Inflation Expectations and Firms' Decisions in High Inflation: Evidence from a Randomized Control Trial*

Okan Akarsu† *CBRT*

Emrehan Aktuğ‡ *Sabancı University*

Huzeyfe Torun§ *CBRT*

November, 2024

Abstract

We conducted a survey of Turkish firms, using randomized treatments to provide varied information about inflation in a high-inflation environment. By matching the survey data with administrative firm-level data on exports, employment, credit, and foreign exchange transactions, we explore the impact of exogenous variations in inflation expectations on firms' behavior, borrowing decisions, and expectations. Our findings reveal three key insights. First, inflation expectations significantly impact firms' expected prices, wages, and unit costs, with pass-through rates reaching as high as 60% in a high-inflation environment—demonstrating a much stronger connection compared to low-inflation settings. Second, firms with heightened inflation expectations substantially increase their credit demand, shifting from short-term to long-term loans through the refinancing channel, with a significantly reduced cost. Specifically, a 10 percentage point increase in inflation expectations leads to a 3 percent rise in credit usage, accompanied by a 3 percentage point decline in borrowing costs. Additionally, firms with elevated inflation expectations are more likely to raise their foreign currency purchases while decreasing the share of FX-denominated credit on their liability side. Third, firms facing higher inflation expectations tend to reduce employment and sales, reflecting a stagflationary outlook. Despite the negative impact on sales and employment, total credit usage increases, driven by long-term borrowing as firms seek to lock in lower long-term rates in anticipation of further inflation, highlighting the importance of the refinancing channel.

Keywords: Expectations, Firms, RCT, High Inflation, Macroeconomics

JEL Classification: E12; E24; E31; E52

*We are grateful to Olivier Coibion and Saroj Bhattarai, who provided invaluable guidance as Emrehan's advisors, as well as to Michael Weber, Tiziano Ropele, Carola Binder, Rupal Kamdar, Johannes Wohlfart, Mathieu Pedemonte, Sarah Lein, and the attendees of the SEA, CBRT, Sabancı Economics, Koç Economics, and TGU Economics Seminars for their valuable comments and suggestions. The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the research staff or the Central Bank of the Republic of Türkiye.

†Address: Central Bank of the Republic of Türkiye, Istanbul/Turkey.
E-Mail: okan.akarsu@tcmb.gov.tr Website: https://sites.google.com/view/okanakarsu

‡Address: Sabancı University, Department of Economics, Üniversite Caddesi, 34956, Istanbul/Turkey.
E-Mail: emrehan.aktug@sabanciuniv.edu Website: https://sites.google.com/view/emrehanaktug

§Address: Central Bank of the Republic of Türkiye, Istanbul/Turkey.
E-Mail: huzeyfe.torun@tcmb.gov.tr

1 Introduction

Expectations play a crucial role in shaping macroeconomic outcomes, and the determinants of firms' inflation expectations, along with their influence on business decisions, have garnered increasing attention in the literature.[1] Nonetheless, evidence on this subject remains limited, particularly in the context of high and volatile inflation environments. This paper is the first to apply a randomized control trial (RCT) framework to investigate how inflation expectations affect firms' pricing, wage-setting, financing, and employment decisions in a high-inflation setting, where the annual inflation rate exceeds 70%.[2] By providing firms with information treatments on expected inflation rates, we generate exogenous shifts in firms' inflation expectations, enabling us to analyze how these shifts influence key economic decisions.

The firms surveyed are matched with administrative data, including balance sheet data, foreign currency purchase records, and credit registry data, allowing us to evaluate the causal impact of exogenous variations in inflation expectations, induced by the treatments, on firms' firm-level expectations, foreign currency purchases, loan amounts and costs, as well as decisions related to wages, employment, sales, and purchases.[3] Our information treatments, which provide professional forecasts and central bank projections, successfully generate exogenous variation in firms' aggregate inflation expectations, enabling causal identification of the impact of expectations on firms' decisions. We empirically document that firms with higher inflation expectations tend to increase wages, unit costs, and their own price expectations, with pass-through rates of 0.58, 0.53, and 0.55, respectively. Additionally, we show that firms with elevated inflation expectations are more likely to increase their borrowing, locking in lower borrowing costs through refinancing: a 10 percentage point (pp) rise in inflation expectations leads to a 3 percent increase in the credit amount, accompanied by a decline in borrowing costs of approximately 3 pp, driven by a com-

[1] Inflation expectations serve as a critical channel in various economic frameworks, including the Phillips Curve, the Euler equation, Tobin's Q, asset pricing models, and the Taylor Rule.

[2] The RCT was conducted in May 2024, when the annual inflation rate was 75%.

[3] Matching RCT survey settings with administrative datasets to analyze dynamic impacts is exceptionally rare (Ropele et al., 2022; Delgado et al., 2024); this paper is among the few that accomplish this.

positional shift in liabilities.[4] This shift is primarily driven by long-term credit, as we observe a decline in short-term borrowing.[5] This suggests that firms with elevated inflation expectations prefer to lock-in current rates on long-term credit and this documents the importance of the refinancing channel (Ropele et al., 2022). Furthermore, firms with higher inflation expectations significantly increase their foreign currency purchases while reducing foreign currency sales in the FX market, indicating a hedging motive against domestic inflation. These firms also increase their demand for lira-denominated credit and reduce FX-denominated credit, leading to a higher share of lira-denominated liabilities. Finally, we observe a significant decline in employment and sales in the months following treatment for firms with heightened inflation expectations, along with a substantial increase in purchases, suggesting a motivation to accumulate inventory ahead of anticipated price increases.

We utilize data from an additional survey with an RCT design conducted by the Central Bank of the Republic of Türkiye (CBRT) in May 2024. This survey, which sampled over 1,300 representative manufacturing firms, provided informational treatments on inflation forecasts from professionals and the CBRT. Subsequently, the survey collected firms' economic beliefs, including inflation expectations and quantitative forecasts of their future performance.[6] This design allows us to evaluate how firms respond to publicly available information and assess their attentiveness to economic news in a high-inflation environment. Moreover, to observe firms' dynamic responses to the treatment, we match this survey with the Business Tendency Survey (BTS), which has been collecting monthly data from 1,800 to 2,000 representative manufacturing firms since 2009.[7] Shortly after the mid-May BTS survey, we conducted an RCT with firms that regularly participate in the BTS, enabling us to track their behavior both retrospectively and prospectively for a comprehensive analysis.[8] By linking the responses collected in the RCT setting with the BTS

[4] A 10 pp increase in inflation expectations corresponds to a 0.5 standard deviation, as reported in Table-1.
[5] In 2024, the cost of long-term financing is, on average, 4 pp lower than that of short-term financing in Türkiye.
[6] We analyze the determinants of these expectations using a comprehensive set of firm-level controls.
[7] The RCT survey was administered to the same sample as the BTS, achieving a response rate of 65%.
[8] The survey covers administratively registered firms in the Turkish manufacturing sector, with broad sectoral representation and a high response rate, minimizing attrition bias.

data, we track the evolution of firms' beliefs about past, present, and future economic conditions.[9] More importantly, we match firms' survey responses with data on balance sheets, credit registries,[10] customs, employment,[11] and foreign exchange transactions,[12] allowing us to monitor post-treatment effects on realized outcomes in subsequent months.

Overall, this information RCT framework enables us to explore the causal relationship between inflation expectations and firms' economic decisions in a high-inflation environment, providing valuable insights into how expectations shape business behavior in volatile economic conditions. Section-2 provides the literature review. Section-3 outlines the data and provides key descriptive statistics. Section-4 discusses the impact of the treatments on firms' inflation expectations. Section-5 examines how the exogenous variation in inflation expectations influences firms' decisions related to sales, employment, wages, credit usage, and foreign currency purchases, as well as their expectations on wages, sales, and unit costs. Finally, Section-6 concludes.

2 Literature Review

Inflation expectations play a crucial role in shaping firms' decisions and outlooks. However, estimating their causal impact is challenging due to endogeneity issues. Particularly on the firms' side, the lack of high-quality firm-level surveys limits the studies analyzing the impact of expectations on firm behavior.[13] Gennaioli et al. (2016) document that CFOs' expectations of earnings growth significantly explain both firms' investment plans and their realized investments.[14] Coibion et al. (2018) show that firms update their beliefs in line with Bayesian models and significantly revise their expectations upon receiving publicly available information on inflation. These

[9] Our survey is quantitatively focused, unlike many surveys that use qualitative questions, which makes it challenging to extract precise expectations (Bachmann et al. (2013); Bachmann and Elstner (2015)).

[10] Bank-firm level credit data enables analysis of both short- and long-term credit and borrowing costs.

[11] Firm-level employment records include wage data.

[12] Foreign currency transactions are trackable at the firm level and daily frequency.

[13] For studies on the household side, see (Bachmann et al., 2015; Ichiue and Nishiguchi, 2015; D'Acunto et al., 2016; Binder, 2017b; Duca-Radu et al., 2021; Dräger and Nghiem, 2021; Binder and Brunet, 2022; Coibion et al., 2023b; Burke and Ozdagli, 2023).

[14] Boneva et al. (2016) study the impact of expectations on firms' price-setting behavior.

expectation shifts, induced by treatments, can lead to substantial changes in firm decisions. For example, Coibion et al. (2020) demonstrate that firms with higher inflation expectations tend to implement more aggressive price increases, increase credit demand, while simultaneously decreasing employment and investment. Kumar et al. (2023) show that firms with heightened uncertainty about macroeconomic expectations decrease prices, employment, sales, and investment. Ropele et al. (2022) document that heightened inflation expectations have a significant impact on firms' borrowing decisions, leading them to shift their financing from long-term loans with lower interest rates to short-term loans with higher rates. Recently, the literature has explored the pass-through rates of inflation expectations to firms' own selling prices and wages. Rosolia (2024) and Coibion et al. (2018) estimate the pass-through of inflation expectations to firms' own prices to be close to zero,[15] whereas Baumann et al. (2024) estimate it at 30%.[16] Savignac et al. (2024) found that firms' inflation expectations do not significantly affect their wage expectations in an RCT setting. Additionally, Hajdini et al. (2023), Buchheim et al. (2024), Baumann et al. (2024) and Abberger et al. (2024) show that the pass-through of inflation expectations to wage expectations is moderate, less than 0.30%.[17]

However, most of these studies focus on stable inflation environments, where firm decision making processes are relatively more predictable.[18] In contrast, evidence from high and volatile inflation settings is limited. Our contribution is threefold. First, we identify the determinants of inflation expectations in a high-inflation environment, showing that small, young, and highly leveraged firms tend to hold higher inflation expectations compared to large, established, and less leveraged firms. Second, we demonstrate that information treatments effectively shift firms'

[15] Werning (2022) presents the theoretical implications of Calvo and Taylor pricing for inflation expectations pass-through rates. We compare these theoretical implications with our empirical findings.

[16] Andrade et al. (2022) document the impact of aggregate inflation expectations on firms' own selling prices dynamically and the pass-through rate is estimated around 25%.

[17] There are also studies on the effectiveness of policy communication tools. Binder (2017a); Enders et al. (2019); Coibion et al. (2022); Ehrmann et al. (2023); Di Pace et al. (2024) provide evidence that communicating key elements of monetary policy can enhance its perceived credibility and help anchor expectations. For a comprehensive literature review, see D'Acunto et al. (2024).

[18] The firms' behavior in high inflationary environment can change significantly. Alvarez et al. (2019), for example, explore how firms in Argentina—a country with a history of elevated inflation—adjust their prices more frequently and are less responsive to monetary policy shocks under such conditions.

expectations, even though their prior beliefs are relatively strong due to heightened attention in such a high-inflation context. This highlights the potential for information treatments to be impactful in volatile environments. Third, and most importantly, we analyze the causal impact of inflation expectations on firms' decisions regarding sales, employment, borrowing, and foreign currency holdings, as well as their future expectations, to assess the pass-through rates. We find that the pass-through from aggregate inflation expectations to wage and price expectations is quite high, reaching 60%, which contrasts with evidence from low-inflation environments. Additionally, we show that an exogenous increase in inflation expectations leads to a rise in credit demand but a decline in sales and employment.[19] The rise in credit demand is driven by firms' preference for long-term credit in case of heightened inflation expectations, as they aim to lock in current interest rates over a longer period, anticipating that the real value of debt will erode with higher inflation. These findings provide novel insights into firms' behavior in high-inflation environments.

3 Data Description and Conducting the Survey

3.1 Survey Design

We design our RCT survey in line with the Business Tendency Survey (BTS), which is a unique firm-level data, administered by the CBRT. The BTS collects data through monthly surveys of a representative sample of 1,800 to 2,200 manufacturing firms.[20] The regular survey employs a "check-box" format, prompting firms to provide their general business expectations, as well as their projections and actual outcomes for various firm-specific metrics, including capacity utilization, orders, and inventories. Firms indicate whether each economic indicator has increased, decreased, or remained unchanged over the past three months and share their expectations for

[19] These findings are consistent with the evidence from Coibion et al. (2020), although the economic setting is completely different.

[20] Although the BTS does not collect detailed demographic information about respondents, a recent survey conducted by the CBRT indicates that 80% of the respondents are managers or C-suite executives.

these indicators over the next three months. Additionally, the survey requests firms to provide their annual inflation expectations in numerical terms for the end of the upcoming twelve-month period. The dataset covers the period from January 2009 to September 2024.

Following the implementation of the May 2024 BTS, we initiated our randomized control trial (RCT) with these firms just two days later, allowing a seven-day window for survey completion while emphasizing that participation was voluntary.[21] As a result, we received responses from 1,200 firms and the descriptive statistics are documented in Table-1. The survey's administration by the CBRT ensures its reliability, and the sample is representative of the entire manufacturing sector. Respondents are divided into five random sub-groups, each receiving different information treatments, alongside a control group that does not receive any additional information. The treatments consist of publicly available information, focusing on forecasts from professionals and the CBRT. Detailed descriptions of the information treatments are provided in the next section. The primary objective of this approach is to generate exogenous variation in inflation expectations, enabling us to analyze the causal impact of these expectations on relevant economic outcomes. Additionally, examining the relative effectiveness of various types of information allows for insights into the efficacy of different communication strategies.

In the survey, firms are asked to provide their distribution of inflation expectations for the next 12 months. Respondents indicate their best estimate, as well as optimistic and pessimistic forecasts. Using these point forecasts, we can fit a triangular distribution to quantify the post-treatment mean[22] and uncertainty regarding inflation (Kumar et al., 2023; Coibion et al., 2024).[23] Furthermore, post-treatment questions are designed to assess how the information treatments influenced respondents' expectations and plans, relative to the untreated control group. Additionally, since the dataset can be matched with various administrative datasets, we are able

[21] The response rate was nearly 65%.

[22] Throughout the paper, we use expected inflation as the mean of the triangular distribution, which is calculated as the average of the three point forecasts provided. Midpoint (best) estimates are used for robustness checks, as presented in Appendix-G.

[23] These distributional questions allow us to gauge the uncertainty surrounding their forecasts. However, since these distributional questions are not included in the BTS data, we cannot observe firms' priors concerning the second moment of inflation expectations.

to incorporate realized outcome variables—such as credit usage, borrowing costs, foreign currency purchases, employment, and sales—as post-treatment variables in the months following the treatment.

The mean inflation expectation is 58%, while the real (domestic) sale growth expectation is 4.4% (see Table-1). Moreover, expectations are highly dispersed: the 10th percentile expects 28.9% inflation, while the 90th percentile expects 89.4% inflation for the next 12 months. Similarly, for sale growth expectations, the 10th percentile expects -15.6%, and the 90th percentile expects 36.0%. Additionally, we asked firms about their perceived inflation rate for the past 12 months, which averaged 79.3%, slightly higher than the official rate of 75%, indicating that they are well-informed about past inflation.[24] Overall, firms' inflation expectations are significantly higher than professional forecasts (35%) but considerably lower than households' inflation expectations (78%). Figure-1 shows how firms' expectations differ from those of households and professionals. The firms' expectations are not only dispersed regarding aggregate inflation but regarding their own sales growth expectations as well. This high degree of cross-sectional variation in the data allows for a clean identification of the effects of the information treatments.

Before introducing the RCT setting, we first analyze the determinants of inflation expectations. Specifically, we regress prior inflation expectations on a range of firm characteristics, including size, sales, credit usage, exporter status, sector, and the firm's location.[25] We then assess the extent to which each factor contributes to the variation in inflation expectations. Table-C1 shows that firm size, age, leverage ratio, and future economic expectations are significant determinants of inflation expectations.[26] On average, larger, older, and exporting firms tend to have lower inflation expectations. Higher leverage is associated with higher inflation expectations, possibly indicating

[24]This finding contrasts with evidence from low-inflation environments, where firm managers tend to be less knowledgeable about recent aggregate inflation and monetary policy, as shown in Candia et al. (2024). In high-inflation settings, however, increased attention to inflation may lead to greater awareness, as suggested by Korenok et al. (2022) and Pfauti (2024). See Pfajfar and Roberts (2022) to see how attention changes the elasticity of inflation to economic conditions.

[25]While the sector or location of a firm should not theoretically affect aggregate inflation expectations, differences in production costs or living expenses may influence these expectations, following the logic in Andrade et al. (2022).

[26]The substantial sectoral heterogeneity in producer price inflation, driven by differences in production costs, is also partially reflected in firms' expectations.

that firms with elevated expectations are more likely to increase debt, anticipating that inflation will erode the real value of their liabilities.[27] There is also a significant association between economic expectations and inflation expectations: firms that are more optimistic about overall economic activity tend to have lower inflation expectations, reflecting a stagflationary perspective of firms. Similarly, firms' expectations for their own production volume growth are negatively related to higher inflation expectations. Lastly, inflation expectations are positively correlated with nominal variables, such as firms' own sales price and unit cost expectations. We provide causal evidence for the relationship between optimism/pessimism and inflation in Section-5.

3.2 Balance Sheet, Credit Registry, Employment, Sales and Foreign Exchange Transactions Data

We utilize a variety of administrative datasets in addition to the BTS and survey data. Our analysis is based on five primary data sources: individual firm-level monthly flow credit data from the Banking Regulation and Supervision Agency, monthly stock credit data from the Credit Registry of the Turkish Banking Association, annual firm balance sheets, income statements, and monthly sales data from the Revenue Administration, and monthly employment and wage data from the Social Security Institution.[28] Additionally, we incorporate firm-level data on monthly foreign exchange (FX) market transactions collected from banks operating in Türkiye, which provides high-frequency data on all FX transactions carried out by non-financial firms. Our analysis integrates these diverse datasets, sourced from various organizations, into a comprehensive dataset. This integration is achieved using unique firm IDs, ensuring that the datasets are exclusive to individ-

[27] Recently, Schnorpfeil et al. (2023) documented that in Germany, fewer than 10% of households are aware of the debt-erosion effects of inflation. Firms, however, may possess greater awareness of inflation's impacts, as they tend to have more accurate expectations and perceptions compared to households. Furthermore, in high-inflation environments, firms are likely to be better informed about the potential consequences of inflation.

