date], . . .**

Instruction H4.

The rate of inflation will be 12% or higher (bin 1)	___ percent chance
The rate of inflation will be between 8% and 12% (bin 2)	___ percent chance
The rate of inflation will be between 4% and 8% (bin 3)	___ percent chance
The rate of inflation will be between 2% and 4% (bin 4)	___ percent chance
The rate of inflation will be between 0% and 2% (bin 5)	___ percent chance
The rate of deflation (opposite of inflation) 0% and 2% (bin 6)	___ percent chance
The rate of deflation (opposite of inflation) 2% and 4% (bin 7)	___ percent chance
The rate of deflation (opposite of inflation) 4% and 8% (bin 8)	___ percent chance
The rate of deflation (opposite of inflation) 8% and 12% (bin 9)	___ percent chance
The rate of deflation (opposite of inflation) will be 12% or higher (bin 10)	___ percent chance
TOTAL	**100**

If no response: error E1

If sum not equal to 100: "Your total adds up to XX" followed by error msg E3.

C1

And in your view, what would you say is the percent chance that, **over the next 12 months**, the average home price nationwide will. . .

Instruction H4.

Increase by 12% or more (bin 1)	___ percent chance
Increase by 8% to 12% (bin 2)	___ percent chance
Increase by 4% to 8% (bin 3)	___ percent chance
Increase by 2% to 4% (bin 4)	___ percent chance
Increase by 0% to 2% (bin 5)	___ percent chance
Decrease by 0% to 2% (bin 6)	___ percent chance
Decrease by 2% to 4% (bin 7)	___ percent chance
Decrease by 4% to 8% (bin 8)	___ percent chance
Decrease by 8% to 12% (bin 9)	___ percent chance
Decrease by 12% or more (bin 10)	___ percent chance
TOTAL	**100**

If no response: error E1

C2part2

By about what percent do you expect the average home price to [increase/decrease as in C2] over that period?

Instruction H9

Over the 12-month period between [Month, Year - 24 months from survey date] and [Month, Year - 36 months from survey date],

I expect the average home price to [increase/decrease as in C2] by _%

If no response: error E1

Q25v2part2

By about what percent do you expect your total household income [increase/decrease as in Q25v2]? Please give your best guess.

Instructions H9.

Over the next 12 months, I expect my total household income to [increase/decrease] by _%.

If no response: error E1

Q26v2part2

By about what percent do you expect your total household spending [increase/decrease as in Q26v2]? Please give your best guess.

Instructions H9.

Over the next 12 months, I expect my total household spending to [increase/decrease] by _%.

If no response: error E1

C4Info

Twelve months from now, what do you think will have happened to the price of the following items?*Instructions H11.*

I expect. . .

The price of a gallon of gas to have increased by (1)	_ OR decreased by _%
The price of food to have increased by (2)	_ OR decreased by _%
The price of medical care to have increased by (3)	_ OR decreased by _%
The cost of a college education to have increased by (4)	_ OR decreased by _%

The cost of renting a typical house/apartment to have increased by (5) _ OR decreased by _%

The price of gold to have increased by (6) _ OR decreased by _%

If no response: error E9