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THE MACROECONOMIC EXPECTATIONS OF U.S. MANAGERS

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ABSTRACT

Using responses obtained through the Nielsen Homescan panel survey, we explore the differences between managers' and non-managers' expectations and perceptions of inflation and unemployment. By and large, managers and non-managers exhibit similar average inflation and unemployment expectations as well as similar levels of disagreement and sensitivity to information provided in a randomized control trial. Finally, the inflation expectations of managers deviate systematically from the predictions of "anchored" expectations.

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I'd like to move us right to Peter Gibbons. We had a chance to meet this young man, and boy he's just a straight shooter with upper management written all over him.

Bob Slydell
Office Space

1 Introduction

Firms are complex organizations populated with numerous decision makers at different levels of management. As a result, expectations of a firm may not be easy to summarize. Beliefs of the top-brass management may not capture well the beliefs of in-the-trenches managers who are responsible for a myriad of day-to-day decisions such as hiring/firing workers, setting prices/wages, managing workers, etc. as vividly portraited in *Office Space*. Recent work has made some progress in measuring macroeconomic expectations of business executives and relating these expectations to economic choices (e.g., Coibion, Gorodnichenko and Kumar 2018, Coibion, Gorodnichenko and Ropele 2020). At the same time, the dearth of data for middle- and low-rank managers is striking. We remedy this problem by documenting the inflation and unemployment perceptions and expectations of U.S. firm managers using a broad survey. Through this survey, we show that middle- and low-rank managers' understanding of the macroeconomy is closely approximated by ordinary households. We find that these lower managers' inflation expectations behave similarly to those of households.

Macroeconomists have long emphasized the significance of expectations for aggregate dynamics and policy but there is much less agreement on how economic agents form expectations and whether differences in expectations are important. Indeed, in standard representative agent models, consumers, firms, financiers and central bankers are indistinguishable in terms of their expectations. In reality, households, firms and financial markets report divergent inflation expectations (Candia et al. 2021b, D'Acunto, Malmendier and Weber 2021). While professional forecasters' inflation expectations are generally consistent with actual inflation and the central bank's target, survey evidence suggests that consumers' inflation expectations are biased upward (see Weber et al. (2021) for a survey). Notwithstanding this discrepancy between central bankers' target inflation rate and consumers' inflation expectations, actual inflation had been low before the onset of the Covid-19 pandemic. One explanation for these two facts is that the inflation expectations of price-setters (more broadly, managers), not consumers, are key to inflation dynamics.

A key element of our analysis is the Nielsen Homescan panel survey which allows us to

elicit and explore the differences between managers' and non-managers' expectations and perceptions of inflation and unemployment within a consistent and unified setting. The survey asks participants a variety of questions about the macroeconomy. In particular, the survey asks participants to report their perceptions and expectations of aggregate inflation and unemployment. Additionally, the survey tracks specific participants across multiple waves of the survey. This panel structure allows us to track changes in households' expectations and perceptions across time. For our analysis we tracked over 100,000 individuals and pooled their responses across time to generate over 1 million observations. Unlike typical surveys of managers, the Nielsen Homescan data also asks participants questions about demographics, socioeconomic status and geographical location, which others have shown play a role in the formation of macroeconomic expectations (Weber et al. 2021). Therefore, we control for these confounding variables throughout our analysis.

As a supplement to the standard Nielsen Homescan survey, in some waves we included questions about participants' managerial status. Given the large scale of the survey, we obtained over 250,000 observations across the waves of respondents' managerial status. Approximately a third of respondents reported being some kind of manager. Specifically, we asked if participants made hiring and firing decisions, set prices, set wages, managed groups of people or were involved in marketing. Thus, we can not only compare managers' and non-managers' expectations but also do comparisons for different types of managers.

In order to illustrate the similarities in expectations, we first explore unconditional moments of macroeconomic beliefs for managers and non-managers. We find that managers' and non-managers' expectations are not systematically different. Similar to prior research (e.g., Schein et al. 1996, Giuliano, Levine and Leonard 2011), we document that managers and non-managers differ along demographic, socioeconomic and geographic dimensions. When we control for these variables, we find that managers' expectations of inflation and unemployment are largely indistinguishable from non-managers'. In our sample, both groups' inflation expectations are 2.5% (which is above the central bank's target), and unemployment expectations are over 9%, well above the average rate historically experienced in the U.S. and during most of the survey waves. We find that a good predictor of both inflation and unemployment expectations, regardless of managerial status, is respondents' perceptions of the respective variables' current value.

After exploring the similarities of managers' and non-managers' expectations formation for inflation and unemployment in isolation, we compare their joint formation. We show that

managers and non-managers both believe higher unemployment is associated with higher inflation. In other words, managers and non-managers alike have a supply-side theory of inflation. Although managers' and non-managers' perceptions and expectations of macroeconomic variables are similar, we demonstrate some heterogeneity in these perceptions and expectations across different types of managers. However, these differences are on the same order of magnitude as the differences between managers and non-managers, that is economically small.

Building on earlier work (Coibion, Gorodnichenko and Weber 2021) that introduces randomized control trials to the survey, we examine whether managers and non-managers process information in different ways. We find that both groups change their expectations in response to the provision of publicly available information. The sensitivity is broadly similar across managers and non-managers. Furthermore, the direction of changes in consistent with a stagflationary view of inflation. These results suggest that managers and non-managers likely face information frictions (Coibion and Gorodnichenko 2015b) and exhibit departures from full-information rational expectations.

Similar to households, managers' inflation expectations are not anchored according to the five criteria proposed in Kumar et al. (2015). In particular, managers' average long-run inflation expectations are not at the central bank's target, managers are not confident in their forecasts, there is large disagreement in expectations across managers, managers display large forecasts revisions, and changes in short-run inflation expectations comove with long-run inflation expectations.

Our findings relate to an emerging literature that examines firms' expectations of macroeconomic variables. For example, using a novel survey of U.S. business executives, Candia et al. (2021a) argue that CEOs' and CFOs' inflation expectations more closely resemble those of households than professional forecasters and exhibit properties consistent with unanchored expectations. In a similar spirit, Kumar et al. (2015) find that firm managers in New Zealand are uninformed about recent inflation and their expectations are often above the central bank's target and highly uncertain. A survey of manufacturers' inflation expectations conducted by the Central Bank of Russia found that firms' inflation expectations were well above the median CPI and the central bank's target (Karlova et al. 2019). Leveraging surveys of Ukrainian households and firms conducted by the central bank of Ukraine, Coibion and Gorodnichenko (2015) document that while many firms monitor the central bank's inflation targeting communication, few expect inflation to mirror their target. Link et al. (2021) focus on firms and households in Germany and find that

firms' expectations for inflation and the unemployment rate are better aligned with professional forecasts than those of households. However, these studies have focused on surveys of CEOs and CFOs who may or may not be making pricing decisions within the company. In contrast to this literature, we focus on middle- and low-rank managers whose expectations may deviate from CEOs'. For example, using survey data for France, Savignac et al. (2021) find that CEOs tend to expect inflation to be one percentage point lower than lower-level managers. Moreover, we are able to identify managers that make pricing decisions and show that their expectations do not meaningfully differ from households within a unified setting.

We also contribute to the literature exploring decision-making in organizations. Early work by Hambrick and Mason (1984) theorized that firm decisions are affected by managerial characteristics. Bertrand and Schoar (2003) document that managers' "style" affects the investment, financial, and organizational practices of firms. Although Henry Ford famously sought to set a low price for Model T and one can find similar anecdotes in the business press, there is little research evaluating empirically the effects of managers' beliefs on pricing or other choices and analysis is largely theoretical (e.g. Gorton, He and Huang 2014, Gorton and He 2021). We are closer to the literature focused on the behavioral biases of managers (Malmendier, Pezone and Zheng 2020) in the sense that we investigate properties of managers' expectations and perceptions.

2 Data and Survey Design

In this section we describe the evolution of inflation and unemployment over our sample period, detail the administration of the Nielsen Survey, and describe the survey questions regarding perceptions and expectations of inflation and unemployment which are critical to our later analysis as well as the control variables.

2.1 Macroeconomic Background

Panel A of Figure 1 plots three measures of consumer price inflation: the Consumer Price Index (CPI), the Consumer Price Index less food and energy, and the Personal Consumption Expenditure Index (PCE) less food and energy over the time-space of the survey waves. The CPI is the most commonly reported inflation series mentioned by the media. The CPI less food and energy, often referred to as core CPI, removes the two most volatile series from the CPI,

and is often used by academics. The PCE less food and energy, core PCE, is another measure of consumer price inflation used by policy makers at the Federal Reserve. The three series are broadly similar and fluctuate around the central bank's target rate of 2%. All three series move between 1.5% and 3% across the time series and share similar peaks and valleys. Over this sample period, the correlation of CPI and core CPI is 0.77 while the correlation of core CPI and core PCE is 0.81. Given the similarities of the series we can be confident that a household observing any of the three would be similarly informed about recent consumer pricing trends.

Panel B of Figure 1 plots three measures of the unemployment rate over the time-space of the survey waves: the unemployment rate (U4), the unemployment rate plus discouraged workers (U5), and the unemployment rate plus discouraged workers and the marginally attached (U6). The three series move in near unison. Therefore, while the broader public may misinterpret or misunderstand the meaning of the unemployment rate (e.g., thinking that U6 is the headline unemployment rate), any understanding of these common measure of the unemployment rate should lead households to report similar values.

2.2 Nielsen Homescan Survey

The Kilts-Nielsen Consumer Panel (KNCP) is a panel of approximately 80,000 households, in which respondents report their demographic characteristics along with their consumption choices. Panelists for the KNCP are recruited online. In order to incentivize participation, Nielsen offers households chances to win monthly prizes, points per data submission, as well as engages in ongoing communication with panel households. With these points, panelists can purchase gifts from a Nielsen-specific catalog. At the annual frequency, the KNCP has a retention rate of over 80%. While the size of the panel is large, Nielsen balances the panel to better match the U.S. population. In particular, Nielsen uses nine dimensions to balance the panel: household size, income, age of household head, education of female household head, education of male household head, presence of children, race/ethnicity, and occupation. Nielsen checks these characteristics on a weekly basis, and makes necessary adjustments.

From April 2018 through February 2021, we fielded 12 survey waves in which we elicited households' perceptions and expectations of various macroeconomic variables. Building on earlier surveys of consumer behavior, such as the Michigan Survey of Consumers, the New York Federal

Reserve Bank Survey of Consumer Expectations, the Panel on Household Finances, and D'Acunto et al (2021a,b) we designed a customized survey. Our survey questions collect information on employment status, current occupation, financial constraints, savings and portfolio choice, gas prices and expectations, and past spending behavior. We then asked the participants a sequence of questions about their perceptions and expectations of inflation, unemployment, and (sometimes) other macroeconomic variables. In order to avoid overburdening the participants, some questions were only asked to a subset of the households. The design of these questions is consistent with recommendations in Coibion, Gorodnichenko, Kumar and Pedemonte (2020).

Along with these questions, we asked respondents to report their managerial status. Specifically, we asked respondents to report the types of managerial tasks they do at work. Possible duties include: *i*) supervising 1 to 10 workers, *ii*) supervising 11 to 50 workers, *iii*) supervising over 50 workers, *iv*) hiring and firing workers, *v*) setting prices, *vi*) making decisions in regards to capital expenditure, *vii*) setting wages, *vii*) marketing. For earlier waves that did not include questions about a participant's managerial status we predicted that individual's managerial status using the first recorded response to the managerial status question at the individual level.

Our approach to identifying managers differs from a typical survey of firms' expectations. As discussed in Candia et al. (2021b), firms' expectations are usually elicited from surveys of CEOs or other top business (C-suite) executives. In other words, a firm is equated with a CEO, which is consistent with the notion that the CEO is the key decision maker in the firm. This practice is also justified by limited knowledge about firms' organizational structures and difficulties associated with contacting employees within organizations. As a result, there are few surveys of non-CEO managers. We address these challenges by using a *household* survey. Intuitively, managers are a relatively small fraction of the population but if a household survey is sufficiently large, there will be a large pool of survey respondents with managerial responsibilities and thus enough data points to reach reasonable statistical precision. While we do not know the exact rank of a respondent in his or her firm, one can expect to have a representative sample of managers as long as the household survey is representative of the population. Because top-tier business executives are unlikely to participate in the survey, we should have managers in low/middle-rank positions or heads of small firms. In light of these considerations, the Nielsen Homescan Panel provides a unique infrastructure to build a "proxy" survey of middle- and low-rank managers.