[28] The data provided by these institutions are processed by the CBRT using unique firm IDs to ensure consistency across datasets. Moreover, firm balance sheets, income statements, and employment data can be accessed at the Entrepreneur Information System (EIS) laboratory of the Ministry of Industry and Technology. It is important to note that the EIS includes data for the entire population of firms in Türkiye, excluding those in the public and financial sectors. The dataset does not contain information on unregistered firms.

ual firms and consistent across all sources.

The Balance Sheet and Income Statement data provided by the Revenue Administration covers the entire population of Turkish firms, including both incorporated and unlimited entities operating in Türkiye.[29] This comprehensive dataset includes annual balance sheets and income statements, prepared in accordance with Turkey's Tax Procedure Law, spanning from 2009 to the most recent available year, 2023.[30] It allows for detailed observation of sub-items related to assets and liabilities, as well as key indicators such as firm leverage and liquidity, shedding light on firms' financial constraints. Additionally, the Revenue Administration supplies the data on firm-to-firm transactions, specifically for invoice values exceeding 5000 TL.[31] This dataset provides granular information on transactions between domestic firms. By aggregating the detailed monthly sales data from firm-to-firm transactions, we calculate each firm's total monthly sales.

The second and third data sources, collectively referred to as the Credit Registry, are compiled from two distinct government entities. Firm-bank-level monthly stock credit data is provided by the Turkish Banking Association, offering detailed insights into firm-bank relationships, including loan maturity and currency denomination. In addition, firm-level flow credit data is obtained from the Credit Registry of the Banking Regulation and Supervision Agency. This dataset includes firm-bank-level monthly flow credit amounts, interest rates, maturity, and currency denomination. Non-performing loans (NPLs) and non-cash loans are excluded, and the analysis is restricted to active cash loans only.[32] Lastly, we limit our examination to flow loans denominated in Turkish Lira, excluding all foreign currency-denominated loans, while including all foreign currency-denominated credits in the outstanding credits.

As the fourth data source, the Social Security Institution (SSI) in Türkiye provides monthly

[29] Incorporated firms are required to submit balance sheets and income statements in accordance with Turkey's Tax Procedure Law. Unlimited firms, which operate under the personal income tax regime, are only required to submit these reports if they exceed a specified size threshold.

[30] The annual control variables derived from the balance sheet and income statement are based on data from the year 2023.

[31] This amount is approximately 150 dollars in 2024.

[32] The Credit Registry also tracks default events, particularly those where firms delay loan payments by 90 days or more, which are classified as non-performing loans (NPLs).

matched employer-employee data, offering detailed wage information for individuals across firms adhering to the balance sheet principle. Average wages are calculated by dividing the total monthly wages paid by firms by the number of their employees. Monthly employment figures are derived by counting the total number of individuals employed by each firm during a specific month.

Lastly, data on spot foreign exchange (FX) market transactions is sourced from banks operating in Türkiye. This dataset offers high-frequency (daily) information on all spot FX buying and selling transactions conducted by firms. Starting in June 2024, firms in Türkiye are required to exchange 30% of their export revenues with the central bank, down from the previous rate of 40%. For this analysis, export revenue sales have been excluded, focusing instead on the effects of firms' inflation expectations on other net currency purchases and sales.[33]

4 Effects of Information Treatments on Expectations

The information RCT is designed to influence firms' inflation expectations by delivering targeted information. Each group in the sample is randomly given a publicly available piece of data regarding professional forecasts of inflation, the CBRT's forecasts for 2024 and 2025, or the CBRT's inflation target.[34] Each group receives one of the following statements:[35]

Treatment 1: *"According to the results of the Market Participants Survey for May 2024: The participants' expectation for the Consumer Price Index (CPI) 12 months from now is 33.21%. In other words, professionals expect general prices to increase by 33.21% over the next 12 months."*

Treatment 2: *"According to the Central Bank of the Republic of Turkey's Inflation Report for May 2024: The Central Bank predicts that annual inflation will be 38% by the end of 2024. In other words, the Central Bank expects general prices to increase by 38% in 2024."*

Treatment 3: *"According to the Central Bank of the Republic of Turkey's Inflation Report for*

[33] Additionally, firms with foreign currency loans but insufficient foreign currency positions may engage in currency purchases. To account for this, the analysis includes firms' foreign currency loans over the past year and their foreign currency positions as control variables when examining currency purchases and sales.

[34] Each group consists of approximately 250 observations. Questions about price and wage changes over the past 12 months are asked before the treatment, while all other questions are asked post-treatment.

[35] The selection of firms into treatment is random. See Table-B1 for further details.

May 2024: The Central Bank predicts that annual inflation will be 14% by the end of 2025. In other words, the Central Bank expects general prices to increase by 14% in 2025."

Treatment 4: *"Within the framework of the inflation targeting regime, the Central Bank's inflation target is 5%. In other words, the Central Bank aims for the general price level to rise by approximately 5% annually in the medium term."*

After providing information to each treatment group (with the control group receiving none), respondents were asked several follow-up questions. These included their quantitative expectations for aggregate inflation, producer price inflation, salary growth, unit cost growth, employment changes, price growth of the firm's main product, and both domestic and export sales.[36] The post-treatment questions enable us to assess the impact of the treatments on firms' expectations, alongside real variables collected from matched datasets in the subsequent months.

We begin by assessing the average impact of the information treatments on firms' inflation expectations. To do so, we regress the change in individual inflation expectations across each wave, from their pre-treatment expectations (derived from the firms' responses in the BTS survey conducted just a few days prior to our RCT survey), on treatment dummies, along with firm-level controls and sector-province fixed effects. Table-2 shows that the largest average treatment effect occurs for the group provided with professional forecasts. This group reports inflation expectations that are, on average, 6 percentage points (pp) lower after the treatment, with producer price inflation nearly 2 pp lower compared to the control group. Figure-2 displays how the inflation expectations are distributed before and after the treatment for each group and Figure-3 visually illustrates the level effect and the change in slopes, where the fitted lines for the treatment groups fall below that of the control group. The average treatment effect remains significant when analyzing post-treatment expectations one month after the RCT survey but disappears after two months. All types of information work similarly on average, including information on the official inflation

[36] See Appendix-A for the full list of questions.

target of 5%—a stark contrast to the realized annual inflation of 75%.[37] The persistence of the impact is similar across groups, with the effect diminishing after two months.[38] This suggests that, in a high inflation environment, while information RCTs successfully generate exogenous changes in expectations, the effects fade within two months—similar to findings in Coibion et al. (2020), although in their case, inflation was low and around 2%.[39]

After documenting the average treatment effect, the key to assessing how inflation expectations affect firm-level variables in this setting is identifying variation in inflation expectations at the firm level. The RCT design includes information treatments that provide firms with data on professional inflation forecasts, the official inflation target, and the CBRT's predictions, thereby creating exogenous variation in their expectations. To evaluate the impact of these information treatments on expectations, we estimate the following model:

$$\text{Posterior}_i = \alpha_0 + \beta_0 \text{Prior}_i + \sum_{j=1}^{4} \beta_j \times I\{i \in \text{Treat } j\} \times \text{Prior}_i + \sum_{j=1}^{4} \alpha_j \times I\{i \in \text{Treat } j\} + \gamma X_i + \varepsilon_i, \quad (1)$$

where i denotes the respondent in the firm, Prior_i denotes the firm's prior (pre-treatment) inflation expectation, Posterior_i refers to the firm's posterior (post-treatment) inflation expectation.[40] The indicator variable $I\{i \in \text{Treat } j\}$ takes the value 1 if respondent i belongs to treatment group j. Since the control group is excluded from the indicator variable, α_j and β_j measure the effects relative to the control group. X_i represents control variables such as firm size (measured by employment), sector, region, exporter status, and leverage.[41] To handle outliers, we employ Huber-robust regressions (Coibion et al., 2024). Huber-robust regressions reduce the influence of

[37] The CBRT officially announced inflation targeting as the primary monetary policy framework in 2006. Trust in the central bank might be an important mediating factor in how firms respond to information treatments; however, due to the sensitivity of the issue, this information was not collected.

[38] The effects on decision-making last for a longer period, extending up to four months. This difference may be due to individuals modifying their plans in response to the treatment and maintaining those plans, even as they gradually lose recall of the specific information that initially influenced their decisions.

[39] In a high and volatile inflation environment, a constant influx of new information may cause the impact of older information to diminish.

[40] We also apply the same model to expectations regarding producer price inflation.

[41] Including controls only affects the precision of estimates since treatment assignment is random Coibion et al. (2023b).

outliers, with some extreme outliers receiving a weight of zero.

With this specification, which is widely used in the literature, it is possible to assess the effectiveness of information treatments in a Bayesian learning framework by regressing the posterior belief on the prior belief. The coefficient β_0 captures the strength of the prior and is expected to be 1 for the control group, as no new information is provided, while α_0 is expected to be 0. In theory, since the treatment provides publicly available information, under the full-information rational expectations hypothesis, even treated groups are expected not to update their priors upon receiving the information, and $\beta + \beta_j$ should equal 1. However, for the control group, the slope coefficient is estimated to be 0.81, which might be due to noise in respondents' answers and some mean reversion in their responses (Coibion et al., 2023b). Lastly, the coefficients α_j reflect level effects and can be either positive or negative, depending on how the signal compares to the initial belief.

The treatments are successful in generating significant exogenous variation in firms' inflation expectations, as shown in Table-3, for both CPI and PPI inflation, with very similar estimated coefficients.[42] The interaction term captures the strength of the information provided to the treatment groups. In a Bayesian learning framework, this implies that the treatments reduce the weight of priors and increase the weight of the signals (treatments) received. As a result, treated groups significantly revise their beliefs compared to the control group, by assigning a lower weight to their priors. Consequently, the coefficients on prior beliefs, $\beta_0 + \beta_j$, for these treatments range between 0.53 and 0.69.[43] Figure-4 shows how inflation expectations move right after the treatment for each treatment group, where the deviation from the control group signals the effectiveness of the information treatments.[44] Providing firms with information about professional inflation forecasts,

[42] Table-4 shows the impact does not disappear after the treatment. The impact is particularly still significant one month after the treatment. Regarding the impact on inflation uncertainty, since pessimistic and optimistic forecasts are not collected in regular BTS surveys, we were unable to calculate the prior standard deviation and instead relied on the prior mean.

[43] We conduct the same regression using midpoint estimates instead of the implied mean obtained by fitting a triangular distribution to the best, optimistic, and pessimistic forecasts. The results remain robust, as shown in Table-G1. Additionally, when the control is removed, the results remain consistent, as expected under successful randomization of groups, as demonstrated in Table-G2.

[44] Figure-C1 displays the impact is similar for producer price inflation expectations.

CBRT's inflation forecasts, and the official inflation target significantly influences their aggregate inflation expectations. The strongest effect is observed in the first group, which received information on market participants' expectations, with an estimated β_1 of -0.27.[45] Information about CBRT's one-year-ahead forecasts is similarly effective, though forecasts for two years ahead are less impactful, as indicated by an estimated β_3 of -0.12, suggesting that longer-term forecasts are less effective in reducing next 12-month inflation expectations. Information about the official 5% target also works, though its impact is smaller compared to the first two treatments.[46] Overall, these treatments serve as effective instruments for identifying the causal impact of inflation expectations on firms' outcomes, utilizing the matched datasets mentioned earlier, along with macroeconomic and firm-level expectations.[47]

Before examining the impact of inflation expectations on firms' decisions, we calculate the ratio $\frac{\beta_j}{\beta_0}$ (the scaled change in slope), to quantify the degree of firms' inattention (Weber et al., 2023). This measure reflects the relative change in the slope of the relationship between prior and posterior inflation expectations for treatment groups compared to the control group. In economies where inflation is around 10%, the scaled change in slope is close to -0.1, meaning that people pay close attention to inflation. However, in Turkey, where inflation exceeds 70%, this ratio ranges from -0.16 to -0.33, depending on the treatment. In high-inflation environments, where the cost of inattention is significant, firms tend to be more attentive to inflation dynamics. Nevertheless, due to the considerable volatility of inflation, firms are not entirely confident in their forecasts (despite being well-informed about past inflation as shown above) and can still learn from publicly available information, which changes more frequently compared to stable inflationary settings.

[45] Since the expected rates in different pieces of information vary, it is not possible to definitively claim whether professional forecasters are more credible than the CBRT or not.

[46] This provides additional empirical evidence against the full-information rational expectations (FIRE) assumption, even in a high inflation environment where agents are expected to be more responsive to economic news.

[47] Firms in high-inflation environments are generally well-informed about inflation statistics. Weber et al. (2023) demonstrates an increasing degree of attention to inflation through RCTs conducted in countries with higher inflation levels, with the highest rate observed in Uruguay, where inflation averaged 8% and remained relatively stable. In contrast, the Turkish context is characterized by both higher and more volatile inflation. While firms tend to be more attentive to inflation statistics during periods of high inflation, the volatility may create additional opportunities for learning from publicly available information.

This uncertainty allows the treatments to remain effective in generating exogenous variation in expectations, with the scaled change in slope being larger than anticipated by Weber et al. (2023) due to the heightened volatility.[48] After documenting the impact of our treatments on inflation expectations, we proceed to analyze the causal effect of exogenous variation on firms' outcome variables and their expectations.

5 Causal Impact on Firms' Decisions and Expectations

We can now assess the impact of exogenous variation in the first moment of inflation expectations, induced by the treatments, on firms' outcomes, decisions, and expectations. First, we estimate the effect on firm-level expectations, decisions and realized outcomes using the following regression model:

$$Y_{i,t+h} = \beta_1 \text{Post}_{i,t}^{mean} + \beta_2 \text{Prior}_{i,t}^{mean} + \gamma X_{i,t-1} + \delta_s + \phi_p + \varepsilon_{i,t+h}, \tag{2}$$

where $Y_{i,t+h}$ represents the quantitative expectations for firm i's wages, unit costs, and own prices over the next 12 months, as well as realized outcome variables such as credit amount, credit cost, foreign currency purchases, employment, wages, purchases of goods and sales. Quantitative expectations are collected during the RCT survey, while the realized outcome variables are tracked over a horizon h, ranging from the time of the RCT survey (zero months) up to 4 months post-treatment. $\text{Post}_{i,t}^{mean}$ is the posterior mean inflation expectation of firm i (measured right after the information treatment) and Prior_i denotes the prior inflation expectation of firm i (obtained from the May BTS). $X_{i,t-1}$ is the vector of firm-level control variables. We begin with analyzing the pass-through of inflation expectations on wage, price, and unit cost expectations. When the outcome variable is expectations, $X_{i,t-1}$ includes age, leverage, employment, exporter status, and

[48] Another factor is that β_0 is estimated to be 0.81, which is expected to be closer to one. However, in our case, it is likely a noisy estimate because prior expectations were obtained from the May BTS, conducted approximately a week before our RCT experiment.

prior inflation expectations regarding price and wage growth (measured just before the information treatment). δ_s and ϕ_p are sector and province fixed effects, respectively. [49] Following Kumar et al. (2023), we instrument for the posterior belief about the expected inflation using the treatment dummies and their interactions with firms' priors as follows:

$$\begin{aligned} \text{Post}_{i,t}^{mean} = \alpha_0 + \sum_{j=1}^{4} \beta_j \times I\{i \in \text{Treat } j\} \times \text{Prior}_{i,t}^{mean} \\ + \sum_{j=1}^{4} \alpha_j \times I\{i \in \text{Treat } j\} + \varepsilon_{i,t}, \end{aligned} \tag{3}$$

The aim is to generate exogenous variation in inflation expectations to identify the causal impact of these expectations on firms' economic expectations and outcome variables. The instrument leverages both the average effect of treatments on expectations and the slope effect on priors through the interaction term. As discussed earlier, we run a Huber regression for the first stage and use Huber weights to control for outliers, and also apply a jackknife procedure similar to the one used in Coibion et al. (2024).[50]

The results from the baseline estimation are presented in Table-5. Before proceeding with the analysis, it is important to note that the information treatments generate substantial variation in the first stage, with the first-stage Kleibergen-Paap (KP) Wald statistic for inflation forecasts ranging between 25 and 50.[51] This indicates that the RCT method successfully creates strong exogenous variation in inflation expectations, enabling the identification of their causal effects on firms' expectations, borrowing behavior, and real outcomes.

[49] We control for sector and province fixed effects to account for unobserved heterogeneity that could influence how inflation expectations affect firms. Sector fixed effects help capture industry-specific inflation sensitivities, as different sectors may experience varying input costs, pricing power, and exposure to macroeconomic conditions. Similarly, province fixed effects control for regional differences in inflationary pressures, such as local economic conditions, wage growth, or price dynamics, which may vary across regions. By including these fixed effects, we can better isolate the effect of inflation expectations on firm outcomes, removing the influence of sector- and region-specific factors.

[50] Please see the paper for further details.

[51] These F-statistics are comparable to those reported in Coibion et al. (2023b), despite the different context. We report the Kleibergen-Paap Wald statistic (Kleibergen and Paap (2006)) for the first stage as a robust alternative to the Cragg-Donald (Cragg and Donald (1993)) Wald statistic.

5.1 Firms' Expectations and Pass-Through

Table-5 shows that the impact of firms' inflation expectations on their wage, unit cost, and price expectations is significant, particularly for small firms compared to large ones. A 1 percentage point (pp) increase in inflation expectations leads to a 0.58 pp rise in wage growth expectations, a 0.53 pp rise in unit cost growth expectations, and a 0.55 pp rise in price growth expectations over the next 12 months.[52] This suggests that the pass-through from firms' inflation expectations to wage expectations is sizable and significant in a high inflationary environment. The strength of this pass-through is much higher compared to the estimated levels of around 0.25 in low inflation environments, as documented by Hajdini et al. (2023); Abberger et al. (2024); Baumann et al. (2024), and contrasts with the lack of a significant link between wage and price expectations observed by Savignac et al. (2024). This evidence shows that while pass-through is nearly non-existent or incomplete in low-inflation environments, it likely increases as inflation rises: in an environment of very high inflation, around 70%, the pass-through rate from aggregate inflation expectations to firms' wage and price growth expectations becomes nearly 60%.[53] This highlights that the wage-price spiral, particularly driven by expectations, is more pronounced in high-inflationary settings compared to low-inflation contexts.[54] Therefore, managing inflation expectations in a high-inflation environment is crucial for controlling inflationary pressures and wage-price spirals. The cost of losing the inflation anchor is greater in such environments due to the higher pass-through rates. Further, we also document that the pass-through is actually larger for small firms compared to large firms, suggesting a significant size-dependent hetero-

[52] This is consistent with the high correlation visually documented in Figure-D4, which is essentially absent in low-inflation contexts. Firms with higher price growth expectations tend to have higher wage growth expectations, and their perceptions of past wage growth are also highly correlated with their perceptions of past price growth. Regarding wages, although Turkey does not have an explicit wage indexation system, the minimum wage is highly binding, with approximately 40% of the workforce earning wages close to the minimum.

[53] This is consistent with aggregate time-series evidence from Galı and Gertler (1999), which documents the significant role of future inflation in price-setting over the period 1960-1997, during which the average inflation rate was 4.7%.

