What Determines Household Expectations?*

Anushka Mitra[1] and Aditi Singh[2]

[1]*Federal Reserve Board of Governors*

[2]*CAFRAL, Reserve Bank of India*

Abstract

This paper examines which macroeconomic signals shape household expectations and finds that unemployment shocks affect households expectations at least as much as inflation shocks. Using daily data on expectations, we identify announcement-driven revisions and construct shock series under two benchmarks: sophisticated and naive. We demonstrate that labor market information significantly influences not only households' subjective expectations about the economy, but also their expectations about inflation. Even in periods when inflation is decreasing, rising unemployment can significantly influence expectations. We also find evidence of state dependence, with households responding more to the variable that has been worsening.

JEL Codes: E70, D84, E30

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1 Introduction

Household expectations are central to the transmission of macroeconomic policy. As Lucas (1976) emphasized, neglecting expectational effects would lead to systematically biased policy predictions. Much of the early literature on household expectations focused on inflation, reflecting the central role of inflation expectations in New Keynesian models (Woodford & Walsh 2005, Weber et al. 2022). More recent work, however, shows that households form expectations about inflation and broader economic conditions jointly (Andre et al. 2022, Kamdar & Ray 2024). This raises a natural question: which macroeconomic variables matter for this joint process and to what degree.

We answer this question by comparing household expectations before and after scheduled macroeconomic announcements. To do so, we exploit high-frequency data on household expectations from the Gallup Daily Tracking Poll which interviews a large sample of respondents every day. We complement this high-frequency evidence with the Michigan Survey of Consumers, whose longer history and quantitative inflation forecasts allow us to test whether the same patterns persist across macroeconomic conditions and apply to expectations about both the broader economy and inflation. Together, the two surveys allow us to ask not only which announcements move household beliefs, but also under what conditions do those announcements matter most.

Whether a release constitutes news depends on what households expected beforehand. We introduce a stylized framework that formalizes this idea: the unanticipated component, or *shock*, is the difference between the released value and households' prior forecast. Because the household prior is unobserved in the data directly, we estimate these responses under two extreme benchmarks. On one hand, we assume that households are as sophisticated as professional forecasters and so have the same priors as them, and on the other, we assume they are naive and use the previous release as their prior. We view the true household prior as likely to fall between these benchmarks and interpret the resulting estimates as a plausible range for the true response. The framework yields a testable reduced-form prediction: revisions in household expectations should vary with the size and sign of the announcement surprise.

We find that news about the labor market is at least as important as news about inflation in shaping household expectations, although the literature has paid far more attention to inflation. In the Gallup Poll, unemployment is the only announcement that households immediately respond to. This response is even more pronounced in the presence of a weak labor market. In the Michigan survey, the effects of unemployment announcements are similar, and sometimes larger in size, to those of inflation announcements. Their relative strength in influencing expectations depends on recent economic conditions: when unemployment and inflation have been moving in opposite directions, households respond more to news about the variable that has been deteriorating. Interestingly, looking specifically at inflation expectations, we find that even in times when inflation is improving, a worsening in unemployment leads to higher inflation expectations.

Taken together, these results suggest that unemployment behaves very similarly to inflation when it comes to influencing household expectations. The magnitude of the effects is at least as large as those of inflation, and sometimes even larger. Households therefore also care about labor-market news to form beliefs about future inflation, along with news about prices.

We make three contributions relative to the existing literature. First, we conduct a systematic horse-race across multiple macroeconomic announcements—unemployment, CPI, GDP, and housing starts—using a unified empirical framework. This allows us to directly compare the relative strength of each signal. Second, we construct announcement surprises under two polar benchmarks (naive and sophisticated) that together bound the true household response, allowing us to draw robust conclusions without taking a stand on households' information sophistication. Third, we examine the relative importance of unemployment and inflation based on the recent co-movement between the two variables, and find evidence of state dependence, with expectations responding more to the variable that is deteriorating.

Taken together, these results show that labor market news shapes not only households' broader economic sentiments, but also their inflation expectations.

Our paper primarily contributes to the literature on how households form macroeconomic expectations. A large body of work has documented that personal experiences shape beliefs about aggregate outcomes (Malmendier & Nagel 2015, Kuchler & Zafar 2015, Roth & Wohlfart 2019). More recent papers show that households do not form expectations about prices, jobs, and the broader economy separately. Instead, they rely on subjective views about how these variables are connected (Binetti et al. 2024, Andre et al. 2026). At the same time, the information households use depends on economic conditions: exposure to unemployment risk raises demand for macroeconomic information, while attention to inflation and learning from inflation news increase when inflation is high (Roth et al. 2022, Bracha & Tang 2025, Weber et al. 2025, Link et al. 2026). We contribute to this literature by identifying which actual macroeconomic releases lead households to revise their expectations, and find an important role of labor market news. We also show that the relative influence of unemployment and inflation news changes with their recent trajectories, with households focusing more on the variable that has recently deteriorated.

Our paper is most closely related to Binder et al. (2024) and Mertens et al. (2020). Binder et al. (2024) use expectations from the Survey of Consumer Expectations (SCE), which was designed to be a monthly survey. Using it at a daily level makes the analyses likely to suffer from small sample bias.[1] Further, as their design is an event study, all announcements are

[1] As we document in the appendix, the daily SCE sample is only about 40 households, one-tenth the sample size of Gallup, and also has particularly sparse sample around the labor market announcements. The Michigan microdata also suffers from this issue. However, we exploit the long time series dimension of the MSC rather than it's frequency.

treated equally, whereas our surprise measure explicitly calibrates for the size of the shock. The primary objective of Mertens et al. (2020) is to study the response of expectations to monetary policy surprises, whereas this paper is interested in the broader question of whether households respond to any macroeconomic news. Further, the primary outcome variable in Mertens et al. (2020) is a weighted confidence index of current perceptions and future expectations, which is not a completely forward looking outcome. We instead restrict our focus to future expectations. Additionally, we bring in external validity by extending the analysis to Michigan microdata over four decades, allowing us to study both economic sentiment and inflation expectations across markedly different macro regimes.

We also contribute to the literature on the macroeconomic announcement premium. Prior research documents that announcements move spot exchange rates (Andersen et al. 2003, Evans & Lyons 2008), commodity prices (Caporale et al. 2016), bond yields (Balduzzi et al. 2001, Andersen et al. 2007, Gürkaynak et al. 2005), global asset prices (Boehm & Kroner 2023), and effects of news shocks (Barsky et al. 2015). Our contribution is to show that this premium exists even for household expectations and is largest for labor market news.

2 Macroeconomic Announcements and Household Expectations

Macroeconomic announcements affect expectations only when they contain information that households did not already anticipate. Identifying this unanticipated component requires comparing each release with households' prior forecast. However, households' priors are not directly observable. We therefore develop a stylized framework that imposes structure on household forecasting and maps the resulting announcement surprises into revisions in expectations.

Consider a macroeconomic announcement released on date t. Let X_t denote the announced value and let Z_{t+k} denote an economic fundamental about which households form expectations at horizon k. Let $\mathcal{I}_t^-$ be the set containing all the information households have immediately before the announcement, and $\mathcal{I}_t^+$ denote the information available immediately after the announcement. This implies:

$$\mathcal{I}_t^- \subseteq \mathcal{I}_t^+, \qquad X_t \in \mathcal{I}_t^+. \tag{1}$$

Define households' expectations immediately before and after the announcement as

$$m_t^- \equiv E[Z_{t+k} \mid \mathcal{I}_t^-], \tag{2}$$

$$m_t^+ \equiv E[Z_{t+k} \mid \mathcal{I}_t^+], \tag{3}$$

where E denotes households' subjective expectation operator. This requires the household's expectations to satisfy their own Law of Iterated Expectations. This does not rule out the fact that they can have mis-specified beliefs about the economy. All random variables considered below are assumed to have finite second moments.

We specify post announcement expectations as a weighted combination of the information contained in the announcement and all other information available to households:

$$m_t^+ = p\,g(X_t) + (1-p)h(\psi_t^+), \tag{4}$$

where ψ_t^+ summarizes information other than X_t that is available immediately after the announcement. The functions $g(\cdot)$ and $h(\cdot)$ take the information X_t and ψ_t^+ respectively as inputs and transform them into expectations of Z_{t+k} as outputs. The parameter $p \in [0,1]$ captures the weight households place on information contained in the announcement. We assume that p is determined before X_t is observed and is constant over the announcement events considered in the baseline analysis. Equation (4) thus denotes the expectation-formation rule.

Before observing the announcement, households integrate over the possible realizations of the information that will become available after the release:

$$\begin{aligned} m_t^- &= E[m_t^+ \mid \mathcal{I}_t^-] \\ &= pE[g(X_t) \mid \mathcal{I}_t^-] + (1-p)E[h(\psi_t^+) \mid \mathcal{I}_t^-]. \end{aligned} \tag{5}$$

Subtracting equation (5) from equation (4) gives

$$\begin{aligned} \Delta m_t \equiv m_t^+ - m_t^- = p\left\{g(X_t) - E[g(X_t) \mid \mathcal{I}_t^-]\right\} \\ + (1-p)\left\{h(\psi_t^+) - E[h(\psi_t^+) \mid \mathcal{I}_t^-]\right\}. \end{aligned} \tag{6}$$

Let S_t denote the shock to households' expectations from the macroeconomic announcement:

$$S_t = g(X_t) - E[g(X_t) \mid \mathcal{I}_t^-] \tag{7}$$

Define the innovation in non-announcement information as

$$\eta_t \equiv h(\psi_t^+) - E[h(\psi_t^+) \mid \mathcal{I}_t^-]. \tag{8}$$

Thus,

$$\Delta m_t = p\{S_t\} + (1-p)\{\eta_t\}. \tag{9}$$

A sufficient, but strong, identifying assumption is that the announcement is the only new information arriving during the event window:

$$\mathcal{I}_t^+ = \mathcal{I}_t^- \cup X_t. \tag{10}$$

Under this assumption, the non-announcement component $h(\psi_t^+)$ is already known immediately before the release, and its innovation η_t in equation (9) is zero. Our empirical strategy, however, can work with a weaker condition:

$$E[\eta_t \mid S_t, \mathcal{I}_t^-] = 0. \tag{11}$$

Thus, other information may affect household expectations during the event window, but its effect must not be systematically related to the announcement shock. This condition would be violated if, for example, other correlated macroeconomic statistics were released simultaneously with X_t, if information about X_t leaked before its official release, or if another policy announcement systematically responded to the realization of X_t.

To obtain a linear estimating equation, we assume that the signal-specific component of household expectations is affine:

$$g(X_t) = b + aX_t. \tag{12}$$

The parameter a captures the perceived effect of the macroeconomic variable X_t on the expected outcome Z_{t+k}. An a greater than one would allow for households to overreact to macroeconomic announcements, while an a less than one would allow households to underreact. In our baseline, we assume $a = 1$.

Thus, our shock from the announcement, as given in equation 7, can be written simply as:

$$S_t = X_t - E[X_t \mid \mathcal{I}_t^-] \tag{13}$$

The second equality follows from the affine specification of $g(.)$ after setting $a = 1$.

Equation (9) then motivates the empirical specification:

$$\Delta m_t = \alpha + \beta S_t + \epsilon_t, \tag{14}$$

where

$$\beta = p, \qquad \epsilon_t = (1 - p)\eta_t + v_t. \tag{15}$$

The term v_t captures sampling variation and measurement error in the observed expectations series. We assume

$$E[v_t \mid S_t, \mathcal{I}_t^-] = 0, \qquad \mathrm{Var}(S_t) > 0. \tag{16}$$

Under these assumptions, OLS consistently estimates the response of household expectations to the household-perceived announcement shock.

2.1 Two Priors

The household forecast $E[X_t \mid \mathcal{I}_t^-]$ in equation (7) is not directly observed. We therefore consider a forecasting rule in which households combine a backward-looking benchmark with a forwad-looking one. Let

$$\mu_t \equiv E[X_t \mid \mathcal{I}_t^-] \tag{17}$$

denote households' pre-announcement forecast of the release. Assume the household forecasting rule is:

$$\mu_t = (1-\omega)X_t^{\text{prev}} + \omega\mu_t^{PF}, \qquad \omega \in [0,1]. \tag{18}$$

Here, X_t^{prev} denotes the value reported in the preceding release of the same macroeconomic variable, using the vintage available to households before date t, and μ_t^{PF} denotes the professional consensus forecast produced before the current announcement. We assume that ω is determined before the realization of X_t and is mean-independent of the announcement innovation.

Under equation (18), the perceived household shock is

$$\begin{aligned} S_t &= X_t - \mu_t \\ &= (1-\omega)\left(X_t - X_t^{\text{prev}}\right) + \omega\left(X_t - \mu_t^{PF}\right). \end{aligned} \tag{19}$$

We use the two extreme values of ω as empirical benchmarks.

2.1.1 Naive Prior

When $\omega = 0$, households use the preceding release as their forecast:

$$\mu_t = X_t^{\text{prev}}. \tag{20}$$

The corresponding announcement innovation is

$$S_t^N \equiv X_t - X_t^{\text{prev}}. \tag{21}$$

This specification represents a deliberately simple backward-looking forecasting rule under which households do not use information arriving between consecutive releases of the same variable. It does not require the previous release to be an optimal forecast.

2.1.2 Professional-forecast Prior

When $\omega = 1$, households' forecasts are assumed to coincide with the professional consensus forecast:

$$\mu_t = \mu_t^{PF}. \tag{22}$$

The corresponding announcement innovation is

$$S_t^{PF} \equiv X_t - \mu_t^{PF}. \tag{23}$$

This variable is commonly referred to as a macroeconomic announcement surprise (Gürkaynak et al. 2005). Interpreting S_t^{PF} as the surprise perceived by households requires the assumption that households' pre-announcement forecasts coincide with the professional consensus. Note that this does not imply that the forecasts are rationally formed, since that would additionally require the professional forecast to be unbiased and use all available information on X_t.

The naive and professional-forecast cases provide two transparent benchmarks for constructing the unobserved household surprise. Under the rule in equation (18) and some additional assumptions; the coefficients estimated from these two cases bound the structural response β. See Supplemental Appendix A for a full derivation.

3 Data and Empirical Strategy

We combine household survey data with macroeconomic announcements. The Gallup Daily Tracking Poll provides our baseline measure of household expectations. The Michigan Survey of Consumers (MSC) gives us a longer sample and quantitative inflation expectations, while Bloomberg's US Economic Calendar provides announcement dates, released values, and professional forecasts.

Gallup Daily Tracking Poll.

The Gallup Daily Tracking Poll (Gallup Inc. 2017) is a repeated cross-sectional survey conducted from 2008 to 2017. Gallup interviewed approximately 1,000 individuals per day early in the sample and 500 per day thereafter, giving us more than 1.7 million observations. The survey is representative at the daily level; we restrict the sample to respondents between 18 and 90 and use Gallup's survey weights. Previous work has used this survey to study how various factors such as monetary policy announcements, gas prices, political polarization, affect household sentiments (Mertens et al. 2020, Mian et al. 2021, Binder & Makridis 2022)

The main variable of interest is a measure of households' expectations about the future of the economy. Participants are asked:

> *"Right now, do you think that economic conditions in the country, as a whole, are getting better or getting worse?"*

Respondents choose between three options: getting better, staying the same, or getting worse. We define the *Expectations Index* to equal one for "getting better" and zero for "getting worse." Fewer than 5% choose "staying the same", so we exclude them from the baseline sample. The daily mean of the index is therefore the share of households that are optimistic about the economy.

Michigan Survey of Consumers.

