BCU

Visual vs. textual communication: Impact on firms' inflation expectations and central bank credibility

Miguel Mello
Jorge Ponce
Luis Rodrigo Arnabal

Nº 003 - 2025

Documento de trabajo
ISSN 1688-7565

Visual vs. textual communication: Impact on firms' inflation expectations and central bank credibility☆

Miguel Mello[a*], Jorge Ponce[a*], Luis Rodrigo Arnabal[a*]

a *Banco Central del Uruguay*

Documento de trabajo del Banco Central del Uruguay 003-2025

Autorizado por: Jorge Ponce
Disponible en línea: 26/05/2025

Resumen

Identificamos causalmente cómo las expectativas de inflación de las empresas y su confianza en el banco central responden a información con el mismo contenido relevante presentada en diferentes formatos. La comunicación mediante texto simple y elementos visuales influye eficazmente en las expectativas de inflación, mientras que los mensajes en texto complejo no logran efectos similares. Las empresas expuestas a representaciones visuales de la información ajustan sus expectativas de manera significativamente mayor que aquellas que reciben la misma información en formato textual. Es importante destacar que el efecto del contenido visual es particularmente fuerte, pero de corta duración. Los mensajes en texto complejo pueden debilitar la credibilidad del banco central. Estos resultados sugieren que existe margen para adaptar la comunicación, de modo de alinear mejor las expectativas de inflación de las empresas con los objetivos de inflación, sin comprometer la credibilidad de la autoridad monetaria.

Abstract

We causally identify how firms' inflation expectations and their trust in the central bank respond to information with the same relevant content presented through different formats. Simple text and visual communication effectively influence inflation expectations, while complex text messaging fails to yield similar effects. Firms exposed to visual representations of information adjust their expectations significantly more than those receiving equivalent information in text form. Notably, the effect of visual content is particularly strong but short-lived. Complex text messages may undermine the credibility of the central bank. These results suggest a scope for tailoring communication to better align firms' inflation expectations with inflation targets while preserving the credibility of the monetary authority.

JEL: E31, E52, E58
Keywords: Inflation expectations, credibility, monetary policy communication, randomized controlled trial, Uruguay

☆ The views expressed in this document are those of the authors and do not necessarily represent the opinion of the Banco Central del Uruguay. We would like to thank Fernando Borraz and Gerardo Licandro for their comments and suggestions.

* E-mails: *mmello@bcu.gub.uy*, *jponce@bcu.gub.uy*, *larnabal@bcu.gub.uy*

1 Introduction

The communication strategy of a central bank is pivotal in shaping inflation expectations, not only among financial markets but also across households and firms. During periods of rising inflation, the importance of effective communication is heightened, as economic agents pay closer attention to publicly available information (*e.g.*, Bracha and Tang, 2019; Korenok et al., 2023; Pfäuti, 2023). This is particularly true in high-inflation environments, where agents exhibit lower responsiveness to relevant inflation-related information (Weber et al., 2023). Equally critical is the central bank's credibility, which underpins the effectiveness of monetary policy (*e.g.*, Kydland and Prescott, 1977; Barro and Gordon, 1983; Christelis et al., 2020).

Recent studies have explored how different communication approaches influence perceptions of central bank credibility. For example, Ehrmann et al. (2023) find that providing additional explanations about the role of monetary policy in stabilizing inflation significantly enhances credibility among the general public. Similarly, Brouwer and de Haan (2022) use a randomized controlled trial (RCT) to show that offering households detailed information about monetary policy helps align their inflation expectations more closely with the central bank's target than merely informing them about the European Central Bank's inflation target.[1]

We conduct an RCT to explore how presenting firms with the same relevant content about inflation in different formats produces differential effects on firms' inflation expectations and perceptions of central bank credibility. Uruguay provides a compelling case for this analysis due to heightened attention to inflation, driven by historically persistent inflation rates exceeding the central bank's target range. Recent changes in monetary policy instruments and communication strategies have successfully brought inflation within the target range. Under this context of disinflation and a strengthened commitment of the Central Bank of Uruguay (BCU) to achieving lower inflation, we conducted our RCT as part of the June 2024 wave of the Business Economic Survey (BES).

The BES surveys inflation expectations and provides valuable insights into how inflation expectations are formed and how central bank communication can be improved (see, for example, Borraz et al., 2013; Borraz and Zacheo, 2018; Frache and Lluberas, 2019; Borraz and Mello, 2020; Carotta et al., 2023; Caruso et al., 2023). The objective of our experiment is to examine the causal impact of various types of monetary policy communication on firms' inflation expectations and the credibility of monetary policy.