[54] The difference between the pass-through of unit costs and price growth expectations is consistent with recent evidence indicating that manufacturers adjust prices more quickly than retailers (Alvarez et al., 2024), a trend likely more pronounced during high inflation periods, such as the COVID-19 pandemic.

geneity. Lastly, in high inflation environment, perceived wage growth and price growth influence expected wage and price growth to some extent; however, aggregate inflation expectations play a more significant role compared to perceptions of past growth rates.

Higher pass-through rates in a high-inflation environment are consistent with Calvo pricing (Werning, 2022; Abberger et al., 2024). In a model without price indexation, reset-pricing behavior is entirely forward-looking. As prices become more flexible, the pass-through rate of inflation expectations to prices increases and, in the limit, reaches 1. Basically, in the fully flexible case, all firms can continuously adjust prices, raising them one-for-one with short-term expectations.[55] As inflation rises, the frequency of price adjustments also increases, as empirically demonstrated by Alvarez et al. (2019). This implies that prices tend to become more flexible in high-inflation environments. Figure-D5 corroborates this observation, showing that firms with higher inflation expectations plan to update their prices more frequently and anticipate greater price increases for their main product over the next 12 months. Consequently, pass-through rates are expected to be higher in high-inflation environments, consistent with the theoretical implications of Calvo pricing.

While pass-through rates are nearly 1 for smaller firms, they are more moderate for larger firms. Several factors may account for this difference. First, smaller firms may have more flexible pricing mechanisms, resulting in higher pass-through rates.[56] Second, firms might associate higher inflation with a weaker economic outlook (Table-E1) and therefore refrain from fully passing aggregate inflation expectations onto prices, anticipating a potential decline in demand.[57] However, smaller firms often operate with tighter markups, which limits their ability to absorb cost increases without raising prices. This is consistent with Figure-D6, which descriptively indicates that smaller firms expect to raise their own prices more when inflation expectations are high, aligning with the causal evidence in Table-5. Lastly, smaller firms may lack detailed knowledge of

[55] In contrast, the pass-through rate is zero if prices are fully sticky, representing the opposite extreme.

[56] A firm is classified as small if it has fewer than 250 employees.

[57] Figure-D6, Panel b, shows descriptively that firms with higher inflation expectations are less likely to increase markups under high inflation, as they associate higher inflation with lower economic activity.

pricing dynamics and instead rely more heavily on aggregate inflation as a key determinant of their pricing decisions, leading to adjustments that are more directly aligned with inflation expectations.

Another important aspect is how firms link inflation expectations to their views on the economic outlook. Evidence from Coibion et al. (2020) suggests that this relationship may be state-dependent: Italian firms tend to associate higher inflation with weaker economic activity during normal times, reflecting pessimism, but perceive higher inflation more positively during zero lower bound periods, where it is linked to increased economic activity. Our findings indicate that in high-inflation environments, elevated inflation expectations are associated with more pessimistic views of the broader economic outlook, as firms often correlate higher inflation with reduced economic activity. This pessimism likely stems from the challenges firms face in such contexts, where uncertainty about future costs and revenues complicates planning for investments, pricing, wage-setting, and contracts. Firms may also anticipate that inflation reduces consumers' purchasing power, leading to weaker demand.[58] Although the expectations reported in Table-E1 are quantitative, the economic outlook expectations are qualitative, categorized as 0 for optimism, 1 for neutrality, and 2 for pessimism. A one-standard-deviation increase in inflation expectations (20 pp) is associated with a 0.48-point rise in pessimism regarding aggregate economic activity on this scale. Consequently, a two-standard-deviation increase in expectations would shift a firm's outlook from neutral to pessimistic about overall economic activity. This effect is slightly larger for small firms, likely due to their greater exposure to economic cyclicality compared to larger firms.[59]

In addition to its adverse impact on aggregate economic expectations, inflation expectations also significantly influence firms' outlooks on their own business prospects, albeit to a lesser extent. Specifically, a one-standard-deviation increase in inflation expectations corresponds to a 0.28-point increase in pessimism about their own business activity, with the effect being more

[58] Wages cannot keep up with inflation due to their stickiness (income effect), and Schnorpfeil et al. (2023) recently document that households are aware of the nominal asset erosion effects of inflation (wealth effect).

[59] See Crouzet and Mehrotra (2020) for related literature.

pronounced among smaller firms. This finding aligns with the broader literature, such as Roth and Wohlfart (2020), which shows that individuals who update their macroeconomic outlook tend to extrapolate these expectations to their personal economic circumstances. Similarly, our results suggest that firms extend their macroeconomic pessimism to their expectations about their own business conditions.[60] In addition, a one standard deviation increase in inflation expectations (equivalent to a 20 percentage point rise) leads to a 0.24-point increase in firms' expectations of tighter credit conditions, even after controlling for their prior borrowing cost expectations. This effect is more pronounced for smaller firms compared to larger ones, highlighting the critical role that inflation expectations play in shaping firms' perceptions of the credit environment. When firms expect inflation to rise, they may foresee tighter lending conditions from banks, as lenders respond to the risks posed by higher inflation, such as diminished real returns on loans and potential economic instability. Smaller firms, which typically face higher borrowing costs and more limited access to finance, are especially sensitive to changes in credit conditions. For these firms, heightened inflation expectations amplify concerns about tighter credit, as they are more vulnerable to increasing interest rates or reduced credit access. In contrast, larger firms, with more established credit relationships and greater financial flexibility, can better manage such shifts, resulting in a smaller effect on their expectations of credit conditions. Lastly, the descriptive evidence presented in Figure-D7 aligns with the causal impact, indicating that firms with higher inflation expectations tend to exhibit greater pessimism about both the broader economic outlook and their own firm's prospects, while also anticipating lower sales growth. Overall, this stagflationary perspective aligns with the negative impact of expectations on firms' real outcomes, as demonstrated in the next section.

[60] The results align with recent behavioral literature (Enke and Graeber, 2023; Enke et al., 2024), which suggests that decision-makers who are less uncertain about the optimality of their choices tend to make more elastic decisions. In our context, firms operating in a high-inflation environment are less likely to doubt their near-term expectations after observing significant changes in expected inflation. As a result, the pass-through rates are higher, indicating that firms with greater confidence in their expectations make more elastic adjustments to firm-level decisions. In short, since firms in high-inflation environments are acutely aware of the costs of not adjusting prices and wages, they are more likely to be certain about their future price and wage changes.

5.2 Borrowing Behavior of Firms

Since we can match the firms in the RCT survey with credit registry data, we are able to analyze their borrowing behavior before and after the treatment, and capture the dynamic causal effects. An exogenous change in inflation expectations can influence borrowing decisions through different channels, as discussed in Ropele et al. (2022):

1. Working capital channel: Firms anticipating higher inflation may reduce demand for short-term credit, as they expect to cut employment costs often funded by short-term credit lines.
2. Investment demand channel: Higher inflation expectations can lead firms to lower investment, reducing the need for long-term credit.
3. Precautionary reallocation channel: Firms may shift to short-term debt to better manage cash flow shocks in uncertain economic conditions.
4. Refinancing channel: To lock in current rates before inflation drives up future nominal interest rates, firms might refinance by taking on new long-term loans.

Using data from the credit registry and foreign exchange buying/selling administrative datasets, we adopt the following empirical approach. Let $Y_{i,t+h}$ denote the outcome variable for firm i at time $t+h$. To assess the impact of inflation expectations formed before the treatment period, we regress these economic outcomes on pre-treatment inflation expectations, as specified in Equation (2).[61] The set of controls includes expectations of economic variables such as the firm's outlook on sector conditions over the next three months, firm-specific employment growth in the following three months, and the firm's expectations about production volume over the same period. These controls are taken from time $t-1$, which is the pre-treatment month (April 2024). Additionally, we control for the annual leverage ratio, employment, and capacity utilization ratio. The vector of controls further includes annual total credits and the weighted average credit score when the outcome relates to credit market outcomes, and annual total foreign currency buying

[61] This specification can be viewed as a local projection (LP-IV), in line with Jorda (2005), as we estimate the causal effect of an exogenous change in inflation expectations at time t on each outcome variable at time $t+h$.

and selling when the outcome concerns foreign exchange transactions. These variables allow us to account for firms' expectations, enabling the coefficient to be interpreted as the response of the outcome variable to an exogenous surprise movement in inflation expectations. Lastly, each outcome variable is defined as the log difference between the post-treatment and pre-treatment periods (i.e., $\log\left(\frac{y_{t+h}}{y_{t-1}}\right)$). We utilize the information treatment at time t as an instrument for the inflation expectations that follow at time t, as shown in Equation-(3).

Table-6 demonstrates that firms with higher inflation expectations demand more credit, but this demand is primarily for long-term credit rather than short-term credit, as shown in Table-7. A 10 percentage point (pp) increase in inflation expectations, which corresponds to a 0.5 standard deviation change, leads to a 3 pp rise in new credit usage by firms.[62] This occurs as firms shift their borrowing from short-term to long-term credit; consequently, while we observe a significant increase in long-term credit, there is a corresponding decline in short-term credit. This suggests that the precautionary reallocation or investment demand channels likely do not play a role here. However, the refinancing channel might explain this behavior, as the primary mechanism at play. Firms with higher inflation expectations, induced by the treatments, may seek to lock in current interest rates before they rise or believe that higher inflation will erode the real value of debt. As a result, increasing the maturity of their debt could lower their overall financing costs in the long run. In fact, as shown in Table-6, these firms end up paying lower interest rates on their loans. Specifically, a 10 pp increase in inflation expectations leads to a 3 pp decline in total borrowing costs. This shows that firms are willing to take on more credit, and with lower costs by increasing the maturity of debt, when their inflation expectations increase.[63] Our findings in a high inflationary environment align with those documented in a low inflation environment by Ropele et al. (2022) in one aspect—firms with higher expectations increase credit demand- but differ in another: in our case, firms increase their loan demand, primarily for long-term credit with a significantly lower borrowing cost, providing evidence for the refinancing channel. Lastly,

[62] Throughout the analysis, we interpret the results using a 10 percentage point change in inflation expectations, which corresponds to a 0.5 standard deviation change.

[63] In Turkey, loans typically have fixed interest rates, with the possibility of refinancing as interest rates fluctuate.

the working capital channel might also play a role, as an exogenous increase in inflation expectations could lead to a decline in employment, as shown in Table-9, prompting firms to reduce their use of short-term credit lines, which are typically used to fund employment costs. In fact, the cost of borrowing for short-term credit decreases (Table-7), likely due to lower demand, providing some evidence for the working capital channel. However, since the total amount of credit does not decrease and even shows an increase, this channel is unlikely to be a significant factor in this case. In short, higher inflation expectations prompt firms to extend their debt maturities and lock in rates on long-term credit, even though this may result in a slightly higher borrowing cost for long-term credit due to higher demand compared to the control group.[64] However, due to the shift from short-term to long-term financing, the average weighted cost of borrowing has actually decreased, since the cost of long-term financing is, on average, 4 percentage points lower than that of short-term financing.[65] As documented in Table-6, firms with elevated inflation expectations have higher credit demand at a lower average cost (due to the compositional shift). Table-7 further indicates that the increase in demand is driven by long-term credit, as reflected by the higher incurred costs on long-term credit and the decline in short-term credit, which is accompanied by a lower incurred cost for short-term financing.[66]

The surge in demand for new long-term credit tends to drive up interest rates associated with this type of borrowing. While this increase may raise borrowing costs to some extent, the transition from short-term to long-term credit typically results in lower average interest rates, as short-term credit lines generally carry higher rates. Consequently, despite the substantial impact of higher demand on the total amount of credit, the overall effect on borrowing costs is negative due to these counteracting forces, with the compositional shift being the dominant factor. Furthermore, as firms anticipate higher inflation, they are more likely to expect slightly elevated interest

[64] As a robustness check, we find similar results in the analysis conducted using cumulative flows over the four months following the treatment, as presented in Table F3.

[65] The average cost of short-term borrowing is 52%, while the average cost of long-term financing is 48% as of May 2024.

[66] The same directional changes in both quantity and price can be interpreted as a demand shift, assuming supply remains constant.

rates on their credit; however, the impact of the maturity lengthening remains the dominant force on the cost of borrowing. Overall, by lengthening debt maturity in a high inflation environment, firms reduce the frequency of debt rollovers, making them less susceptible to market volatility. This strategy also provides more predictable cash flows and allows firms to take advantage of fixed interest rates by locking in lower rates.

Since the data can be matched with high-frequency foreign exchange transaction data, an examination of firms' portfolio allocation reveals that those with heightened inflation expectations tend to increase their foreign currency purchases while consistently reducing their foreign currency sales in the FX market. This behavior provides causal evidence for the common risk-management behavior observed in emerging markets, where firms accumulate more foreign currency, such as US dollars, to hedge against inflation risks in their domestic currency (Allayannis and Ofek, 2001). As Table-6 shows, the impact is substantial: a 10 percentage point increase in inflation expectations leads to a 0.6 percentage point increase in foreign currency purchases and a 1.6 percentage point decrease in foreign currency sales in the FX market.

Lastly, in Table-8, we analyze the impact on outstanding credit rather than credit flows and find similar results. An increase in inflation expectations leads to a significant rise in long-term outstanding credit, accompanied by a slight decline in short-term outstanding credit. Moreover, the total increase in credit is driven by the rise in lira-denominated outstanding credit, while we observe a decline in FX-denominated credit. This pattern suggests that, with heightened inflation expectations, firms perceive borrowing in lira as relatively cheaper than borrowing in foreign currencies due to the debt-erosion effects of domestic inflation on local currency borrowing. Firms anticipating higher inflation are likely to lock in current fixed rates on lira-denominated credit, expecting that inflation will reduce the real value of their debt over time. Consequently, we observe a shift in the composition of liabilities, with an increased share of lira-denominated credit. This behavior may also reflect the expected pass-through between inflation and currency depreciation, which could lead firms to view FX-denominated credit as costlier if they anticipate substantial

depreciation in the domestic currency.[67] Such dynamics are particularly critical in emerging markets with significant dollarization, as the interplay between inflation expectations and currency expectations can influence the composition of both assets and liabilities.

Overall, the results demonstrate that nearly all effects remain significant up to the fourth month following the treatment. While the effects on decisions persist, our findings in the previous section indicate that the impacts on expectations diminish substantially within two months. This divergence could arise because individuals revise their plans in response to the treatment and subsequently adhere to those plans, even as they gradually forget the specific information that initially influenced their decisions.

5.3 Firm Performance and Real Outcome

Finally, we evaluate the impact of firms' inflation expectations on real outcome variables. We estimate Equation-(2) using a set of controls that incorporates expectations of various economic variables while utilizing the information treatment at time t as an instrument for the inflation expectations observed at that same time. Specifically, we incorporate the firm's outlook on sector conditions for the next three months, anticipated firm-specific employment growth during the same period, and expectations regarding production volume. These controls are derived from time $t-1$, which corresponds to the pre-treatment month of April 2024. In addition, we account for the annual leverage ratio, current employment levels, and the capacity utilization ratio. Furthermore, when the outcome pertains to employment, wages, sales, or purchases, the vector of controls also includes the previous year's annual data for these variables.

Table-9 indicates that an exogenous increase in firms' inflation expectations significantly affects real sales growth or employment growth. This finding offers additional empirical support for the hypothesis that firms adopt a stagflationary view of the economy, associating higher infla-

[67] Delgado et al. (2024) shows the significance of pass-through between inflation expectations and nominal exchange rates.

tion expectations with lower economic activity.[68] With a more pessimistic outlook on the future, firms may be hesitant to increase employment or production, a trend that is further supported by the results presented here. Notably, the impact is actually significantly negative: a 10 percentage point increase in inflation expectations corresponds to a 0.5 percentage point decline in employment and a 0.2 percentage point decline in sales within the months following the treatment. This is consistent with firms becoming more pessimistic as their inflation expectations rise, as demonstrated in Table-E1.[69] Conversely, the impact on wages is positive, approximately 0.7 percentage points. Given that wages tend to be sticky, this effect has only been partially reflected in the short-run.

The positive and significant impact of inflation expectations on firms' purchases indicates that a 10 percentage point increase in these expectations results in a 0.1 percentage point rise in a firm's purchasing activity from upstream firms, as documented in Table-9. This behavior can be attributed to several key channels. First, when firms anticipate higher future prices, they often decide to buy more goods in advance to avoid paying more later, effectively optimizing their inventory based on expected costs (inventory management channel). Additionally, since inflation generally raises input prices, firms may choose to secure necessary materials earlier, stabilizing expenses and avoiding later increases that could disrupt budgeting and profitability (input costs channel).[70] Furthermore, firms frequently adjust their purchasing strategies according to inflation forecasts; if they expect sustained inflation, they're likely to increase orders proactively, foreseeing ongoing price rises (market expectations channel). However, while price pressures may create a positive impact on purchases, the overall effect remains economically small, as firms si-

[68] Firms' interpretation of inflation might be state-dependent (Coibion et al., 2020; Baumann et al., 2024), but the current view is consistent with supply-driven fluctuations in the economy. For evidence on the household side, see (Kamdar, 2019; Coibion et al., 2023a; Binetti et al., 2024; Han, 2024; Jiang et al., 2024).

[69] Table-E1 presents the causal impact of inflation expectations on the economic outlook, while Figure-D7 provides the descriptive evidence. Coibion et al. (2020) finds that Italian firms typically associate higher inflation with lower economic activity during normal periods, reflecting pessimism, but view higher inflation more optimistically during zero lower bound periods due to its association with increased economic activity. In the context of Türkiye's very high inflation, our findings consistently show that firms exhibit pessimism.

[70] Additionally, as inflation drives up costs across supply chains, firms may ramp up their purchasing efforts to lock in stable prices and ensure uninterrupted production, which can be interpreted as cost-push inflation channel.

multaneously reduce employment and sales. Overall, these finding suggest that an exogenous increase in inflation expectations, induced by information treatments, has a significant impact on the outcome variables such as employment, sales and B2B purchases.

6 Conclusion

Using an information RCT design, we create exogenous variation in inflation expectations within a high-inflation environment and document the effects of these expectations on firms decisions in a causal way. We demonstrate how inflation expectations of firms impact their own expectations, borrowing behavior, and real outcome variables. Specifically, we find that firms with higher inflation expectations anticipate paying higher wages, incur higher unit costs, and set higher prices for their primary products, with pass-through rates considerably higher than those observed in low-inflation environments. Furthermore, we document a negative impact on borrowing costs alongside a positive effect on borrowing amounts, indicating that firms are shifting from short-term to long-term financing by locking in current rates, as they believe that higher inflation will erode the real value of their debt. Additionally, we observe that, as a consequence of a stagflationary view on the economy, firms with exogenously higher inflation expectations experience lower employment and sales growth. However, they simultaneously increase purchases to mitigate pressure on marginal costs, anticipating that input prices will be higher in the future. Overall, the results demonstrate that RCTs are effective in creating exogenous variation in firms' inflation expectations, enabling causal identification of the channels discussed here. Further research could focus on how uncertainty in a high-inflation environment impacts firm-level outcomes.