Since June 1979, the Michigan Survey of Consumer Attitudes and Behavior (MSC) (University of Michigan, Survey Research Center 2021) records interview dates, which allows for high-frequency identification at the daily and weekly level, complementing the Gallup analysis. Figure B.1 reports the average number of respondents each day of the month for each of these surveys. As seen from this figure, the Gallup survey has a significantly larger and more consistent sample each day, relative to the MSC, making it our choice for the baseline.[2] While the Michigan microdata does suffer from a small-sample bias for the weekly window, the longer sample from 1980 to 2019 nevertheless allows us to study responses across different inflation and unemployment environments.

The MSC interviews approximately 500 households per month and records the date of each interview. We use these dates to compare respondents interviewed before and after macroeconomic announcements, following York (2023). The daily sample averages about 20 respondents, so we use weekly windows. The longer sample, from 1980 to 2019, allows us to study responses across different inflation and unemployment environments.

We use two measures of expectations: the share who expect good rather than bad business conditions over the next 12 months, and respondents' point forecasts for inflation over the same horizon. The appendix also reports results using daily windows, the Index of Consumer Expectations, and the 2008–2017 subsample corresponding to the years the Gallup survey was conducted.

The MSC has long been used to study how households form inflation and unemployment expectations and how these expectations relate to spending (Carroll 2003, Souleles 2004, Malmendier & Nagel 2015, Bachmann et al. 2015).

Bloomberg Consensus Forecast

Bloomberg reports the initial released value and the median professional forecast submitted before each announcement (Bloomberg Finance LP 1996-). We study the unem-

[2]Note that this is true for other public surveys such as the NY Fed's Survey of Consumer Expectations (SCE). As we document in the online appendix, SCE also averages about 40-60 respondents each day, with a notably sparse sample around the BLS announcement windows. None of these daily samples are as consistent or large as the Gallup survey.

ployment rate in the BLS employment report, month-on-month CPI inflation, advance GDP growth, and housing starts. Bloomberg forecasts are available from 1996 onward, so the professional-forecast analysis begins in 1997 for the MSC and covers the full Gallup sample. We use initial releases whenever they are available.

3.1 High-Frequency Identification

We use the high frequency nature of GDTP to identify the effect of macroeconomic announcements. We compare respondents interviewed immediately before and after an announcement and ask whether the change in expectations varies with the sign and size of the shock.

Let announcement j occur on day t. Following Jordà (2005), we estimate:

$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_h + \beta_h \, \text{Shock}_{jt} + D^i_{t+h}\Gamma_h + \epsilon_{ith}, \tag{24}$$

where $E^i_{t+h}[Z]$ is the expectation reported by respondent i, and $\bar{E}_{t-1}[Z]$ is the survey-weighted average on the day before the announcement. Gallup is a repeated cross-section, so the left-hand side measures a change across comparable groups. The vector D^i_{t+h} contains respondent demographics. Gallup interviews after 5 pm, while announcements arrive in the morning, so day-t interviews are post-announcement. We vary h from zero to five days.

Following Section 2, we construct the shock in two ways. For the sophisticated prior, we construct the surprise using the released value net of Bloomberg's median forecast. For the naive priors, we use the released value net of its value at the previous announcement. We standardize both measures, so β_h is the response to a one-standard-deviation shock.

For the MSC, we apply the same design, but use respondents interviewed during the week before and after an announcement, since it has only about 20 interviews per day. Both surveys are weighted to be nationally representative, and we report heteroskedasticity-consistent standard errors.

4 Results

We begin with the Gallup Daily Tracking Poll, which provides the cleanest identification due to its daily frequency and large sample size. We then extend the analysis to the Michigan Survey of Consumers, which spans 1980–2019 and includes both qualitative sentiment measures and quantitative inflation expectations.

4.1 Gallup Daily Tracking Poll

We estimate Equation 24 to measure how household expectations change following macroeconomic announcements. The narrow window around each release allows us to cleanly identify the effects of these announcements on household expectations. We estimate the response from the announcement day through five days after the release. The announcement-day estimate captures the immediate response, while the later estimates show whether it persists. Figure 1 reports the response of household expectations under the sophisticated and naive benchmarks. In this section, we report standardized coefficients, so as to make the response of expectations comparable across different announcements.[3]

The sophisticated benchmark measures news relative to the consensus forecast, while the naive benchmark measures news relative to the last announced value. Comparing them shows whether our conclusions depend on what households are assumed to have expected before the release.

Both benchmarks yield the same conclusion for unemployment. A one-standard-deviation

[3]Note that the bounds derived in Section 2 only apply to the raw coefficients, which we report in the Appendix.

increase in unemployment lowers the Expectations Index by 0.6 percentage points under the sophisticated benchmark and by 0.8 percentage points under the naive benchmark. In the model, this means that households interpret an unexpected increase in unemployment as bad news about the economy and revise their expectations downwards. The responses to the other announcements are less consistent. CPI has no immediate effect under either benchmark. GDP raises expectations on the announcement day under the naive benchmark but not under the sophisticated benchmark. Given the response to GDP announcements is sensitive to the choice of the prior, one cannot reliably conclude a significant impact on household expectations. Housing starts also has no immediate effect under either prior. Although CPI, GDP, and housing starts may have a significant effect on expectations on some days, these responses are neither consistent across priors nor persistent for us to conclude any significant impact on household expectations. Unemployment is therefore the only announcement for which the short-run response is negative and bounded away from zero under both priors.

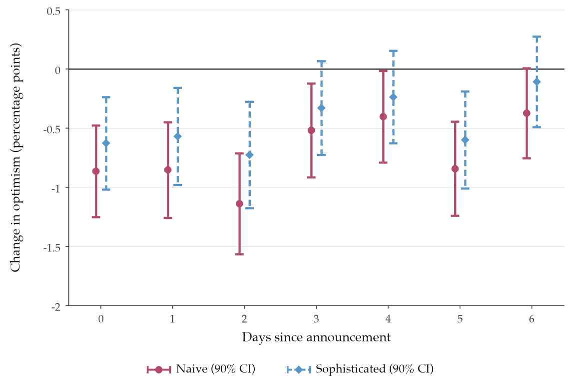
The baseline estimates are averaged over both favorable and adverse news. Yet households may respond more strongly to deteriorating conditions. An unexpected increase in unemployment raises concerns about job security and future income, whereas an unexpected decline may simply confirm that the labor market is continuing to improve. We therefore estimate the responses to adverse and favorable unemployment and CPI news separately. We therefore estimate separate regressions for positive and negative shocks:

$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_{1h} + \beta_{1h} \times (\text{Shock } X_t \mid \text{Shock } X_t > 0) + D^i_{1t+h} + \epsilon_{1th} \tag{25}$$

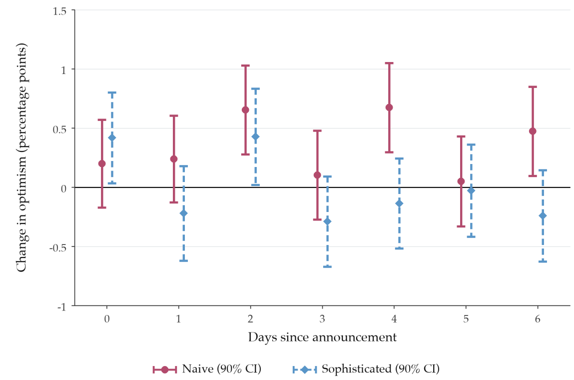
$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_{2h} + \beta_{2h} \times (\text{Shock } X_t \mid \text{Shock } X_t < 0) + D^i_{2t+h} + \epsilon_{2th} \tag{26}$$

where t is the day of the announcement, h indicates days from t, E^i_τ indicates expectations formed by person i on day τ, D^i_{t+h} denotes demographic controls, and Shock X_t denotes the shock to households' information set. Under the sophisticated prior, Shock X_t =

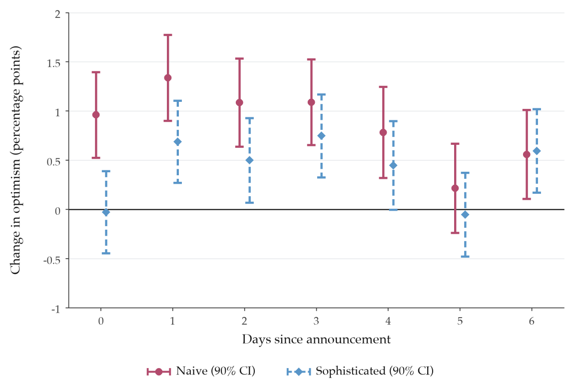
Figure 1: Impulse Response of Household Expectations to Macroeconomic Announcements



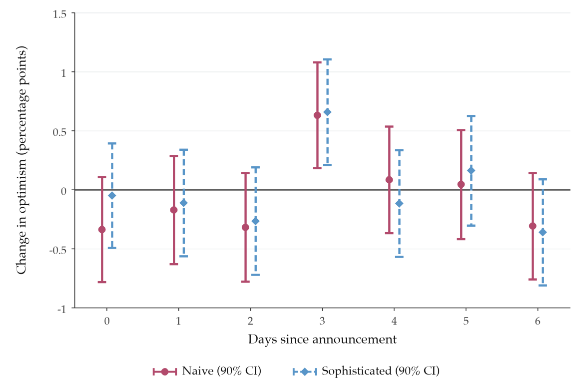
(a) Unemployment



(b) CPI



(c) GDP Advance



(d) Housing Starts

Notes: Coefficient plots for (a) Unemployment, (b) CPI, (c) GDP Advance, and (d) Housing Starts announcements. Naive priors shown with black solid circles; Sophisticated priors shown with blue solid diamonds. The shaded green region between coefficients indicates where the true coefficient lies. 95% confidence intervals shown for Naive (gray) and Sophisticated (light blue) models. Data from Gallup Inc. and Bloomberg Finance LP.

Surprise X_t; while under the naive prior, Shock $X_t = \Delta X_t$.[4] Figure 2 reports the results under both priors.

The unemployment response is especially strong in presence of adverse news. On the announcement day, a one-standard-deviation adverse unemployment shock lowers the share of optimists by about 1 percentage point under the sophisticated prior and by 1.3 percentage points under the naive prior. To put these numbers in context, the Lehman

[4] Note that a positive surprise has different implications for different variables. For both unemployment and CPI, a positive shock is adverse news and a negative shock is favorable news.

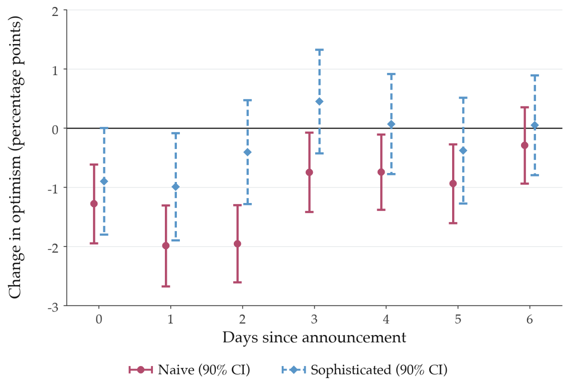
Brothers Collapse in 2008 led to approximately 6 percentage-point decline in the share of optimists. The standard deviation for standardized unemployment-change measure is approximately 0.2 percentage point. A 0.5 percentage-point increase in unemployment represents approximately 2.5 standard deviations and implies a 3.0 percentage-point decline in the share of optimists under the naive prior. This is comparable to the 3.5 percentage-point decline observed around the first quantitative-easing announcement in 2008.

Interestingly, favorable unemployment news has no statistically significant effect under either prior. This points at the underlying asymmetry in the response of household expectations to different types of information. One interpretation is that households care more about news that raises the downside risk to employment and earnings. The pattern may also reflect the period covered by Gallup. Between 2008 and 2017, unemployment was generally falling from its Great Recession peak. An unexpected increase therefore broke with the prevailing labor-market trend, whereas a decline confirmed it. This asymmetry is consistent with Fisher et al. (2022), who find that bad macroeconomic news receives more attention than good news. We show that the same asymmetry appears in household expectations: adverse unemployment news decreases optimism significantly, while favorable news has little effect.

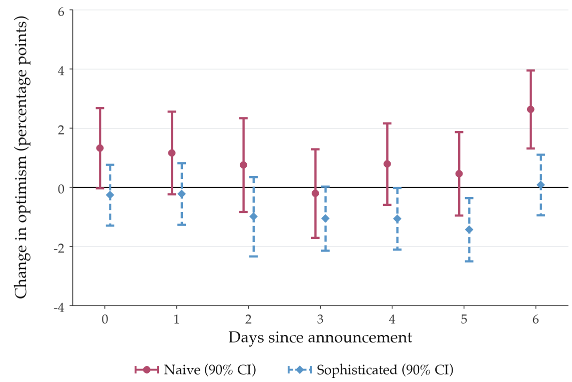
CPI announcements do not display the same clear asymmetry. Under the sophisticated prior, higher-than-expected CPI produces a response on the announcement day, while lower-than-expected CPI does not. Under the naive prior, households respond almost equally to both increases and decreases in CPI. A 0.5 percentage point increase in CPI, which is also a 1 standard deviation increase, leads to a decline of about 1.7 percentage points in the share of optimists under the naive prior. This is comparable to half the decline observed around the first quantitative-easing announcement in 2008.[5]

[5] It is also important to note that Gallup covers a decade of mostly low inflation. Its weak CPI response may therefore be specific to this period, since attention to inflation is higher when inflation is high (Bracha

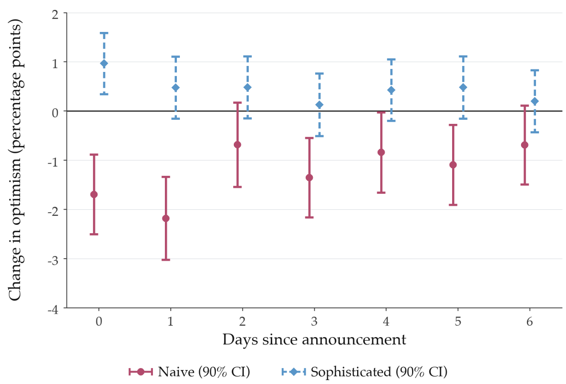
Figure 2: Asymmetric Response of Household Expectations to Macroeconomic Announcements



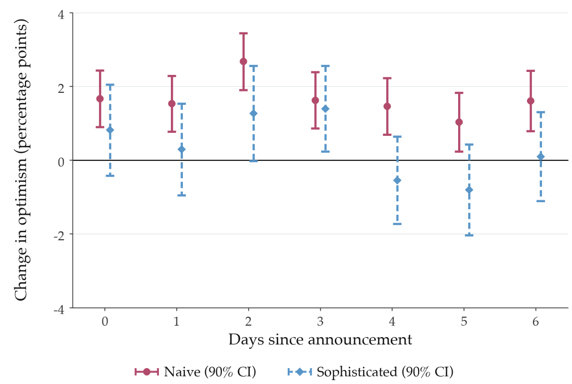
(a) Unemployment: Positive Shock



(b) Unemployment: Negative Shock



(c) CPI: Positive Shock



(d) CPI: Negative Shock

Notes: Coefficient plots for (a) positive unemployment shocks, (b) negative unemployment shocks, (c) positive CPI shocks, and (d) negative CPI shocks. The Naive model uses the standardized change from the previous release; the Sophisticated model uses the standardized difference between the release and the Bloomberg median forecast. Signs are defined separately for each shock measure. Naive estimates are shown as pink circles with solid 90% confidence intervals; Sophisticated estimates are shown as sky-blue diamonds with dashed 90% confidence intervals. The black horizontal line marks zero. Standard errors are heteroskedasticity-robust. Data are from Gallup, Inc. and Bloomberg Finance L.P.