2.2.1 Expected Inflation Rate

A central focus of our paper is to compare managers' and non-managers' inflation expectations. We measure households' inflation expectations by asking survey respondents to report their entire distribution of responses. First, we explain to respondents what we mean by inflation ("inflation is the percentage rise in overall prices in the economy, most commonly measured by the Consumer Price Index and deflation corresponds to when prices are falling"). We then ask participants to report their distribution of expected inflation. In particular we ask them,

What do you think is the percent chance that, ***over the next 12 months ...*** *Percentage Chance*

the rate of inflation will be 12% or more	_____
the rate of inflation will be between 8% and 12%	_____
the rate of inflation will be between 4% and 8%	_____
the rate of inflation will be between 2% and 4%	_____
the rate of inflation will be between 0% and 2%	_____
the rate of deflation (opposite of inflation) will be between 0% and 2%	_____
the rate of deflation (opposite of inflation) will be between 2% and 4%	_____
the rate of deflation (opposite of inflation) will be between 4% and 8%	_____
the rate of deflation (opposite of inflation) will be between 8% and 12%	_____
the rate of deflation (opposite of inflation) will be 12% or more	_____
% Total [TOTAL ANSWERS FROM ABOVE – MUST SUM TO 100%]	_____

By asking respondents to report their inflation expectations as a distribution of possible inflation outcomes we can elicit both their mean expected inflation rate as well as higher moments. Note that this distributional question is not available in CEO surveys that elicit only point predictions because this type of question takes a long time to answer and surveys of CEOs tend to be very short given CEOs' scarce time.

To attenuate the influence of outliers, we drop observations below the 10th percentile and above the 90th percentile for implied-mean inflation expectations. That is, we exclude responses below -1.8 % and above 10% for the rest of the analysis. In a similar spirit, we exclude respondents whose standard deviation implied by the reported distribution is above the 95% percentile, corresponding to 9.99%. Since we construct the mean and standard deviation measures from the response distribution before excluding observations, it's possible for an observation to be excluded from the standard deviation measure and included in the mean measure and vice versa. Experimenting with different exclusion percentiles on both measures did not affect our results in any meaningful way.

2.2.2 Perceived Inflation Rate

Models of incomplete information (e.g., Woodford 2001, Mankiw and Reis 2002, Sims 2010) predict that beliefs about past inflation should be a strong determinant of inflation expectations. We elicit a measure of perceived inflation from survey participants. In survey waves 1 through 9, we ask (subsets of) participants to report a point estimate of their perceived inflation rate over the last 12 months.[1] Just like the expected inflation measure, the perceived inflation measure includes observations well outside any reasonable range of estimates. We interpret these responses as being indications that respondent does not understand the question or the meaning of inflation (Binder, McElroy and Sheng 2021), and thus we drop them from our sample. In particular, to keep the measure of perception and expectations consistent, we apply the same upper and lower limits from expected inflation to responses of perceived inflation.

2.2.3 Expected and Perceived Unemployment Rate

In order to explore respondents' theory of inflation we measure survey respondents' expectations of unemployment over the next 12 months. We elicited participants' expectations of unemployment in a similar way to inflation expectations. Specifically, we asked participants

> *What is your best guess about what the unemployment rate will be in 12 months in the U.S? (Please use a percent between 0 and 100)*

We drop observations of mean unemployment expectations above 35% unemployment rate (the 90th percentile). Again, experimenting with different exclusion percentiles on this measure did not affect our results in any meaningful way.

We elicit respondents' perception of the current unemployment rate and denote it the perceived unemployment rate. In particular we ask,

> *What is your best guess about the current unemployment rate in the U.S.? (Please use a percent between 0 and 100)*

To keep our treatment of outliers consistent, we drop observations of the perceived unemployment rate above the same threshold as expectations, i.e., 35%.

[1] The survey question is, "Over the last 12 months, the rate of inflation/deflation was ____ percent."

2.2.4 Controls

A unique feature of the Nielsen survey is the detailed data collected for each participant. Demographics, socioeconomic conditions and geographic location data are recorded for all participants, including those who report managerial responsibilities. Specifically, our survey and the background Nielsen survey ask participants about their age, gender, race and ethnicity, income, education, housing and children. For each characteristic, we create a set of indicator variables. For example, education is spanned by "high school", "some college", "graduating college", and "post-graduate". Housing status is summarized with "own their house with no mortgage", "own their house with a fixed mortgage", "own their house with a variable mortgage", and "rent".[2] Additionally, the Nielsen survey includes information on participants' location. Specifically, the survey records participants' region, urbanization and state. In particular, we include dummies for the four Census regions.[3] We include four urbanization dummies indicating whether a participant lives in a highly urbanized area, urban area, suburban area or a rural area. Summary statistics for each of these controls can be found in the Appendix Table 3.

3 Managers and Non-Managers

This section explores the differences between managers and non-managers. First, we characterize managers using the controls described in the previous section. Then we compare expected inflation and unemployment for managers and non-managers (raw moments and after controlling for respondents' observable characteristics). We find that managers' and non-managers' expectations are not substantially different. Next, we consider the role of current perceived inflation on managers' and non-managers' inflation expectations, concluding that perceived inflation is an important explanatory variable for both. Finally, we explore whether managers and non-managers have a supply-side or a demand-side theory of inflation. We document that both have a supply-side (stagflationary) theory of inflation, that is, high inflation is associated with high unemployment.

[2] The survey does not elicit the name of the employer or industry. This is a limitation given that variation in beliefs may be related to the shocks observed at the industry level. For example, while analyzing a survey of French manufacturing firms, Andrade et al. (2021) show that industry-specific shocks lead firms to change their aggregate expectations. We do not control for industry, as that data is not available to us, but we do control for geography and socioeconomic variables, which should capture some of the missing industry variation.

[3] While we have access to individual state identifiers, we found that including them rather than region dummies does not affect the results, and thus to reduce the number of parameters estimated we included region dummies instead.

3.1 Who are Managers?

Table 1 shows that about a third of respondents in our sample have some type of managerial responsibility. About a quarter of respondent report that they supervise other employees. About 10 percent of respondents indicate that they are involved in hiring or firing workers. Approximately 5 to 8 percent of respondents participate in marketing and capital expenditures. Roughly 5 percent of respondents report that they are involved in setting prices or wages. The relatively low shares for respondents indicating some types of managerial activities (e.g., set prices) again underscore the importance of having a large household survey to ensure that the sample size for people with these responsibilities is sufficiently large.

Table 1 documents that managers usually have several responsibilities. For example, consider managers who reported that they supervise between 1 and 10 workers. Nearly a quarter of respondents in this group also indicated that they are involved in hiring/firing workers. Approximately, 12 percent also reported that they set prices. For comparison, when we focus on managers who supervise 50 or more workers, nearly half reported that they participate in hiring/firing workers and 18 percent reported setting prices. In other words, managers perform multiple tasks.

Managers are not randomly selected from society at large and their characteristics differ from the population in systematic ways (*Household Data Annual Averages,* 2020). To document differences across managers and non-managers, we regress an indicator variable equal to one if a respondent is a manager on a set of demographic, geographic, and socioeconomic characteristics of the respondent and his/her household and we report results in Table 2. Managers tend to be white and have higher household income. The age profile has an inverted-U shape with a peak at about 40 years. Managers are more likely to have finished college and are almost twice as likely to have a post-graduate degree. Managers are more likely to own homes without a mortgage and are less likely to rent. Managers are more likely to have children and to live in urbanized areas. Our findings are broadly consistent with the unconditional moments reported by the BLS (*Household Data Annual Averages* 2020). Because manager vs. non-manager characteristics differ, we will report results with and without controls for characteristics to disentangle their impact on macroeconomic expectations from that of managerial responsibilities.

3.2 Managers' Expectations

Figure 2 compares macroeconomic perceptions and expectations across managers and non-managers. Inspection of the histograms suggests that the cross-sectional distributions for managers resembles those of non-managers. For example, Panel A of Figure 2 shows that the majority of managers and non-managers do not expect inflation to be near the Federal Reserve's target of 2 percent. Approximately 11.8% of non-managers expect inflation to be between 1.5% and 2.5% as opposed to approximately 13.5% of managers. The absence of large mass at 2 percent is somewhat surprising in retrospect, especially given that the modal inflation rate during most of the survey waves was 2 percent, as shown in Panel A of Figure 1.[4] We also observe similar rounding in responses (especially for unemployment) for managers and non-managers, which is consistent with a lack of knowledge of actual values of the macroeconomic variables (Binder 2017, D'Acunto et al. 2021c). Managers' and non-managers' distributions of expectations/perceptions for unemployment are nearly identical.

Table 3 confirms that unconditional moments for macroeconomic expectations and perceptions are similar for managers and non-managers. For example, the average perception of inflation over the previous 12 months is 2.41 percent for non-managers and 2.60 percent for managers. The average expected inflation for both groups is effectively the same in our sample period. We also observe only small differences for unemployment. For instance, the average expected unemployment rate is 9.11 for non-managers and 8.96 for managers. Note that there is relatively little heterogeneity in mean expectations/perceptions across different types of managers (columns 3 through 8). These patterns also hold for disagreement reported in Panel B of Table 3. For example, the standard deviation of expected inflation across non-managers in our sample is 2.05 percent which is close to 1.91 percent for managers.

Figure 3 documents that disagreement and average forecasts comove strongly for managers and non-managers in our sample. For example, Panel B shows that during the COVID-19 crisis,

[4] The distribution of manager inflation expectations in our sample is less concentrated on 2% than the distributions found in the Atlanta Federal Reserve Bank's Business Inflation Expectations (BIE) survey (Meyer, Parker and Sheng 2021). The BIE infrequently asks firms to report expectations of two different inflation measures: overall prices and core CPI. The mode of the "overall price" distribution in the BIE is centered at 4.6%. On the other hand, the mode of the core CPI expectations distribution is centered at 2%, the central bank's target. Moreover, both distributions are unimodal around these values whereas in our sample there are three or four modes, 0%, 1%, 3% and 6%, and none of them are the central bank's target. Prior work by Coibion et al. (2020) demonstrates that the wording of survey questions in the BIE biases respondents toward 2%. Our distribution of U.S. manager inflation expectations is more similar to the distribution of New Zealand firm managers' inflation expectations distribution found in Coibion et al. (2020).

inflation expectations increased dramatically for managers and non-managers and the magnitude of the increase was similar for both groups. Likewise, disagreement within each group rose considerably during the COVID19 crisis. The series for unemployment are similar for managers and non-managers as well.

While these findings suggest that managers' economic expectations do not substantially differ from non-managers', the previous section made clear that managers' characteristics are different from non-managers'. To control for these differences, we turn to regression analysis. specifically, we regress a given macroeconomic expectation[5] on a set of indicator variables capturing various managerial responsibilities and a rich set of demographic, geographic, and socioeconomic controls. To preserve space, we present only coefficients for managerial indicator variables (Table 4).[6]

The first row of the table documents that managers and non-managers have similar average inflation expectations. Upon controlling for demographic, socioeconomic and geographic differences, price-setting managers have statistically higher average inflation expectations and wage-setting managers have statistically lower expectations. However, these differences are not economically large: 0.15 percentage points for price-setters and 0.2 percentage point for wage-setters. Indeed, these effects are small in comparison to other factors such as race and gender (D'Acunto et al. 2021). We observe little systematic difference between non-managers and managers supervising other workers. Managers in charge of capital expenditures or hiring/firing workers tend to have somewhat higher inflation expectations but there is no materially important difference in unemployment expectations. Managers in marketing tend to have somewhat higher inflation expectations and somewhat lower unemployment expectations. However, these differences are economically small, too. These differences across managers are small compared to the disagreement across professional forecasters (Andrade et al., 2016).

Note that controlling for demographic, geographic, and socioeconomic characteristics tends to attenuate differences across managers and non-managers. This pattern is intuitive: various demographic characteristics can increase the probability of becoming a manager (e.g., Schein et al. 1996) and these characteristics can also be associated with different expectations. For example, education tends to be positively associated with managerial status and negatively with inflation

[5] We report results for macroeconomic perceptions in Appendix Table 2.
[6] Appendix Table 4 reports coefficients for all control variables.

expectations. While we cannot make any causal statements since we do not randomly induce panelists to change managerial position, it appears that the demographic and socioeconomic characteristics of respondents have an effect on inflation expectations, while managerial status (at least for low- and middle-rank managers) does not seem to have a materially important conditional association with macroeconomic expectations.