Table 1: Descriptive statistics by treatment status

	Control		Treat #1		Treat #2		Treat #3		Treat #4		Full sample		Manufacturing firms	
Variable	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Net Sales (billion TL)	1.31	3.41	1.34	3.91	1.57	4.24	1.47	3.92	1.32	3.85	1.41	4.18	1.67	5.15
Assets (billion TL)	1.21	2.88	1.36	4.31	1.31	4.27	1.32	3.44	1.31	3.62	1.30	3.95	1.82	4.99
Capital (K) (billion TL)	0.25	0.72	0.34	0.42	0.27	0.91	0.23	0.71	0.21	0.62	0.26	0.76	0.32	0.89
Exports (billion TL)	0.41	0.19	0.45	0.24	0.46	0.31	0.52	0.27	0.48	0.29	0.47	0.21	1.17	4.09
Net Profit (billion TL)	0.81	0.17	0.87	0.34	0.88	0.29	0.88	0.27	0.89	0.30	0.87	0.29	0.89	1.81
Age	22.85	12.42	22.55	11.36	22.90	12.71	23.44	12.09	22.71	12.86	22.89	12.97	23.14	16.51
Number of Employees	615.17	910.86	637.65	842.25	624.49	886.26	662.75	851.02	621.67	798.04	632.18	874.21	649.83	1330.41
Prior Expectations														
CPI (implied mean)	58.63	18.23	62.48	18.73	59.14	16.65	58.61	17.82	59.31	17.56	59.55	17.56	-	-
PPI (implied mean)	58.45	20.09	60.28	20.05	57.91	18.81	58.99	20.18	57.25	18.82	58.19	19.29	-	-
Production Capacity Utilization	68.62	19.75	69.81	19.27	69.38	19.47	69.29	20.65	69.47	21.51	69.29	21.51	-	-
Posterior Expectations (RCT)														
CPI (posterior mean)	58.79	21.24	51.73	20.65	53.66	19.41	51.27	19.99	55.77	20.01	54.52	20.44	-	-
PPI (posterior mean)	55.66	28.18	50.52	22.12	51.84	18.09	49.18	19.69	52.15	19.79	51.93	19.79	-	-
Wage Expectations	41.82	19.22	38.22	19.31	37.62	21.09	38.25	18.84	39.94	18.99	39.19	19.04	-	-
Unit Cost Expectations	40.93	25.85	37.68	19.92	39.26	21.67	37.71	22.02	38.67	20.83	38.95	22.26	-	-
Price Expectations	33.86	21.12	30.88	20.56	30.81	20.96	30.12	22.36	32.19	21.12	31.75	21.41	-	-
No of obs	303		257		274		291		271		1,396		129,041	

Notes: The table provides descriptive statistics for various firm characteristics of the survey participants. The sample is randomly selected and reflects the population of firms accurately. The sample is representative of the population of firms in terms of key variables such as employment, sales, assets, capital, age and other relevant characteristics. Assignment to treatment and control groups is based on stratified random sampling by sector, employment, and prior inflation expectations. The manufacturing firm column represents the entire universe of economically active manufacturing firms, in accordance with Turkey's Tax Procedure Law, are required to maintain balance sheet and income statements (The BTS is a subset drawn from this larger universe of firms).

Table 2: Expectation Formation Process

	Outcome: Forecast Revision					
	Treatment		One Month after Treatment		Two Months after Treatment	
	(1) CPI	(2) PPI	(3) CPI	(4) PPI	(5) CPI	(6) PPI
T1 (SPF expectations)	-6.14***	-1.91***	-0.72***	-0.63***	-0.97	0.08
	(1.31)	(0.92)	(0.26)	(0.27)	(1.05)	(1.06)
T2 (CBRT 1-y ahead forecast)	-3.08***	-2.12***	-0.74***	-0.62***	0.16	0.56
	(1.24)	(0.87)	(0.29)	(0.28)	(1.02)	(1.03)
T3 (CBRT 2-y ahead forecast)	-4.75***	-3.79***	-0.67***	-0.59***	-0.62	-0.53
	(1.21)	(1.01)	(0.28)	(0.26)	(0.99)	(1.01)
T4 (Inflation Target)	-2.89***	-1.87***	-0.55***	-0.51**	0.68	0.86
	(1.22)	(0.91)	(0.27)	(0.27)	(1.03)	(1.04)
Firm Controls	✓	✓	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓	✓	✓
Province FE	✓	✓	✓	✓	✓	✓
R-Squared	0.58	0.56	0.28	0.26	0.17	0.18
Observations	1,181	1,181	1,160	1,160	1,151	1,151

Notes: The table presents the estimation results for the average treatment effect on both CPI and PPI expectations across each treatment group. The forecast revision is defined as the difference between posterior and prior inflation expectations ($\text{Posterior}_i - \text{Prior}_i$), measured immediately after the treatment, one month after the treatment, and two months after the treatment. Prior inflation expectations are based on May BTS firm data, while the posterior expectations are represented by the RCT survey in the first two columns, BTS June firm expectations for one month after the treatment, and BTS July firm expectations for two months after the treatment in the final two columns. The firm-level controls include age, leverage, employment, and production value. Notably, the effect disappears two months after the treatment. All regressions are estimated using the Huber robust method to account for outliers and influential observations. Robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 3: Treatment Effects on Expectations

	CPI		PPI	
	(1) mean	(2) variance	(3) mean	(4) variance
Revisions in beliefs immediately after treatment				
Prior mean	0.81***	0.05***	0.80***	0.04***
	(0.05)	(0.01)	(0.04)	(0.01)
Prior mean × T1	-0.27***	-0.01	-0.37***	-0.02***
	(0.07)	(0.01)	(0.07)	(0.01)
Prior mean × T2	-0.23***	-0.01	-0.29***	-0.01***
	(0.07)	(0.01)	(0.06)	(0.01)
Prior mean × T3	-0.12**	-0.02	-0.22***	-0.01
	(0.06)	(0.01)	(0.07)	(0.01)
Prior mean × T4	-0.13***	-0.03***	-0.18***	-0.02***
	(0.07)	(0.01)	(0.07)	(0.01)
T1 (SPF expectations)	10.13***	0.18	18.92***	1.23***
	(3.75)	(0.77)	(3.94)	(0.61)
T2 (CBRT 1-y ahead forecast)	10.52***	0.42	16.14***	0.21
	(4.01)	(0.74)	(3.71)	(0.62)
T3 (CBRT 2-y ahead forecast)	1.73	1.02***	9.96***	1.03***
	(3.95)	(0.61)	(3.76)	(0.58)
T4 (Inflation Target)	7.51***	2.05***	11.13***	1.29***
	(3.94)	(0.72)	(3.78)	(0.62)
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓
R-squared	0.72	0.41	0.74	0.40
Observations	1,181	1,181	1,181	1,181

Notes: The table reports estimation results for Equation-(1). The dependent variable, (Posterior$_i$), refers to CPI in Columns (1)-(2), and to PPI in Columns (3)-(4). The firm-level controls include age, leverage, employment, and production value. Mean and standard deviations are calculated based on triangular distributions. Four different treatments are applied. The mean and the standard deviation of prior inflation expectations are 58% and 18, respectively. All regressions are estimated using the Huber robust method to account for outliers and influential observations. Robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 4: Treatment Effects on Expectations after one and two months

	One Month after Treatment		Two Months after Treatment	
	CPI	PPI	CPI	PPI
Prior mean	0.59***	0.62***	0.65***	0.68***
	(0.05)	(0.04)	(0.02)	(0.02)
Prior mean × T1	-0.08***	-0.12***	-0.02	0.03
	(0.04)	(0.05)	(0.03)	(0.02)
Prior mean × T2	-0.11***	-0.13***	-0.01	0.03
	(0.05)	(0.05)	(0.03)	(0.03)
Prior mean × T3	-0.13***	-0.14***	0.01	-0.04
	(0.07)	(0.05)	(0.02)	(0.03)
Prior mean × T4	-0.06	-0.05	0.01	-0.03
	(0.07)	(0.06)	(0.02)	(0.03)
T1 (SPF expectations)	-7.14***	-6.10***	1.23	-1.21
	(3.41)	(3.06)	(1.58)	(1.71)
T2 (CBRT 1-y ahead forecast)	-6.31***	-6.92***	0.69	-1.01
	(3.11)	(3.06)	(1.67)	(1.66)
T3 (CBRT 2-y ahead forecast)	-8.96***	-5.99***	-0.59	1.29
	(3.54)	(2.97)	(1.48)	(1.73)
T4 (Inflation Target)	-3.42	-2.51	0.69	1.65
	(4.06)	(3.17)	(1.64)	(1.82)
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓
R-squared	0.71	0.68	0.66	0.67
Observations	1,160	1,160	1,151	1,151

Notes: The table presents the estimation results for Equation (1) one month and two months following the treatment. The posterior and prior are both represent the mean expectations for CPI and PPI. The firm-level controls include age, leverage, employment, and production value. Four different treatments are applied. The mean and the standard deviation of prior inflation expectations are 58% and 18, respectively. All regressions are estimated using the Huber robust method to account for outliers and influential observations. Robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 5: Effects of Inflation Expectations on Wage, Unit Cost and Price Expectations

	(1) All Sample	(2) Large Firms	(3) SMEs
	Panel A: Effect on Wage Expectations		
Posterior Mean	0.58**	0.48**	0.92***
	(0.25)	(0.24)	(0.27)
Prior Wage Growth Perception	0.25***	0.25***	0.21***
	(0.05)	(0.06)	(0.04)
First Stage F-stat (KP Wald)	50.17	24.21	24.91
R-squared	0.25	0.31	0.24
Observations	1,189	588	601
	Panel B: Effect on Unit Cost Expectations		
Posterior Mean	0.53***	0.50***	0.97***
	(0.18)	(0.20)	(0.30)
Prior Wage Growth Perception	0.10***	0.09**	0.13***
	(0.03)	(0.04)	(0.04)
First Stage F-stat (KP Wald)	49.91	24.65	24.27
R-squared	0.32	0.37	0.31
Observations	1,187	587	600
	Panel C: Effect on Price Expectations		
Posterior Mean	0.55***	0.47***	1.01***
	(0.18)	(0.16)	(0.26)
Prior Price Growth Perception	0.30***	0.31***	0.28***
	(0.03)	(0.05)	(0.06)
First Stage F-stat (KP Wald)	48.96	22.27	26.04
R-squared	0.30	0.39	0.24
Observations	1,183	585	598
Firm Controls	✓	✓	✓
Sector FE	✓	✓	✓
Province FE	✓	✓	✓

Notes: The table reports estimation results for Equation-(2). The dependent variables are the wage, unit cost and price expectations. Expectations are measured in percentages. The firm-level controls include age, leverage, employment, and production value. A firm is classified as an SME if its number of employees is less than 250, and large otherwise. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 6: Effects of Inflation Expectations on Credit (Flow) , Borrowing Cost and Foreign Currency Trading

	(1) $y_{i,t+1}$	(2) $y_{i,t+2}$	(3) $y_{i,t+3}$	(4) $y_{i,t+4}$
Panel A: Effect on Credit				
Posterior Mean	0.30^{**}	0.37^{**}	0.38^{***}	0.17
	(0.14)	(0.16)	(0.13)	(0.11)
First Stage F-stat (KP Wald)	59.77	59.77	59.77	59.78
R-Squared	0.07	0.09	0.09	0.08
Observations	1,181	1,181	1,181	1,181
Panel B: Effect on Borrowing Cost				
Posterior Mean	-0.28^{***}	-0.28^{***}	-0.33^{**}	-0.31^{*}
	(0.08)	(0.10)	(0.15)	(0.17)
First Stage F-stat (KP Wald)	20.63	20.62	20.63	20.63
R-Squared	0.21	0.26	0.15	0.26
Observations	595	567	534	582
Panel C: Effect on Foreign Currency Buying				
Posterior Mean	0.06^{***}	0.03^{*}	0.05^{*}	0.02
	(0.02)	(0.02)	(0.03)	(0.02)
First Stage F-stat (KP Wald)	58.45	58.46	58.45	58.45
R-Squared	0.39	0.47	0.53	0.45
Observations	1,181	1,181	1,181	1,181
Panel D: Effect on Foreign Currency Selling				
Posterior Mean	-0.16^{***}	-0.05	-0.14^{***}	-0.15^{***}
	(0.05)	(0.05)	(0.06)	(0.06)
First Stage F-stat (KP Wald)	54.04	54.04	54.04	54.04
R-Squared	0.17	0.08	0.24	0.16
Observations	1,181	1,181	1,181	1,181
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓

Notes: The table reports estimation results for Equation-(2). In Panel A, the dependent variable is defined as $y_{it+h} = \log\left(\frac{cr_{i,t+h}}{cr_{i,t-1}}\right)$, where $cr_{i,t+h}$ represents the flow credit amount at time $t+h$. In Panel B, the dependent variable is the weighted average interest rate charged on flow credits at time $t+h$, $y_{it+h} = r_{i,t+h}$. In Panels C and D, the dependent variables are $y_{it+h} = \log\left(\frac{s_{i,t+h}}{s_{i,t-1}}\right)$ and $y_i = \log\left(\frac{b_{i,t+h}}{b_{i,t-1}}\right)$, where $s_{i,t+h}$ and $b_{i,t+h}$ correspond to the selling and purchasing of foreign currency at time $t+h$, respectively. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 7: Effects of Inflation Expectations on Short -Term and Long-Term Borrowing (Flow)

	(1) $y_{i,t+1}$	(2) $y_{i,t+2}$	(3) $y_{i,t+3}$	(4) $y_{i,t+4}$
Panel A: Effect on Long-term Credit				
Posterior Mean	0.33^{**}	0.36^{**}	0.40^{**}	0.03
	(0.14)	(0.16)	(0.13)	(0.10)
First Stage F-stat (KP Wald)	59.77	59.77	59.77	59.78
R-Squared	0.11	0.14	0.16	0.10
Observations	1,181	1,181	1,181	1,181
Panel B: Effect on Short-term Credit				
Posterior Mean	-0.07^{*}	-0.02	-0.04^{***}	-0.04
	(0.04)	(0.02)	(0.02)	(0.03)
First Stage F-stat (KP Wald)	59.77	59.77	59.77	59.78
R-Squared	0.22	0.18	0.21	0.25
Observations	1,181	1,181	1,181	1,181
Panel C: Effect on Long-term Borrowing Cost				
Posterior Mean	0.16^{***}	0.18^{***}	0.14^{**}	0.10^{*}
	(0.03)	(0.04)	(0.07)	(0.06)
First Stage F-stat (KP Wald)	20.56	17.38	18.89	21.31
R-Squared	0.28	0.30	0.32	0.26
Observations	271	254	251	261
Panel D: Effect on Short-term Borrowing Cost				
Posterior Mean	-0.05^{**}	-0.07^{***}	-0.06^{**}	-0.05
	(0.02)	(0.02)	(0.03)	(0.03)
First Stage F-stat (KP Wald)	10.92	11.47	10.85	13.12
R-Squared	0.28	0.30	0.32	0.26
Observations	324	313	283	321
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓

Notes: This table presents the estimation results for Equation-(2). In Panel A and B, the dependent variable is defined as $y_{it+h} = \log\left(\frac{cr_{i,t+h}}{cr_{i,t-1}}\right)$, where $cr_{i,t+h}$ represents the long-term and short-term flow credit amount at time $t+h$, respectively. In Panel C and D, the dependent variable is the weighted average interest rate charged on flow long-term and short-term credits at time $t+h$, $y_{it+h} = r_{i,t+h}$. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 8: Effects of Inflation Expectations on Outstanding Credits

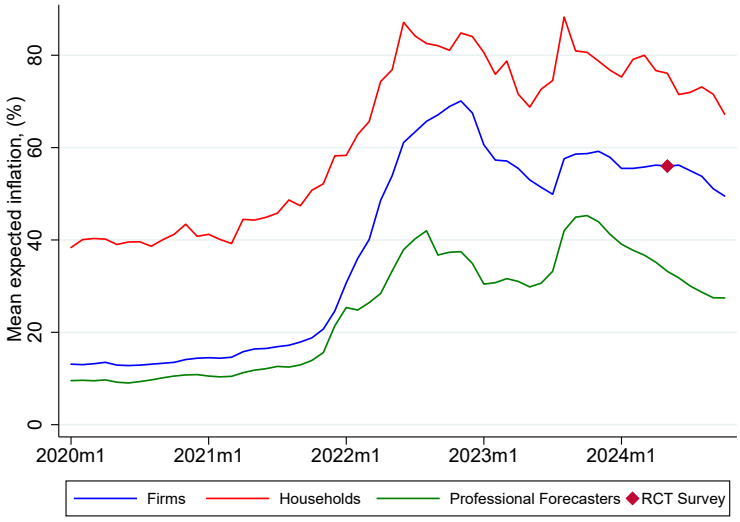
	(1) $y_{i,t+1}$	(2) $y_{i,t+2}$	(3) $y_{i,t+3}$	(4) $y_{i,t+4}$
Panel A: Effect on Total Outstanding Credit				
Posterior Mean	0.15^{***}	0.14^{***}	0.16^{***}	0.14^{***}
	(0.01)	(0.01)	(0.01)	(0.01)
R-Squared	0.51	0.50	0.51	0.48
Panel B: Effect on Long-term Outstanding Credit				
Posterior Mean	0.16^{***}	0.15^{***}	0.17^{***}	0.15^{***}
	(0.01)	(0.02)	(0.01)	(0.01)
R-Squared	0.49	0.46	0.50	0.49
Panel C: Effect on Short-term Outstanding Credit				
Posterior Mean	-0.02^{**}	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.02)	(0.02)
R-Squared	0.42	0.39	0.44	0.41
Panel D: Effect on TL Denominated Outstanding Credit				
Posterior Mean	0.15^{***}	0.14^{***}	0.16^{***}	0.14^{***}
	(0.02)	(0.01)	(0.02)	(0.02)
R-Squared	0.53	0.50	0.50	0.51
Panel E: Effect on FX Denominated Outstanding Credit				
Posterior Mean	-0.02^{**}	-0.02	-0.02	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)
R-Squared	0.32	0.33	0.32	0.34
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓
First Stage F-stat (KP Wald)	69.54	69.54	69.54	69.54
Observations	1,181	1,181	1,181	1,181

Notes: This table presents the estimation results for Equation-(2). In each panel, the dependent variable is defined as $y_{it+h} = \log\left(\frac{X_{i,t+h}}{X_{i,t-1}}\right)$, where $X_{i,t+h}$ represents the total outstanding credit amount in Panel A, long-term credits in Panel B, short-term credits in Panel C, TL-denominated credits in Panel D, and foreign currency-denominated credits in Panel E, respectively, all at time $t+h$. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

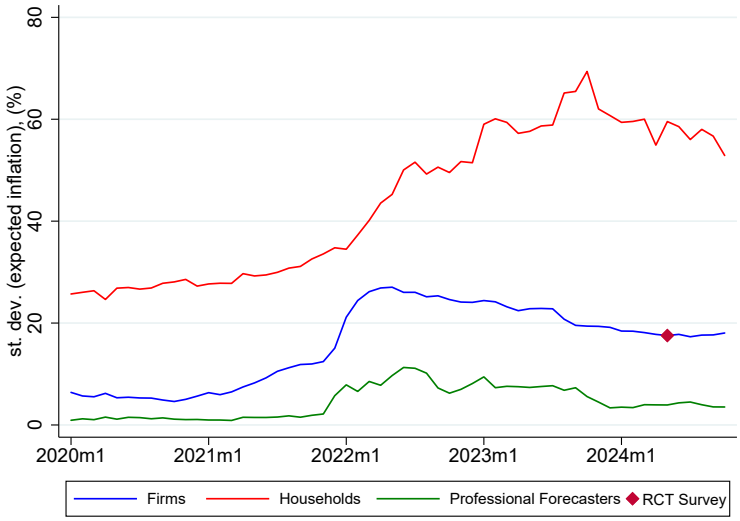
Table 9: Effects of Inflation Expectations on Real Outcomes

	(1) $y_{i,t+1}$	(2) $y_{i,t+2}$	(3) $y_{i,t+3}$	(4) $y_{i,t+4}$
Panel A: Effect on Employment				
Posterior Mean	-0.05^{***}	-0.04^{**}	-0.05^{***}	-0.03^{*}
	(0.02)	(0.02)	(0.02)	(0.02)
First Stage F-stat (KP Wald)	69.54	69.54	69.54	69.54
R-Squared	0.12	0.13	0.12	0.10
Panel B: Effect on Total Sales				
Posterior Mean	-0.01^{***}	-0.02^{**}	-0.01	-0.03
	(0.006)	(0.01)	(0.14)	(0.10)
First Stage F-stat (KP Wald)	68.19	68.19	68.19	68.19
R-Squared	0.14	0.15	0.13	0.12
Panel C: Effect on Total Purchases				
Posterior Mean	0.01^{***}	0.02^{***}	0.01^{***}	0.01^{***}
	(0.002)	(0.003)	(0.004)	(0.005)
First Stage F-stat (KP Wald)	69.24	69.24	69.24	69.24
R-Squared	0.10	0.11	0.09	0.13
Panel D: Effect on Wages				
Posterior Mean	0.04	0.07^{**}	0.05^{*}	0.02
	(0.02)	(0.03)	(0.03)	(0.02)
First Stage F-stat (KP Wald)	69.75	69.75	69.75	69.75
R-Squared	0.13	0.12	0.09	0.13
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓
Observations	1,181	1,181	1,181	1,181

Notes: This table presents the estimation results for Equation-(2). The dependent variable in Panels A, B, and C is defined as $y_{it+h} = \log\left(\frac{X_{i,t+h}}{X_{i,t-1}}\right)$, where $X_{i,t+h}$ denotes employment, sales, purchases and wages at time $t+h$, respectively. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.