4.2 Extending the time series: Michigan Survey of Consumers

The Gallup results establish that unemployment announcements have at least as much impact on expectation revisions as inflation announcements. However, two concerns about external validity remain. First, the sample period (2008–2017) was characterized

& Tang 2025, Link et al. 2026). The Michigan Survey addresses this concern with a longer sample and a direct measure of inflation expectations.

by low and stable inflation, which may explain the non-response to CPI in the baseline specification. Second, the Expectations Index is a qualitative measure of sentiment; it is unclear whether quantitative inflation expectations would respond similarly. To address these concerns, we turn to the Michigan Survey of Consumers, which spans 1980–2019 and includes both qualitative sentiment measures and point estimates of expected inflation. The longer time frame also provides more statistical power for subsample analyses.

We follow York (2023) and use the interview dates recorded in the Michigan Survey of Consumers. Because Michigan interviews only about 20 respondents per day, we compare respondents interviewed during the week after an announcement with those interviewed during the preceding week:

$$E^i_w[Z] - \bar{E}_{w-1}[Z] = \alpha_w + \beta_w \text{Shock } X_t + D^i_w \Gamma + \epsilon^i_{tw}, \tag{27}$$

where $w = [t, t+6]$ denotes the week after the announcement and $w-1$ denotes the preceding week. Under the sophisticated prior, news shock is measured relative to the Bloomberg consensus forecast and is available from 1997 onward. Under the naive prior, the announcement shock is measured by the change from the previous release and is available from 1980 onward.[6]

We consider two measures of expectations. The first is the share of respondents who expect business conditions to improve over the next 12 months, which is comparable to Gallup's Expectations Index. The second is respondents' quantitative forecast of inflation over the same period. Table 1 combines the results for both outcomes. Columns (1) and (2) report responses of the business outlook to unemployment and CPI news, while columns (3) and (4) report responses of inflation expectations. Panel A uses the sophisticated prior over 1997–2019, and Panel B uses the naive prior over 1980–2019. The baseline rows report the average response. The asymmetry rows separate adverse news, $X_t > 0$, from favorable

[6]We use initial releases where available. Before 1996, some series are available only in final revised form.

Table 1: Response of Business Conditions Index to Macroeconomic Announcements

		Business Outlook		Inflation Expectations	
		U	CPI	U	CPI
		(1)	(2)	(3)	(4)
Panel A: Sophisticated benchmark, 1997–2019					
Baseline	Surprise X_t	-1.25***	-1.56***	0.10***	0.05
		(0.32)	(0.41)	(0.02)	(0.03)
Asymmetry	Surprise $X_t > 0$	-13.30***	-6.52***	0.75***	0.29***
		(1.27)	(1.22)	(0.11)	(0.11)
	Surprise $X_t < 0$	-0.80	0.61	0.05	-0.08
		(0.84)	(1.34)	(0.06)	(0.11)
Panel B: Naive benchmark, 1980–2019					
Baseline	Change X_t	-4.93***	-1.62***	0.20***	0.22***
		(0.24)	(0.32)	(0.03)	(0.03)
Asymmetry	Change $X_t > 0$	-7.29***	-7.63***	0.48***	0.49***
		(0.45)	(0.63)	(0.06)	(0.07)
	Change $X_t < 0$	-2.27***	3.99***	-0.28***	-0.04
		(0.64)	(0.47)	(0.07)	(0.05)

Notes: Estimates of β_w from Equation 27. Controls include age, income, education, marital status, gender, and region. Survey weights used. Standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Data from Survey of Consumers, University of Michigan, Survey Research Center. Surprises from Bloomberg Finance LP.

news, $X_t < 0$. For both unemployment and CPI, a positive shock represents worsening conditions.[7]

The baseline results show that both unemployment and CPI news affect households' view of the economy. Under the sophisticated prior, unemployment and CPI surprises both reduce the share of optimists. Unemployment news also raises inflation expectations, whereas the CPI coefficient is smaller and not statistically significant. Thus, even when news is measured relative to professional forecasts, households use labor-market

[7] We end the sample in 2019 because the unusually large announcements during the COVID-19 pandemic would dominate the estimates.

announcements when forming beliefs about future prices. Under the naive prior, changes in unemployment and CPI affect both outcomes. The business-outlook response is larger for unemployment, while the inflation-expectations coefficients are almost identical. These results show that unemployment news matters at least as much as CPI news and that its effects extend to inflation expectations.

A 0.5 percentage point increase in unemployment, which corresponds to a 2.5 standard deviation increase, leads to a decline of around 12.5 percentage points under the naive prior, comparable to the effects of the BNP Paribas fund freeze in 2007. A 0.5 percentage point increase in CPI, which is also a 1 standard deviation increase, leads to a decline of about 1.6 percentage points in the share of optimists under the naive prior. This is comparable to the effects on expectations when General Motors announced bankruptcy in 2009.

The asymmetry estimates produce a clearer pattern. Under the sophisticated prior, adverse unemployment and CPI news reduces the business outlook and raises inflation expectations. Favorable news about either variable produces no statistically significant response. The point estimates for adverse unemployment news are larger than those for CPI for both outcomes. Under the naive prior, adverse changes in unemployment and CPI again reduce the business outlook and raise expected inflation. The coefficients are similar across the two announcements. Favorable news produces a less uniform response. A decline in unemployment is associated with revisions in both the business outlook and inflation expectations, while a decline in CPI affects only the business outlook.

Households therefore respond more consistently when an announcement points to deteriorating conditions. This may be because increasing unemployment may have adverse effects on employment and future earnings, while an rise in inflation signals an erosion of households' current purchasing power and as a negative signal about the economy (Shiller 1997, Stantcheva 2024, Binetti et al. 2024).

4.2.1 State Dependence across Recent Macroeconomic Conditions

We next ask whether the relative importance of unemployment and CPI news depends on the recent direction of the two variables. For each variable x, D_t^x measures the change in its recent three-month average relative to the immediately preceding three-month period:

$$D_t^x \equiv \bar{x}_{t-4:t-2} - \bar{x}_{t-7:t-5}, \tag{28}$$

where $\bar{x}_{t-4:t-2}$ is the average over the most recent three months observable prior to the release in month t, and $\bar{x}_{t-7:t-5}$ is the average over the preceding three months. Thus, $D_t^x > 0$ indicates that x was higher, on average, in the more recent period, whereas $D_t^x < 0$ indicates that it was lower.[8]

Table 2 reports two sets of results. The first block classifies each announcement according to the predetermined direction of the announced series. The unemployment columns are classified using D_t^U, while the CPI columns are classified using D_t^π. The second block considers four joint scenarios defined by the signs of both D_t^U and D_t^π. Column 3 reports the difference between the unemployment coefficient in column 1 and the CPI announcement coefficient in column 2. The values in parentheses are p-values for the test that the two coefficients are equal. Failure to reject this test implies that the data do not distinguish the two responses, but it does not establish that they are identical.

The results in the first block show that households respond more strongly when the announced variable has been increasing. This is consistent with the asymmetry results observed in Gallup data. When either unemployment or inflation have been increasing, news about either variable significantly affects both the business outlook and inflation expectations under both priors. When the announced variable has been decreasing, the

[8]Since the classification uses information only through $t-2$, it is fixed before either the unemployment or CPI release in month t.

Table 2: Responses to Announcements in Predetermined Macroeconomic Scenarios

Predetermined classification $D_t^x \equiv \bar{x}_{t-4:t-2} - \bar{x}_{t-7:t-5}$	Business Outlook U (1)	Business Outlook CPI (2)	Business Outlook Diff. (3)	Inflation Expectations U (4)	Inflation Expectations CPI (5)	Inflation Expectations Diff. (6)
Panel A: Sophisticated benchmark, 1997–2019						
$D_t^X > 0$	-3.29***	-3.07***	-0.22	0.22***	0.19***	0.04
	(0.45)	(0.55)	(0.76)	(0.04)	(0.05)	(0.53)
$D_t^X < 0$	0.93**	0.27	0.66	-0.02	-0.13**	0.12
	(0.46)	(0.63)	(0.40)	(0.03)	(0.05)	(0.06)
Joint scenarios						
$D_t^U > 0,\ D_t^\pi > 0$	-2.17***	-3.47***	1.29	0.17***	0.21***	-0.04
	(0.61)	(0.78)	(0.19)	(0.05)	(0.08)	(0.64)
$D_t^U < 0,\ D_t^\pi < 0$	0.42	1.73**	-1.31	-0.02	-0.13**	0.10
	(0.64)	(0.86)	(0.22)	(0.04)	(0.06)	(0.18)
$D_t^U > 0,\ D_t^\pi < 0$	-4.68***	0.01	-4.69	0.31***	-0.13	0.44
	(0.67)	(0.93)	(< 0.01)	(0.07)	(0.10)	(< 0.01)
$D_t^U < 0,\ D_t^\pi > 0$	1.52**	-2.53***	4.05	-0.01	0.17***	-0.18
	(0.66)	(0.78)	(< 0.01)	(0.05)	(0.05)	(0.01)
Panel B: Naive benchmark, 1980–2019						
$D_t^X > 0$	-6.00***	-4.57***	-1.42	0.38***	0.52***	-0.13
	(0.38)	(0.46)	(0.02)	(0.05)	(0.05)	(0.05)
$D_t^X < 0$	-1.44***	0.59	-2.03	-0.09***	-0.04	-0.05
	(0.33)	(0.40)	(< 0.01)	(0.04)	(0.04)	(0.34)
Joint scenarios						
$D_t^U > 0,\ D_t^\pi > 0$	-5.32***	-4.64***	-0.68	0.25***	0.63***	-0.38
	(0.60)	(0.65)	(0.44)	(0.06)	(0.09)	(< 0.01)
$D_t^U < 0,\ D_t^\pi < 0$	-2.58***	-1.90***	-0.69	-0.13**	-0.02	-0.11
	(0.51)	(0.66)	(0.41)	(0.05)	(0.06)	(0.17)
$D_t^U > 0,\ D_t^\pi < 0$	-6.47***	1.32***	-7.79	0.49***	0.01	0.48
	(0.49)	(0.47)	(< 0.01)	(0.07)	(0.06)	(< 0.01)
$D_t^U < 0,\ D_t^\pi > 0$	-0.58	-3.25***	2.67	-0.07	0.30***	-0.37
	(0.44)	(0.68)	(< 0.01)	(0.05)	(0.06)	(< 0.01)

Notes: Each coefficient reports the response of the indicated expectation to a one-standard-deviation announcement shock. For release month t, $D_t^x = \bar{x}_{t-4:t-2} - \bar{x}_{t-7:t-5}$. In the first block, unemployment announcements are classified using D_t^U, while CPI announcements are classified using D_t^π. The four joint scenarios use both signs and assign the same predetermined classification to both releases. Diff. is $\widehat{\beta}_U - \widehat{\beta}_{\text{CPI}}$; brackets report the p-value for the test that the two coefficients are equal. Panel A uses standardized Bloomberg surprises, and Panel B uses standardized changes from the previous release. Controls include age, income, education, marital status, gender, and region. Survey weights are used. Standard errors are in parentheses. $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

magnitude of the effect is much lower. This pattern motivates looking at the trends in unemployment and inflation jointly, since households' responses to news about one variable may depend not only on its own recent trajectory, but also on the recent trajectory of the other.

The second block in table 2 under each prior reports the results when the trends in both variables are examined jointly. When both unemployment and inflation had previously been increasing, news about either variable worsens the business outlook and raises inflation expectations. Under the sophisticated prior, the CPI point estimate is larger for business conditions, but the t-tests cannot distinguish the unemployment and CPI responses for either outcome. Under the naive prior, the business-outlook responses are again similar, while the CPI response is larger for inflation expectations.

When both variables had previously been decreasing, there is again no clear ranking. Under the sophisticated prior, the CPI coefficient is significant for both outcomes, while the unemployment coefficient is not. Under the naive prior, both announcements affect the business outlook, while only unemployment announcement affects inflation expectations. Despite these differences in individual significance, the equality tests cannot distinguish the unemployment and CPI coefficients for either outcome under either prior.

The pattern is much clearer when unemployment and inflation had previously been moving in opposite directions. In these scenarios, households respond more to news about the variable that had been increasing. All eight equality tests reject that the unemployment and CPI coefficients are the same. When unemployment had been increasing and inflation decreasing, unemployment news has the larger effect on both the business outlook and inflation expectations. When unemployment had been decreasing and inflation increasing, CPI news has the larger effect. Most strikingly, when unemployment had been increasing and inflation decreasing, unemployment announcements continue to move inflation expectations under both benchmarks, while CPI announcements do not. The reverse holds when unemployment had been decreasing and inflation increasing: CPI news moves inflation expectations, while unemployment news does not. Households therefore respond more to news about the part of the economy that has recently been deteriorating.

Taken together, these results show that unemployment news plays an important role in shaping household expectations, including their inflation expectations. Its effects are at least as large as those of CPI news, and distinctly larger when unemployment has been increasing and inflation decreasing. This interpretation is consistent with Masolo (2022), Jain et al. (2024), who argue that households use labor-market conditions to infer movements in the broader economy. We document that it is important to take into account that households also use labor-market news when forming beliefs about future inflation, and that its relative strength depends on which aspect of the economy has been deteriorating.

4.3 Robustness

We conduct several exercises to address alternative explanations and assess the sensitivity of our results, which are reported in the Supplemental Appendix. Since the BLS employment report is released on the first Friday of each month, before the CPI release, households may respond to the month's first announcement regardless of its content. We therefore measure expectation changes following later announcements relative to expectations recorded before the employment report ($E^i_{t+h}[Z] - \bar{E}^{\text{first}}_{t-1}[Z]$); the estimates remain similar to the baseline. We also account for labor-market information released earlier in the week, including ADP employment and jobless claims, by using Tuesday expectations as the pre-announcement baseline ($E^i_{t+h}[Z] - \bar{E}^{\text{Tuesday}}_{t-1}[Z]$). The estimates remain statistically significant, although responses under naive prior are smaller, consistent with earlier releases already conveying some information. To account for contemporaneous economic news and financial-market movements, we control for the daily news sentiment index from

Shapiro et al. (2020) and for stock-market returns; both exercises produce qualitatively similar estimates. Responses are stronger during recessions and when unemployment or inflation is high, consistent with state-dependent attention. The results are also insensitive to the length of the announcement window: using a weekly rather than daily window for Gallup produces broadly similar estimates, while using daily windows for Michigan allows a direct comparison with the Gallup baseline.

We also report several robustness for the MSC, including estimates for daily windows, a sample restricted to 2008–2017, separate responses during recessions, and results using the Index of Consumer Expectations, which combines three forward-looking questions about personal finances and national economic conditions. It also divides observations into four contemporaneous scenarios according to whether unemployment and inflation are rising or falling and considers an alternative classification based on their levels rather than their changes. Finally, we report the number of daily respondents in the Federal Reserve Bank of New York's Survey of Consumer Expectations (Armantier et al. 2017) to show why doing a daily event study with monthly survey data is likely to suffer from small sample bias.

5 Conclusion

This paper asks which macroeconomic announcements lead households to revise their expectations. To do so, we derive a testable implication from a stylized model of expectation formation. We then test this using data from two important expectation surveys in the United States.

We document two novel facts: first, that news about the labor market is at least as important as news about inflation. Unemployment announcements produce the strongest response in the daily survey, particularly when they signal deteriorating labor market conditions. In

MSC, both unemployment and CPI news matter, but their relative importance depends on recent economic conditions. Second, that households do not form inflation expectations only from information about prices, but they also use news about the labor market to assess the broader economic conditions, especially when employment conditions are worsening.

Taken together, these findings highlight the importance of labor market news in shaping household expectations, including inflation expectations. This suggests that labor market conditions are central to how households perceive the state of the economy. Future research could explore the mechanisms underlying this pattern and its implications for policy transmission.

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Appendix

A Model Appendix

The perceived announcement surprise by households is a convex combination of the naive and professional-forecast surprises. This does not, by itself, imply that the regression coefficients obtained from the two endpoint cases bound the structural response. This appendix derives the additional restrictions required for such an interpretation.