[1] For a review of survey experiments on the formation of economic expectations, see, for instance, Fuster and Zafar (2023).

The main results of our analysis reveal that complex text messages fail to shape inflation expectations and may even harm central bank credibility, whereas graphic messages effectively align inflation expectations. These findings highlight the scope for improving monetary policy communication to influence non-professional forecasters better, e.g. firms, an area that has remained particularly challenging (Lamla and Vinogradov, 2019, 2022; Eminidou and Zachariadis, 2022). We also find that simple text messages are also statistically significant, although this result is less robust. Notably, our results complement those by Bholat et al. (2019), who concluded that language simplification, rather than visuals, is more effective in enhancing public comprehension of monetary policy information. Similarly, while Binder and Rodriguez (2018) found comparable impacts of text and graphic content on consumers' long-term inflation expectations in a low-inflation environment, we observe that, in a high-inflation setting, firms respond more effectively to graphic content than to textual messages.

This paper provides new insights into enhancing central bank communication, particularly with non-professional forecasters such as firms. First, we find that presenting relevant inflation information in graphical form effectively influences firms' inflation expectations. Second, we demonstrate that complex text formats are ineffective in shaping these expectations, consistent with the findings of Haldane and McMahon (2018) and Coibion et al. (2022) for households. Finally, and perhaps more surprisingly, our econometric analysis shows that complex text messages undermine the credibility of the central bank. In contrast, graphical presentations and simple text messages do not have a statistically significant impact on firms' perceptions of the central bank's ability to fulfill its legal mandate within the monetary policy horizon, which is our measure of credibility.

Our findings suggest that central banks can enhance their communication strategies by prioritizing graphical content and simplifying message formats for non-specialist audiences, avoiding unnecessarily complex communications that may even harm central bank credibility.

We aim to contribute to the growing body of literature that employs randomized treatments to investigate how households adjust their inflation expectations in response to different types of information.[2] For instance, Cavallo et al. (2017) find that consumers adjust their expectations more effectively when exposed to familiar information, such as supermarket prices, compared to official inflation statistics. Similarly, Haldane and McMahon (2018) demonstrates that simplifying the Bank of England's Inflation Report significantly improves public alignment with the Bank's forecasts compared to the traditional technical report. Supporting this

[2]For a recent compilation of randomized controlled trials conducted across various countries and time periods, see Weber et al. (2023).

notion, Coibion et al. (2022) shows that simple messages containing key information—such as past inflation, the inflation target, or the central bank's forecast—are more effective in shaping expectations than formal statements issued by monetary authorities. Furthermore, D'Acunto et al. (2020) argues that central bank communication should prioritize policy targets over specific measures to better align public expectations.

More closely related to our experiment, Binder and Rodriguez (2018) conducted a dual-treatment experiment on U.S. consumers, utilizing both a text message and a graphical treatment to convey the inflation target and the evolution of inflation over the previous 16 years. Their findings suggest that both treatments were equally effective in adjusting inflation expectations toward the target, with similar marginal impacts regardless of the presentation order.

Our experiment builds upon this literature by not only exploring how information affects treated subjects but also examining how its presentation influences inflation expectations and perceptions of central bank credibility. By exposing firms to the same relevant content framed in different formats, we assess the relative effectiveness of these communication approaches. While prior research has primarily focused on the content and source of communication, our study highlights the role of message complexity and the potential of simple graphical content in shaping firms' expectations and perceptions.

The remainder of the paper is organized as follows. Section 2 describes the monetary policy framework and the key features of the BES, with a particular focus on the methodology used in our analysis. This includes a detailed account of the design and implementation of the randomized controlled trial and a description of the sample. Section 3 discusses the treatment effects of the various types of messages employed in our experiment on inflation expectations and central bank credibility. Finally, Section 4 concludes the paper.

2 The randomized controlled trial

To assess the differential effect of communication types on firms' inflation expectations, we conducted an RCT embedded in the June 2024 wave of the Business Expectations Survey. This section begins by depicting the monetary policy framework at the time of our experiment, together with a brief description of the BES. Then it describes the design of our experiment, providing a characterization of our sample, and presenting key descriptive statistics.

2.1 Monetary policy framework

The aftermath of the 2002 crisis spurred reforms to strengthen the BCU's autonomy and improve its ability to manage monetary policy independently. Efforts included enhancing regulatory oversight and rebuilding foreign exchange reserves. Although Uruguay officially adopted an inflation-targeting framework in 2005, the groundwork was laid in the early 2000s with efforts to stabilize inflation, strengthen monetary policy tools, and build credibility in the central bank.