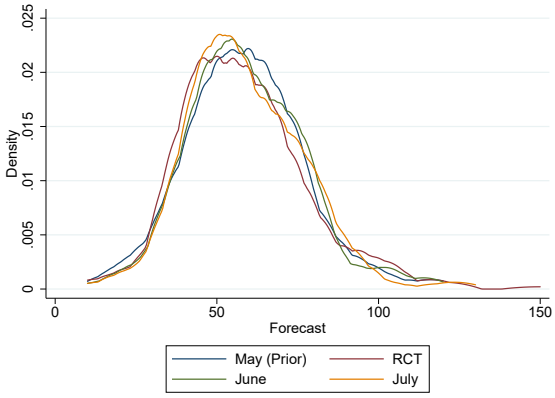
(a) Mean Expected Inflation



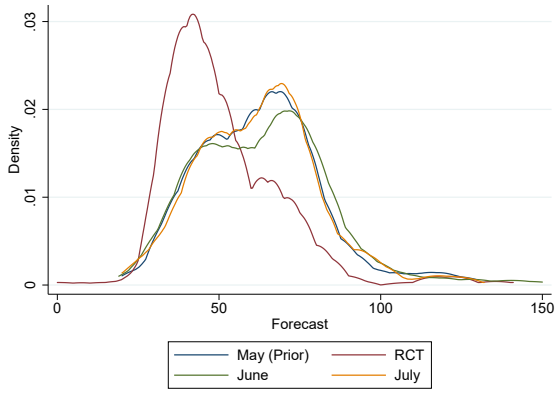
(b) Disagreement in Expected Inflation

Figure 1: One-Year-Ahead Inflation Expectations of Households, Firms, and Professionals

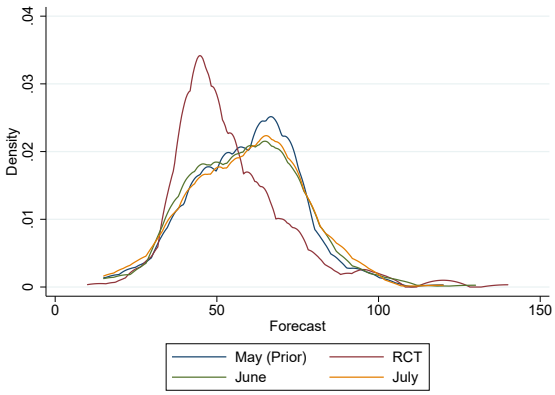
Notes: The figure presents the time series of one-year-ahead inflation expectations for households, firms, and professionals. The term "RCT survey" refers to the survey conducted in May 2024, with the prior expected inflation in the survey represented by a red diamond in the graph.



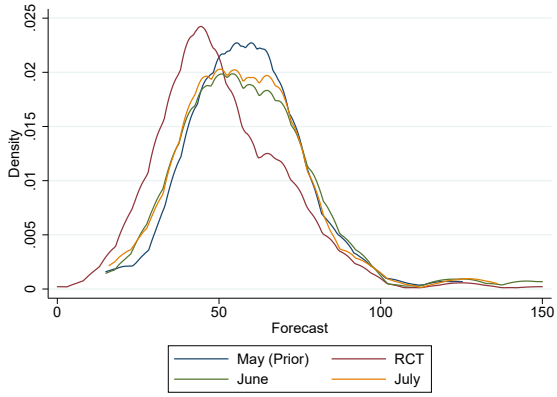
(a) Control



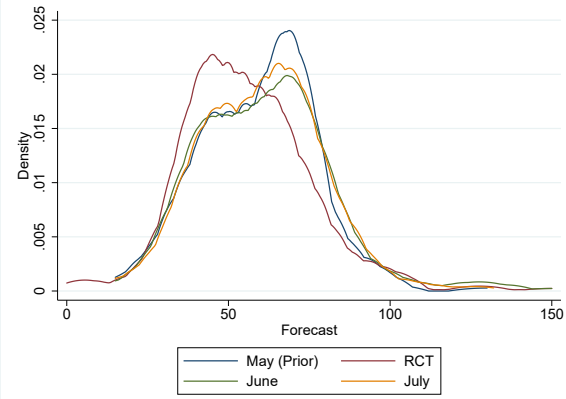
(b) Treatment #1



(c) Treatment #2



(d) Treatment #3



(e) Treatment #4

Figure 2: CPI Forecast

Notes: "RCT survey" refers to the survey conducted in May 2024. "BTS surveys" are conducted regularly by the CBRT, and we retrieved prior expectations from the May edition. The forecasts represent inflation (CPI) expectations for the next 12 months. Kernel densities of inflation expectations are displayed for each treatment group.

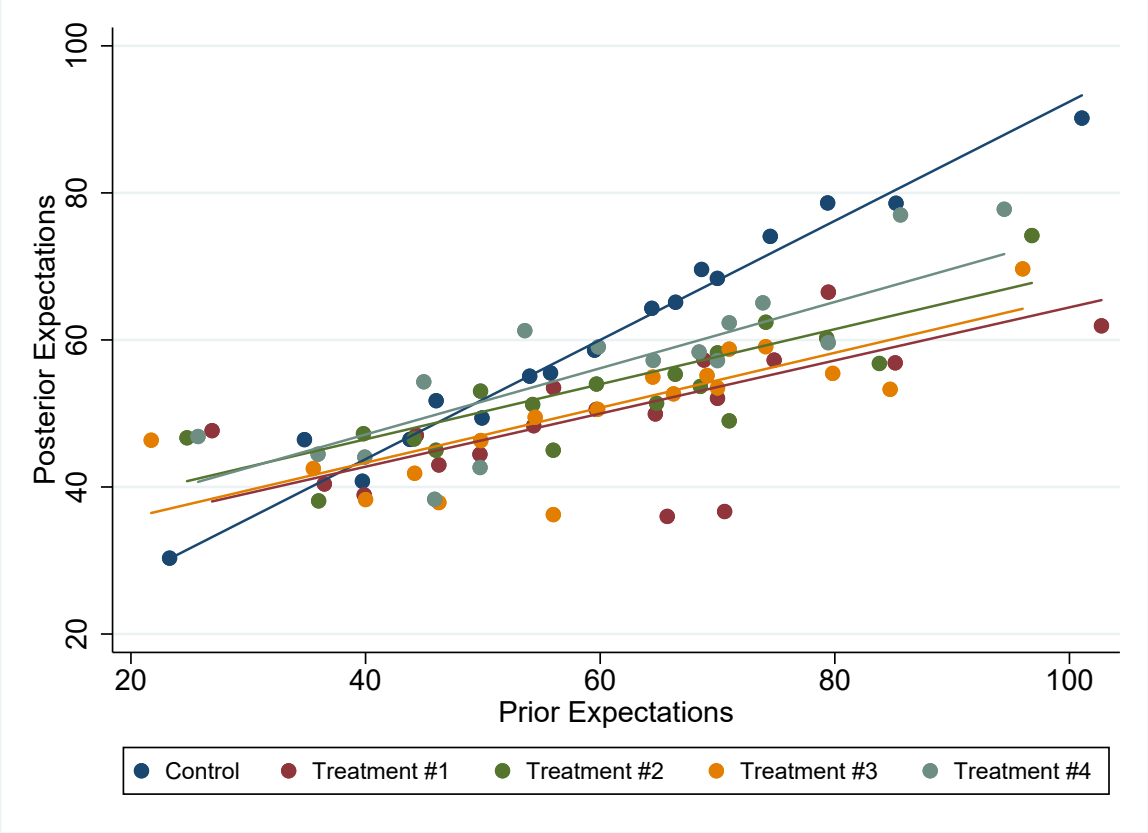
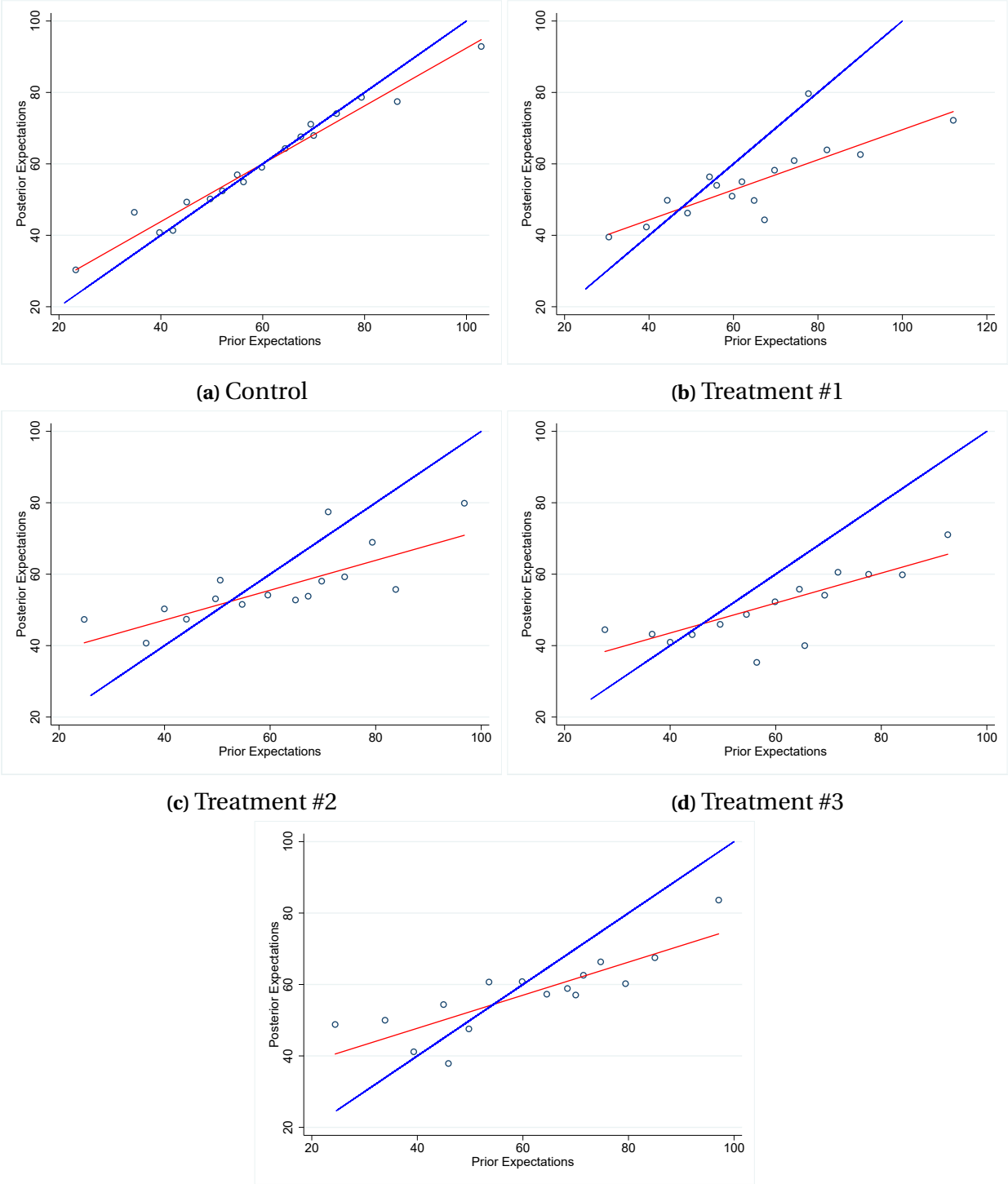


Figure 3: Response of Inflation Expectations by Treatment Type

Notes: Each panel presents a scatterplot of post-treatment inflation expectations and pre-treatment inflation expectations, both are implied mean from the reported expectation distribution of firms, by treatment group.



(a) Control

(b) Treatment #1

(c) Treatment #2

(d) Treatment #3

(e) Treatment #4

Figure 4: Relationship between Prior and Posterior CPI Beliefs for Control/Treatment Groups

Notes: Each panel presents a scatterplot of post-treatment inflation expectations and pre-treatment inflation expectations, both are implied mean from the reported expectation distribution of firms, by treatment group. The blue line is the 45-degree line. The red line is the fitted line.

References

Abberger, K., Funk, A. K., Lamla, M., Lein, S., and Siegrista, S. (2024). The pass-through of inflation expectations into prices and wages: Evidence from an rct survey.

Allayannis, G. and Ofek, E. (2001). Exchange rate exposure, hedging, and the use of foreign currency derivatives. *Journal of international money and finance*, 20(2):273–296.

Alvarez, F., Beraja, M., Gonzalez-Rozada, M., and Neumeyer, P. A. (2019). From Hyperinflation to Stable Prices: Argentina's Evidence on Menu Cost Models. *The Quarterly Journal of Economics*, 134(1):451–505.

Alvarez, S., Cavallo, A., MacKay, A., and Mengano, P. (2024). Markups and cost pass-through along the supply chain. *Unpublished manuscript, Harvard Business School*.

Andrade, P., Coibion, O., Gautier, E., and Gorodnichenko, Y. (2022). No firm is an island? how industry conditions shape firms' expectations. *Journal of Monetary Economics*, 125:40–56.

Bachmann, R., Berg, T. O., and Sims, E. R. (2015). Inflation expectations and readiness to spend: Cross-sectional evidence. *American Economic Journal: Economic Policy*, 7(1):1–35.

Bachmann, R. and Elstner, S. (2015). Firm optimism and pessimism. *European Economic Review*, 79(C):297–325.

Bachmann, R., Elstner, S., and Sims, E. R. (2013). Uncertainty and economic activity: Evidence from business survey data. *American Economic Journal: Macroeconomics*, 5(2):217–49.

Baumann, U., Ferrando, A., Georgarakos, D., Gorodnichenko, Y., and Reinelt, T. (2024). Safe to update inflation expectations? new survey evidence on euro area firms. Technical report, National Bureau of Economic Research.

Binder, C. (2017a). Fed speak on main street: Central bank communication and household expectations. *Journal of Macroeconomics*, 52:238–251.

Binder, C. C. (2017b). Measuring uncertainty based on rounding: New method and application to inflation expectations. *Journal of Monetary Economics*, 90:1–12.

Binder, C. C. and Brunet, G. (2022). Inflation expectations and consumption: Evidence from 1951. *Economic Inquiry*, 60(2):954–974.

Binetti, A., Nuzzi, F., and Stantcheva, S. (2024). People's understanding of inflation. *Journal of Monetary Economics*, page 103652.

Boneva, L., Cloyne, J., Weale, M., and Wieladek, T. (2016). Firms' expectations and price-setting: Evidence from micro data. Technical report, External MPC Unit Discussion Paper.

Buchheim, L., Link, S., and Möhrle, S. (2024). Inflation and wage expectations of firms and employees.

Burke, M. A. and Ozdagli, A. (2023). Household inflation expectations and consumer spending: evidence from panel data. *Review of Economics and Statistics*, 105(4):948–961.

Candia, B., Coibion, O., and Gorodnichenko, Y. (2024). The inflation expectations of us firms: Evidence from a new survey. *Journal of Monetary Economics*, page 103569.

Coibion, O., Georgarakos, D., Gorodnichenko, Y., Kenny, G., and Weber, M. (2024). The effect of macroeconomic uncertainty on household spending. *American Economic Review*, 114(3):645–677.

Coibion, O., Georgarakos, D., Gorodnichenko, Y., and van Rooij, M. (2023a). How does consumption respond to news about inflation? field evidence from a randomized control trial. *American Economic Journal: Macroeconomics*, 15(3):109–52.

Coibion, O., Georgarakos, D., Gorodnichenko, Y., and Weber, M. (2023b). Forward guidance and household expectations. *Journal of the European Economic Association*, 21(5):2131–2171.

Coibion, O., Gorodnichenko, Y., and Kumar, S. (2018). How do firms form their expectations? new survey evidence. *American Economic Review*, 108(9):2671–2713.

Coibion, O., Gorodnichenko, Y., and Ropele, T. (2020). Inflation Expectations and Firm Decisions: New Causal Evidence. *The Quarterly Journal of Economics*, 135(1):165–219.

Coibion, O., Gorodnichenko, Y., and Weber, M. (2022). Monetary policy communications and their effects on household inflation expectations. *Journal of Political Economy*, 130(6):1537–1584.

Cragg, J. G. and Donald, S. G. (1993). Testing Identifiability and Specification in Instrumental Variable Models. *Econometric Theory*, 9(2):222–240.

Crouzet, N. and Mehrotra, N. R. (2020). Small and large firms over the business cycle. *American Economic Review*, 110(11):3549–3601.