3.3 Perceptions vs. Expectations

Jonung (1981) and others document that the strongest predictor of expectations is perceptions. While intuitive, this pattern does not have to be in the data by construction. Indeed, expectations are inherently forward-looking and the past is not necessarily the best predictor of the future (especially, in rapidly changing environments like the COVID19 crisis). One may conjecture that, due to the nature of their responsibilities, managers should be more forward-looking and thus exhibit weaker correlation between expectations and perceptions than non-managers.

Figure 4 plots binscatters of expectations and perceptions for both inflation and unemployment. Panel A of the figure shows a positive correlation between perceived inflation and expected inflation for both managers and non-managers. Respondents that report the current inflation rate over the last twelve months as being near 2% expect inflation rates to be at or just below 2% over the next twelve months. This fact demonstrates that people whose current perception of inflation is close to the central bank's target expect inflation to be close to the Federal Reserve's target in the future. It could be that these people are more informed about both the actual inflation rate and the central bank's target, or people are anchored and inattentive to fluctuations in inflation. Moreover, those who believe the inflation rate was (below) above 2% over the last twelve months on average expect inflation to be (below) above 2% the next twelve months. The slope of the relationship is nearly identical for managers (0.394) and non-managers (0.406).[7]

Panel B of Figure 4 documents a similar pattern for unemployment. Again, perceptions are a strong predictor of expectations with a similar relationship for managers and non-managers. For both groups, the slope is approximately one (0.94 for non-managers and 0.92 for managers), which may suggest that managers and non-managers perceive unemployment to be persistent given that

[7] The slope being less than one does not necessarily imply that people anticipate large mean reversion for inflation. This difference is also consistent with different wordings of the survey questions (e.g., Coibion et al. 2020). Specifically, the expected inflation is elicited via a distributional question while perceived inflation is elicited as a point prediction.

the wording of the survey questions for perceptions and expectations is similar. Although we can statistically reject the equality of the slope for the two groups, the economic differences are small.

In short, managers' and non-managers' perceptions of macroeconomic variables appear to play the same role for their expectations. This result is consistent with the notion that non-managers and (low- and middle-rank) managers form their expectations in a similar way.

3.4 Theory of Inflation

How do people think about the joint distribution of macroeconomic variables? If agents hold a demand-side view of inflation, the predominant theory of inflation in the New Keynesian model (Galí 2015, Woodford and Walsh 2005), then rational agents will expect higher unemployment when they expect lower inflation. This prediction is consistent with the joint distribution of inflation and unemployment forecasts in the Survey of Professional Forecasters (Candia et al. 2020).[8] On the other hand, if agents have a supply-side theory of inflation (Kamdar 2019) as was the case during the stagflation era, then rational agents' inflation expectations will be positively correlated with their unemployment expectations. Survey data for households and (perhaps less clearly) firms (e.g., Kamdar 2019, Candia et al. 2021a) suggest that people exhibit a supply-side theory of inflation.

To explore where managers in our sample are in this spectrum, we plot a binscatter of expected inflation against expected unemployment in Panel A of Figure 5. There is a robust positive correlation between expected inflation and expected unemployment for managers and non-managers in our sample. Although this relationship is not causal, it points to a supply-side theory of inflation. To enhance identification of this relationship, we also present a binscatter for the same variables after controlling for household fixed effects (Panel B of Figure 5), that is, we focus on revisions of inflation and unemployment expectations. While noisier (revisions amplify measurement errors), Panel B suggests the same pattern.

In the next step, we use regression analysis to control for observable characteristics of respondents (Table 5). To keep the analysis focused, we consider only select managerial responsibilities. Column (1) replicates our earlier analysis on a sample of respondents that report

[8] Consistent with this view, Coibion et al. (2018) find a negative correlation between *wage growth* expectations and unemployment expectations for firms in New Zealand.

expectations for both inflation and unemployment. As before, managers do not have different inflation expectations but price-setters have slightly higher inflation expectations and wage-setters have slightly lower inflation expectations. When we add expected unemployment as a regressor (column 2), it proves to be a strong predictor of expected inflation and the coefficients on managerial indicator variables do not change economically. Interacting managerial indicator variables with expected unemployment (columns 3 and 4) suggests that while the sensitivity of inflation expectations to employment expectations is somewhat weaker for managers (we can reject the null of zero sensitivity at 0.017 significance level), the sensitivity is larger for price-setters and wage setters. Thus, the supply-side interpretation of inflation appears to apply not only to regular households but also to low- and middle-rank managers.

4 Information processing

We have documented a series of facts about the macroeconomic expectations of managers. While informative, these facts do not tell us directly how managers process information. For example, although managers' expectations mirror those of non-managers, it could be that neither group is well informed about inflation since inflation has been low in the United States for many decades. This is especially important if one wants to give causal interpretations to the correlations reported in the previous section. To make further progress, we need to rely on exogenous variation in information. To this end, we build on Coibion, Gorodnichenko and Weber (2021) and use their randomized control trial (RCT) to assess how managers' macroeconomic expectations change when they are provided with publicly available information about monetary policy, inflation and unemployment.

In the first wave of the survey, randomly chosen participants were treated with information about various macroeconomic variables. In particular, the first group of treatments provided information on either past inflation, the Federal Reserve's target rate, the Federal Reserve's forecast of inflation, or an FOMC statement on the state of inflation.[9] Because these treatments have similar effects on expectations (Coibion, Gorodnichenko and Weber 2021), we pool these

[9] The specific treatments are "Over the last twelve months, the inflation rate in the U.S. (as measured by the Consumer Price Index) was 2.3%.", "The inflation target of the Federal Reserve is 2% per year.", "The U.S. Federal Open Market Committee (which sets short-term interest rates) forecasts 1.9% inflation rate in 2018.", and the recent FOMC statement.

treatments into one "inflation" treatment group, which helps us to conserve space. To keep the discussion focused, we also include two additional treatments: *i*) treatment with information about gas prices[10]; *ii*) treatment with information about current unemployment rate[11]. The control group is not provided with any additional information.

Before and after treating these participants and the control group we illicit their inflation expectations so that we can study revisions in their expectations (i.e., the posterior belief after the experiment minus the prior belief) in response to the treatments. With these data, we run regressions of the following type:

$$E_{it}^{posterior}(x_{t+1}) - E_{it}^{prior}(x_{t+1}) = \alpha_1 Manager_{it} + \sum_s \beta_s \mathbb{I}\{Treatment_{its}\} + \sum_s \gamma_s \mathbb{I}\{Treatment_{its}\} \times Manager_{it} + controls + error$$

where i, t, s index households, time, treatment groups, $\mathbb{I}\{Treatment_{its}\}$ is an indicator variable equal to one if respondent i is in treatment group s, $Manager$ is an indicator variable equal to one if a respondent is a manager. Note that information on managerial responsibilities was not collected before the fourth wave of the survey and so we have to backcast manager status from wave 4 to previous waves. As a result, the sample size in this exercise is roughly half of that in Coibion, Gorodnichenko and Weber (2021). Because the assignment of treatments is random and there is no effect of treatments on attrition in survey participation (Coibion, Gorodnichenko and Weber 2021), the smaller sample size and backcasting should not affect the causal interpretation of the estimates.

Consistent with Coibion, Gorodnichenko and Weber (2021), we find (Table 6) that informing respondents about inflation (recent values, Fed's inflation target or forecast) reduces inflation expectations immediately after the treatment (columns 1 and 2). Intuitively, the provided information reports inflation lower than expected by respondents on average and so they revise their beliefs down toward the provided signal. This effect is still present three months after the treatment but it dissipates after six months. The coefficient on the interaction of the inflation treatment and the manager status is positive thus suggesting that managers are less sensitive to the provided information (the 90% confidence interval is (-0.87,-.06)). This lower sensitivity is

[10] The treatment is "The price of gasoline (national average) rose by 6.4% over the last three months."
[11] The treatment is "The current rate of unemployment in the U.S. is 4.1%."

consistent with either managers being more confident in their forecasts than non-managers or managers treating signals as less precise/relevant/credible than non-managers. As we documented earlier, managers and non-manages exhibit similar confidence in their forecasts so that the latter explanation appears to be more likely.

Treatments with the price of gasoline raise inflation expectations strongly as the provided price growth for gasoline is well above average inflation expectations. Interestingly, the interaction of the treatment variable with the manager status is positive, that is, managers appear to be *more* sensitive to changes in the price of gasoline than non-managers. Again, given that managers and non-managers have similar confidence in their forecasts, one may interpret this coefficient as indicating that managers find the price of gasoline more informative about inflation than non-managers. Furthermore, the effect of this treatment is more persistent for managers than non-managers.

In response to the information treatment about the current rate of unemployment, non-managers tend to revise their inflation expectations down. Because most people predict (or perceive) unemployment to be well above the actual values, the treatment naturally results in downward revisions in unemployment forecasts (columns 7 and 8). We also observe that when inflation expectations are lowered in response to inflation information treatments, unemployment expectations are lowered. Thus, inflation and unemployment forecasts move in the same direction for non-managers, which is again consistent with a supply-side ("stagflationary") view of inflation. Managers appear to have a somewhat different take. In response to unemployment information treatments, they raise their inflation expectations immediately after the treatment (which is consistent with a demand-side view of inflation) but in subsequent waves managers' beliefs largely mimic the beliefs of non-managers (i.e., stagflation).

In summary, we observe that, like non-managers, managers revise their expectations in response to provision of publicly available information. This points to departures from full-information rational expectations. More broadly, these responses suggest that managers and non-manager appear to process information in a similar fashion.

5 Are Managers' Expectations Anchored?

Policy discussions often emphasize the importance of anchored inflation expectations for

macroeconomic stabilization. Kumar et al. (2015) propose five criteria to evaluate how anchored expectations are: (1) average beliefs should be close to the inflation target of the central bank, (2) beliefs should not be too dispersed across agents, (3) agents should be confident in their forecasts, (4) agents should display small forecast revisions, especially at longer horizons and (5) there should be little comovement between revisions in long-run inflation expectations (which should be pinned down by the inflation target) and in short-run inflation expectations (which should move with transitory shocks). Previous work (e.g., Coibion et al. 2019, Andrade, Gautier, and Mengus 2020) has shown that consumers' inflation expectations do not coincide with these predictions. There is also some evidence for CEOs (Candia et al. 2021a, Kumar et al. 2015) but little is known about how anchored inflation expectations are for low- and middle-rank managers. Using the unique feature of our survey data, we aim to shed more light on this matter. Ultimately finding that managers fail all criteria and thus appear unanchored.

5.1 Managers' Beliefs are Not Close to the Inflation Target

If firm managers' inflation expectations are anchored, the average inflation expectations across managers should be close to the central bank's target (Kumar et al. 2015), especially for longer-horizon expectations (Ball and Mazumder 2014). We find (Table 3) that firm managers' average inflation expectations are higher than the central bank's target. Indeed, their inflation expectations appear higher than non-managers', and thus farther from the central bank's target. Panel B of Figure 2 also documents that inflation expectations of managers considerably deviate from the 2 percent inflation target.

However, this deviation from target could be transitory and not indicative of long-run expectations diverging from the target. In order to better gauge managers' expectations of inflation, we compare *long-run* inflation expectations across managers and non-managers. In the first, third and fourth waves, respectively, we asked participants about their inflation expectations 5-years,10-years, and 3-5 years out, respectively. With the aim of increasing the power of our test we pool these observations and consider them a joint measure of long-run inflation expectations.[12] Using our measure of long-run inflation expectations we find (Table 3) that managers' average long-run

[12] As with the inflation measures used earlier, we exclude observations outside the 10th and 90th percentile of short-run inflation expectations from the analysis.

inflation expectations are not close to the central bank's target of 2 percent either. Furthermore, non-managers' long-run inflation expectations (2.79) are close to managers' (2.64). Thus, this criterion for anchored inflation expectations is not satisfied in the data.

5.2 Managers' Beliefs are Dispersed

If managers' inflation expectations are anchored, on average their expectations should be close to the central bank's target. However, this prediction might hold despite nobody having inflation expectations anchored towards the target. For example, if half of the population believes that inflation will be above target and the other half believes it will be below target then the population average will be at the target despite none of the population actually expecting inflation to be on target. In fact, the histograms in Figure 2 illustrated that there is dispersion in the inflation expectations of both managers and non-managers. Likewise, it displays a multi-modal distribution of inflation expectations. Panel B of Table 3 shows that disagreement for managers is as large as the disagreement for non-managers and we can't reject the equality of these two.