Define

$$Y_t \equiv \Delta m_t, \tag{A.1}$$

$$N_t \equiv X_t - X_t^{\text{prev}}, \tag{A.2}$$

$$P_t \equiv X_t - \mu_t^{PF}. \tag{A.3}$$

Let $\omega \in [0,1]$ denote the true, but unobserved, weight that households place on the professional forecast. The household-perceived surprise is therefore

$$S_t(\omega) = (1-\omega)N_t + \omega P_t. \tag{A.4}$$

The structural updating equation is

$$Y_t = \alpha + \beta S_t(\omega) + \epsilon_t. \tag{A.5}$$

A.1 Endpoint regression coefficients

To isolate the role of the covariance structure of the two surprise measures, suppose that the regression error is orthogonal to each benchmark:

$$\text{Cov}(\epsilon_t, N_t) = 0, \tag{A.6}$$

$$\text{Cov}(\epsilon_t, P_t) = 0. \tag{A.7}$$

A sufficient condition is

$$E[\epsilon_t \mid N_t, P_t, \mathcal{I}_t^-] = 0. \tag{A.8}$$

This condition is stronger than requiring ϵ_t to be orthogonal only to the true composite surprise $S_t(\omega)$. Orthogonality with respect to a particular linear combination of N_t and P_t does not generally imply orthogonality with respect to each component separately.

Let

$$\sigma_N^2 \equiv \mathrm{Var}(N_t), \tag{A.9}$$
$$\sigma_P^2 \equiv \mathrm{Var}(P_t), \tag{A.10}$$
$$\sigma_{NP} \equiv \mathrm{Cov}(N_t, P_t), \tag{A.11}$$

where $\sigma_N^2 > 0$ and $\sigma_P^2 > 0$.

The population coefficient from the naive benchmark regression is

$$\beta^N \equiv \frac{\mathrm{Cov}(Y_t, N_t)}{\mathrm{Var}(N_t)}. \tag{A.12}$$

Using equations (A.4) and (A.5),

$$\begin{aligned} \mathrm{Cov}(Y_t, N_t) &= \beta\,\mathrm{Cov}\Big((1-\omega)N_t + \omega P_t, N_t\Big) + \mathrm{Cov}(\epsilon_t, N_t) \\ &= \beta\Big[(1-\omega)\sigma_N^2 + \omega\sigma_{NP}\Big]. \end{aligned} \tag{A.13}$$

It follows that

$$\beta^N = \beta\left[(1-\omega) + \omega\frac{\sigma_{NP}}{\sigma_N^2}\right]. \tag{A.14}$$

Similarly, the population coefficient from the professional-forecast benchmark is

$$\beta^{PF} \equiv \frac{\mathrm{Cov}(Y_t, P_t)}{\mathrm{Var}(P_t)}. \tag{A.15}$$

The corresponding covariance is

$$\begin{aligned} \mathrm{Cov}(Y_t, P_t) &= \beta\,\mathrm{Cov}\Big((1-\omega)N_t + \omega P_t, P_t\Big) + \mathrm{Cov}(\epsilon_t, P_t) \\ &= \beta\Big[(1-\omega)\sigma_{NP} + \omega\sigma_P^2\Big]. \end{aligned} \tag{A.16}$$

Therefore,

$$\beta^{PF} = \beta\left[\omega + (1-\omega)\frac{\sigma_{NP}}{\sigma_P^2}\right]. \tag{A.17}$$

Equations (A.14) and (A.17) show why the convex-combination property of the household surprise does not extend directly to the regression coefficients. Each endpoint coefficient depends not only on ω, but also on the covariance of the two benchmark surprises relative to the variance of the surprise used as the regressor.

A.2 The variance condition for bracketing

Subtracting the structural coefficient from the naive benchmark coefficient gives

$$\begin{aligned}
\beta^N - \beta &= \beta\left[(1-\omega) + \omega\frac{\sigma_{NP}}{\sigma_N^2} - 1\right] \\
&= \beta\omega\left(\frac{\sigma_{NP}}{\sigma_N^2} - 1\right) \\
&= \frac{\beta\omega}{\sigma_N^2}\left(\sigma_{NP} - \sigma_N^2\right).
\end{aligned} \tag{A.18}$$

For the professional-forecast benchmark,

$$\begin{aligned}
\beta^{PF} - \beta &= \beta\left[\omega + (1-\omega)\frac{\sigma_{NP}}{\sigma_P^2} - 1\right] \\
&= \beta(1-\omega)\left(\frac{\sigma_{NP}}{\sigma_P^2} - 1\right) \\
&= \frac{\beta(1-\omega)}{\sigma_P^2}\left(\sigma_{NP} - \sigma_P^2\right).
\end{aligned} \tag{A.19}$$

The structural coefficient lies between the two endpoint coefficients if and only if

$$\left(\beta^N - \beta\right)\left(\beta^{PF} - \beta\right) \le 0. \tag{A.20}$$

Using equations (A.18) and (A.19),

$$\begin{aligned}
&\left(\beta^N - \beta\right)\left(\beta^{PF} - \beta\right) \\
&\quad = \frac{\beta^2\omega(1-\omega)}{\sigma_N^2\sigma_P^2}\left(\sigma_{NP} - \sigma_N^2\right)\left(\sigma_{NP} - \sigma_P^2\right).
\end{aligned} \tag{A.21}$$

For an interior weight, $0 < \omega < 1$, and a nonzero structural response, $\beta \neq 0$, all terms multiplying the final two factors in equation (A.21) are strictly positive. Consequently, the two endpoint coefficients bound β if and only if

$$\left(\sigma_{NP} - \sigma_N^2\right)\left(\sigma_{NP} - \sigma_P^2\right) \le 0. \tag{A.22}$$

Equivalently, the covariance between the two surprise measures must lie between their variances:

$$\boxed{\min\left\{\sigma_N^2, \sigma_P^2\right\} \le \sigma_{NP} \le \max\left\{\sigma_N^2, \sigma_P^2\right\}.} \tag{A.23}$$

Under this condition,

$$\min\left\{\beta^N, \beta^{PF}\right\} \le \beta \le \max\left\{\beta^N, \beta^{PF}\right\}. \tag{A.24}$$

The ordering of the two bounds depends on their relative variances and on the sign of β. For example, suppose that

$$\sigma_P^2 \ge \sigma_N^2. \tag{A.25}$$

Under the bounding condition,

$$\sigma_N^2 \le \sigma_{NP} \le \sigma_P^2. \tag{A.26}$$

If $\beta > 0$, equations (A.18) and (A.19) then imply

$$\beta^{PF} \le \beta \le \beta^N. \tag{A.27}$$

If $\beta < 0$, the ordering reverses, although β continues to lie between the two endpoint coefficients. When $\sigma_N^2 \ge \sigma_P^2$, the roles of the two benchmark coefficients are reversed.

At the boundary values of the household forecasting weight, the result is immediate. If $\omega = 0$, the naive surprise is the true household surprise and

$$\beta^N = \beta. \tag{A.28}$$

If $\omega = 1$, the professional-forecast surprise is the true household surprise and

$$\beta^{PF} = \beta. \tag{A.29}$$

A.3 An equivalent correlation condition

Let

$$\rho_{NP} \equiv \frac{\sigma_{NP}}{\sigma_N \sigma_P} \tag{A.30}$$

denote the correlation between the two benchmark surprises, where σ_N and σ_P are their standard deviations. Suppose, without loss of generality, that

$$\sigma_P \ge \sigma_N. \tag{A.31}$$

The covariance condition becomes

$$\sigma_N^2 \le \rho_{NP}\sigma_N\sigma_P \le \sigma_P^2. \tag{A.32}$$

Dividing by $\sigma_N \sigma_P > 0$ gives

$$\frac{\sigma_N}{\sigma_P} \leq \rho_{NP} \leq \frac{\sigma_P}{\sigma_N}. \tag{A.33}$$

Because $\rho_{NP} \leq 1$ and $\sigma_P/\sigma_N \geq 1$, the upper inequality holds automatically. The relevant restriction is therefore

$$\rho_{NP} \geq \frac{\sigma_N}{\sigma_P}. \tag{A.34}$$

More generally, the bounding condition can be written as

$$\boxed{\rho_{NP} \geq \frac{\min\{\sigma_N, \sigma_P\}}{\max\{\sigma_N, \sigma_P\}}.} \tag{A.35}$$

Thus, the two endpoint coefficients provide bounds only when the benchmark surprises are sufficiently positively correlated relative to the difference in their standard deviations. If the two surprise measures have similar variances, the required correlation is close to one. In the special case $\sigma_N^2 = \sigma_P^2$, the bounding condition requires $\rho_{NP} = 1$. Except when the two benchmark surprises are perfectly correlated, equal variances therefore do not produce endpoint bounds.

A.4 Failure of the bounding condition

If

$$\sigma_{NP} < \min\{\sigma_N^2, \sigma_P^2\}, \tag{A.36}$$

then both factors in equation (A.22) are negative. The two endpoint coefficients consequently lie on the same side of β. When $\beta > 0$,

$$\beta^N < \beta, \qquad \beta^{PF} < \beta. \tag{A.37}$$

When $\beta < 0$, both inequalities reverse.

A simple example illustrates this failure. Suppose that the two benchmark surprises are uncorrelated and have equal variances:

$$\sigma_{NP} = 0, \qquad \sigma_N^2 = \sigma_P^2. \tag{A.38}$$

Equations (A.14) and (A.17) reduce to

$$\beta^N = \beta(1 - \omega), \tag{A.39}$$

$$\beta^{PF} = \beta\omega. \tag{A.40}$$

For $\beta > 0$ and $0 < \omega < 1$, both coefficients are strictly below β. When $\omega = 1/2$, both endpoint regressions yield $\beta/2$, even though the structural response is β.

A.5 Why endpoint exogeneity is also required

The variance condition alone is insufficient if the regression error is correlated with either benchmark surprise. Without assumptions (A.6) and (A.7), the endpoint coefficients satisfy

$$\beta^N - \beta = \frac{\beta\omega}{\sigma_N^2}\left(\sigma_{NP} - \sigma_N^2\right) + \frac{\mathrm{Cov}(\epsilon_t, N_t)}{\sigma_N^2}, \tag{A.41}$$

$$\beta^{PF} - \beta = \frac{\beta(1-\omega)}{\sigma_P^2}\left(\sigma_{NP} - \sigma_P^2\right) + \frac{\mathrm{Cov}(\epsilon_t, P_t)}{\sigma_P^2}. \tag{A.42}$$

The final terms can move either endpoint coefficient to either side of β. No restriction involving only σ_N^2, σ_P^2, and σ_{NP} can then guarantee that the endpoint coefficients bound the structural response.

We impose the endpoint-exogeneity condition in (A.8) and the covariance restriction in (A.23). Under these maintained assumptions, the naive and professional-forecast coefficients formally bound the structural response:

$$\min\left\{\beta^N, \beta^{PF}\right\} \leq \beta \leq \max\left\{\beta^N, \beta^{PF}\right\}. \tag{A.43}$$

We therefore interpret the two benchmark specifications as providing lower and upper bounds on households' response to the announcement surprise. Which specification supplies the lower bound depends on the relative variances of the two surprise measures and on the sign of β, as characterized above. The covariance restriction is directly testable using the observed benchmark surprises, while endpoint exogeneity remains a maintained identifying assumption.

A.6 Standardized variables

In the empirical analysis, each surprise measure may be standardized separately. This changes the units of the corresponding regression coefficient and therefore requires a common normalization before the benchmark coefficients can be compared with the structural response. Let

$$\sigma_m^2 \equiv \mathrm{Var}(\Delta m_t), \qquad \sigma_S^2 \equiv \mathrm{Var}(S_t), \tag{A.44}$$

$$\sigma_N^2 \equiv \mathrm{Var}(S_t^N), \qquad \sigma_{PF}^2 \equiv \mathrm{Var}(S_t^{PF}), \tag{A.45}$$

and assume that these variances are strictly positive. For any variable Q_t, write

$$\widetilde{Q}_t \equiv \frac{Q_t - E[Q_t]}{\sigma_Q}. \tag{A.46}$$

Equation (19) implies

$$S_t - E[S_t] = (1-\omega)\sigma_N \widetilde{S}_t^N + \omega\sigma_{PF}\widetilde{S}_t^{PF}. \tag{A.47}$$

Consequently, the standardized household-perceived surprise is

$$\widetilde{S}_t = \frac{(1-\omega)\sigma_N}{\sigma_S}\widetilde{S}_t^N + \frac{\omega\sigma_{PF}}{\sigma_S}\widetilde{S}_t^{PF}, \tag{A.48}$$

where

$$\sigma_S^2 = (1-\omega)^2\sigma_N^2 + \omega^2\sigma_{PF}^2 + 2\omega(1-\omega)\sigma_{N,PF}, \tag{A.49}$$

and $\sigma_{N,PF} \equiv \mathrm{Cov}(S_t^N, S_t^{PF})$. Thus, separate standardization of the two benchmark surprises does not preserve the original convex-combination weights: the coefficients in equation (A.48) also depend on the standard deviations of the two benchmarks and of the composite surprise.

Standardizing both sides of equation (14) gives

$$\widetilde{\Delta m}_t = \widetilde{\beta}\,\widetilde{S}_t + \widetilde{\epsilon}_t, \qquad \widetilde{\beta} \equiv \beta\frac{\sigma_S}{\sigma_m}, \qquad \widetilde{\epsilon}_t \equiv \frac{\epsilon_t}{\sigma_m}. \tag{A.50}$$

The intercept is zero because the variables have been demeaned. The coefficient $\widetilde{\beta}$ measures the standard-deviation change in household expectations associated with a one-standard-deviation increase in the true household-perceived surprise. If only the surprise is standardized and Δm_t remains in its original units, the corresponding coefficient is instead

$$\beta_S^{\mathrm{std}} = \beta\sigma_S. \tag{A.51}$$

Although $\beta = p$ under the baseline normalization, a standardized coefficient is not itself equal to the attention weight. The latter is recovered as $p = \widetilde{\beta}\sigma_m/\sigma_S$ when both variables are standardized, or as $p = \beta_S^{\mathrm{std}}/\sigma_S$ when only the surprise is standardized.

The endpoint regressions require the same rescaling. Define

$$\rho_{SN} \equiv \mathrm{Corr}(S_t, S_t^N), \qquad \rho_{S,PF} \equiv \mathrm{Corr}(S_t, S_t^{PF}). \tag{A.52}$$

Using equation (19), these correlations are

$$\rho_{SN} = \frac{(1-\omega)\sigma_N^2 + \omega\sigma_{N,PF}}{\sigma_S\sigma_N}, \tag{A.53}$$

$$\rho_{S,PF} = \frac{(1-\omega)\sigma_{N,PF} + \omega\sigma_{PF}^2}{\sigma_S\sigma_{PF}}. \tag{A.54}$$

Under endpoint exogeneity, $\mathrm{Cov}(\epsilon_t, S_t^N) = \mathrm{Cov}(\epsilon_t, S_t^{PF}) = 0$, the population coefficients from regressions in which both the outcome and the relevant endpoint surprise are standardized are

$$\widetilde{\beta}^N = \widetilde{\beta}\,\rho_{SN}, \tag{A.55}$$

$$\widetilde{\beta}^{PF} = \widetilde{\beta}\,\rho_{S,PF}. \tag{A.56}$$

To see this result, for example,

$$\widetilde{\beta}^N = \mathrm{Cov}\left(\widetilde{\Delta m}_t, \widetilde{S}_t^N\right) = \beta\frac{\mathrm{Cov}(S_t, S_t^N)}{\sigma_m\sigma_N} = \widetilde{\beta}\rho_{SN}. \tag{A.57}$$

If only the regressors are standardized, the same relationship holds in the units of Δm_t:

$$\beta_N^{\mathrm{std}} = \sigma_N\beta^N = \beta\sigma_S\rho_{SN}, \tag{A.58}$$

$$\beta_{PF}^{\mathrm{std}} = \sigma_{PF}\beta^{PF} = \beta\sigma_S\rho_{S,PF}. \tag{A.59}$$

The appropriate structural comparison in this case is $\beta_S^{\mathrm{std}} = \beta\sigma_S$, not the raw coefficient β.