Delgado, M. E., Herreño, J., Hofstetter, M., and Pedemonte, M. (2024). The causal effects of expected depreciations. *Documento CEDE*, (12).

Di Pace, F., Mangiante, G., and Masolo, R. M. (2024). Do firm expectations respond to monetary policy announcements? *Journal of Monetary Economics*, page 103648.

Dräger, L. and Nghiem, G. (2021). Are consumers' spending decisions in line with a euler equation? *Review of Economics and Statistics*, 103(3):580–596.

Duca-Radu, I., Kenny, G., and Reuter, A. (2021). Inflation expectations, consumption and the lower bound: Micro evidence from a large multi-country survey. *Journal of Monetary Economics*, 118:120–134.

D'Acunto, F., Charalambakis, E., Georgarakos, D., Kenny, G., Meyer, J., and Weber, M. (2024). Household inflation expectations: An overview of recent insights for monetary policy. *National Bureau of Economic Research*.

D'Acunto, F., Hoang, D., and Weber, M. (2016). The effect of unconventional fiscal policy on consumption expenditure. Technical report, National Bureau of Economic Research.

Ehrmann, M., Georgarakos, D., and Kenny, G. (2023). Credibility gains from communicating with the public: evidence from the ecb's new monetary policy strategy. *ECB Working Paper*.

Enders, Z., Hünnekes, F., and Müller, G. J. (2019). Monetary policy announcements and expectations: Evidence from german firms. *Journal of Monetary Economics*, 108:45–63.

Enke, B. and Graeber, T. (2023). Cognitive uncertainty. *The Quarterly Journal of Economics*, 138(4):2021–2067.

Enke, B., Graeber, T., Oprea, R., and Yang, J. (2024). Behavioral attenuation. Technical report, National Bureau of Economic Research.

Galı, J. and Gertler, M. (1999). Inflation dynamics: A structural econometric analysis. *Journal of monetary Economics*, 44(2):195–222.

Gennaioli, N., Ma, Y., and Shleifer, A. (2016). Expectations and investment. *NBER Macroeconomics Annual*, 30(1):379–431.

Hajdini, I., Knotek II, E. S., Leer, J., Pedemonte, M., Rich, R. W., and Schoenle, R. S. (2023). Low passthrough from inflation expectations to income growth expectations: why people dislike inflation. Technical report.

Han, Z. (2024). Asymmetric information and misaligned inflation expectations. *Journal of Monetary Economics*, 143:103529.

Ichiue, H. and Nishiguchi, S. (2015). Inflation expectations and consumer spending at the zero bound: Micro evidence. *Economic Inquiry*, 53(2):1086–1107.

Jiang, J. H., Kamdar, R., Lu, K., and Puzzello, D. (2024). How do households respond to expected inflation? an investigation of transmission mechanisms. Technical report, Working paper.

Jorda, O. (2005). Estimation and Inference of Impulse Responses by Local Projections. *American Economic Review*, 95(1):161–182.

Kamdar, R. (2019). The inattentive consumer: Sentiment and expectations. 2019 Meeting Papers 647, Society for Economic Dynamics.

Kleibergen, F. and Paap, R. (2006). Generalized reduced rank tests using the singular value decomposition. *Journal of Econometrics*, 133(1):97–126.

Korenok, O., Munro, D., and Chen, J. (2022). Inflation and attention thresholds. GLO Discussion Paper Series 1175, Global Labor Organization (GLO).

Kumar, S., Gorodnichenko, Y., and Coibion, O. (2023). The effect of macroeconomic uncertainty on firm decisions. *Econometrica*, 91(4):1297–1332.

Pfajfar, D. and Roberts, J. M. (2022). The role of expectations in changed inflation dynamics. *International Journal of Central Banking*, 18(1):199–238.

Pfauti, O. (2024). Inflation—who cares? monetary policy in times of low attention. *Journal of Money, Credit and Banking*.

Ropele, T., Gorodnichenko, Y., and Coibion, O. (2022). Inflation expectations and corporate borrowing decisions: New causal evidence. Technical report, National Bureau of Economic Research.

Rosolia, A. (2024). Do firms act on their inflation expectations? another look at italian firms. *Journal of Political Economy Macroeconomics*, 2(4):000–000.

Roth, C. and Wohlfart, J. (2020). How do expectations about the macroeconomy affect personal expectations and behavior? *Review of Economics and Statistics*, 102(4):731–748.

Savignac, F., Gautier, E., Gorodnichenko, Y., and Coibion, O. (2024). Firms' inflation expectations: New evidence from france. *Journal of the European Economic Association*, page jvae015.

Schnorpfeil, P., Weber, M., and Hackethal, A. (2023). Households' response to the wealth effects of inflation. Technical report, National Bureau of Economic Research.

Weber, M., Candia, B., Afrouzi, H., Ropele, T., Lluberas, R., Frache, S., Meyer, B. H., Kumar, S., Gorodnichenko, Y., Georgarakos, D., et al. (2023). Tell me something i don't already know: Learning in low and high-inflation settings. Technical report, National Bureau of Economic Research.

Werning, I. (2022). Expectations and the rate of inflation. Technical report, National Bureau of Economic Research.

Appendix - A - BTS and RCT Detailed Questionnaire

BTS Detailed Questionnaire

The BTS (Business Tendency Survey) collects data through monthly surveys of a representative sample of 1,800 to 2,200 manufacturing firms, since 2007. The questions from the BTS translated from Turkish are provided below:

Question 1: The production volume of your company over the last three month: Increased, Stayed the same, Decreased.

Question 2: The total amount of your currently registered orders: Above normal, Normal for the season, Below normal.

Question 3: The amount of your currently registered export orders: Above normal, Normal for the season, Below normal.

Question 4: The level of your current finished goods inventory: Above normal, Normal for the season, Below normal.

Question 5: Your production volume expectation for the next three months: It will increase, It will remain the same, It will decrease.

Question 6: Your sales price expectation for the next three months: It will increase, It will remain the same, It will decrease.

Question 7: Your total employment expectation for the next three months: It will increase, It will remain the same, It will decrease.

Question 8: The total amount of orders you received in the last three months: Increased, Stayed the same, Decreased.

Question 9: Your total order quantity expectation for the next three months: It will increase, It will remain the same, It will decrease.

Question 10: The amount of export orders you received in the last three months: Increased, Stayed the same, Decreased.

Question 11: Your export order quantity expectation for the next three months: It will increase,

It will remain the same, It will decrease.

Question 12: Your capacity utilization rate (Please indicate the actual capacity utilization as a percentage of physical capacity at present.)

Question 13: The amount of your currently registered domestic market orders: Above normal, Normal for the season, Below normal.

Question 14: The amount of domestic market orders you received in the last three months: Increased, Stayed the same, Decreased.

Question 15: Your domestic market order quantity expectation for the next three months: It will increase, It will remain the same, It will decrease.

Question 16: Your domestic market sales price expectation for the next three months: It will increase, It will remain the same, It will decrease.

Question 17: Compared to the past twelve months, your expectation for fixed capital investment expenditures in the next twelve months: It will increase, It will remain the same, It will decrease.

Question 18: Your average unit cost over the last three months: Increased, Stayed the same, Decreased.

Question 19: Your expectation for the average unit cost in the next three months: It will increase, It will remain the same, It will decrease.

Question 20: Your annual inflation expectation at the end of the next twelve-month period (Please specify as a percentage): (CPI:...) (PPI:...)

Question 21 :Your expectation for the short-term Turkish Lira interest rate in the upcoming three-month period: It will increase, It will remain the same, It will decrease.

Question 22: Your opinion on the general trend in your industry compared to a month ago: More optimistic, The same, More pessimistic.

RCT-Survey Detailed Questionnaire

The survey, designed with an information RCT structure, was conducted in May 2024 using the official digital system utilized by the Business Tendency Survey.

Question 1: In the past 12 months:

Q1.1 What percentage do you think prices have changed? (Annual CPI inflation rate)

Q1.2 What percentage have your main product prices changed?

Q1.3 What percentage have your company employees' salaries changed?

(After the first question, we provide treatment information to each of the treatment groups.)

- **Group 1 (control)**: No information is provided.
- **Group 2**: *"According to the results of the Market Participants Survey for May 2024: The participants' expectation for the Consumer Price Index (CPI) 12 months from now is 33.21%. In other words, professionals expect general prices to increase by 33.21% over the next 12 months."*
- **Group 3**: *"According to the Central Bank of the Republic of Turkey's Inflation Report for May 2024: The Central Bank predicts that annual inflation will be 38% by the end of 2024. In other words, the Central Bank expects general prices to increase by 38% in 2024."*
- **Group 4**: *"According to the Central Bank of the Republic of Turkey's Inflation Report for May 2024: The Central Bank predicts that annual inflation will be 14% by the end of 2025. In other words, the Central Bank expects general prices to increase by 14% in 2025."*
- **Group 5**: *"Within the framework of the inflation targeting regime, the Central Bank's inflation target is 5%. In other words, the Central Bank aims for the general price level to rise by approximately 5% annually in the medium term."*

Question 2: What is your expectation for the Consumer Price Index (CPI) inflation rate at the end of the next 12 months? In other words, how much do you think the general level of consumer prices will increase over the next 12 months? Additionally, what are your lowest (optimistic) and highest (pessimistic) inflation rate estimates at the end of the next 12 months? (Please specify as a

percentage.)

Q2.1 At the end of the next 12 months, my annual (CPI) inflation estimate is:

Q2.2 My lowest (most optimistic) inflation (CPI) estimate is:

Q2.3 My highest (most pessimistic) inflation (CPI) estimate is:

Question 3: What is your expectation for the Producer Price Index (PPI) inflation rate at the end of the next 12 months? In other words, how much do you think the general level of producer prices will increase over the next 12 months? Additionally, what are your lowest (optimistic) and highest (pessimistic) inflation rate estimates at the end of the next 12 months? (Please specify as a percentage.)

Q3.1 At the end of the next 12 months, my annual (PPI) inflation estimate is:

Q3.2 My lowest (most optimistic) inflation (PPI) estimate is:

Q3.3 My highest (most pessimistic) inflation (PPI) estimate is:

Question 4: Compared to today, in what direction and by what percentage (%) do you expect the salaries of company employees to change by the end of the next 12-month period?

Question 5: Compared to today, in what direction and by what percentage (%) do you expect your company's unit cost to change by the end of the next 12-month period?

Question 6: Compared to today, in what direction and by what percentage (%) do you expect your company's employment to change by the end of the next 12-month period?

Question 7: Compared to today, in what direction and by what percentage (%) do you expect the prices of your main products to change by the end of the next 12-month period?

Question 8: Compared to today, disregarding price effects, in what direction and by what percentage (%) do you expect the quantity of export orders to change in real terms by the end of the next 12-month period?

Question 9: Compared to today, disregarding price effects, in what direction and by what percentage (%) do you expect the quantity of domestic market orders to change in real terms by the end of the next 12-month period?

Question 10: How many times do you plan to change your main product prices in the next 12-

month period?

Question 11: Compared to today, how difficult do you think it will be to obtain credit conditions or secure a new loan in the next 12-month period? (Easier, The same, Harder)

Question 12: Compared to today, your expectation for the general trend of your company in the next 12-month period: (Much more optimistic, more optimistic, the same, more pessimistic, much more pessimistic)

Question 13: Compared to today, your expectation for the general trend of the country's economy in the next 12-month period: (Much more optimistic, more optimistic, the same, more pessimistic, much more pessimistic)

Question 14: Compared to today, in what direction do you plan to change your profit margin in the next 12-month period? (I will decrease it, It will remain the same, I will increase it)

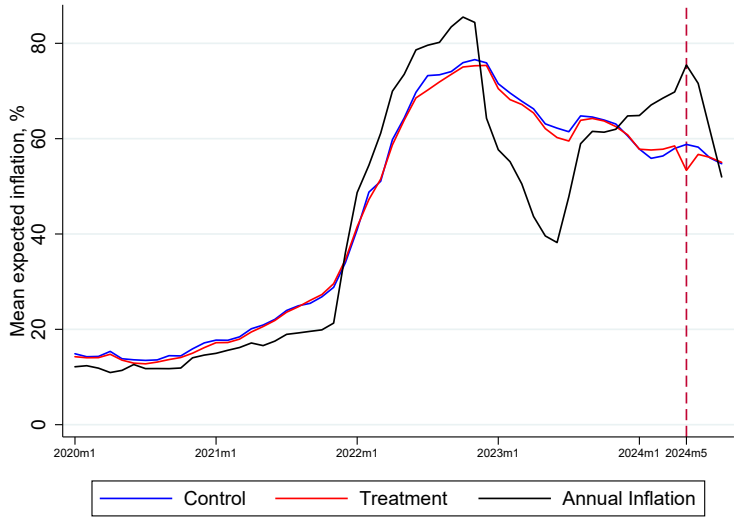
Appendix - B - Assignment into Treatment

We categorized the firms in the sample based on three self-reported dimensions: two-digit sectoral classification, number of employees, and sales. Using these dimensions, we divided the sample into five distinct groups. To ensure balanced treatment assignment, we stratified the randomization process across these dimensions. This method reduces potential biases by maintaining comparability between the treatment and control groups. To ensure that the selection of firms into treatment and control groups was genuinely random, we performed a regression analysis using a dummy variable indicating whether a firm was treated as the dependent variable. The independent variables included observable firm characteristics, such as size (log of the number of employees), export share (exports as a percentage of total sales), profit margin (ratio of net profits to sales), leverage ratio (total debt-to-total assets), along with sector and province fixed effects. The regression results, presented in Table-B1, reveal that none of the observable characteristics are statistically significantly correlated with being assigned to the treatment group. Additionally, the constant term remains consistent across specifications, ranging between 0.77 and 0.79. This indicates that, on average, approximately 80% of firms were treated, and this proportion does not change when controlling for firm characteristics. These findings confirm that the treatment of firms was randomly assigned, adhering to the proportions targeted in the survey. Figure-B1 illustrates how inflation expectations for the control group and treatment group overlap before the treatment.

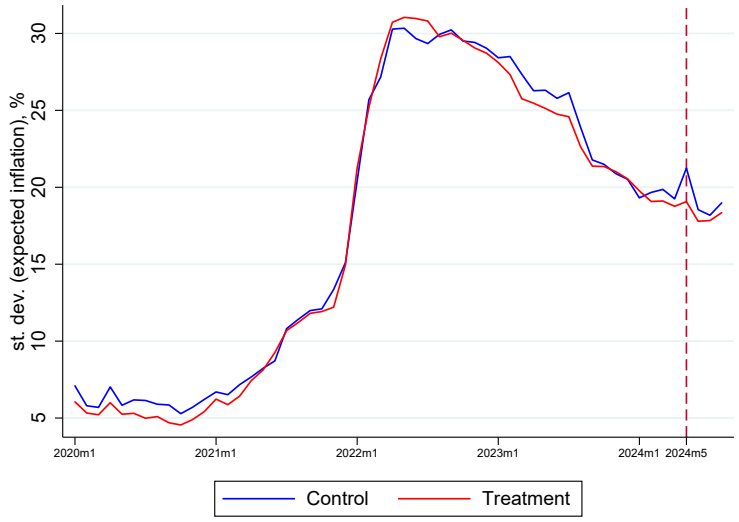
Table B1: Assignment into Treatment

	Dependent Variable: Treatment dummy				
	(1)	(2)	(3)	(4)	(5)
Number of Employees	0.006	0.005	0.005	0.006	0.002
	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)
Age		0.009	0.009	0.010	0.013
		(0.019)	(0.018)	(0.019)	(0.021)
Export Share			-0.001	-0.002	-0.002
			(0.002)	(0.002)	(0.002)
Profit Margin			0.009	0.014	0.015
			(0.038)	(0.039)	(0.036)
Leverage			0.002	0.001	0.001
			(0.004)	(0.005)	(0.006)
Constant	0.771***	0.784***	0.793***	0.791***	0.792***
	(0.046)	(0.071)	(0.069)	(0.062)	(0.059)
Sector FE				✓	✓
Province FE					✓
R-squared	0.0004	0.0006	0.0006	0.0007	0.0009
Observations	1,390	1,390	1,390	1,390	1,390
p-value (F-stat)	1.000	0.782	0.924	1.0000	0.964

Notes: The table presents results from a linear regression where the dependent variable is binary, set to 1 if a firm is treated and 0 otherwise. Since group assignment (treatment or control) is fixed and cannot change after the initial assignment, all regressors represent averages over the survey period. The p-value (F-statistic) indicates the probability that all non-constant regressors have zero coefficients. *** p<0.01, ** p<0.05, * p<0.1



(a) Mean Expected Inflation



(b) Disagreement in Expected Inflation

Figure B1: Time Series of Inflation Expectations

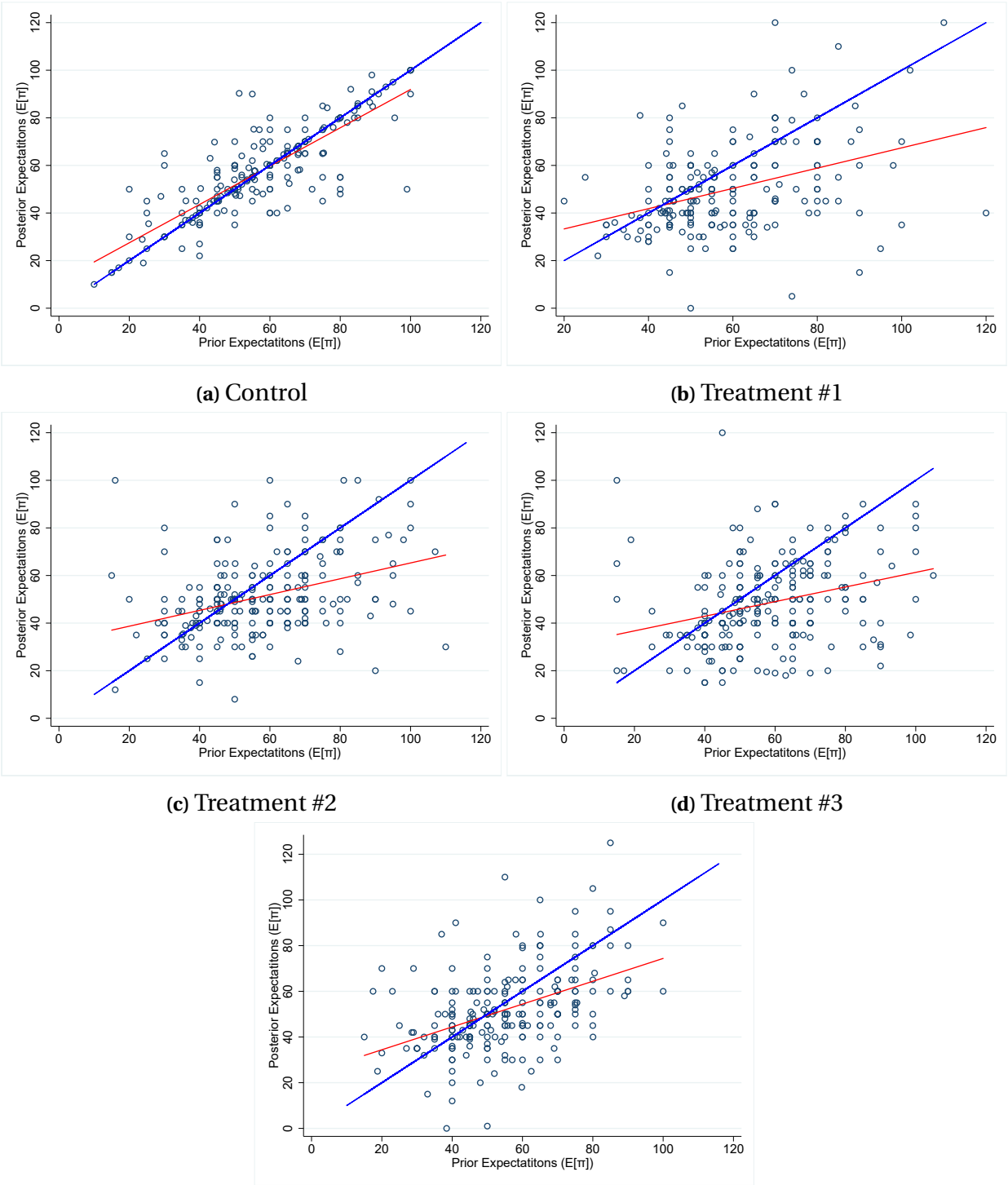
Notes: The figure displays the time series of inflation expectations for both the treatment and control groups, along with the actual inflation reported by the Turkish Statistical Institute (TURKSTAT).