To put these findings into perspective, we note that FOMC members all report long-run inflation expectations exactly at 2%, indicating a dispersion of zero (see any installment of Summary of Economic Projections prepared by the FOMC). Professional forecasters report similarly precise estimates of long-run inflation expectations with standard deviation around 0.2-0.3 (Andrade et al. 2016, Candia et al. 2020). Conversely, consumers in the Michigan Survey of Consumers display significantly more disagreement. The dispersion in these surveys, 2-3 percentage points, is an order of magnitude higher than for professional forecasters. Using the SoFIE, Candia et al. (2021a) find that firms' cross-sectional dispersion of inflation expectations is larger than that of professional forecasters but smaller than for households, whereas in our survey, we find that the dispersion in firm managers' inflation expectations is larger than for professional forecasters and households. In interviewing managers, Kumar et al. (2015) also found that their dispersion is larger than households'. We conclude that the inflation expectations of managers in our data are not consistent with this criterion for anchored expectations.

5.3 Managers Do Not Show Confidence in Forecasts

Anchored expectations imply that agents should be confident in their forecasts. Otherwise, it could

be possible for all agents to predict that inflation will be at the central bank's target on average, while they each individually believe that there's a 50% chance that inflation will be above the target, 50% chance it will be below, and a 0% probability it will actually be at the target. In order to check if managers are confident in their forecasts we must, therefore, examine the dispersion *within* each agent's forecasts. We can measure confidence with the standard deviation of the reported probability distribution for future inflation (i.e., a smaller standard deviation means more confidence).

Table 3 reports that managers and non-managers have similar levels of confidence in their forecasts. Table 7 presents results when we control for respondents' characteristics. Similar to our earlier findings for levels of inflation expectations, managers have statistically significant differences in confidence but the magnitudes are economically small. When we look across different types of managers, we observe that managers are not systematically more confident in their inflation forecasts. For example, price-setters have a bit more confidence than other managers while managers supervising 50 or more workers have less confidence than other managers. The positive coefficient on the manager indicator variable (top row of the table) suggests that managers are *less* confident in their inflation expectations than non-managers. For comparison, Candia et al. (2021a) document that CEOs' disagreement in inflation expectations can be close to households'. These results are again not consistent with anchored inflation expectations.

5.4 Managers Have Large Forecast Revisions

Well-anchored agents should display small forecast revisions since they expect the central bank to maintain inflation at or close to target. Our panel dataset allows us to compare the short-run revisions in inflation expectations of managers and non-managers. Table 8 reports regressions of absolute changes in inflation expectations of individual agents across waves against managerial dummies, controlling for a variety of factors.[13] To provide a benchmark for interpreting the estimated coefficients, we note that the mean of the absolute forecast revision across managers and non-managers is 2.697. The positive coefficients on the manager dummies suggest that some managers have larger revisions than households, but this is not a consistent pattern across different

[13] Just like expected inflation we truncate revisions , but at the 5% and 95% percentile. These percentiles correspond to -10 and 9.5 respectively. Long-run inflation expectation revisions are also truncated at the same values.

types of managers. Furthermore, the magnitude of the coefficients suggests that these differences are relatively small. Thus, by and large, the size of forecast revisions is of the same order for managers and non-managers. This pattern is consistent with earlier work. For example, Candia et al. (2021a) document that households (Michigan Survey of Consumers) display large forecast revisions while professional forecasters (Survey of Professional Forecasters) display small forecast revisions and CEOs (Survey of Firms' Inflation Expectations, SoFIE) display forecast errors similar to households though less dispersed. We conclude that this criterion for anchored inflation expectations is not satisfied.

5.5 Managers Display Comovement between Long-run and Short-run Expectations

Agents with anchored inflation expectations should expect inflation to return to the central bank's target in the long run. While transitory inflation fluctuations may alter short-run inflation expectations, they should have no effect on long-run inflation expectations. Hence, short-run and long-run inflation expectations should not comove. To test this prediction, we regress revisions of long-run inflation expectations on revisions in short-run inflation expectations and report results in Table 9.[14]

Focusing on the last column in the table which includes all relevant control variables, we see that revisions in short-run inflation expectations are correlated with revisions in long-run inflation expectations. For every one percentage point upward revision in short-run inflation expectations, non-managers revise their long-run inflation expectations 0.123 percentage points higher. While managers' long-run inflation expectations display similar comovement with short-run expectations as for non-managers (the interaction of short-run inflation expectations with the manager indicator variable is not statistically significant), wage-setters display *more* sensitivity which points to *less* anchored inflation expectations. In any case, the degree of comovement for any group is too large to reconcile with estimates of the persistence of inflation (Stock and Watson 2007).

[14] In waves 1, 3 and 4 respectively we elicit respondents inflation expectations for the next 5-year, 10-year and 3-5 years respectively. The 5-year and 10-year inflation expectations are the mean expected inflation from respondents reported distribution of expectations, while the 3-5 year estimate is a point estimate. We pool these together as measures of long run inflation expectations. Long-run inflation expectations are then the differences in expectations from waves 1 to 3 and from waves 3 to 4.

5.6 Taking stock

We document that the criteria for anchored inflation expectations proposed in Kumar et al. (2015) are not met. We also note that our RCT may be interpreted as a test of the degree of inflation expectation anchoring. Intuitively, inflation expectations should be insensitive to the provided information because people should know this publicly available information and, even if people do not know this information, their expectations should be insensitive to incoming information (Beechey et al. 2011). In contrast, we find that managers are sensitive to the provided information and the strength of the response is similar to that of non-managers. While these conclusions are broadly consistent with other studies documenting that "regular folks" do not appear to have anchored inflation expectations, one should not necessarily interpret these results as a failure of monetary policy. In fact, it may be a sign of success: by delivering low, stable inflation for many years, the Federal Reserve made inflation a boring subject to managers and non-managers alike thus inadvertently making expectations unanchored. The flipside of this status quo is that, because "regular folks" are not well informed about inflation or monetary policy, inflation expectations can move quickly in response to shocks, which is consistent with the dynamics of firms' and households' inflation expectations in 2021.

6 Conclusion

According to modern macroeconomic models, changes in inflation expectations can lead to large movements in inflation (Galí 2015, Woodford and Walsh 2005). The introduction of inflation-targeting monetary policy in New Zealand in 1990 made inflation expectations more central to central bankers' curtailment of inflation (Svensson 2010). Moreover, some argue that inflation-targeting, now the dominant monetary-policy regime in developed countries, leads inflation expectations to be anchored at the central bank's target (Bernanke 2003). However, others have questioned this result on empirical grounds (Weber et al. 2021).

Using survey responses, we document that expectations and perceptions for inflation and unemployment are similar for non-managers and low-/middle-rank managers. Ultimately, we find that managerial status has little predictive power for inflation or unemployment expectations. A strong predictor of both inflation and unemployment expectations, regardless of managerial status,

is respondents' perceptions of the variables' current value. Both managers and non-managers display a supply-side view of inflation, namely that an increase in inflation will coincide with an increase in the unemployment rate. Using a randomized control trial, we document that, when treated with publicly available information, managers' expectations respond as strongly as non-managers'. Finally, managers' inflation expectations do not accord with the predictions of anchored expectations. Managers' average long-run inflation expectations are above the central bank's target, there is more dispersion in their inflation expectations than non-managers', managers are not confident in their forecasts, they report large forecast revisions, and their short-run expectations are positively correlated with their long-run expectations.

The apparent dissonance between textbook versions of how macroeconomic expectations are formed and how they appear to be formed in reality calls for further empirical and theoretical work. For example, matching surveys to administrative data could shed more light on how expectations translate into actions. More generally, how expectations are formed and aggregated in complex organizations is a fruitful avenue for future research. On the theory front, a stronger emphasis on heterogeneity and information frictions appears to be a promising direction.

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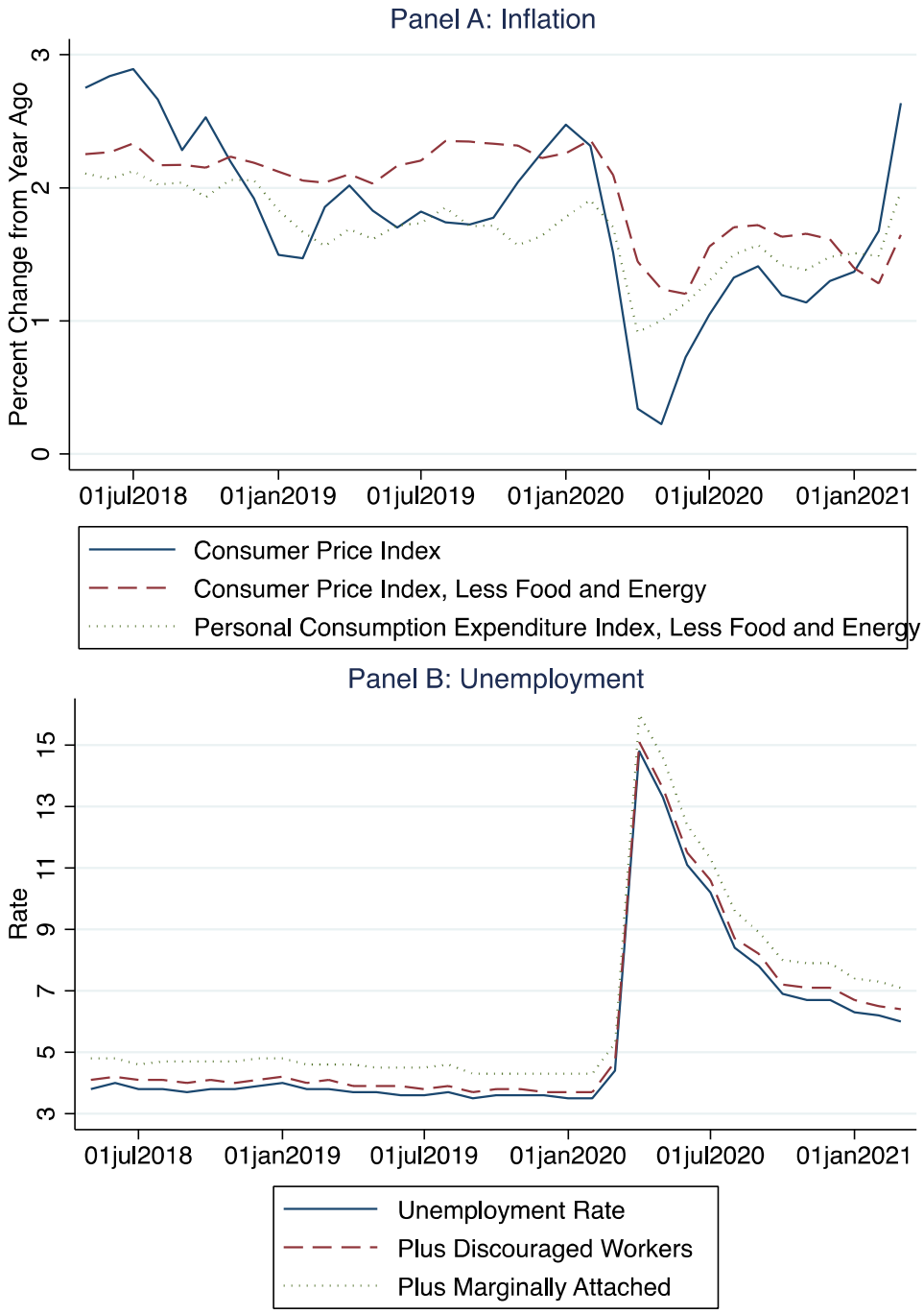
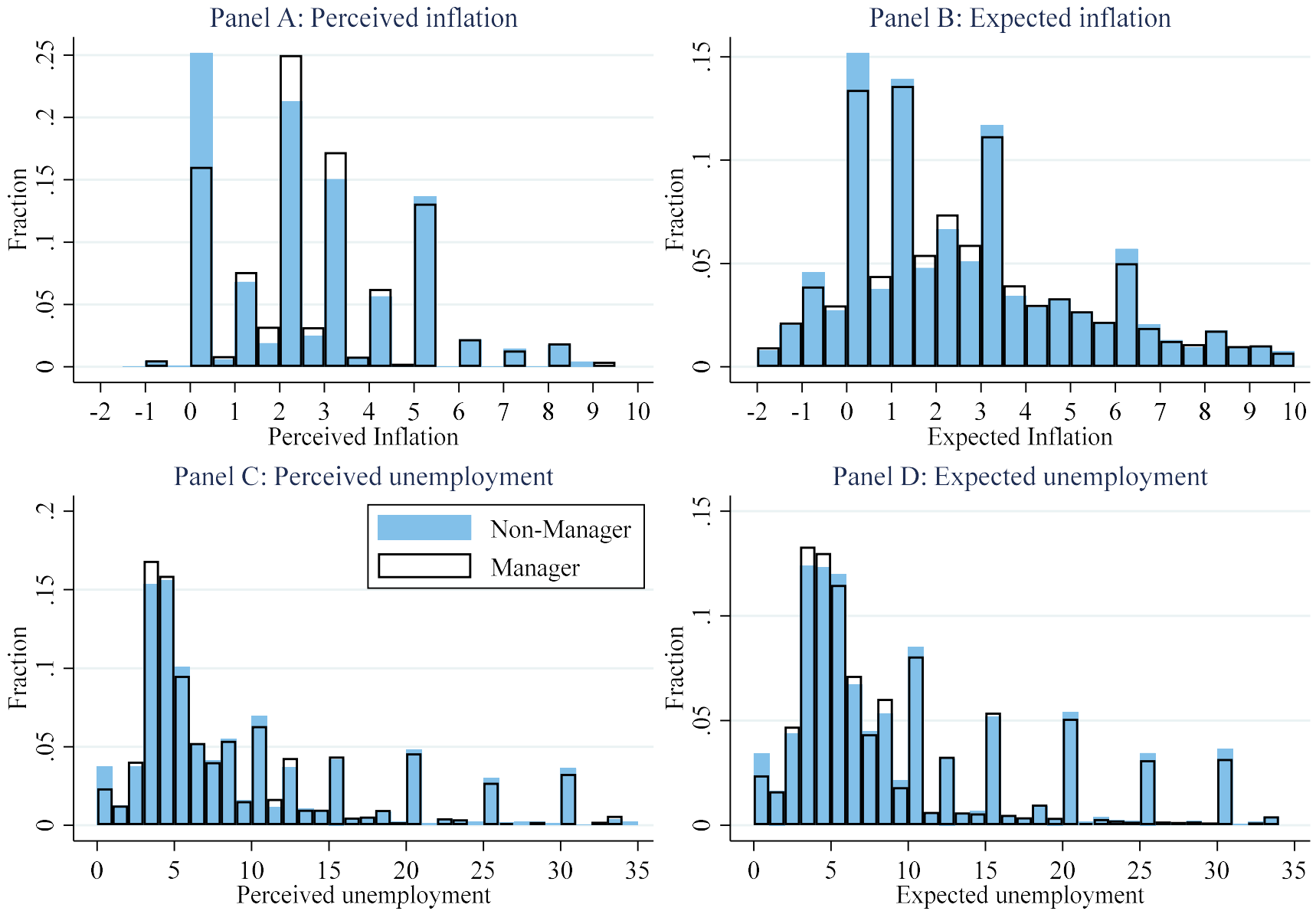
Figure 1. Macroeconomic time series.