This normalization changes the bounding result. Since a correlation cannot exceed one,

$$\begin{aligned}&\left(\widetilde{\beta}^N - \widetilde{\beta}\right)\left(\widetilde{\beta}^{PF} - \widetilde{\beta}\right)\\ &\quad = \widetilde{\beta}^2(\rho_{SN} - 1)(\rho_{S,PF} - 1) \geq 0.\end{aligned} \tag{A.60}$$

Hence, for a nonzero structural response, except when at least one benchmark is perfectly positively correlated with the true household surprise, the two separately standardized endpoint coefficients do not bracket the standardized structural response. If $\widetilde{\beta} > 0$, both endpoint coefficients are weakly below $\widetilde{\beta}$; if $\widetilde{\beta} < 0$, both are weakly above it. When the relevant correlations are nonnegative, this is the familiar attenuation of a standardized coefficient from using an imperfect proxy for the true surprise. The raw-scale bounding result therefore should be applied after converting all coefficients back to common units; separately standardized endpoint coefficients should not themselves be interpreted as lower and upper bounds.

A.7 A common normalization that preserves the bounds

The bounding result can be preserved by normalizing the naive, professional-forecast, and household-perceived surprises using the same positive reference scale. Let $\sigma_R > 0$ denote this common scale and define

$$S_t^{N,c} \equiv \frac{S_t^N - E[S_t^N]}{\sigma_R}, \tag{A.61}$$

$$S_t^{PF,c} \equiv \frac{S_t^{PF} - E[S_t^{PF}]}{\sigma_R}, \tag{A.62}$$

$$S_t^c \equiv \frac{S_t - E[S_t]}{\sigma_R}. \tag{A.63}$$

Because

$$S_t = (1-\omega)S_t^N + \omega S_t^{PF}, \tag{A.64}$$

and therefore

$$E[S_t] = (1-\omega)E[S_t^N] + \omega E[S_t^{PF}], \tag{A.65}$$

the common normalization preserves the convex-combination relationship:

$$S_t^c = (1-\omega)S_t^{N,c} + \omega S_t^{PF,c}. \tag{A.66}$$

Suppose first that Δm_t remains in its original units. Let β_c^N, β_c^{PF}, and β_c denote the coefficients associated with $S_t^{N,c}$, $S_t^{PF,c}$, and S_t^c, respectively. Because all three surprises are divided by the same scale,

$$\beta_c^N = \sigma_R \beta^N, \tag{A.67}$$

$$\beta_c^{PF} = \sigma_R \beta^{PF}, \tag{A.68}$$

$$\beta_c = \sigma_R \beta. \tag{A.69}$$

Consequently, multiplication by the common positive factor σ_R preserves the ordering of the coefficients. In particular, if the raw-scale coefficients satisfy

$$\min\{\beta^N, \beta^{PF}\} \le \beta \le \max\{\beta^N, \beta^{PF}\}, \tag{A.70}$$

then the commonly normalized coefficients satisfy

$$\min\{\beta_c^N, \beta_c^{PF}\} \le \beta_c \le \max\{\beta_c^N, \beta_c^{PF}\}. \tag{A.71}$$

If the outcome is also standardized using $\sigma_m \equiv \sqrt{\mathrm{Var}(\Delta m_t)}$, the corresponding coefficients are

$$\widetilde{\beta}_c^N = \frac{\sigma_R}{\sigma_m}\beta^N, \tag{A.72}$$

$$\widetilde{\beta}_c^{PF} = \frac{\sigma_R}{\sigma_m}\beta^{PF}, \tag{A.73}$$

$$\widetilde{\beta}_c = \frac{\sigma_R}{\sigma_m}\beta. \tag{A.74}$$

Once again, all coefficients are multiplied by the same positive factor, so the bounding relationship is unchanged.

A natural implementation is to normalize the primitive variables using a common location μ_R and scale σ_R:

$$X_t^c \equiv \frac{X_t - \mu_R}{\sigma_R}, \tag{A.75}$$

$$X_t^{\text{prev},c} \equiv \frac{X_t^{\text{prev}} - \mu_R}{\sigma_R}, \tag{A.76}$$

$$\mu_t^{PF,c} \equiv \frac{\mu_t^{PF} - \mu_R}{\sigma_R}. \tag{A.77}$$

The common location parameter cancels when constructing the surprises:

$$X_t^c - X_t^{\text{prev},c} = \frac{X_t - X_t^{\text{prev}}}{\sigma_R} = \frac{S_t^N}{\sigma_R}, \tag{A.78}$$

$$X_t^c - \mu_t^{PF,c} = \frac{X_t - \mu_t^{PF}}{\sigma_R} = \frac{S_t^{PF}}{\sigma_R}. \tag{A.79}$$

One possible reference scale is

$$\sigma_R = \text{SD}(X_t), \tag{A.80}$$

which does not privilege either forecasting benchmark.

The covariance condition underlying the raw-scale bounds is also invariant to this common normalization. In particular,

$$\text{Var}(S_t^{N,c}) = \frac{\sigma_N^2}{\sigma_R^2}, \tag{A.81}$$

$$\text{Var}(S_t^{PF,c}) = \frac{\sigma_{PF}^2}{\sigma_R^2}, \tag{A.82}$$

$$\text{Cov}(S_t^{N,c}, S_t^{PF,c}) = \frac{\sigma_{N,PF}}{\sigma_R^2}. \tag{A.83}$$

It follows that

$$\min\{\sigma_N^2, \sigma_{PF}^2\} \le \sigma_{N,PF} \le \max\{\sigma_N^2, \sigma_{PF}^2\} \tag{A.84}$$

if and only if

$$\begin{aligned} \min\left\{\mathrm{Var}(S_t^{N,c}), \mathrm{Var}(S_t^{PF,c})\right\} &\le \mathrm{Cov}(S_t^{N,c}, S_t^{PF,c}) \\ &\le \max\left\{\mathrm{Var}(S_t^{N,c}), \mathrm{Var}(S_t^{PF,c})\right\}. \end{aligned} \tag{A.85}$$

Endpoint exogeneity is preserved as well because

$$\mathrm{Cov}(\epsilon_t, S_t^{N,c}) = \frac{\mathrm{Cov}(\epsilon_t, S_t^{N})}{\sigma_R}, \tag{A.86}$$

$$\mathrm{Cov}(\epsilon_t, S_t^{PF,c}) = \frac{\mathrm{Cov}(\epsilon_t, S_t^{PF})}{\sigma_R}. \tag{A.87}$$

If the regressions have already been estimated using separately standardized surprises, the coefficients can be converted to the common normalization:

$$\beta_c^N = \beta_N^{\mathrm{std}} \frac{\sigma_R}{\sigma_N}, \tag{A.88}$$

$$\beta_c^{PF} = \beta_{PF}^{\mathrm{std}} \frac{\sigma_R}{\sigma_{PF}}. \tag{A.89}$$

The resulting coefficients no longer measure responses to a one-own-standard-deviation change in each benchmark. Instead, they measure responses to the same commonly scaled announcement surprise, which makes a bounds comparison meaningful.

B Empirical Appendix

B.1 Gallup

B.1.1 Summary Statistics

Table B.1: General Summary Statistics

Variable	GDTP	MSC
Age	47 years	49 years
Female	51%	54%
Low Income	38%	43%
Middle Income	47%	33%
High Income	15%	25%
White	73%	NA
Black	12%	NA
< High School	11%	4%
High School	35%	6%
Some College	31%	28%
N	1,705,158	277,160

Table B.2: Summary Statistics: Expectations

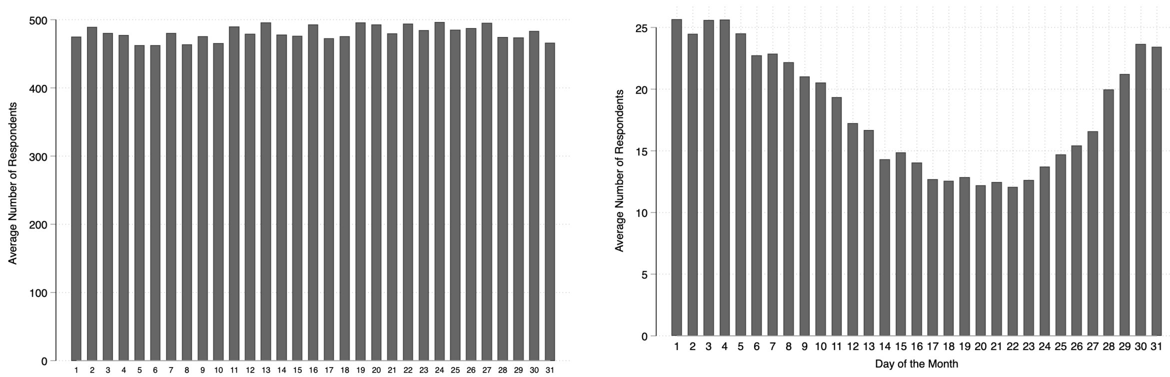
Variable	Total Obs (1)	Mean (2)	Std. Dev. (3)	Frequency (4)
Michigan Survey of Consumers				
Index of Consumer Expectations (ICE)	277,160	79.8	45.8	Daily
12-month ahead Inflation Expectations	209,744	5.4	5.5	Daily
Fraction of Optimists	231,304	51.9	50.0	Daily
Change in Fraction of Optimists	12,227	-0.03	22	Daily
Gallup Daily Tracking Poll				
Fraction of Optimists	1,705,161	0.4	0.5	Daily
Change in Fraction of Optimists	3387	-0.009	3.8	Daily
Bloomberg Economic News (1996-2019)				
Surprise(Unemployment)	273	-0.03	0.14	Monthly
Surprise(CPI)	276	-0.01	0.12	Monthly
Surprise(Housing)	257	1.67	78.63	Monthly
Surprise (GDP)	84	0.01	0.71	Quarterly
Actual Economic Variables (1980-2019)				
Change(Unemployment)	480	-0.005	0.17	Monthly
Change(CPI)	480	0.38	0.47	Monthly
Change(Housing)	257	0.16	183	Monthly
Change (GDP)	84	-0.04	2.1	Quarterly

Notes: Housing and GDP data are available from 1997–2019. Survey weights used.

Table B.3: ΔE around Major Events

Date	Event	Gallup Daily change (p.p.)	Michigan One-week change (p.p.)
16 Mar 2008	Bear Stearns Rescue	-2.33	4.77
15 Sep 2008	Lehman Bankruptcy	-5.78	-10.23
4 Nov 2008	US Election 2008	7.60	4.26
25 Nov 2008	Quantitative Easing	-3.53	2.89
1 Jun 2009	GM Bankruptcy	-3.86	-1.19
3 Nov 2010	QE2 Announcement	6.73	-2.35
2 May 2011	Bin Laden Death Announced	10.32	8.06
9 Aug 2011	Forward Guidance	-0.32	-3.30
6 Nov 2012	US Election 2012	-2.24	-8.66
22 May 2013	Bernanke Taper Testimony	2.58	1.95
1–17 Oct 2013	Congress Shutdown	-3.99	-0.73
24 Jun 2016	Brexit Referendum Result	-0.63	-7.05
8 Nov 2016	US Election 2016	7.03	4.46

Figure B.1: Number of Respondents Each Day of the Month



(a) Gallup Daily Tracking Poll (b) Michigan Survey of Consumers

Notes: Average number of respondents per day of the month in the the Gallup Daily Tracking Poll and the Michigan Survey of Consumers.

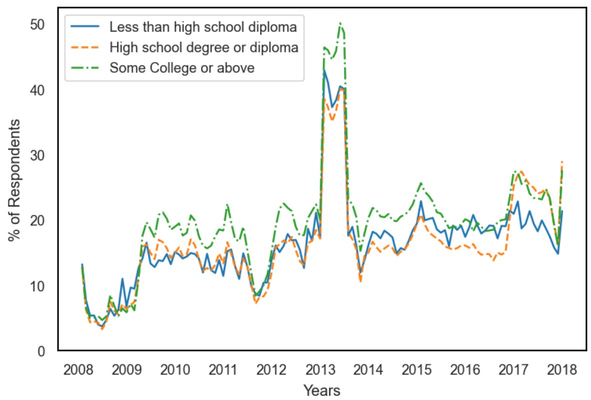
B.1.2 Heterogeneity in Household Expectations

We observe substantial heterogeneity in household expectations across demographic groups. In Figure B.2a, we find that college graduates were systematically the most optimistic over time. This can be linked to job status, since college graduates tend to have the highest employment rates and thus tend to be consistently more optimistic than the unemployed (Figure B.2b). Looking across age groups in Figure B.2c, we find that younger respondents are consistently more optimistic than middle-aged and older respondents. While little difference in optimism exists across genders in most years (Figure B.2d), there seems to be a sharp increase among men post 2016.

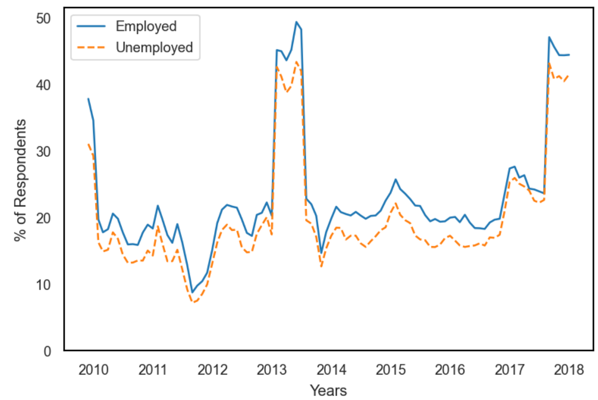
Interestingly, we find a reversal when looking at heterogeneity across political affiliation and race. As Figure B.2f demonstrates, households' optimism is proportional to their party affiliation, and changes depending on the ruling party (Mian et al. 2021).[9] This reversal is also present when looking at heterogeneity by race (Figure B.2e).[10]

[9]At the start of 2008, when the Republican party is in power, we observe that households affiliated with the Republican party are more optimistic than those affiliated with the Democratic party. In the 2008 elections, when the Democrats win, we see that expectations of households affiliated with them increase, while those of households affiliated with the Republicans decline. Democrats stay consistently more optimistic than Republicans after winning the 2012 election, but become pessimistic after losing in 2016.

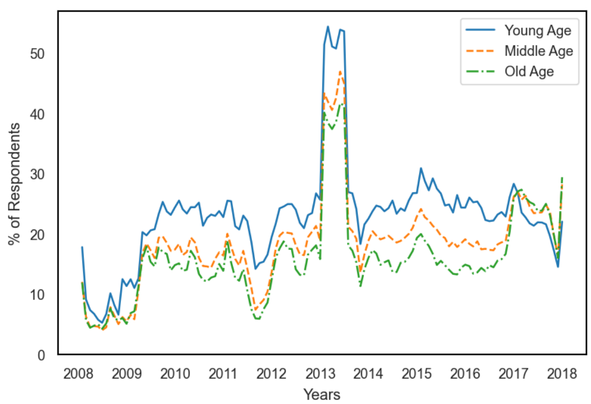
[10]After the 2008 Presidential election when Barack Obama is elected as the first Black president of the United States, Black households become significantly more optimistic, even exceeding the proportion of white households who are optimistic. In contrast, after the 2016 election which brought Donald Trump to power, the reverse occurs and Black households become more pessimistic than White households.