Appendix - C - Determinants of Inflation Expectations

Table C1: Determinants of Inflation Expectations

	CPI			PPI		
	All Sample	Large Firms	SMEs	All Sample	Large Firms	SMEs
Sales	-0.09***	-0.04**	-0.10***	-0.07**	-0.04**	-0.12***
	(0.03)	(0.02)	(0.04)	(0.04)	(0.02)	(0.05)
Number of Employees	-0.30***	-0.22***	-0.80**	-0.33***	-0.44***	-0.53***
	(0.07)	(0.09)	(0.11)	(0.08)	(0.11)	(0.14)
Capacity Utilization	0.03***	0.02**	0.04***	0.04**	0.03***	0.05***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Age	-1.03***	-1.90***	-0.85***	-1.13***	-1.73***	-0.79***
	(0.18)	(0.30)	(0.25)	(0.22)	(0.38)	(0.29)
Exporter	-0.23**	-0.45**	-0.20**	-0.21**	-0.81***	-0.19**
	(0.11)	(0.19)	(0.10)	(0.10)	(0.16)	(0.09)
Return on Assets	0.04***	0.03***	0.05***	0.05***	0.04**	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Leverage	0.09***	0.07***	0.10***	0.07***	0.05***	0.09***
	(0.02)	(0.02)	(0.03)	(0.01)	(0.01)	(0.02)
Economic Expectation						
Optimistic	-0.49***	-0.59***	-0.41***	-0.69***	-0.67***	-0.74***
	(0.06)	(0.10)	(0.08)	(0.08)	(0.13)	(0.10)
Pessimistic	1.87***	2.00***	1.57***	2.02***	2.30***	1.64***
	(0.06)	(0.09)	(0.07)	(0.07)	(0.12)	(0.09)
Sales Price Expectation						
Increase	0.69***	0.56***	0.70***	1.05***	0.89***	1.09***
	(0.05)	(0.08)	(0.07)	(0.07)	(0.11)	(0.09)
Decrease	-0.30***	-0.20**	-0.42***	-0.35***	-0.18**	-0.38***
	(0.09)	(0.10)	(0.12)	(0.12)	(0.08)	(0.12)
Unit Cost Expectation						
Increase	0.55***	0.56***	0.50***	0.79***	0.87***	0.67***
	(0.05)	(0.07)	(0.06)	(0.06)	(0.10)	(0.08)
Decrease	-0.21*	-0.02	-0.30**	-0.33**	-0.15	-0.36**
	(0.11)	(0.16)	(0.14)	(0.13)	(0.21)	(0.17)
Production Volume Expectation						
Increase	-0.45***	-0.40***	-0.45***	-0.58***	-0.38***	-0.64***
	(0.05)	(0.07)	(0.06)	(0.06)	(0.10)	(0.08)
Decrease	0.66***	0.73***	0.63***	0.71***	0.82***	0.61***
	(0.06)	(0.10)	(0.08)	(0.08)	(0.13)	(0.10)
Firm FE	✓	✓	✓	✓	✓	✓
Sector x Year-Month FE	✓	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓	✓
Province FE	✓	✓	✓	✓	✓	✓
R-squared	0.78	0.78	0.79	0.75	0.75	0.76
Observations	239,114	104,700	134,114	239,114	104,700	134,114

Notes: Entries represent coefficient estimates and standard errors from estimating the regression $y_{it} = \beta_0 + \Gamma X_{it} + \Pi Z_{i,t} + \alpha_i + \delta_{s,t} + \lambda_t + \phi_p + \varepsilon_{i,t}$, where the dependent variable y_{it} is the expectation for the annual consumer price index (CPI) at the end of the upcoming 12-month period, X_{it} represents firm-specific characteristics for firm i at year-month t, and $Z_{i,t}$ includes the firm's expectations about the overall economy, sales price, unit cost, and production volume over the next three months. The terms α_i, $\delta_{s,t}$, λ_t, and ϕ_p denote the firm, sector × year-month, year-month, and province fixed effects, respectively. Standard errors, clustered by firm, in parentheses. The sample covers all available BTS data, from 2009M1 to 2024M9. CPI and PPI expectations are reported separately. ***p<0.01, **p<0.05, *p<0.1.



(a) Control

(b) Treatment #1

(c) Treatment #2

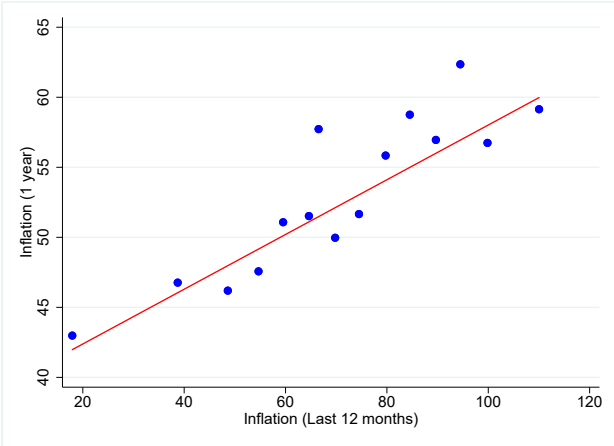
(d) Treatment #3

(e) Treatment #4

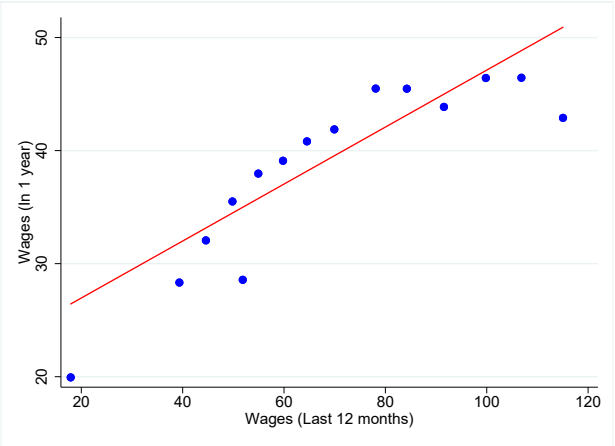
Figure C1: Relationship between Prior and Posterior PPI Beliefs for Control/Treatment Groups

Notes: Each panel presents a scatterplot of post-treatment PPI inflation expectations and pre-treatment PPI inflation expectations, both are implied mean from the reported expectation distribution of firms, by treatment group. The blue line is the 45-degree line. The red line is the fitted line.

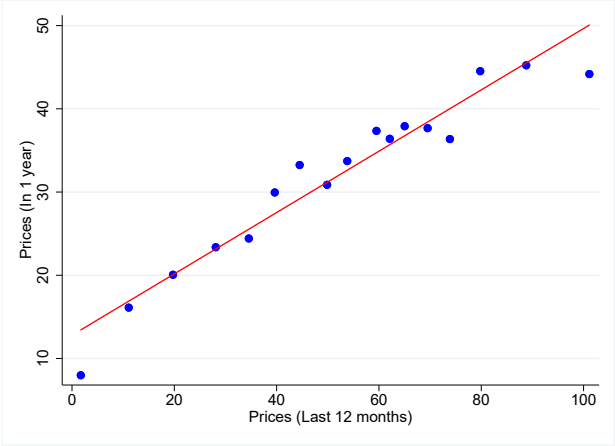
Appendix - D- Correlation of Firms' Perceptions and Expectations



(a) Perceived and Expected Inflation



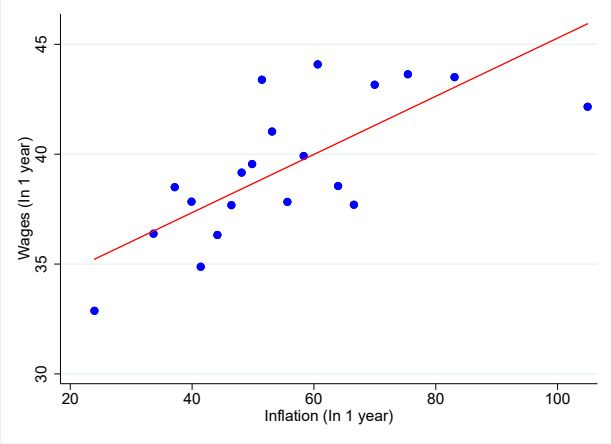
(b) Perceived and Expected Wages



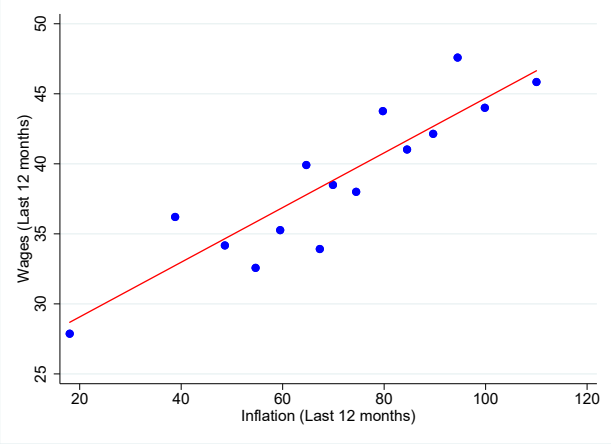
(c) Perceived and Expected Prices

Figure D1: Correlation of Perceived and Expected Inflation, Wages and Prices

Notes: The figure plots firms' perceptions of inflation over the past 12 months against their expectations of inflation for the next 12 months (Panel A). Similarly, it presents firms' perceptions of wage growth over the last 12 months compared to their expectations of wage growth for the next 12 months (Panel B), as well as firms' perceptions of prices over the past 12 months against their expectations of prices for the next 12 months (Panel C).



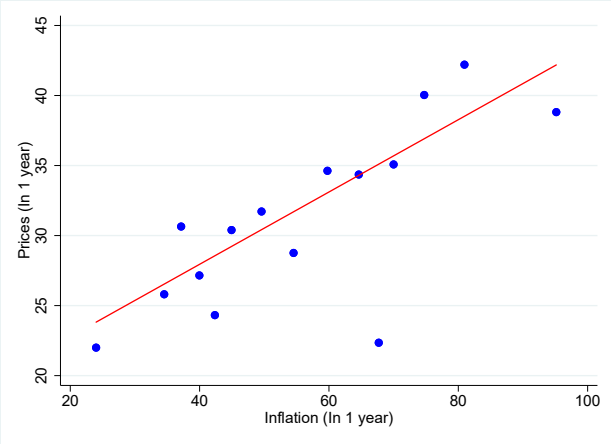
(a) Inflation and Wage Expectations



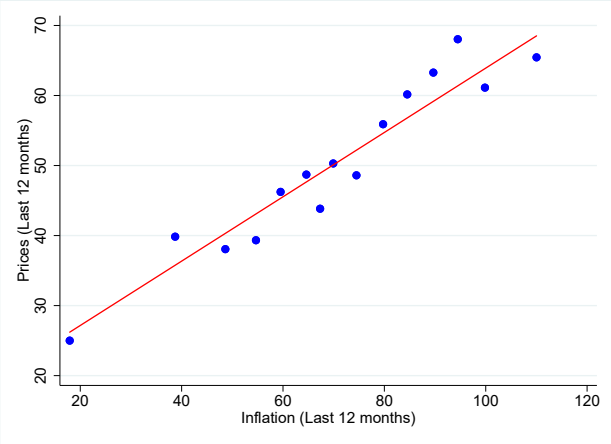
(b) Inflation and Wage Perceptions

Figure D2: Correlations of Firms' Inflation and Wage Expectations-Perceptions

Notes: The figure plots firm-level expectations (Panel A) and perceptions (Panel B) for wage growth and inflation.



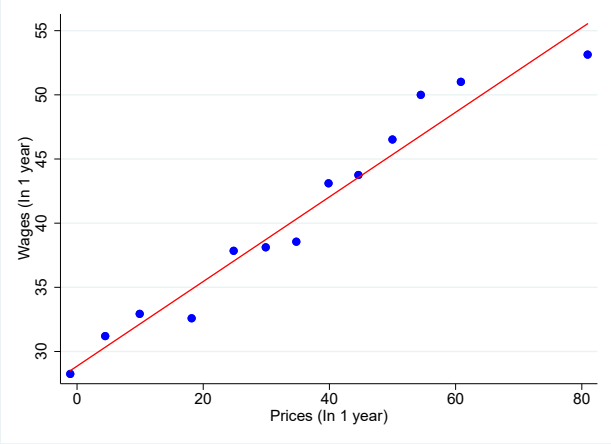
(a) Inflation and Price Expectations



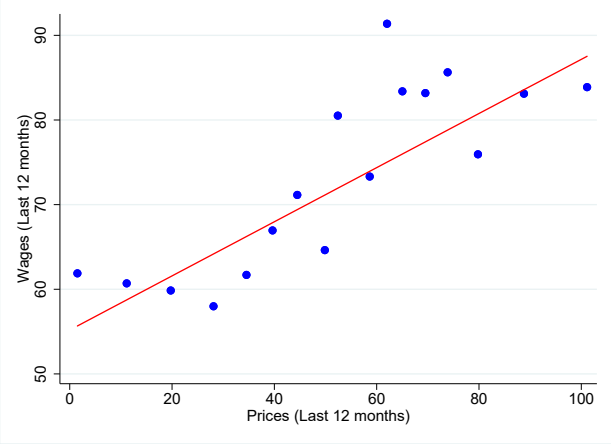
(b) Inflation and Price Perceptions

Figure D3: Correlations of Firms' Inflation and Price Expectations-Perceptions

Notes: The figure plots firm-level expectations (Panel A) and perceptions (Panel B) for price and inflation.



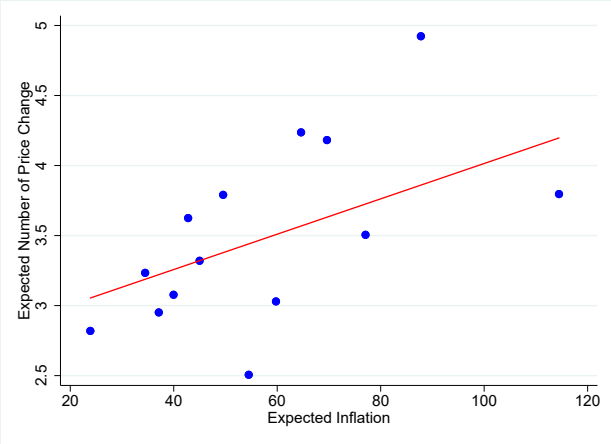
(a) Price and Wage Expectations



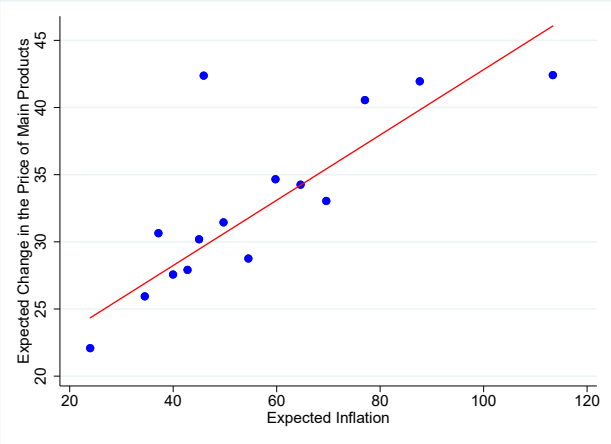
(b) Price and Wage Perceptions

Figure D4: Correlations of Firms' Price and Wage Expectations-Perceptions

Notes: The figure plots firm-level expectations (Panel A) and perceptions (Panel B) for wages and prices.



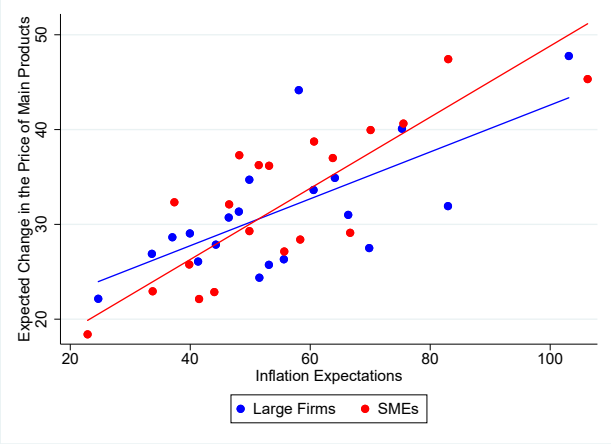
(a) Expected Number of Price Changes and Expected Inflation



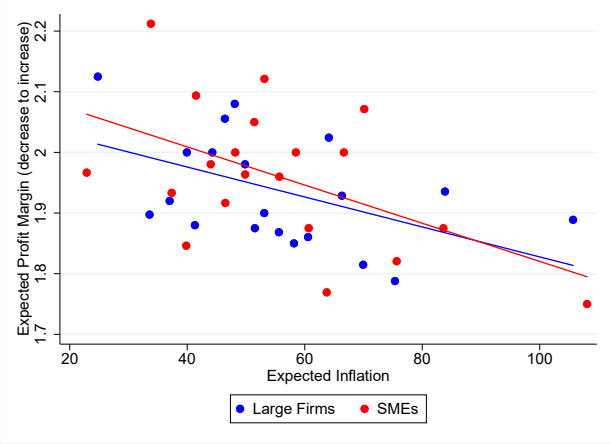
(b) Price and Wage Perceptions

Figure D5: Expected Change in the Prices of Main Products and Expected Inflation

Notes: The figure plots firm-level expectations (Panel A) and perceptions (Panel B) for wages and prices.