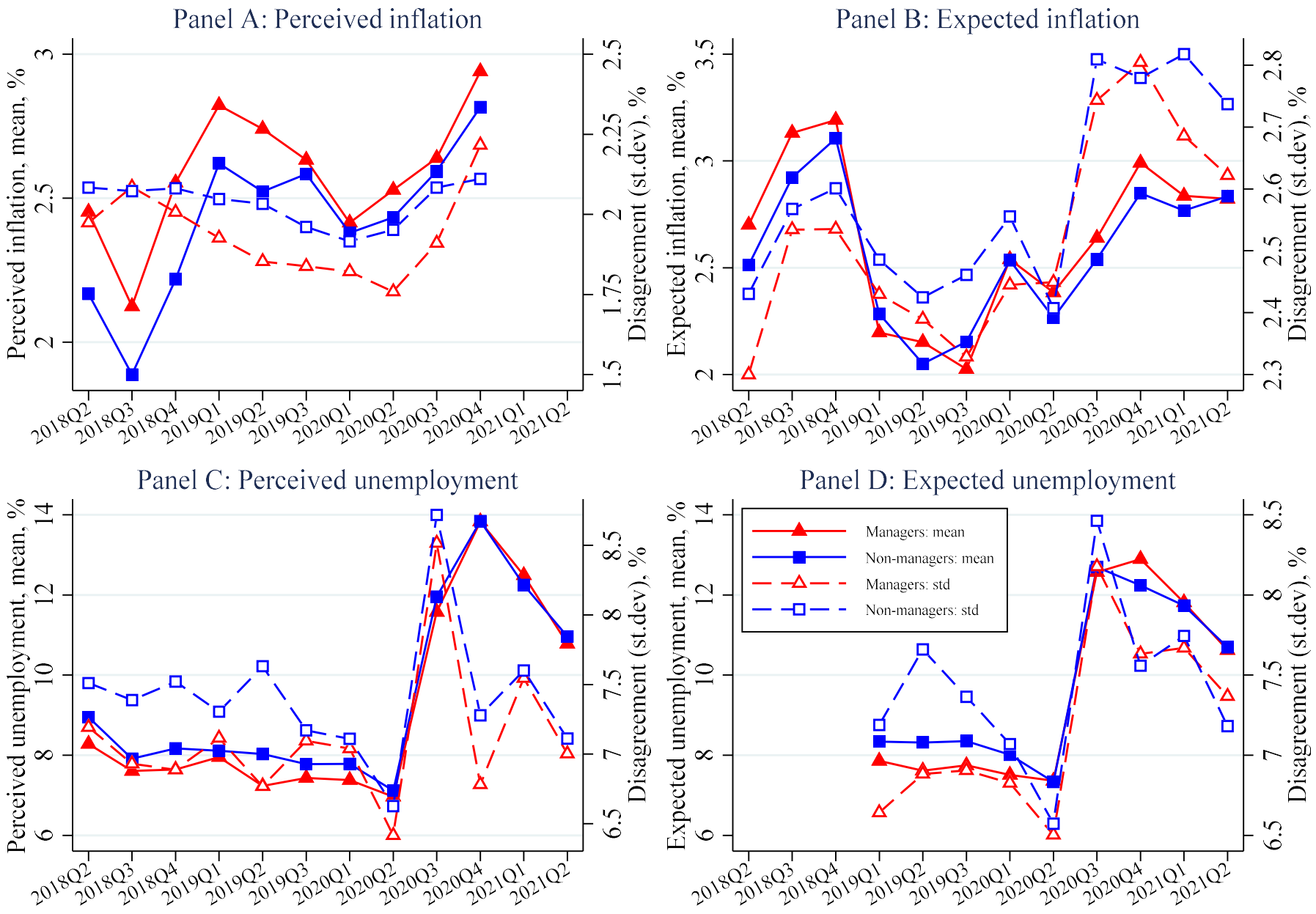
Notes: Panel A plots time-series of the Consumer Price Index (CPI), CPI less food and energy, and the Personal Consumption index less Food and Energy over the span of our survey waves. Panel B plots time-series of the unemployment rate (U4), the unemployment rate plus discoursed workers (U5) and the unemployment rate plus discouraged workers and marginally attached workers (U6) over the span of our survey waves.

Figure 2. Macroeconomic expectations and perceptions of managers and non-managers.



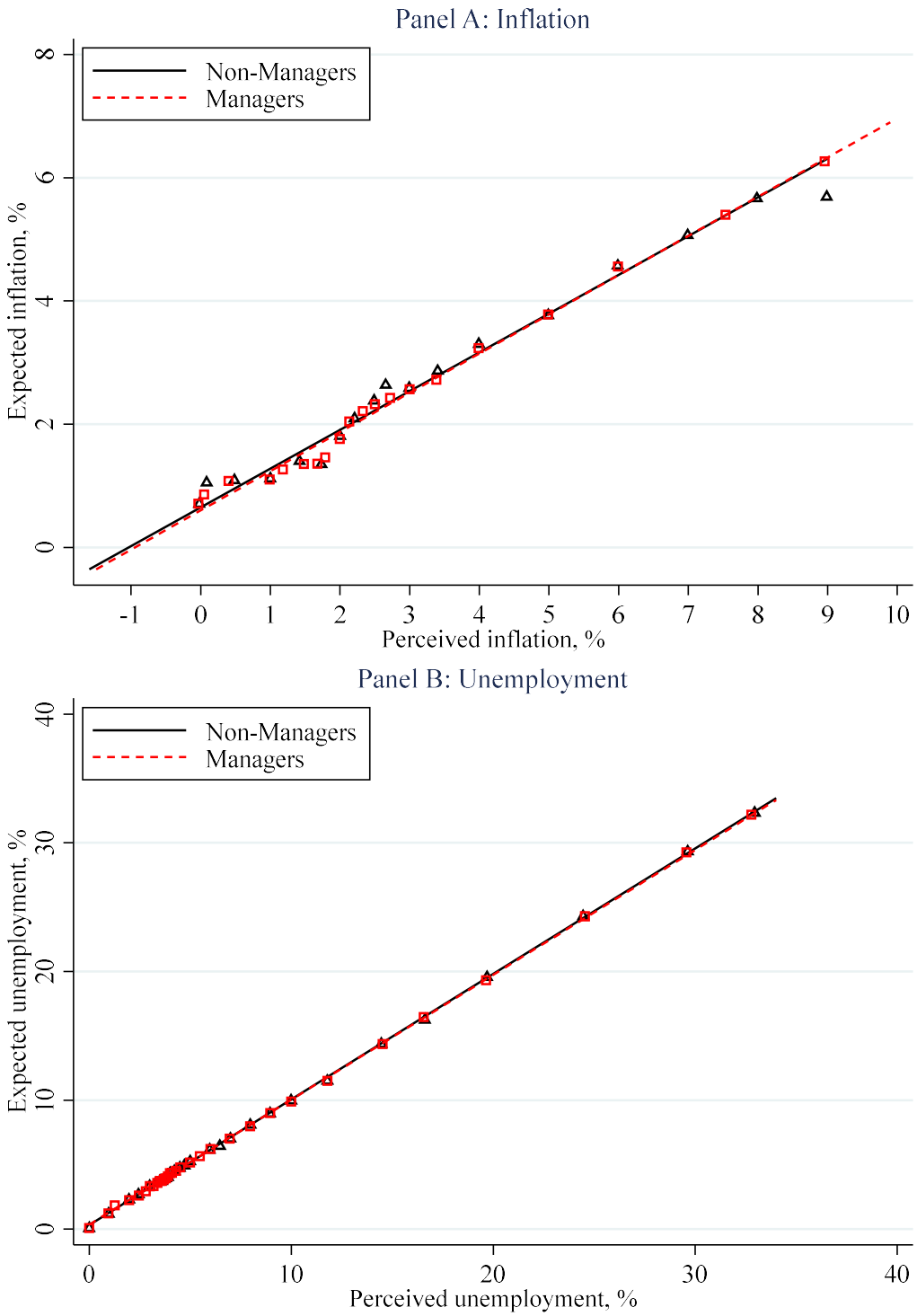
Notes: These panels plot the histograms of perceived inflation, expected inflation, perceived unemployment, and expected unemployment separately for managers and non-managers. Perceived inflation is the reported point estimate of the inflation rate over the last 12 months, expected inflation is the mean expected inflation over the next 12 months taken from each individual's distribution of reported expected inflation, perceived unemployment is the reported point estimate of the current unemployment rate, and expected unemployment is the reported point estimate of the unemployment rate in 12 months.

Figure 3. Evolution of macroeconomic perceptions and expectations for managers and non-managers.