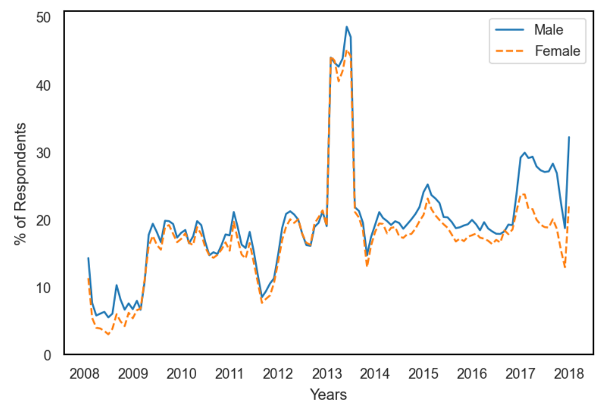
(a) Education



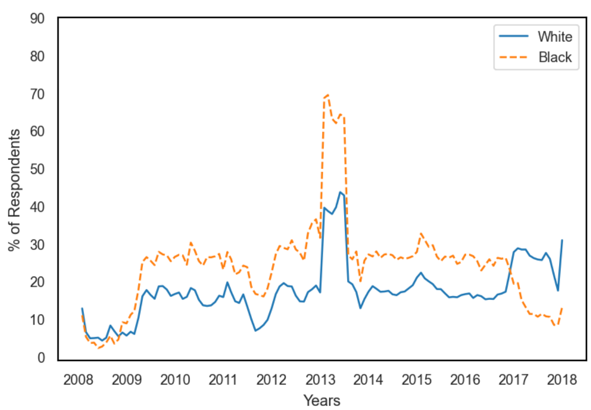
(b) Job Status



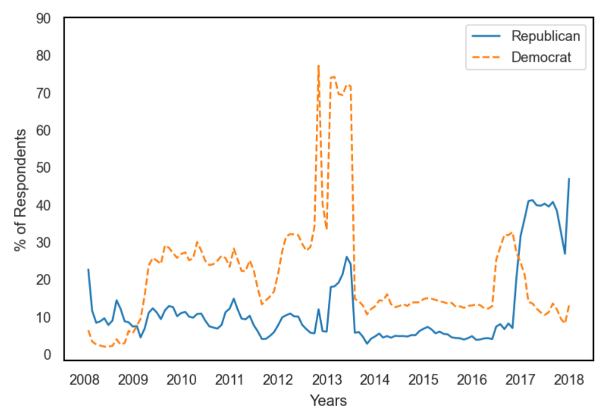
(c) Age



(d) Gender



(e) Race



(f) Party Affiliation

Figure B.2: Heterogeneity in Household Expectations

B.1.3 Detailed Regression Tables for GDTP

Table 4a: Baseline: Sophisticated Households

Panel A: Sophisticated Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(Unemp)	-0.568*	-0.565*	-0.642*	-0.377	-0.170	-0.578*
	(0.298)	(0.316)	(0.341)	(0.299)	(0.300)	(0.313)
Observations	33363	32657	30264	32826	33950	31544
R^2	0.051	0.049	0.045	0.052	0.049	0.048
Surprise(CPI)	0.434	-0.168	0.391	-0.123	-0.419	0.111
	(0.290)	(0.306)	(0.308)	(0.282)	(0.288)	(0.295)
Observations	32697	31409	31836	33342	33528	32386
R^2	0.049	0.047	0.051	0.051	0.055	0.055
Surprise(GDP)	0.168	0.427	0.252	0.690**	-0.0763	0.189
	(0.324)	(0.325)	(0.324)	(0.323)	(0.341)	(0.327)
Observations	32112	31029	29208	30264	29008	30338
R^2	0.056	0.051	0.049	0.048	0.045	0.057
Surprise(Housing)	0.0147	-0.107	0.115	0.650**	-0.216	0.749**
	(0.321)	(0.331)	(0.331)	(0.328)	(0.343)	(0.337)
Observations	34746	32693	33347	33745	32740	31851
R^2	0.053	0.044	0.049	0.045	0.054	0.051
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates of β_h from Equation 24 for sophisticated expectations model. Here each cell is the coefficient from a separate regression equation. We control for demographics such as age, income, education, race, gender, political affiliation, and state of residence of the respondent. Survey weights are used. Standard errors are presented in parentheses. *$p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4b: Baseline: Naive Households

	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Panel B: Naive Households						
$\Delta(Unemp)$	-0.790***	-0.640**	-0.951***	-0.392	-0.184	-0.591*
	(0.300)	(0.315)	(0.329)	(0.305)	(0.303)	(0.307)
Observations	32657	31955	29556	32156	33276	30858
R^2	0.053	0.051	0.047	0.053	0.050	0.050
$\Delta(CPI)$	0.0657	-0.0737	0.663**	0.308	0.666**	0.157
	(0.288)	(0.293)	(0.294)	(0.289)	(0.294)	(0.296)
Observations	32003	30699	31113	32589	32834	32386
R^2	0.049	0.048	0.053	0.052	0.056	0.055
$\Delta(GDP)$	0.787**	0.817**	0.625*	0.963***	0.397	0.204
	(0.343)	(0.345)	(0.351)	(0.344)	(0.352)	(0.356)
Observations	31690	30593	28761	29814	28569	29890
R^2	0.058	0.052	0.050	0.049	0.046	0.058
$\Delta(Housing)$	-0.484	-0.339	-0.167	0.571*	-0.131	0.378
	(0.337)	(0.352)	(0.350)	(0.343)	(0.344)	(0.349)
Observations	33937	31857	32493	32937	32617	31379
R^2	0.054	0.045	0.050	0.046	0.053	0.051
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates of β_h from Equation 24 for the naive expectations model. Here each cell is the coefficient from a separate regression equation. We control for demographics such as age, income, education, race, gender, political affiliation, and state of residence of the respondent. Survey weights are used. Standard errors are presented in parentheses. *$p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.1.4 Impulse Responses for a longer horizon: Baseline

In Figure B.3 we show the impulse responses for a longer horizon. We control for observables and also report 66% and 90% confidence intervals.

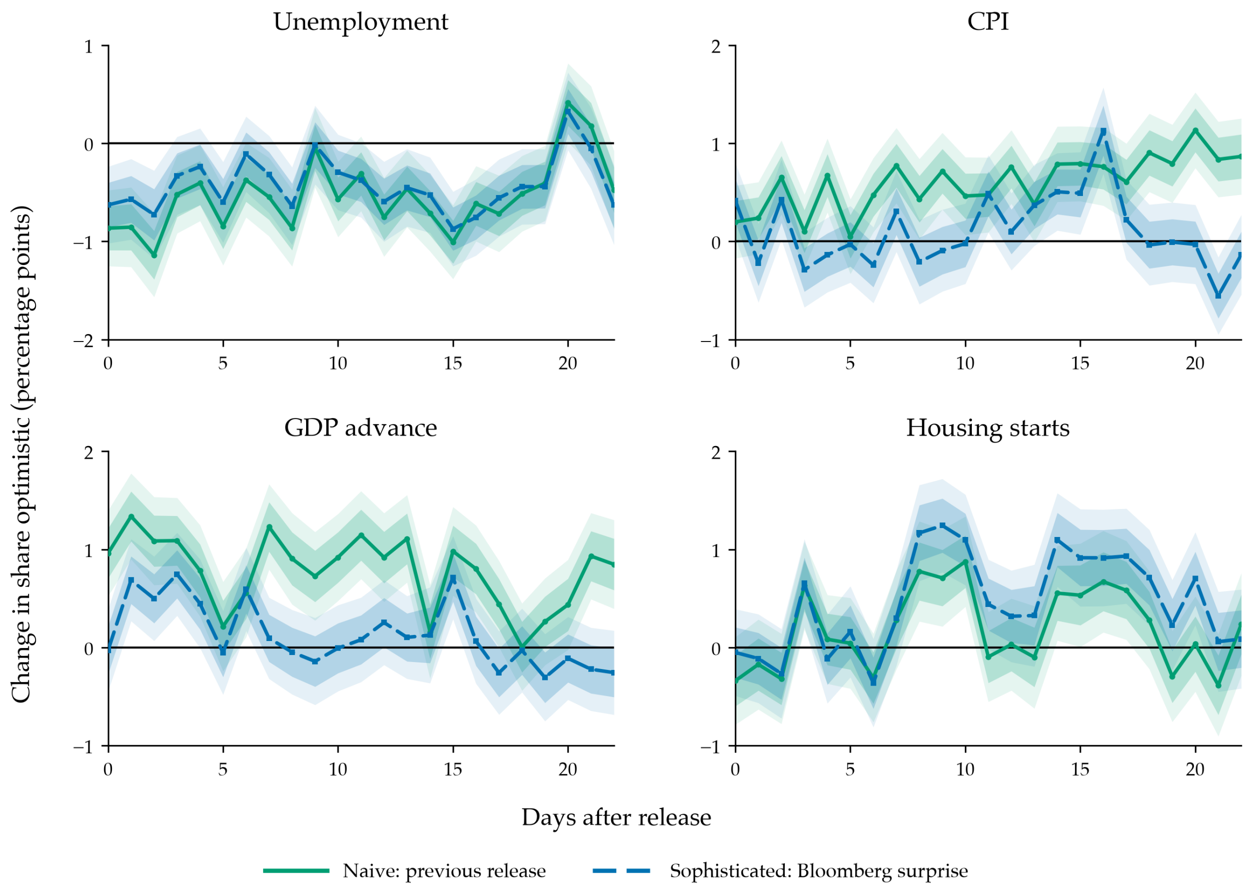


Figure B.3: Impulse Responses to Announcements.

Table 5a: Asymmetry in Response of Expectations

Panel A: Sophisticated Households Model						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\text{Surp(Unemp)}_t > 0$	-0.900	-0.992*	-0.406	0.450	0.069	-0.380
	(0.548)	(0.551)	(0.533)	(0.533)	(0.514)	(0.543)
$\text{Surp(Unemp)}_t < 0$	-0.267	-0.228	-0.995	-1.059	-1.066*	-1.435**
	(0.626)	(0.634)	(0.815)	(0.660)	(0.634)	(0.650)
$\text{Surp(CPI)}_t > 0$	0.968**	0.477	0.482	0.128	0.426	0.480
	(0.378)	(0.383)	(0.383)	(0.386)	(0.379)	(0.385)
$\text{Surp(CPI)}_t < 0$	0.815	0.292	1.269	1.396**	-0.542	-0.806
	(0.751)	(0.754)	(0.785)	(0.706)	(0.719)	(0.748)
Panel B: Naive Households Model						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)_t > 0$	-1.280***	-1.989***	-1.954***	-0.748*	-0.744*	-0.940**
	(0.405)	(0.416)	(0.396)	(0.408)	(0.387)	(0.405)
$\Delta(Unemp)_t < 0$	1.324	1.159	0.751	-0.212	0.784	0.454
	(0.822)	(0.849)	(0.965)	(0.913)	(0.839)	(0.857)
$\Delta(CPI)_t > 0$	-1.694***	-2.181***	-0.684	-1.354***	-0.841*	-1.092**
	(0.492)	(0.513)	(0.521)	(0.490)	(0.495)	(0.494)
$\Delta(CPI)_t < 0$	1.664***	1.531***	2.673***	1.626***	1.461***	1.032**
	(0.465)	(0.461)	(0.468)	(0.465)	(0.465)	(0.483)

Notes: This table reports estimates of β_h from Equation 25 and 26 for naive and sophisticated priors. Here each cell is the coefficient from a separate regression equation. We control for demographics such as age, income, education, race, gender, political affiliation, and state of residence of the respondent. Survey weights are used. Standard errors are presented in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

B.1.5 Impulse Responses for a longer horizon: Asymmetry

In Figure B.4 we show the impulse responses for a longer horizon for a positive and negative announcement for the unemployment and CPI. We control for observables and also report 66% and 90% confidence intervals.

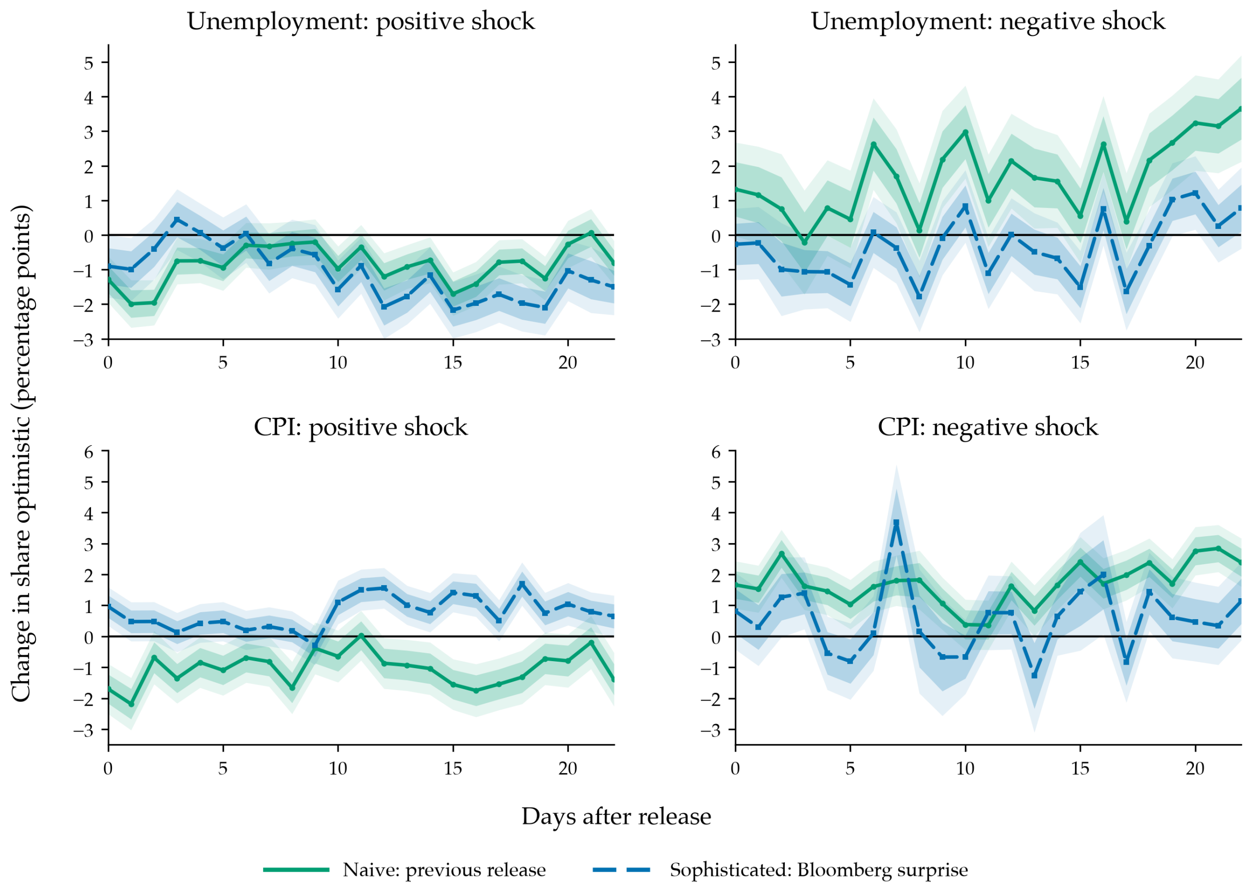
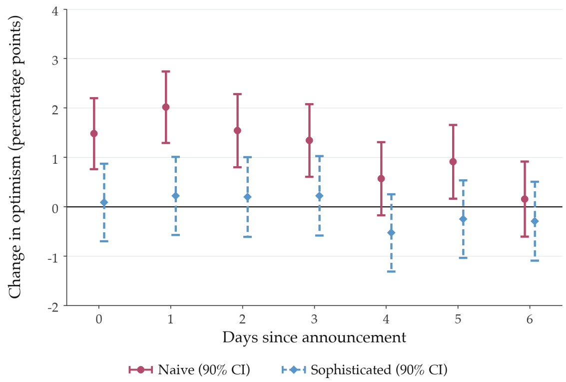


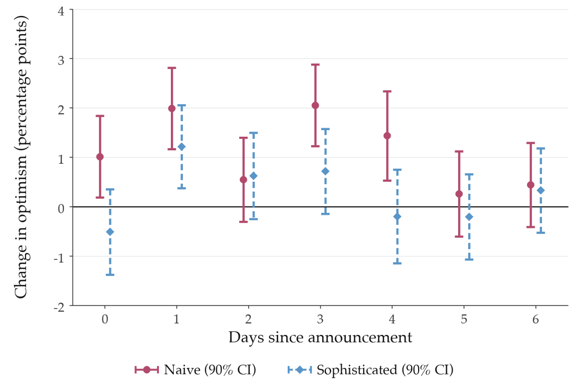
Figure B.4: Impulse Responses to Announcements.