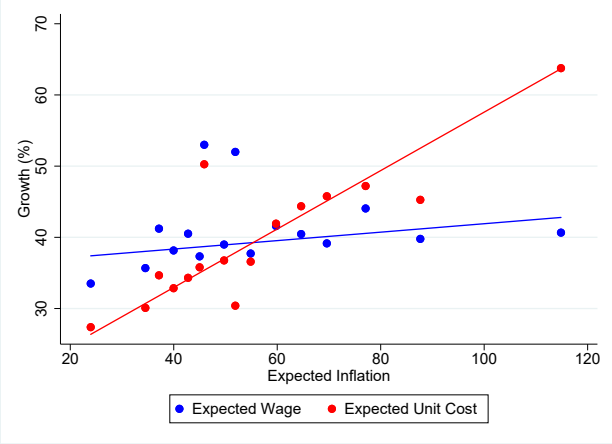
(a) Expected Number of Price Changes and Expected Inflation, by firm size



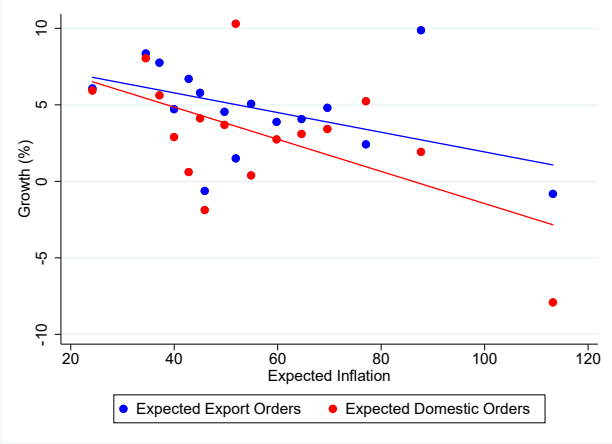
(b) Expected Profit Margin and Expected Inflation, by firm size

Figure D6: Expected Change in the Prices of Main Products and Profit Margin, by firm size

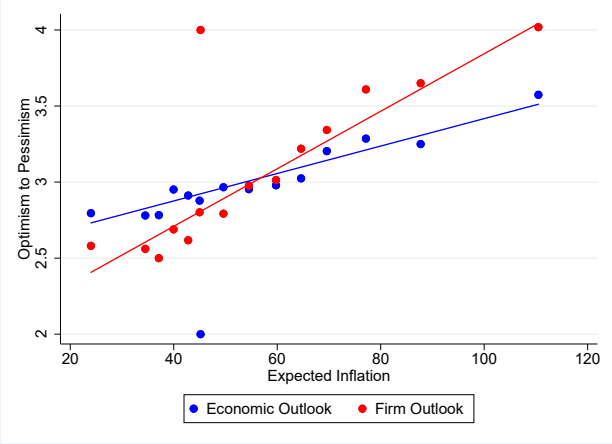
Notes: The figure plots firm-level expectations for expected change in the prices of the main products and profit margin. In Panel b, the scale for expected profit margins is defined as 1 for a decrease, 2 for remaining constant, and 3 for an increase.



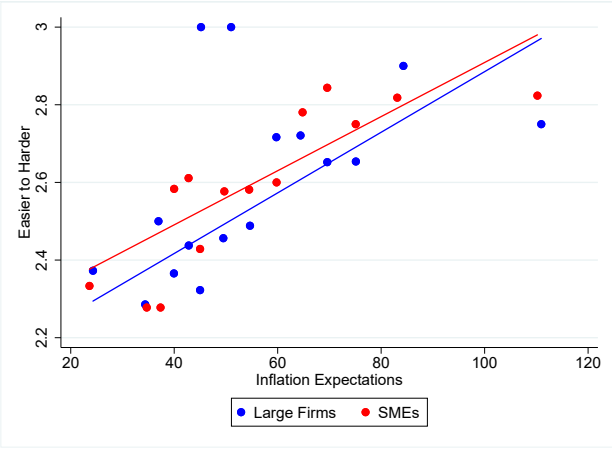
(a) Expected Wage and Unit Cost



(b) Expected Export and Domestic Orders



(c) Expected Firms' Economic and Own Business Outlook



(d) Expected Financial Conditions, by firm size

Figure D7: Firms' Inflation Expectations and Economic Indicator Expectations

Notes: The figure plots binscatter of firms' pricing expectations for the next 12 months against their expectations of inflation for the next 12 months. In Panel c, the scale for pessimism ranges from 1 to 5, where 1 represents extreme optimism and 5 represents extreme pessimism. In panel d, the scale for financial conditions ranges from 1 to 3, where 1 represents easier and 3 represents harder.

Appendix - E - Effects of Inflation Expectations on Firms' Business and Economic Expectations

Table E1: Effects of Inflation Expectations on Firms' Business and Economic Expectations

	(1) All Sample	(2) Large Firms	(3) SMEs
Panel A: Effect on Firm Own Bussiness Expectations			
Posterior Mean	0.014***	0.011***	0.019***
	(0.003)	(0.004)	(0.004)
Prior Economic Perception	0.23***	0.31***	0.19***
	(0.032)	(0.054)	(0.058)
First Stage F-stat (KP Wald)	49.91	24.46	24.43
R-squared	0.12	0.14	0.13
Observations	1,173	587	583
Panel B: Effect on Economic Expectations			
Posterior Mean	0.024***	0.021***	0.029***
	(0.002)	(0.003)	(0.004)
Prior Economic Perception	0.263***	0.334***	0.201***
	(0.030)	(0.052)	(0.055)
First Stage F-stat (KP Wald)	50.25	24.20	24.71
R-squared	0.17	0.22	0.19
Observations	1,187	587	600
Panel C: Effect on Credit Conditions Expectations			
Posterior Mean	0.012***	0.009***	0.014***
	(0.002)	(0.004)	(0.003)
Prior Borrowing Cost Expectation	0.166***	0.119***	0.185***
	(0.039)	(0.055)	(0.058)
First Stage F-stat (KP Wald)	50.53	24.73	24.93
R-squared	0.10	0.12	0.16
Observations	1,169	582	587
Firm Controls	✓	✓	✓
Sector FE	✓	✓	✓
Province FE	✓	✓	✓

Notes: The table reports estimation results for Equation-(2). The dependent variables are the firms' own business, economic outlook and credit conditions expectations. For this table, expectations are qualitative, with 1 representing optimism, 2 representing neutrality, and 3 representing pessimism. The firm-level controls include age, leverage, employment, and production value. A firm is classified as an SME if its number of employees is less than 250, and large otherwise. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Appendix - F - Robustness Check for Borrowing Behavior of Firms

Table-F1 and Table-2F2 present the estimation results for firms actively engaged in borrowing and foreign currency trading, including both buying and selling activities, across one, two, three, and four months after the treatment. It is important to highlight that, in Tables 6 and 7, we modify the analysis to focus on the causal effect of exogenous variations in inflation expectations on firms' credit behavior and foreign currency trading decisions. Specifically, for firms that do not take any credit, their flow credit amounts are imputed as zero, thereby allowing us to observe the causal impact of inflation expectations on credit flows for all firms in the survey. This approach offers a more comprehensive understanding of the effects by accounting for both firms that engage in credit markets and those that do not, while controlling for financial constraints through leverage and the total flow credits from the previous year. Similarly, firms' decisions to engage in foreign currency trading are also treated as endogenous choices, which are controlled for by including variables for foreign currency credits and foreign currency positions. By accounting for these factors, we aim to isolate the impact of inflation expectations on firms' financial behavior, while recognizing that firms' participation in these markets is conditional on their individual circumstances and financial strategies.

Crucially, we do not impose a similar imputation of zero for interest rates. Unlike credit flows, interest rates are exogenously determined by the credit suppliers, i.e., the banks, and are thus outside the direct control of the firms. As a result, setting interest rates to zero for non-participating firms would be misleading. This is why the sample size is smaller when the outcome is the interest rate in Table-6 and Table-7. Therefore, to assess the robustness of the imputation and provide concrete evidence, we present results exclusively for firms that are actively taking credit or engaging in foreign currency trading one, two, three, and four months after the treatment in Table-F1 and Table-F2.

Table F1: Effects of Inflation Expectations on Flow Credits (Firms with Active Borrowing Sample)

	(1) y^i_{t+1}	(2) y^i_{t+2}	(3) y^i_{t+3}	(4) y^i_{t+4}
Panel A: Effect on Credit				
Posterior Mean	0.39^{***}	0.37^{***}	0.44^{***}	0.28^{*}
	(0.12)	(0.15)	(0.17)	(0.16)
First Stage F-stat (KP Wald)	20.63	20.62	20.63	20.63
R-Squared	0.10	0.11	0.11	0.15
Observations	595	567	534	582
Panel B: Effect Long-term Credit				
Posterior Mean	0.35^{***}	0.40^{**}	0.41^{***}	0.30^{**}
	(0.12)	(0.16)	(0.15)	(0.14)
First Stage F-stat (KP Wald)	20.56	17.38	18.89	21.31
R-Squared	0.12	0.15	0.09	0.10
Observations	271	254	251	261
Panel C: Effect Short-term Credit				
Posterior Mean	-0.04^{**}	-0.09^{*}	-0.05^{**}	-0.06
	(0.02)	(0.05)	(0.03)	(0.05)
First Stage F-stat (KP Wald)	10.92	11.47	10.85	13.12
R-Squared	0.05	0.08	0.04	0.03
Observations	324	313	283	321
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓

Notes: The table reports estimation results for Equation-(2) for firms that have taken credit at time $t+h$. The dependent variable in Panels A, B, and C is defined as $y_{it+h} = \log\left(\frac{X_{i,t+h}}{X_{i,t-1}}\right)$, where $X_{i,t+h}$ denotes total flow credits, long-term flow credits, and short-term flow credits at time $t+h$, respectively. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table F2: Effects of Inflation Expectations on Foreign Currency Trading (Firms with Active Trading Sample)

	(1) y^i_{t+1}	(2) y^i_{t+2}	(3) y^i_{t+3}	(4) y^i_{t+4}
Panel A: Effect on Foreign Currency Buying				
Posterior Mean	0.07^{***}	0.03^{**}	0.06^{***}	0.05
	(0.02)	(0.01)	(0.02)	(0.03)
First Stage F-stat (KP Wald)	39.82	35.03	38.93	38.96
R-Squared	0.51	0.59	0.61	0.63
Observations	809	782	794	809
Panel B: Effect on Foreign Currency Selling				
Posterior Mean	-0.07^{**}	-0.03	-0.10^{***}	-0.14^{***}
	(0.03)	(0.04)	(0.03)	(0.04)
First Stage F-stat (KP Wald)	62.85	61.39	62.21	58.76
R-Squared	0.38	0.39	0.25	0.19
Observations	878	876	874	881
Firm Controls	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓
Province FE	✓	✓	✓	✓

Notes: The table presents estimation results for Equation-(2) for firms that buy or sell foreign currency at time $t+h$. In Panels A and B, the dependent variables are defined as $y_{it+h} = \log\left(\frac{s_{i,t+h}}{s_{i,t-1}}\right)$ and $y_i = \log\left(\frac{b_{i,t+h}}{b_{i,t-1}}\right)$, where $s_{i,t+h}$ and $b_{i,t+h}$ represent the sale and purchase of foreign currency at time $t+h$, respectively. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

To ensure the robustness of our findings further, we extend the analysis using data from the flow credit registry and foreign exchange buying/selling administrative datasets. This robustness check allows us to verify the consistency of the results within the data. The empirical strategy we adopt involves comparing the pre-treatment and post-treatment outcomes of firms. Spesifically, let $y_{i,post}$ represent the total outcome variable for firm i over the four-month period following the treatment, and let $y_{i,pre}$ represent the total outcome variable over the four months prior to the treatment. For this analysis, we define the pre-treatment period as January, February, March, and April, during which we sum the credit amounts and foreign currency trading activity (both buying and selling) to obtain the pre-treatment outcome. The post-treatment period is defined as June,

July, August, and September, for which we similarly aggregate the credit and foreign currency activity to determine the post-treatment outcome. In the case of interest rates, instead of summing, we calculate the weighted average for both the pre-treatment and post-treatment periods.

By utilizing this pre-post treatment comparison, we ensure that we capture the dynamic changes in firms' behavior, which are directly influenced by the treatment. This approach also allows us to assess the impact of inflation expectations on a broad set of firms that are given the survey, thereby maximizing the sample size and ensuring that our estimates are representative. Finally, we regress the difference in pre-treatment and post-treatment outcomes on inflation expectations that were formed prior to the treatment, enabling us to isolate the effect of anticipated inflation on firms' decisions to take credit or engage in foreign currency trading:

$$(y_{i,post} - y_{i,pre}) = \beta_1 \text{Post}_i^{mean} + \beta_2 \text{Prior}_i^{mean} + \gamma X_{i,t-1} + \delta_s + \phi_p + \varepsilon_i, \tag{D1}$$

where the set of controls, $X_{i,t-1}$, includes expectations of economic variables, such as the firm's outlook on sector conditions for the next three months, firm-specific employment growth over the following three months, and expectations regarding production volume for the same period. These controls are derived from time $t-1$, which corresponds to the pre-treatment month (April 2024). Additionally, we control for the annual leverage ratio, employment, and capacity utilization ratio. The vector of controls also includes the previous year's total annual credits and the weighted average credit score when the outcome pertains to credit market performance, as well as the firm's foreign currency position, total foreign currency buying, and selling activities from the previous calendar year when the outcome involves foreign exchange transactions. δ_s and ϕ_p are sector and province fixed effects, respectively. We again utilize the information treatment at time t as an instrument for the inflation expectations that follow at time t, as shown in Equation-(3).

Table F3: Effects of Inflation Expectations on Flow Credits and Foreign Currency Trading: Pre- and Post-Treatment (4-Month Window)

	(1) Coefficient (Std. error)	(2) First Stage F-Stat (KP Wald)	(3) R-Squared	(4) Observations
FX Buying	0.04^{***} (0.01)	69.21	0.05	1,067
FX Selling	-0.03^{***} (0.01)	47.41	0.07	1,169
Credit	0.15^{***} (0.03)	42.38	0.14	975
Long-Term Credit	0.07^{***} (0.02)	36.09	0.08	724
Short-Term Credit	-0.02^{**} (0.01)	34.66	0.12	823
Borrowing Cost	-0.04^{***} (0.02)	42.38	0.22	975
Long-term Borrowing Cost	0.03^{***} (0.01)	36.09	0.04	724
Short-term Borrowing Cost	0.02^{***} (0.01)	34.66	0.21	823

Notes: The table presents estimation results for Equation (D1). Each outcome variable is defined as the log difference between the post-treatment and pre-treatment periods (i.e., $\log(y_{i,\text{post}}) - \log(y_{i,\text{pre}})$), except when the outcome variable is the borrowing cost, in which case the outcome is the weighted average interest rate for the post-treatment period. In each regression, we apply Huber regression in the first stage to account for outliers and influential observations and employ the jackknife procedure in the second stage. Heteroskedasticity robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Appendix - G - Additional Tables and Figures

Table G1: Treatment Effects on Expectations (Best and Mean)

	All Sample		Large Firms		SMEs	
	(1) mean	(2) best	(3) mean	(4) best	(5) mean	(6) best
Revisions in beliefs immediately after treatment						
Prior mean	0.81***	0.83***	0.77***	0.82***	0.81***	0.83***
	(0.05)	(0.05)	(0.08)	(0.08)	(0.06)	(0.06)
Prior mean × T1	-0.27***	-0.29***	-0.28**	-0.27***	-0.29***	-0.32***
	(0.07)	(0.06)	(0.10)	(0.10)	(0.08)	(0.09)
Prior mean × T2	-0.23***	-0.24***	-0.25**	-0.23**	-0.23**	-0.26***
	(0.07)	(0.07)	(0.10)	(0.11)	(0.09)	(0.09)
Prior mean × T3	-0.12**	-0.16**	-0.09*	-0.10*	-0.20**	-0.21**
	(0.06)	(0.07)	(0.06)	(0.06)	(0.09)	(0.09)
Prior mean × T4	-0.13**	-0.15**	-0.10**	-0.11**	-0.16*	-0.17**
	(0.06)	(0.07)	(0.05)	(0.05)	(0.08)	(0.08)
T1 (SPF expectations)	10.13***	10.30***	7.68**	9.76**	10.95***	10.54***
	(3.75)	(3.76)	(4.71)	(4.66)	(4.03)	(4.29)
T2 (CBRT 1-y ahead forecast)	10.52***	10.58***	9.56**	9.91**	11.16***	11.85***
	(4.01)	(4.05)	(4.68)	(4.03)	(4.47)	(4.63)
T3 (CBRT 2-y ahead forecast)	1.73	3.52	3.58	3.51	6.43*	5.91
	(3.95)	(4.04)	(4.61)	(4.01)	(4.33)	(4.58)
T4 (Inflation Target)	7.51**	8.29**	6.07*	7.71**	8.95*	7.95*
	(3.85)	(4.07)	(3.45)	(3.59)	(4.89)	(4.08)
Firm Controls	✓	✓	✓	✓	✓	✓
Sector FE	✓	✓	✓	✓	✓	✓
Province FE	✓	✓	✓	✓	✓	✓
R-squared	0.72	0.71	0.70	0.72	0.71	0.73
Observations	1,181	1,181	587	587	594	594

Notes: The table reports estimation results for Equation-(1). The dependent variable, (Posterior$_i$), refers to CPI expectations. The firm-level controls include age, leverage, employment, and production value. Mean is calculated based on triangular distribution, and best refers to the midpoint CPI expectation. Four different treatments are applied. The mean and the standard deviation of prior inflation expectations are 58% and 18, respectively. All regressions are estimated using the Huber robust method to account for outliers and influential observations. Robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table G2: Treatment Effects on Expectations (without fixed effects and firm controls)

	(1) All Sample	(2) Large Firms	(3) SMEs
Revisions in beliefs immediately after treatment			
Prior mean	0.80***	0.78***	0.83***
	(0.04)	(0.07)	(0.06)
Prior mean × T1	-0.28***	-0.29***	-0.29***
	(0.07)	(0.10)	(0.09)
Prior mean × T2	-0.22***	-0.30***	-0.20**
	(0.07)	(0.09)	(0.09))
Prior mean × T3	-0.13**	-0.09*	-0.18**
	(0.06)	(0.05)	(0.09)
Prior mean × T4	-0.15**	-0.11**	-0.15**
	(0.06)	(0.105)	(0.08)
T1 (SPF expectations)	10.11***	11.89***	10.74***
	(3.85)	(4.85)	(4.58)
T2 (CBRT 1-y ahead forecast)	9.71**	13.61***	10.46**
	(3.95)	(4.51)	(4.99)
T3 (CBRT 2-y ahead forecast)	1.85	2.23	5.79
	(3.91)	(4.72)	(4.91)
T4 (Inflation Target)	8.07**	9.93**	7.49*
	(3.91)	(4.34)	(4.52)
R-squared	0.64	0.66	0.64
Observations	1,181	587	594

Notes: The table reports estimation results for Equation-(1), excluding fixed effects and firm controls. The dependent variable, (Posterior$_i$), refers to CPI expectations, calculated based on triangular distribution. Four different treatments are applied. The mean and the standard deviation of prior inflation expectations are 58% and 18, respectively. All regressions are estimated using the Huber robust method to account for outliers and influential observations. Robust standard errors are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.