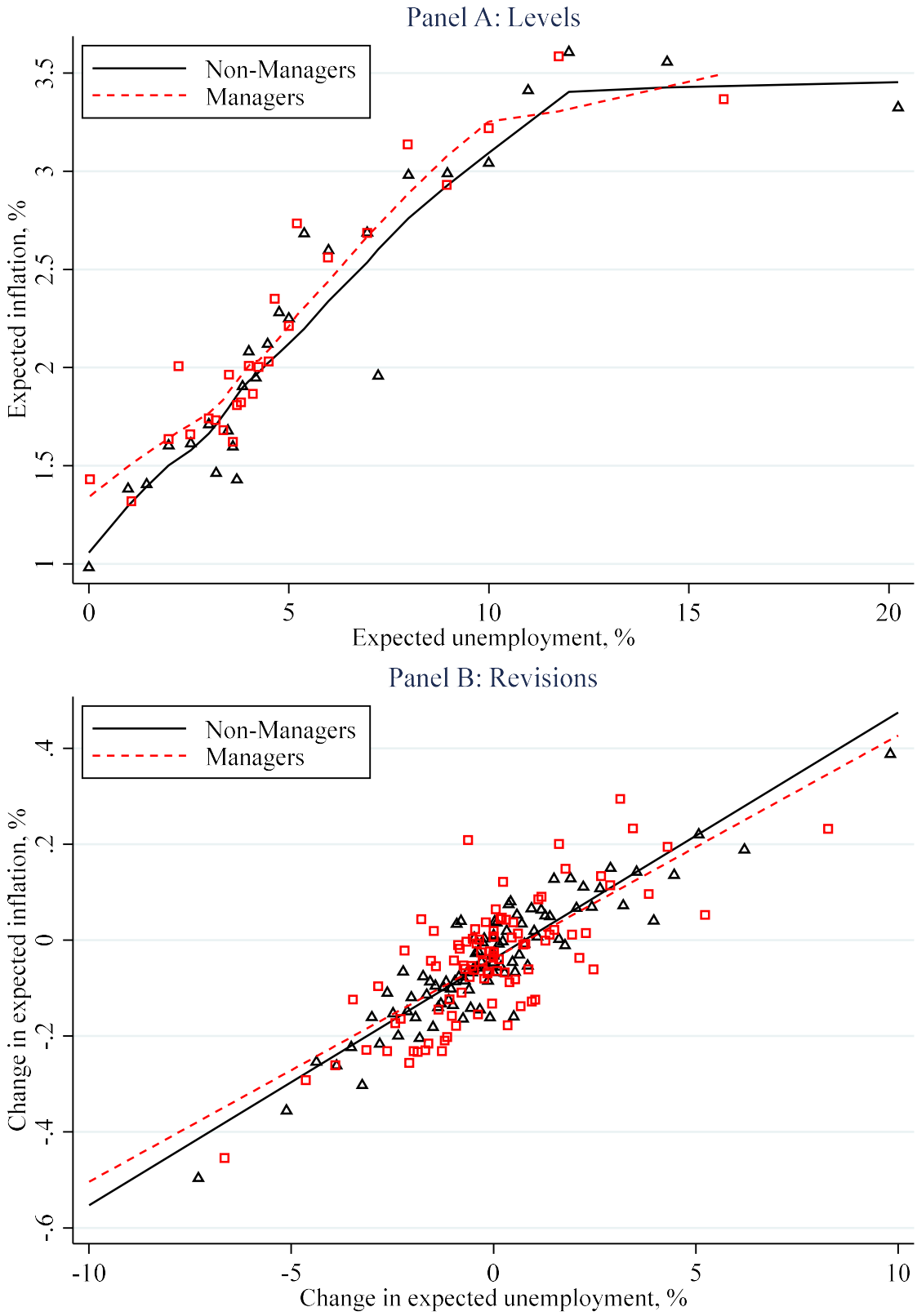
Notes: Each panel reports average expectations and disagreement (standard deviation) for managers and non-managers across waves.

Figure 4. Expectations vs. Perceptions for Macroeconomic Variables.



Notes: Panel A: This shows a binscatter of expected inflation on perceived inflation for managers and non-managers separately, controlling for demographic, socioeconomic, and geographic variables. Panel B: This shows a binscatter of expected unemployment on perceived unemployment for managers and non-managers separately, controlling for demographic, socioeconomic, and geographic variables. Perceived inflation is the reported point estimate of the inflation rate over the last 12 months, expected inflation is the mean expected inflation over the next 12 months taken from each individual's distribution of reported expected inflation, perceived unemployment is the reported point estimate of the current unemployment rate, and expected unemployment is the reported point estimate of the unemployment rate in 12 months. Demographic controls include age, age squared, gender, race, Hispanic indicator. Socioeconomic controls include household income, education, and children indicators. Region controls include North, South, East, West dummies and County controls include highly urbanized, urban, suburban and rural dummies.

Figure 5 Theory of inflation.



Notes: Panel A shows binscatters for the joint distribution of inflation and unemployment forecasts for managers and non-managers. Panel B shows binscatters for the joint distribution of inflation and unemployment forecasts for managers and non-managers after controlling for respondent fixed effect.

Table 1. Coincidence of managerial responsibilities.

			Of which: share of managers with responsibility indicated in the left column also reporting managerial responsibility							
		Share	Supervise 1 to 10	Supervise 11 to 50	Supervise 50 or more	Hire/Fire workers	Price-Setter	Capital Expenditure	Wage-Setter	Marketing
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	Manager (any)	0.300	0.588	0.171	0.067	0.269	0.178	0.160	0.156	0.220
(2)	Supervise 1 to 10	0.177	1.000	0.000	0.000	0.242	0.118	0.113	0.128	0.142
(3)	Supervise 11 to 50	0.051	0.000	1.000	0.000	0.315	0.090	0.107	0.158	0.104
(4)	Supervise 50 or more	0.020	0.000	0.000	1.000	0.487	0.180	0.225	0.273	0.197
(5)	Hire/Fire workers	0.081	0.529	0.201	0.120	1.000	0.337	0.364	0.477	0.373
(6)	Price-Setter	0.053	0.391	0.087	0.068	0.510	1.000	0.544	0.479	0.707
(7)	Capital Expenditure	0.048	0.415	0.114	0.094	0.615	0.606	1.000	0.561	0.628
(8)	Wage-Setter	0.047	0.482	0.174	0.116	0.824	0.547	0.574	1.000	0.564
(9)	Marketing	0.066	0.380	0.081	0.060	0.457	0.572	0.455	0.400	1.000

Notes: each column shows the share of managers reporting a managerial responsibility indicated in the title of the column conditional on reporting managerial responsibility in the left column. Because respondents can choose any options that apply, the shares in a row do not need to sum up to one.

Table 2. Managers Characteristics.

Dependent variable: managerial status	Any	Supervisor	Hire/fire workers	Capital expenditures	Set prices	Set wages	Marketing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	-0.123***	-0.107***	-0.040***	-0.044***	-0.028***	-0.024***	-0.031***
	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Age	0.003***	0.006***	0.001	-0.001	-0.001*	0.000	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
$Age^2/100$	-0.007***	-0.009***	-0.002**	0.001	0.001	-0.000	0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Race: Black	-0.012*	-0.005	0.001	-0.017***	-0.014***	0.000	-0.020***
	(0.007)	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
Race: Asian	-0.008	-0.000	-0.033***	-0.026***	-0.018***	-0.019***	-0.032***
	(0.011)	(0.010)	(0.007)	(0.006)	(0.005)	(0.005)	(0.006)
Race: Other	0.012	0.030***	-0.004	-0.001	-0.005	0.003	-0.011**
	(0.010)	(0.009)	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)
Hispanic	0.001	0.005	0.006	-0.012***	-0.006	-0.004	-0.011**
	(0.008)	(0.007)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)
Household income	0.002***	0.002***	0.001***	0.001***	0.000***	0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education: some college	0.022***	0.017***	0.012***	0.018***	0.016***	0.008***	0.017***
	(0.006)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Education: college	0.057***	0.052***	0.022***	0.013***	0.005	0.010***	0.018***
	(0.006)	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
Education: post graduate	0.104***	0.104***	0.049***	0.024***	0.005	0.027***	0.010**
	(0.008)	(0.007)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Any children	0.010*	0.014**	0.014***	0.008**	0.008**	0.012***	0.003
	(0.006)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Any infants	-0.003	-0.000	-0.000	0.003	-0.002	0.000	-0.003
	(0.008)	(0.008)	(0.006)	(0.005)	(0.004)	(0.004)	(0.005)
Region: South	-0.018***	-0.017***	0.003	-0.000	0.001	0.002	0.003
	(0.007)	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
Region: Midwest	0.013**	0.013**	0.009**	0.004	0.008**	0.004	0.014***
	(0.006)	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)
Region: West	0.019***	0.015**	0.009**	0.013***	0.015***	0.012***	0.020***
	(0.007)	(0.007)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
County size B	-0.001	0.003	0.004	0.002	0.001	0.004	0.002
	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
County size C	0.000	0.005	0.007	0.006	0.002	0.005	0.004
	(0.007)	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
County size D	0.026***	0.022***	0.008*	0.018***	0.013***	0.009**	0.009**
	(0.007)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Observations	100,160	100,160	100,160	100,160	100,160	100,160	100,160
R-squared	0.071	0.062	0.025	0.016	0.008	0.015	0.013

Notes: linear probability model. Omitted categories: race (white), education (high school)), region (Northeast), county size (size A). "Supervisors" are those that supervise 1 to 10 workers, supervise 11 to 50 worker or supervise over 50 workers. "Hire/Fire" reported making hiring and firing decisions about workers. "Set Prices" reported that they were involved in setting prices. "Capital expenditure" reported making decisions in regards to capital expenditure. "Set Wages" reported being involved in setting wages. "Marketing" reported making marketing choices. Robust standard errors are in parentheses. ***,**,* denote statistical significance at 1,5 and 10 percent.

Table 3. Descriptive statistics for macroeconomic expectations and perceptions.

	Non-manager	Any manager	Manager supervisor	Hire/fire workers	Capital expenditures	Set prices	Set wages	Marketing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Mean								
Perceived inflation	2.41	2.60	2.60	2.61	2.58	2.55	2.55	2.57
Expected inflation	2.52	2.55	2.55	2.65	2.62	2.68	2.62	2.63
Expected inflation, uncertainty	3.14	3.26	3.27	3.10	2.98	3.01	2.96	3.00
Expected inflation, long-run	2.64	2.79	2.76	2.88	2.94	2.85	2.85	2.96
Perceived unemployment	8.92	8.86	8.89	8.63	8.62	8.99	8.54	8.78
Expected unemployment	9.11	8.96	9.00	8.62	8.63	8.97	8.34	8.80
Panel B. Standard deviation (disagreement)								
Perceived inflation	2.05	1.91	1.91	1.89	1.87	1.93	1.83	1.88
Expected inflation	2.58	2.54	2.56	2.54	2.46	2.48	2.48	2.46
Expected inflation, uncertainty	3.05	2.93	2.94	2.78	2.72	2.78	2.71	2.73
Expected inflation, long-run	2.36	2.35	2.33	2.33	2.36	2.35	2.31	2.36
Perceived unemployment	7.67	7.49	7.49	7.40	7.27	7.57	7.34	7.46
Expected unemployment	7.62	7.41	7.42	7.13	7.14	7.50	6.97	7.34

Notes: Perceived inflation is the reported point estimate of the inflation rate over the last 12 months, expected inflation is the mean expected inflation over the next 12 months taken from each individual's distribution of reported expected inflation, expected inflation uncertainty is the std error of each individual's distribution of reported inflation expectations, perceived unemployment is the reported point estimate of the current unemployment rate, and expected unemployment is the reported point estimate of the unemployment rate in 12 months.

Table 4. Inflation and Unemployment Expectations.