B.1.6 Impulse Responses for GDP and Housing Starts

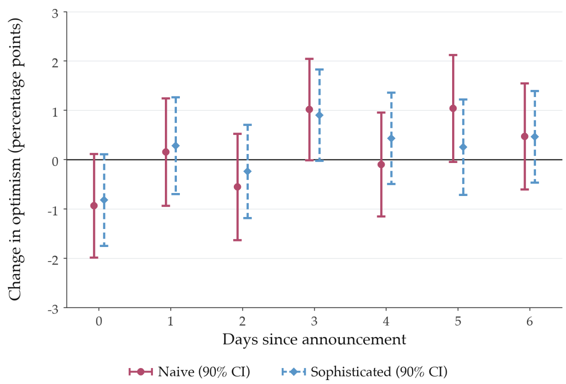
Figure B.5: Response of Household Expectations to Positive and Negative Shocks



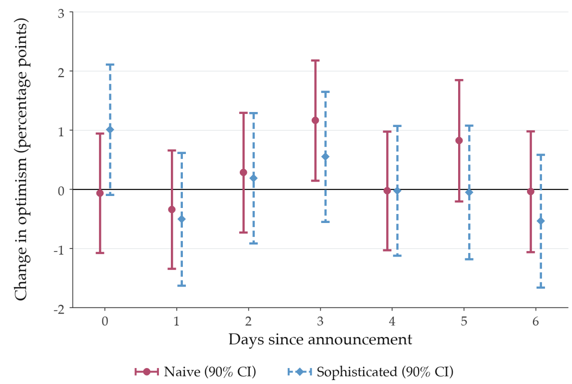
(a) GDP Advance: Positive



(b) GDP Advance: Negative



(c) Housing Starts: Positive



(d) Housing Starts: Negative

Notes: Coefficient plots for asymmetric shocks for GDP and Housing Starts. Naive priors shown with pink solid circles; Sophisticated priors shown with blue dashed diamonds. 95% confidence intervals shown.

B.1.7 Robustness Exercises

This section reports various robustness exercises in the Gallup sample. We show our results are robust to taking $t-1$ expectations, local labor markets, taking weekly horizons, and having different controls. We report these results below.

B.1.7.1 Taking $t-1$ expectations for all announcements as the expectations the day before the first announcement in the month, i.e. the unemployment announcement

Table B.6: GDTP: $E^i_{t+h}[Z] - \bar{E}^{first}_{t-1}[Z] = \alpha_h + \beta^{first}_h \cdot ShockX_t + D^i_{t+h} + \epsilon^i_{th}$

Panel A: Sophisticated Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(CPI)	0.501*	-0.000281	0.426	-0.0285	-0.224	0.384
	(0.292)	(0.307)	(0.309)	(0.272)	(0.276)	(0.283)
Surprise(GDP)	0.0357	-0.0171	-0.183	0.350	-0.390	0.148
	(0.412)	(0.417)	(0.363)	(0.364)	(0.387)	(0.603)
Surprise(Housing)	0.593*	0.341	0.818**	1.169***	0.209	1.496***
	(0.321)	(0.332)	(0.331)	(0.328)	(0.343)	(0.337)
Panel B: Naive Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(CPI)$	-0.163	-0.121	0.507*	0.150	0.482*	0.0631
	(0.289)	(0.293)	(0.294)	(0.288)	(0.291)	(0.293)
$\Delta(GDP)$	1.030*	0.868	0.785*	0.961**	0.737	0.132
	(0.566)	(0.563)	(0.456)	(0.453)	(0.491)	(0.710)
$\Delta(Housing)$	0.345	0.337	0.685*	1.357***	0.637*	1.338***
	(0.337)	(0.353)	(0.351)	(0.342)	(0.344)	(0.349)

This table shows the estimates from computing the change in expectations as as $E^i_{t+h}[Z]-\bar{E}^{first}_{t-1}[Z]$, where $\bar{E}^{first}_{t-1}[Z]$ is the average expectations before the employment situation release each month. This exercise allows us to calculate changes in expectation around each release relative to the expectations set before the first announcement of the month. Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.1.7.2 Taking t–3 expectations for the unemployment announcement instead of t–1

Table B.7

Panel A: Sophisticated Households

	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(Unemp)	-0.00519*	-0.00600*	-0.00683*	-0.00588*	-0.000968	-0.00425
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
Observations	30407	29659	27281	29719	30921	29203
R^2	0.052	0.049	0.044	0.054	0.048	0.047

Panel B: Naive Households

	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)_t$	-0.00480	-0.00381	-0.00701**	-0.00296	0.000810	-0.00153
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Observations	30407	29659	27281	29719	30921	29203
R^2	0.052	0.049	0.044	0.054	0.048	0.047

This table reports estimates for Equation 24 taking the prior expectation to be 3 days before the announcement, instead of one day before. Robust (heteroscedasticity-consistent) standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.1.7.3 Local unemployment

We now test whether people change their expectations differently depending on their local economic conditions. Both personal as well as local conditions can influence an individual's expectations.[11] People living in areas with traditionally higher unemployment could be more sensitive to movements in the unemployment rate. It could also be that when unemployment increases, the shock is greatest to people in areas with traditionally lower unemployment, so they respond more. We examine these hypotheses empirically by estimating:

$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_{1h} + \beta_{1h} \times (ShockX_t | LocalU_t > median(LocalU_t)) + D^i_{1t+h} + \epsilon_{1th} \quad (B.1)$$

$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_{2h} + +\beta_{2h} \times (ShockX_t | LocalU_t > p75(LocalU_t)) + D^i_{2t+h} + \epsilon_{2th} \quad (B.2)$$

where t is the day of the announcement, h indicates days from t, E_τ indicates expectations formed by agent i on day τ, D^i_{t+h} denotes demographic information for person i, $ShockX_t$ denotes the shock in information due to the announcement, $LocalU_t$ denotes the local unemployment rate of the fipscode that agent i lives in. We cluster standard errors by state. We find the median and the 75th percentile local unemployment rate for all fipscode every month, and split areas according to that value. We find that people living in areas with high local unemployment pay more attention to shocks to the national unemployment rate. This result, however, does not hold for shocks to CPI.

[11] Borgschulte & Martorell (2018) use data on military personnel records and they find that service members would forgo 1.5% in reenlistment earnings to avoid a 1 percentage point increase in local unemployment rate.

Table B.8: Response of Household Expectations to Unemployment Shocks Depending on Local Area Unemployment

	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Panel A: Sophisticated Households						
$\text{Surp(U)}_t, High50$	-0.678**	-0.630**	-0.649	-0.357	-0.201	-0.691**
	(0.259)	(0.260)	(0.421)	(0.329)	(0.323)	(0.287)
$\text{Surp(U)}_t, Low50$	0.0875	-0.637	-0.565	-0.00299	-0.0558	0.668
	(0.909)	(0.583)	(0.899)	(1.002)	(0.851)	(0.740)
$\text{Surp(U)}_t, High75$	-0.650**	-0.633**	-0.516	-0.313	-0.327	-0.675**
	(0.308)	(0.271)	(0.458)	(0.385)	(0.329)	(0.268)
$\text{Surp(U)}_t, Low75$	-0.104	-0.610	-1.237	-0.690	0.577	-0.0739
	(0.912)	(0.455)	(0.708)	(0.785)	(0.808)	(0.650)
Panel B: Naive Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)_t, High50$	-0.753***	-0.682**	-0.893**	-0.364	-0.135	-0.602**
	(0.278)	(0.284)	(0.388)	(0.349)	(0.399)	(0.297)
$\Delta(Unemp)_t, Low50$	-0.721	-0.708	-1.420	-0.363	-0.669	-0.168
	(0.676)	(0.732)	(0.970)	(0.856)	(0.810)	(0.797)
$\Delta(Unemp)_t, High75$	-0.715**	-0.742**	-0.759*	-0.255	-0.255	-0.623**
	(0.316)	(0.320)	(0.411)	(0.384)	(0.428)	(0.306)
$\Delta(Unemp)_t, Low75$	-0.805	-0.562	-1.894**	-0.953	0.107	-0.489
	(0.678)	(0.459)	(0.704)	(0.678)	(0.738)	(0.638)

This table reports the estimates of β_h from Equation B.1 for shocks to unemployment. Here, β_h is change in the expectations due to a shock in the unemployment rate in the BLS jobs report interacted with the state's unemployment rate, in the window $[t-1, t+h]$ where t is the day of the announcement and $h = 0, 1, 2, 3, 4$. In both panels, rows 1 and 2 indicate areas with high and low local unemployment depending on median county level unemployment, and rows 2 and 4 indicate areas with high and low local unemployment depending on 75% percentile county level unemployment. Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

Table B.9: Response of Household Expectations to CPI Shocks Depending on Local Area Unemployment

Panel A: Sophisticated Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surp(CPI)$_t$, $High50$	0.578*	-0.0716	0.424	0.00657	-0.264	0.213
	(0.316)	(0.333)	(0.335)	(0.307)	(0.313)	(0.323)
Surp(CPI)$_t$, $Low50$	-0.395	-0.587	0.451	-0.958	-1.169	-0.375
	(0.750)	(0.803)	(0.829)	(0.748)	(0.773)	(0.756)
Surp(CPI)$_t$, $High75$	0.441	0.0685	0.369	0.110	-0.0578	0.267
	(0.329)	(0.345)	(0.348)	(0.318)	(0.327)	(0.337)
Surp(CPI)$_t$, $Low75$	0.242	-0.937	0.224	-0.808	-1.505**	-0.282
	(0.615)	(0.662)	(0.667)	(0.615)	(0.608)	(0.620)
Panel B: Naive Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(CPI)_t, High50$	0.120	-0.0258	0.535**	0.245	0.535	0.432
	(0.326)	(0.327)	(0.261)	(0.222)	(0.348)	(0.349)
$\Delta(CPI)_t, Low50$	-0.0491	0.116	1.720	0.595	1.264*	-1.238
	(0.678)	(0.886)	(1.031)	(0.596)	(0.701)	(0.898)
$\Delta(CPI)_t, High75$	-0.0687	0.190	0.534*	0.331	0.707*	0.406
	(0.353)	(0.266)	(0.285)	(0.244)	(0.362)	(0.338)
$\Delta(CPI)_t, Low75$	0.690	-0.938	1.220**	0.405	0.638	-0.465
	(0.489)	(0.780)	(0.564)	(0.529)	(0.707)	(0.903)

This table reports the estimates of β_h from Equation B.1 for shocks to CPI. Here, β_h is change in the expectations due to a shock in the unemployment rate in the BLS jobs report interacted with the state's unemployment rate, in the window $[t-1, t+h]$ where t is the day of the announcement and $h = 0, 1, 2, 3, 4$. In both panels, rows 1 and 2 indicate areas with high and low local unemployment depending on median county level unemployment, and rows 2 and 4 indicate areas with high and low local unemployment depending on 75% percentile county level unemployment. Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.1.7.4 Including News Sentiment as control

Table B.10

Panel A: Sophisticated Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(Unemp)	-0.00611***	-0.00413*	-0.00890***	-0.00286	-0.00506**	-0.00679***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
Surprise(CPI)	0.0829**	0.110**	0.100**	-0.0109	-0.0603*	0.00167
	(0.037)	(0.050)	(0.041)	(0.039)	(0.034)	(0.040)
Panel B: Naive Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)$	-0.00804***	-0.00509**	-0.0120***	-0.00395	-0.00577**	-0.00850***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
$\Delta(CPI)$	0.00154	0.00101	0.00452*	0.00146	0.00721***	0.000503
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)

This table reports estimates for Equation 24 modified to include the change in the Federal Reserve Bank of San Francisco's Daily News Sentiment Index as a control. Robust (heteroscedasticity-consistent) standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.1.7.5 Including Stock Market as control

Table B.11

Panel A: Sophisticated Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(Unemp)	-0.00597**	-0.00594**	-0.00790***	-0.00357	-0.00462*	-0.00690***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
Surprise(CPI)	0.00396*	-0.00281	0.00382	-0.00248	-0.00225	-0.000995
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Panel B: Naive Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)$	-0.00876***	-0.00846***	-0.0114***	-0.00420*	-0.00624***	-0.00787***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
$\Delta(CPI)$	0.00136	0.000904	0.00629***	0.00164	0.00660***	0.000290
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)

This table reports estimates for Equation 24 modified to include the change in NASDAQ as a control. Robust (heteroscedasticity-consistent) standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.1.7.6 Pre vs post 2012

Table B.12: Response of Expectations in Recession versus Non-recession Years

Panel A: Sophisticated Households

	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surp(U)$_t$, $Pre2012$	-0.00269	-0.00893**	-0.0104***	-0.00570	-0.00324	-0.00762**
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Surp(U)$_t$, $Post2012$	-0.0111*	0.000518	-0.000430	-0.00192	0.00201	0.00209
	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)
Surp(CPI)$_t$, $Pre2012$	0.00280	-0.00192	0.00126	-0.00285	-0.00943***	-0.00230
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Surp(CPI)$_t$, $Post2012$	0.00961*	0.000798	0.00988	0.00115	0.00491	0.00930*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)

Panel B: Naive Households

	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)_t, Pre2012$	-0.00697**	-0.0109***	-0.0153***	-0.00776**	-0.00526	-0.00587
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
$\Delta(Unemp)_t, Post2012$	-0.0125*	0.00137	-0.000297	-0.00339	0.00801	-0.00122
	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)
$\Delta(CPI)_t, Pre2012$	-0.00191	-0.00259	0.00521	0.00470	0.00536	0.00394
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
$\Delta(CPI)_t, Post2012$	0.00445	0.00180	0.00858	-0.000261	0.00922*	-0.00203
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)

This table reports estimates for two subsamples for GDTP - the period of the Great Recession (2008-2011), and the non-recession period (2012-2017). Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.1.7.7 Gallup weekly results

Table B.13: GDTP Weekly Estimates

	$X_t =$ 1	$X_t =$ CPI 2	$X_t =$ GDP 3	$X_t =$ Housing 4
Panel A: Sophisticated Households				
Surp X_t	-3***	-2***	0.07	-0.03
	(0.12)	(0.12)	(0.13)	(0.13)
N	222644	227598	215142	229071
R^2	0.047	0.046	0.043	0.045
Controls	Yes	Yes	Yes	Yes
Panel B: Naive Households				
Change X_t	-4.5***	-0.3**	1.8	2***
	(0.12)	(0.12)	(0.14)	(0.14)
N	217823	223661	212041	224846
R^2	0.053	0.045	0.045	0.047
Controls	Yes	Yes	Yes	Yes

This table shows the estimates from a weekly window around each announcement in the GDTP, equivalent to the weekly windows in the MSC. Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Surprises from Bloomberg Finance LP.