	Expected inflation (implied mean)				Expected unemployment (point prediction)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manager	0.009	0.067**	0.023	0.030	-0.039	-0.016	0.025	0.027
	(0.030)	(0.030)	(0.029)	(0.029)	(0.047)	(0.046)	(0.046)	(0.046)
Supervise 1 to 10	0.027	0.005	0.010	0.003	-0.072	-0.062	-0.059	-0.054
	(0.030)	(0.030)	(0.029)	(0.029)	(0.047)	(0.047)	(0.046)	(0.046)
Supervise 11 to 50	-0.008	-0.016	-0.019	-0.023	-0.066	0.005	0.046	0.063
	(0.038)	(0.037)	(0.036)	(0.036)	(0.057)	(0.057)	(0.056)	(0.056)
Supervise 50 or more	-0.008	-0.007	0.020	0.013	0.055	0.142*	0.179**	0.199**
	(0.050)	(0.050)	(0.050)	(0.049)	(0.079)	(0.079)	(0.079)	(0.078)
Hire/Fire workers	0.116***	0.167***	0.126***	0.129***	0.016	-0.050	-0.014	-0.023
	(0.027)	(0.026)	(0.026)	(0.026)	(0.043)	(0.043)	(0.043)	(0.042)
Price-Setter	0.153***	0.133***	0.169***	0.166***	0.070	0.130**	0.101*	0.100*
	(0.034)	(0.034)	(0.033)	(0.033)	(0.053)	(0.053)	(0.053)	(0.053)
Capital Expenditure	0.160***	0.067**	0.033	0.021	-0.083	0.035	0.036	0.029
	(0.033)	(0.033)	(0.032)	(0.032)	(0.052)	(0.051)	(0.050)	(0.050)
Wage-Setter	-0.190***	-0.220***	-0.173***	-0.173***	-0.176***	-0.205***	-0.181***	-0.177***
	(0.036)	(0.035)	(0.035)	(0.035)	(0.056)	(0.056)	(0.056)	(0.055)
Marketing	0.067**	0.055*	0.022	0.023	-0.165***	-0.154***	-0.154***	-0.148***
	(0.031)	(0.031)	(0.030)	(0.030)	(0.048)	(0.048)	(0.048)	(0.048)
Wave Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Socioeconomic Controls	No	No	Yes	Yes	No	No	Yes	Yes
Region Controls	No	No	No	Yes	No	No	No	Yes
County Controls	No	No	No	Yes	No	No	No	Yes
N obs	115,721	115,376	114,410	114,408	72,000	72,105	71,680	71,637
R-sqr	0.066	0.098	0.120	0.122	0.235	0.248	0.255	0.257

Notes: Huber robust regression, with $* \ p < 0.05$, $** \ p < 0.01$, $*** \ p < 0.001$. Robust standard errors are reported in parentheses. Wave controls include a dummy for each wave including separate dummies for waves 7a and 7b. Demographic controls include age, age squared, gender, race, Hispanic indicator. Socioeconomic controls include household income, education, and children indicators. Region controls include North, South, East, West dummies and County controls include highly urbanized, urban, suburban and rural dummies.

Table 5. Theory of inflation.

	Dependent variable: expected inflation, $E_t(\pi_{t+1})$			
	(1)	(2)	(3)	(4)
Manager	0.027*	0.025	0.038	0.082***
	(0.016)	(0.016)	(0.023)	(0.024)
Price-Setter	0.237***	0.235***	0.235***	0.126**
	(0.034)	(0.034)	(0.034)	(0.051)
Wage-Setter	-0.128***	-0.121***	-0.122***	-0.197***
	(0.035)	(0.035)	(0.035)	(0.054)
Expected unemployment, $E_t(UE_{t+1})$		0.012***	0.013***	0.013***
		(0.001)	(0.001)	(0.001)
$E_t(UE_{t+1})$ × Manager			-0.002	-0.008***
			(0.002)	(0.002)
$E_t(UE_{t+1})$ × Price-Setter				0.016***
				(0.005)
$E_t(UE_{t+1})$ × Wage-Setter				0.013**
				(0.006)
Observations	63,206	63,227	63,227	63,220
R-squared	0.060	0.063	0.063	0.063

Notes: This table reports the regression coefficient from the regressions specified in each column. Each is weighted by sampling weight available from the Nielsen Survey. Wave controls, demographic controls, socioeconomic controls and geographic controls are included for all regressions. In order to disallow outliers from exercising substantial influence on the regression coefficients we employ robust regression. Values in parentheses are heteroskedasticity-robust standard errors, with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 6. Randomized control trial.

	Dependent variable: revision in expectations							
	Inflation						Unemployment	
	Immediate		3 months later		6 months later		Immediate	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manager	-0.624***	-0.649***	-0.009	-0.071	-0.142	-0.217	0.069	0.061
	(0.218)	(0.218)	(0.176)	(0.177)	(0.179)	(0.180)	(0.100)	(0.101)
Inflation Info Treatment	-1.154***	-1.158***	-0.278***	-0.289***	0.048	0.035	-0.139***	-0.149***
	(0.118)	(0.118)	(0.091)	(0.091)	(0.097)	(0.098)	(0.052)	(0.052)
(Inflation Info Treatment) × Manager	0.673***	0.658***	-0.006	-0.012	0.409**	0.413**	-0.070	-0.063
	(0.241)	(0.240)	(0.196)	(0.196)	(0.202)	(0.202)	(0.112)	(0.113)
Gas Price Info Treatment	1.285***	1.312***	-0.266**	-0.257**	-0.058	-0.047	0.214***	0.184***
	(0.161)	(0.160)	(0.114)	(0.114)	(0.122)	(0.122)	(0.067)	(0.067)
(Gas Price Info Treatment) × Manager	0.937***	0.897***	0.459*	0.420	0.125	0.104	-0.110	-0.070
	(0.334)	(0.331)	(0.261)	(0.260)	(0.269)	(0.269)	(0.143)	(0.144)
Unempl. Info Treatment	-0.444***	-0.429***	-0.385***	-0.361***	-0.146	-0.145	-0.938***	-0.941***
	(0.150)	(0.150)	(0.113)	(0.114)	(0.120)	(0.121)	(0.071)	(0.071)
(Unempl. Info Treatment) × Manager	0.701**	0.671**	0.107	0.017	-0.142	-0.217	0.010	-0.007
	(0.310)	(0.308)	(0.254)	(0.255)	(0.254)	(0.253)	(0.153)	(0.152)
Demographic controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	9,014	9,009	7,997	8,001	7,518	7,512	8,711	8,721
R-squared	0.062	0.066	0.003	0.007	0.002	0.007	0.045	0.054

Notes: Huber robust regression, with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors are reported in parentheses. Controls here are demographic controls including age, age squared, gender, race, Hispanic indicator.

Table 7. Uncertainty about future inflation.

	Uncertainty about expected inflation (implied standard deviation)			
	(1)	(2)	(3)	(4)
Manager	0.098***	0.041	0.066**	0.071***
	(0.028)	(0.027)	(0.027)	(0.027)
Supervise 1 to 10	-0.054*	-0.024	-0.022	-0.027
	(0.028)	(0.028)	(0.027)	(0.027)
Supervise 11 to 50	-0.114***	-0.068*	-0.036	-0.036
	(0.035)	(0.035)	(0.035)	(0.034)
Supervise 50 or more	-0.063	0.005	0.018	0.023
	(0.047)	(0.047)	(0.047)	(0.047)
Hire/Fire workers	0.077***	0.010	0.014	0.014
	(0.025)	(0.025)	(0.025)	(0.025)
Price-Setter	-0.006	0.018	-0.004	0.002
	(0.031)	(0.031)	(0.031)	(0.031)
Capital Expenditure	-0.045	0.083***	0.070**	0.064**
	(0.030)	(0.030)	(0.030)	(0.030)
Wage-Setter	-0.113***	-0.112***	-0.069**	-0.068**
	(0.033)	(0.033)	(0.033)	(0.033)
Marketing	0.035	0.027	0.023	0.026
	(0.028)	(0.028)	(0.028)	(0.028)
Wave Controls	Yes	Yes	Yes	Yes
Demographic Controls	No	Yes	Yes	Yes
Socioeconomic Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
County Controls	No	No	No	Yes
N obs	134,659	135,087	134,192	134,216
R-sqr	0.085	0.125	0.143	0.145

Notes: Huber robust regression, with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors are reported in parentheses. Wave controls include a dummy for each wave including separate dummies for waves 7a and 7b. Demographic controls include age, age squared, gender, race, Hispanic indicator. Socioeconomic controls include household income, education, and children indicators. Region controls include North, South, East, West dummies and County controls include highly urbanized, urban, suburban and rural dummies.

Table 8. Size of revisions in inflation expectations.

	Dependent variable: Absolute revision of inflation expectations $\lvert\Delta E_t(\pi_{t+1})\rvert$			
	(1)	(2)	(3)	(4)
Manager	0.006	0.039	0.098***	0.098***
	(0.035)	(0.035)	(0.034)	(0.035)
Supervise 1 to 10	-0.055	-0.040	-0.035	-0.033
	(0.035)	(0.035)	(0.035)	(0.035)
Supervise 11 to 50	0.037	0.086**	0.107**	0.108**
	(0.044)	(0.044)	(0.043)	(0.043)
Supervise 50 or more	0.082	0.166***	0.203***	0.218***
	(0.059)	(0.058)	(0.058)	(0.058)
Hire/Fire workers	-0.160***	-0.180***	-0.157***	-0.159***
	(0.032)	(0.031)	(0.031)	(0.031)
Price-Setter	0.102***	0.094**	0.041	0.046
	(0.039)	(0.038)	(0.038)	(0.038)
Capital Expenditure	-0.248***	-0.183***	-0.166***	-0.172***
	(0.038)	(0.037)	(0.036)	(0.036)
Wage-Setter	0.094**	0.072*	0.121***	0.123***
	(0.042)	(0.041)	(0.041)	(0.041)
Marketing	0.015	0.038	0.007	0.009
	(0.037)	(0.036)	(0.036)	(0.036)
Wave Controls	Yes	Yes	Yes	Yes
Demographic Controls	No	Yes	Yes	Yes
Socioeconomic Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
County Controls	No	No	No	Yes
N obs	63,496	63,449	63,197	63,185
R-sqr	0.028	0.051	0.065	0.067

Notes: Huber robust regression, with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors are reported in parentheses. Wave controls include a dummy for each wave including separate dummies for waves 7a and 7b. Demographic controls include age, age squared, gender, race, Hispanic indicator. Socioeconomic controls include household income, education, and children indicators. Region controls include North, South, East, West dummies and County controls include highly urbanized, urban, suburban and rural dummies.

Table 9. Comovement of Short-Run and Long-Run Inflation Expectations.

	Dependent variable: revision of long-run inflation expectations, $\Delta E_t(\pi_{LR})$				
	(1)	(2)	(3)	(4)	(5)
$\Delta E_t(\pi_{t+1})$	0.112***	0.112***	0.119***	0.124***	0.123***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Manager	-0.149	-0.059	-0.191	-0.089	-0.109
	(0.117)	(0.130)	(0.133)	(0.133)	(0.133)
$\Delta E_t(\pi_{t+1})$ × Manager	0.086**	0.015	0.006	0.010	-0.001
	(0.036)	(0.040)	(0.040)	(0.039)	(0.039)
Price-Setter		0.122	0.362	0.337	0.303
		(0.305)	(0.310)	(0.306)	(0.306)
$\Delta E_t(\pi_{t+1})$ × Price-Setter		0.004	0.030	0.048	0.040
		(0.090)	(0.091)	(0.091)	(0.089)
Wage-Setter		-0.673**	-0.731**	-0.710**	-0.631*
		(0.337)	(0.336)	(0.332)	(0.331)
$\Delta E_t(\pi_{t+1})$ × Wage-Setter		0.286***	0.295***	0.284***	0.306***
		(0.095)	(0.092)	(0.092)	(0.091)
Wave Controls	Yes	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Socioeconomic Controls	No	No	No	Yes	Yes
Region Controls	No	No	No	No	Yes
County Controls	No	No	No	No	Yes
Observations	13,843	13,836	13,825	13,779	13,780
R-squared	0.026	0.029	0.034	0.044	0.047

Notes: This table reports the regression coefficient from the regressions specified in each column. Each regression is weighted by sampling weight available from the Nielsen Survey. In order to disallow outliers from exercising substantial influence on the regression coefficients we employ robust regression. Short-run inflation expectation revisions are truncated at their 5th (-10%) and 95th (9.5) percentiles. Long-run inflation expectation revisions are truncated at the same values (-10%, 9.5%). Values in parentheses are Huber standard errors, with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A Additional Tables and Figures

Appendix Table 1. Long-run inflation expectations.

	Dependent variable: long-run inflation expectations, $E_t(\pi_{LR})$			
	(1)	(2)	(3)	(4)
Manager	0.124**	0.211***	0.155**	0.167***
	(0.063)	(0.063)	(0.062)	(0.062)
Supervise 1 to 10	-0.030	-0.064	-0.107*	-0.118*
	(0.063)	(0.063)	(0.062)	(0.062)
Supervise 11 to 50	-0.095	-0.127	-0.223***	-0.227***
	(0.081)	(0.080)	(0.079)	(0.079)
Supervise 50 or more	0.127	0.012	-0.120	-0.123
	(0.112)	(0.112)	(0.107)	(0.107)
Hire/Fire workers	0.022	0.090	0.061	0.061
	(0.058)	(0.058)	(0.058)	(0.057)
Price-Setter	-0.175**	-0.169**	-0.128*	-0.127*
	(0.071)	(0.070)	(0.070)	(0.069)
Capital Expenditure	0.178***	0.032	-0.004	-0.006
	(0.068)	(0.067)	(0.067)	(0.067)
Wage-Setter	-0.096	-0.067	-0.044	-0.036
	(0.074)	(0.074)	(0.074)	(0.073)
Marketing	0.234***	0.214***	0.162**	0.149**
	(0.064)	(0.064)	(0.064)	(0.064)
Wave Controls	Yes	Yes	Yes	Yes
Demographic Controls	No	Yes	Yes	Yes
Socioeconomic Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
County Controls	No	No	No	Yes
Observations	31,233	31,177	31,008	30,999
R-squared	0.028	0.056	0.090	0.093

Notes: This table reports the regression coefficient from the regressions specified in each column. Long run inflation expectations are the pooled values of the 5-year and 10-year inflation expectations Each regression is weighted by sampling weight available from the Nielsen Survey. In order to disallow outliers from exercising substantial influence on the regression coefficients we employ robust regression. Values in parentheses are Huber standard errors, with $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. The R^2, F-statistic and degrees of freedom are included in the bottom panel of the table. Note the decrease in the observations from the first column to the second is the result of some respondents not reporting their ages, the results are similar dropping age from the controls.

Appendix Table 2. Perceptions of inflation and unemployment.

	Perceived inflation (point prediction)				Perceived unemployment (point prediction)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manager	0.163***	0.191***	0.118***	0.126***	-0.019	-0.024	0.015	0.018
	(0.026)	(0.026)	(0.026)	(0.026)	(0.029)	(0.029)	(0.029)	(0.029)
Supervise 1 to 10	0.003	0.001	-0.024	-0.028	-0.042	-0.022	-0.021	-0.022
	(0.026)	(0.026)	(0.026)	(0.026)	(0.029)	(0.029)	(0.029)	(0.029)
Supervise 11 to 50	0.081**	0.040	-0.008	-0.011	-0.052	0.001	0.028	0.030
	(0.033)	(0.033)	(0.032)	(0.032)	(0.036)	(0.036)	(0.035)	(0.035)
Supervise 50 or more	0.022	-0.033	-0.023	-0.027	-0.043	0.047	0.078	0.093*
	(0.045)	(0.045)	(0.045)	(0.045)	(0.050)	(0.049)	(0.049)	(0.049)
Hire/Fire workers	0.007	0.107***	0.076***	0.072***	-0.012	-0.073***	-0.056**	-0.055**
	(0.024)	(0.024)	(0.024)	(0.024)	(0.027)	(0.027)	(0.027)	(0.027)
Price-Setter	-0.128***	-0.163***	-0.085***	-0.099***	0.126***	0.152***	0.126***	0.127***
	(0.031)	(0.031)	(0.030)	(0.030)	(0.033)	(0.033)	(0.033)	(0.033)
Capital Expenditure	0.192***	0.093***	0.046*	0.045	-0.096***	-0.009	0.003	-0.002
	(0.028)	(0.028)	(0.028)	(0.028)	(0.031)	(0.030)	(0.030)	(0.030)
Wage-Setter	-0.054*	-0.078**	-0.092***	-0.086***	-0.153***	-0.162***	-0.150***	-0.155***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.034)	(0.034)	(0.034)	(0.034)
Marketing	0.029	0.033	-0.001	-0.003	-0.078***	-0.074**	-0.083***	-0.080***
	(0.028)	(0.027)	(0.027)	(0.027)	(0.030)	(0.029)	(0.029)	(0.029)
Wave Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Socioeconomic Controls	No	No	Yes	Yes	No	No	Yes	Yes
Region Controls	No	No	No	Yes	No	No	No	Yes
County Controls	No	No	No	Yes	No	No	No	Yes
N obs	89,637	89,422	88,580	88,575	114,195	114,216	113,680	113,644
R-sqr	0.037	0.087	0.151	0.154	0.503	0.511	0.512	0.513

Notes: Huber robust regression, with $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$. Robust standard errors are reported in parentheses. Each regression is weighted by sampling weight available from the Nielsen Survey. Wave controls include a dummy for each wave including separate dummies for waves 7a and 7b. Demographic controls include age, age squared, gender, race, Hispanic indicator. Socioeconomic controls include household income, education, dwelling, and children indicators. Region controls include North, South, East, West dummies and County controls include highly urbanized, urban, suburban and rural dummies.

Appendix Table 3. Summary Statistics.

Statistic	Obs	Mean	Sd	Median	Min	Max
	(1)	(2)	(3)	(4)	(5)	(6)
Perceived inflation	140686	2.432847	2.035586	2	-1.7	9.9
Expected inflation	193497	2.546233	2.584229	2	-1.79	9.9996
Std. expected inflation	234229	3.20141	3.070404	2.236068	0	9.984488
Revision expected inflation	105945	-.2292021	3.687883	0	-10.39	9.49
Abs. Revision expected inflation	105945	2.697298	2.525378	2	0	10.39
Long-run expected inflation	36559	2.675098	2.449868	2.5	-1.775	9.975
Long-run revisions exp. inflation	11459	-1.21231	4.951585	-.35	-10.375	9.475
Long-run abs. revisions exp. inflation	11459	4.081036	3.054785	3.625	0	10.375
Perceived unemployment	217760	9.118263	7.759814	6	0	34.75
Expected unemployment	131630	9.138745	7.622665	6	0	34
Female	247037	.692847	.4613143	1	0	1
Age	246788	51.18657	15.04647	52	18	120
$Age^2/100$	246788	28.4646	15.72056	27.04	3.24	144
Race: White	247036	.7453891	.4356431	1	0	1
Race: Black	247036	.1250918	.3308237	0	0	1
Race: Asian	247036	.0493672	.216634	0	0	1
Race: Other	247036	.0801507	.2715269	0	0	1
Hispanic	247037	.1357963	.3425728	0	0	1
Household income ($1000's)	247035	62.55787	32.92272	65	5	100
Education: no college	245360	.3052604	.4605186	0	0	1
Education: some college	245360	.3171654	.4653734	0	0	1
Education: college	245360	.2425942	.4286526	0	0	1
Education: post graduate	245360	.13498	.3417029	0	0	1
Dwelling: Own, no mortgage	165096	.2892535	.4534172	0	0	1
Dwelling: Own, fixed-rate mortgage	165096	.3615613	.4804541	0	0	1
Dwelling: Own, variable-rate mortgage	165096	.0231924	.1505145	0	0	1
Dwelling: Rent	165096	.2849813	.4514069	0	0	1
Dwelling: other	165096	.0410114	.1983173	0	0	1
Any children	247037	.3113009	.4630265	0	0	1
Any infants	247037	.1208061	.3259025	0	0	1
Region: North	247034	.1747211	.3797292	0	0	1
Region: South	247034	.2182592	.4130651	0	0	1
Region: Midwest	247034	.3858788	.4868031	0	0	1
Region: West	247034	.2211409	.4150161	0	0	1
County size A	247036	.4081239	.4914873	0	0	1
County size B	247036	.3020095	.4591303	0	0	1
County size C	247036	.1489248	.356015	0	0	1
County size D	247036	.1409417	.3479621	0	0	1

Notes: Summary statistics for all control variables used in the analysis weighted by sampling weight available from the Nielsen Survey.. The number of observations, mean value, standard deviation, median, minimum value and maximum value are reported.

Appendix Table 4. Inflation and Unemployment Expectations.

	Expected inflation (implied mean)				Expected unemployment (point prediction)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manager	0.009	0.067**	0.023	0.030	-0.039	-0.016	0.025	0.027
	(0.030)	(0.030)	(0.029)	(0.029)	(0.047)	(0.046)	(0.046)	(0.046)
Supervise 1 to 10	0.027	0.005	0.010	0.003	-0.072	-0.062	-0.059	-0.054
	(0.030)	(0.030)	(0.029)	(0.029)	(0.047)	(0.047)	(0.046)	(0.046)
Supervise 11 to 50	-0.008	-0.016	-0.019	-0.023	-0.066	0.005	0.046	0.063
	(0.038)	(0.037)	(0.036)	(0.036)	(0.057)	(0.057)	(0.056)	(0.056)
Supervise 50 or more	-0.008	-0.007	0.020	0.013	0.055	0.142*	0.179**	0.199**
	(0.050)	(0.050)	(0.050)	(0.049)	(0.079)	(0.079)	(0.079)	(0.078)
Hire/Fire workers	0.116***	0.167***	0.126***	0.129***	0.016	-0.050	-0.014	-0.023
	(0.027)	(0.026)	(0.026)	(0.026)	(0.043)	(0.043)	(0.043)	(0.042)
Price-Setter	0.153***	0.133***	0.169***	0.166***	0.070	0.130**	0.101*	0.100*
	(0.034)	(0.034)	(0.033)	(0.033)	(0.053)	(0.053)	(0.053)	(0.053)
Capital Expenditure	0.160***	0.067**	0.033	0.021	-0.083	0.035	0.036	0.029
	(0.033)	(0.033)	(0.032)	(0.032)	(0.052)	(0.051)	(0.050)	(0.050)
Wage-Setter	-0.190***	-0.220***	-0.173***	-0.173***	-0.176***	-0.205***	-0.181***	-0.177***
	(0.036)	(0.035)	(0.035)	(0.035)	(0.056)	(0.056)	(0.056)	(0.055)
Marketing	0.067**	0.055*	0.022	0.023	-0.165***	-0.154***	-0.154***	-0.148***
	(0.031)	(0.031)	(0.030)	(0.030)	(0.048)	(0.048)	(0.048)	(0.048)
Female		0.022**	0.098***	0.096***		0.695***	0.748***	0.751***
		(0.011)	(0.011)	(0.011)		(0.019)	(0.019)	(0.019)
Age		0.043***	0.040***	0.041***		0.001	0.013***	0.015***
		(0.002)	(0.002)	(0.002)		(0.005)	(0.005)	(0.005)
age2/100		-0.025***	-0.023***	-0.024***		-0.010**	-0.023***	-0.024***
		(0.002)	(0.002)	(0.002)		(0.004)	(0.004)	(0.004)
Race: Black		-0.446***	-0.477***	-0.436***		0.596***	0.521***	0.565***
		(0.018)	(0.018)	(0.018)		(0.032)	(0.032)	(0.033)
Race: Asian		0.178***	0.074***	0.058**		0.161***	0.222***	0.200***
		(0.023)	(0.024)	(0.024)		(0.039)	(0.040)	(0.040)
Race: Other		-0.262***	-0.238***	-0.246***		0.140***	0.121***	0.105**
		(0.024)	(0.024)	(0.024)		(0.043)	(0.043)	(0.043)
Hispanic indicator		-0.214***	-0.225***	-0.214***		-0.161***	-0.148***	-0.129***
		(0.019)	(0.019)	(0.019)		(0.033)	(0.033)	(0.034)
Household income			-0.001***	-0.001***			-0.010***	-0.010***
			(0.000)	(0.000)			(0.000)	(0.000)
Education: some college			0.435***	0.429***			0.260***	0.263***
			(0.015)	(0.015)			(0.028)	(0.028)
Education: college			0.673***	0.671***			0.446***	0.443***
			(0.015)	(0.015)			(0.028)	(0.028)
Education: post graduate			0.666***	0.670***			0.506***	0.504***
			(0.017)	(0.017)			(0.031)	(0.031)
Any children			-0.180***	-0.180***			-0.093***	-0.089***
			(0.015)	(0.015)			(0.026)	(0.026)
Any infants			-0.067***	-0.075***			-0.013	-0.014
			(0.020)	(0.020)			(0.038)	(0.037)
Region: South				0.097***				0.053*
				(0.016)				(0.029)
Region: Midwest				-0.060***				-0.258***
				(0.015)				(0.027)
Region: West				0.116***				-0.065**
				(0.017)				(0.029)
County size B				0.039***				-0.091***
				(0.012)				(0.022)
County size C				0.073***				-0.001
				(0.016)				(0.029)
County size D				0.051***				-0.078**
				(0.017)				(0.032)
Constant	1.795***	0.333***	1.169***	1.102***	10.714***	8.488***	10.538***	8.651***
	(0.025)	(0.065)	(0.072)	(0.073)	(0.127)	(0.126)	(0.174)	(0.134)
N obs	115,721	115,376	114,420	114,422	72,000	72,105	71,677	71,635
R-sqr	0.066	0.098	0.120	0.121	0.235	0.248	0.256	0.257

Notes: Huber robust regression, with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors are reported in parentheses. Wave controls include a dummy for each wave. Demographic controls include age, age squared, gender, race, Hispanic indicator. Socioeconomic controls include household income, education, and children indicators. Region controls include North, South, East, West dummies and County controls include highly urbanized, urban, suburban and rural dummies.