B.2 Michigan Survey of Consumers

Table B.14: ΔE around Major Events: Updated

Panel A: Point Events

Date	Event	Daily change (p.p.)	One-week change (p.p.)
14 Mar 1980	Carter Credit Controls	-0.37	-4.20
22 Sep 1985	Plaza Accord	9.66	-5.64
19 Oct 1987	Black Monday	-17.69	-14.13
4 Feb 1994	First Announced Fed Tightening	-21.09	-1.05
20 Dec 1994	Mexican Peso Devaluation	-11.42	4.48
2 Jul 1997	Asian Financial Crisis Begins	4.09	-6.67
23 Sep 1998	LTCM Rescue	21.04	-2.67
11 Sep 2001	September 11 Attacks	-16.43	-3.17
2 Dec 2001	Enron Bankruptcy	5.94	-2.72
9 Aug 2007	BNP Paribas Fund Freeze	-26.23	-12.46
5 Aug 2011	S&P US Debt Downgrade	-5.45	-4.16
13 Sep 2012	QE3 Announcement	19.43	2.67
16 Dec 2015	Federal Reserve Liftoff	21.18	6.06
8 Mar 2018	Steel and Aluminum Tariffs	8.57	4.92
15 Jun 2018	China Tariffs Announced	-10.24	-11.20

Panel B: Multi-week Episodes

Episode dates	Episode	One-week change (p.p.)	Two-week change (p.p.)	Four-week change (p.p.)
6 Jan–31 Mar 1986	1986 oil-price collapse	-0.40	0.22	0.94
2 Aug–12 Oct 1990	Gulf oil-price shock	-17.38	-23.41	-33.41
10 Mar–14 Apr 2000	Initial dot-com crash	-8.94	-4.58	-4.11
1 May–11 Jul 2008	Oil-price run-up	5.01	7.39	5.22
19 Jun–31 Dec 2014	Oil-price collapse	13.48	21.64	18.32

B.2.1 Daily results

Table 15a: MSC Daily Estimates

Panel A: Sophisticated Households 1997-2019						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(Unemp)	0.438	0.189	0.273	-0.257	-0.459	0.700
	(0.860)	(0.858)	(0.862)	(0.766)	(0.806)	(0.822)
N	3208	3711	3302	4470	4295	3918
R^2	0.027	0.022	0.033	0.019	0.023	0.024
Surprise(CPI)	-0.637	2.361**	-2.049*	4.313***	-2.255**	1.651
	(1.048)	(1.076)	(1.184)	(1.093)	(0.999)	(1.037)
N	2284	2233	1941	2146	2280	2352
R^2	0.028	0.019	0.023	0.030	0.031	0.020
Panel B: Naive Households 1980-2019						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)$	-0.0389	0.373	0.711	-0.166	-1.288**	1.145*
	(0.635)	(0.654)	(0.647)	(0.563)	(0.604)	(0.613)
N	6357	6845	6315	8557	8468	7936
R^2	0.024	0.022	0.026	0.020	0.023	0.018
$\Delta(CPI)$	-1.380*	1.925**	-0.663	1.571**	-1.248*	2.589***
	(0.746)	(0.773)	(0.806)	(0.707)	(0.715)	(0.843)
N	4561	4228	3715	4026	4238	4408
R^2	0.026	0.016	0.023	0.019	0.025	0.024

This table shows the estimates from a daily window around each announcement in the MSC for the full sample: 1980-2019. Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.2.2 Daily results for Gallup subsample

Table 15b: MSC Daily Estimates: 2008 to 2017

Panel A: Sophisticated Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
Surprise(Unemp)	-1.476	1.204	-0.756	0.997	-2.839***	3.499***
	(0.964)	(0.981)	(1.038)	(0.868)	(0.875)	(1.116)
N	1459	1479	1262	1861	1773	1603
R^2	0.026	0.040	0.058	0.016	0.026	0.045
Surprise(CPI)	-3.625**	2.620	-0.370	3.196*	-4.093***	4.153***
	(1.649)	(1.802)	(1.869)	(1.811)	(1.444)	(1.579)
N	986	925	891	973	1020	1035
R^2	0.042	0.034	0.050	0.030	0.042	0.049
Panel B: Naive Households						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5
$\Delta(Unemp)$	-0.162	3.109***	0.0219	-1.894*	-0.437	0.162
	(1.015)	(1.099)	(1.153)	(0.975)	(1.033)	(1.081)
N	1681	1698	1434	2103	2040	1832
R^2	0.027	0.036	0.045	0.016	0.019	0.037
$\Delta(CPI)$	-2.212**	1.535	-0.528	0.638	-2.691***	3.519***
	(1.008)	(1.066)	(1.094)	(0.979)	(0.924)	(1.194)
N	1132	1086	1034	1095	1111	1132
R^2	0.031	0.024	0.056	0.022	0.034	0.037

This table shows the estimates from a daily window around each announcement in the MSC, equivalent to the daily window in the GDTP for 2008-17. Standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.2.3 Response of Expectations during US Recessions

In this section we estimate

$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_h + \beta_{1h} \times ShockX_t + \beta_{2h} \times \mathbb{1}(Recession) + \beta_{3h} \times (ShockX_t \times \mathbb{1}(Recession)) + D^i_{t+h} + \epsilon_{th}$$

Table B.16: Share of Optimists in Recessions

y_t = Share of Optimists	X_t = U	X_t =CPI
	1	2
Panel A: Sophisticated Households		
Surprise(X_t)	1***	-1.6*
	(0.36)	(0.46)
Recession Year	-23***	-24***
	(1.13)	(1.33)
Surprise(X_t)× Recession Year	-3.5***	1.2
	(0.86)	(0.92)
Panel B: Naive Households		
ΔX_t	-1***	-0.8*
	(0.41)	(0.48)
Recession Year	-21***	-24***
	(1.40)	(1.32)
ΔX_t× Recession Year	-1	0.3
	(0.83)	(0.87)

This table shows the estimates for change in share of optimists during US Recessions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Data from Survey of Consumers, University of Michigan. Survey Research Center. Surprises from Bloomberg Finance LP.

Table B.17: Response of Household Inflation Expectations in Recessions

$y_t = E_t\pi_{t+12}$	X_t = U	X_t =CPI
	1	2
Panel A: Sophisticated Households		
Surprise(X_t)	0.003	0.05
	(0.025)	(0.04)
Recession Year	1.2***	-1.6***
	(0.10)	(0.14)
Surprise(X_t)× Recession Year	0.18**	-0.05
	(0.08)	(0.09)
Panel B: Naive Households		
ΔX_t	0.06**	0.03
	(0.03)	(0.04)
Recession Year	1.1***	1.6***
	(0.13)	(0.14)
ΔX_t× Recession Year	0.03	0.1
	(0.08)	(0.09)

This table shows the estimates for change in household inflation expectations during US Recessions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Data from Survey of Consumers, University of Michigan. Survey Research Center. Surprises from Bloomberg Finance LP.

B.2.4 Index of Consumer Expectations (ICE)

ICE is a composite index of three forward looking survey questions:

1. *Now looking ahead–do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?*

2. *Now turning to business conditions in the country as a whole–do you think that during the next twelve months we'll have good times financially, or bad times, or what?*

3. *Looking ahead, which would you say is more likely–that in the country as a whole we'll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what?*

MSC calculates ICE in the following manner: first computes the relative scores (the percent giving favorable replies minus the percent giving unfavorable replies, plus 100) for each of the three index questions. Each relative score is then rounded to the nearest whole number. Then, $\{ICE = \frac{X1 + X2 + X3}{4.1134} + 2.0\}$ where, the relative scores are divided by the 1966 base period total the added constant is to correct for sample design changes from the 1950s.

These three questions taken together provide a measure of household's expectations about the future of the economy, making it qualitatively similar to Gallup's Expectation Index. Changes in ICE can also be interpreted in a similar way - an increase in ICE denotes a rise in optimism, whereas a decrease denotes a fall in optimism or a rise in pessimism.

B.2.5 Level category tables

Table B.18: MSC Scenarios Dependent on Level of U_t and π_t

y_t = Business Outlook	X_t = U	X_t =CPI
	1	2
Panel A: Sophisticated Households		
High U_t, High π_t	-2***	-2.8*
	(0.80)	(0.98)
Low U_t, Low π_t	-2.7***	-0.9
	(0.70)	(0.96)
High U_t, Low π_t	-1.6***	0.9
	(0.50)	(0.74)
Low U_t, High π_t	0.08	-3.6***
	(1.10)	(1.08)
Panel B: Naive Households		
High U_t, High π_t	-5.7***	-7***
	(0.43)	(0.65)
Low U_t, Low π_t	-1.2	-2.5***
	(0.78)	(0.84)
High U_t, Low π_t	-5***	1.2***
	(0.38)	(0.45)
Low U_t, High π_t	-5.4***	-2.7*
	(1.51)	(1.55)

This table shows the estimates for scenarios dependent on levels of inflation and unemployment. We define high unemployment to be greater than 5% and high inflation to be greater than 3%. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Data from Survey of Consumers, University of Michigan. Survey Research Center.

Table B.19: MSC Scenarios Dependent on Level of U_t and π_t

y_t = ICE		X_t = U (1)	X_t =CPI (2)
Panel A: Sophisticated Households 1997-2019			
Baseline	Surp X_t	-0.6***	-1.2***
		(0.13)	(0.2)
Asymmetry	Surp $X_t > 0$	-10.4***	-4.7***
		(0.47)	(0.59)
	Surp $X_t < 0$	-0.5*	0.1
		(0.30)	(0.62)
Scenarios	$\Delta U > 0, \Delta\pi > 0$	-3.8***	-0.6
		(0.45)	(0.44)
	$\Delta U < 0, \Delta\pi < 0$	2.6***	-2.6***
		(0.28)	(0.40)
	$\Delta U > 0, \Delta\pi < 0$	-4.6***	-0.5
		(0.48)	(0.47)
	$\Delta U < 0, \Delta\pi > 0$	3***	-2.4***
		(0.46)	(0.4)
Panel B: Naive Households 1980-2019			
Baseline	Change X_t	-3.3***	-1.2***
		(0.09)	(0.17)
Asymmetry	Change $X_t > 0$	-5.8***	-4.4***
		(0.17)	(0.29)
	Change $X_t < 0$	-1***	2.8***
		(0.23)	(0.20)
Scenarios	$\Delta U > 0, \Delta\pi > 0$	-13***	0.02
		(0.30)	(0.26)
	$\Delta U < 0, \Delta\pi < 0$	0.9***	-2.1***
		(0.25)	(0.40)
	$\Delta U > 0, \Delta\pi < 0$	-7.1**	-2.2***
		(0.38)	(0.33)
	$\Delta U < 0, \Delta\pi > 0$	-3.6***	-3.2***
		(0.45)	(0.49)

This table shows the estimates scenarios dependent on levels of inflation and unemployment. We define high unemployment to be greater than 5% and high inflation to be greater than 3%. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Data from Survey of Consumers, University of Michigan. Survey Research Center. Surprises from Bloomberg Finance LP.

B.2.6 MSC: Response of Expectations during US Recessions

In this section we estimate

$$E^i_{t+h}[Z] - \bar{E}_{t-1}[Z] = \alpha_h + \beta_{1h} \times ShockX_t + \beta_{2h} \times \mathbb{1}(Recession) + \beta_{3h} \times (ShockX_t \times \mathbb{1}(Recession)) + D^i_{t+h} + \epsilon_{th}$$

Table B.20: Share of Optimists in Recessions

y_t = Share of Optimists	X_t = U	X_t =CPI
	1	2
Panel A: Sophisticated Households		
Surprise(X_t)	1***	-1.6*
	(0.36)	(0.46)
Recession Year	-23***	-24***
	(1.13)	(1.33)
Surprise(X_t)× Recession Year	-3.5***	1.2
	(0.86)	(0.92)
Panel B: Naive Households		
ΔX_t	-1***	-0.8*
	(0.41)	(0.48)
Recession Year	-21***	-24***
	(1.40)	(1.32)
ΔX_t× Recession Year	-1	0.3
	(0.83)	(0.87)

This table shows the estimates for change in share of optimists during US Recessions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Data from Survey of Consumers, University of Michigan. Survey Research Center. Surprises from Bloomberg Finance LP.

Table B.21: Response of Household Inflation Expectations in Recessions

$y_t = E_t\pi_{t+12}$	X_t = U	X_t =CPI
	1	2
Panel A: Sophisticated Households		
Surprise(X_t)	0.003	0.05
	(0.025)	(0.04)
Recession Year	1.2***	-1.6***
	(0.10)	(0.14)
Surprise(X_t)$\times$ Recession Year	0.18**	-0.05
	(0.08)	(0.09)
Panel B: Naive Households		
ΔX_t	0.06**	0.03
	(0.03)	(0.04)
Recession Year	1.1***	1.6***
	(0.13)	(0.14)
$\Delta X_t\times$ Recession Year	0.03	0.1
	(0.08)	(0.09)

This table shows the estimates for change in household inflation expectations during US Recessions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Data from Survey of Consumers, University of Michigan. Survey Research Center. Surprises from Bloomberg Finance LP.

C New York Fed's Survey of Consumer Expectations

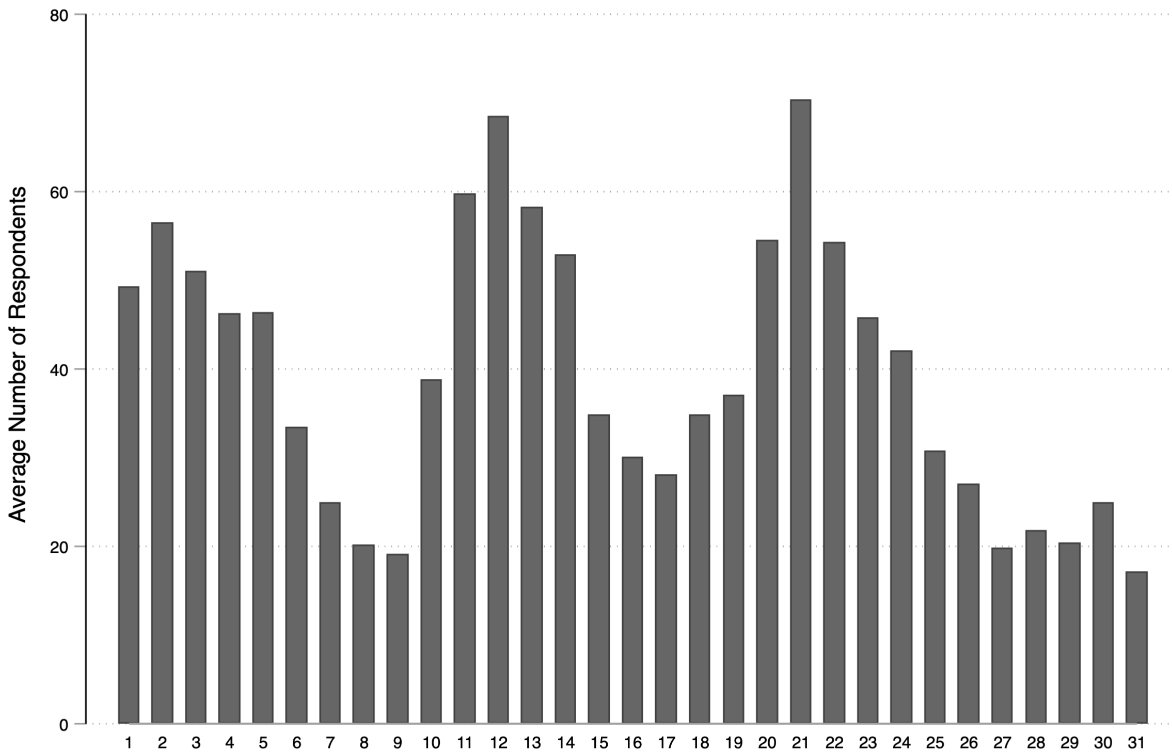


Figure C.1: Number of Daily Respondents: SCE