During the early years of the inflation-targeting regime, the Central Bank of Uruguay focused on anchoring inflation expectations and mitigating inflationary pressures. Nevertheless, inflation consistently surpassed the upper limit of the target range, which was initially set at 6% and raised to 7% in 2012, averaging around 8% annually. Beginning in 2020, the BCU significantly strengthened its commitment to achieving lower inflation by implementing substantial reforms to its monetary policy framework. These reforms were designed to enhance transparency, communication, and credibility. Key measures included the adoption of the short-term interest rate as the primary policy instrument, an increased frequency of monetary policy committee meetings, and the publication of detailed minutes and forward-looking monetary policy reports (see Medina et al., 2024, for a comprehensive discussion).

The BCU's communication strategy has been particularly noteworthy, emphasizing the importance of anchoring inflation expectations within the revised target range of 3% to 6%, introduced in 2020. Efforts to enhance engagement with different audiences—ranging from specialized analysts to non-professional agents—have included the use of simplified language, visual materials, and targeted outreach through social media and newsletters. Forward guidance, introduced in 2021, has further contributed to reducing uncertainty and aligning expectations with policy objectives.

In the aftermath of the global pandemic caused by the SARS-CoV-2 virus, Uruguay experienced a surge in inflation, where monetary policy prioritized liquidity provision in order to ensure the economy's payment flows, address supply chain disruptions, mitigate the impact of rising global commodity prices, and facilitate the subsequent recovery of domestic demand. Strengthening its commitment to achieve lower inflation, BCU initiated a cycle of interest rate hikes in August 2021. This entailed a gradual increase in the policy rate from its historical lows, with the objective of curbing inflation and aligning expectations. From June 2022, monetary policy moved into a contractionary phase.

During this period, the BCU maintained a floating exchange rate regime, with a slight appreciation of the Uruguayan peso against the U.S. dollar as a result, which helped moderate imported inflation. Between 2023 and 2024, the Uruguayan econ-

omy demonstrated resilience, recovering from the pandemic-induced slowdown. As inflationary pressures eased in 2023 and inflation fell within the Central Bank's target range, the monetary authority adopted a more neutral monetary policy stance. Interest rates were gradually reduced, reflecting lower inflation and a focus on supporting economic activity.

Our RCT was conducted as part of the June 2024 wave of the BES during a period when inflation had remained within the Central Bank's target range of 3–6% for 12 consecutive months, and the monetary policy stance was neutral. Despite this recent success in achieving the inflation target, firms' inflation expectations remained anchored at higher levels with an average gap of more than 2 percentage points relative to the inflation rate (see Figure 1), underscoring the persistent challenge of aligning expectations with the target. This context highlights the relevance of our study in understanding the role of communication strategies in bridging this gap.

2.2 The Business Expectations Survey

The BES is commanded by the BCU and carried out by the National Statistics Agency. The National Statistics Agency employs a random, direct, and stratified sampling procedure, accounting for firm size and economic sector.[3] This survey is sent to 400 firms every month, with an average response ratio of 64%. It is representative of the universe of Uruguayan private companies with at least 100 employees. Regarding firms' inflation expectations, the usual question asked in the BES is the following: *"What do you think will be the variation of the CPI (Consumer Price Index)?" (expressed in %).* This question is asked with monthly frequency in the 12- and 24-month horizons. The answers to this usual question serve as priors for the RCT experiment that we have conducted.

2.3 Treatments and control group

In June 2024, the BES sample was randomly divided into four groups. In the first part of the survey, all four groups were asked the usual questions. Then, each treated group was presented with relevant information about inflation framed differently, while the control group did not receive any piece of information and moved directly to the subsequent questions.

Each information treatment contained the same relevant content: the recent evolution of inflation, highlighting its alignment within the central bank's target range; the central bank's inflation target range; and the recent evolution of firms' inflation expectations, noting that they remain above the target range. Following

[3]For further details, see: https://www.gub.uy/instituto-nacional-estadistica/datos-y-estadisticas/encuestas/encuesta-mensual-expectativas-empresariales-eee

these treatments, two key questions were posed to the participants: one regarding their inflation expectations and the other about their trust in the central bank's credibility. Participants were also asked control questions regarding their role in the firm and their level of economic literacy. We will leverage this heterogeneity in our formal analysis.[4]

The first treated group, (T1), was provided with **Figure 1** and the following text: *"The following graph shows the evolution of the annualized inflation rate, the target range of the Central Bank, and the average inflation expectations of firms:"*

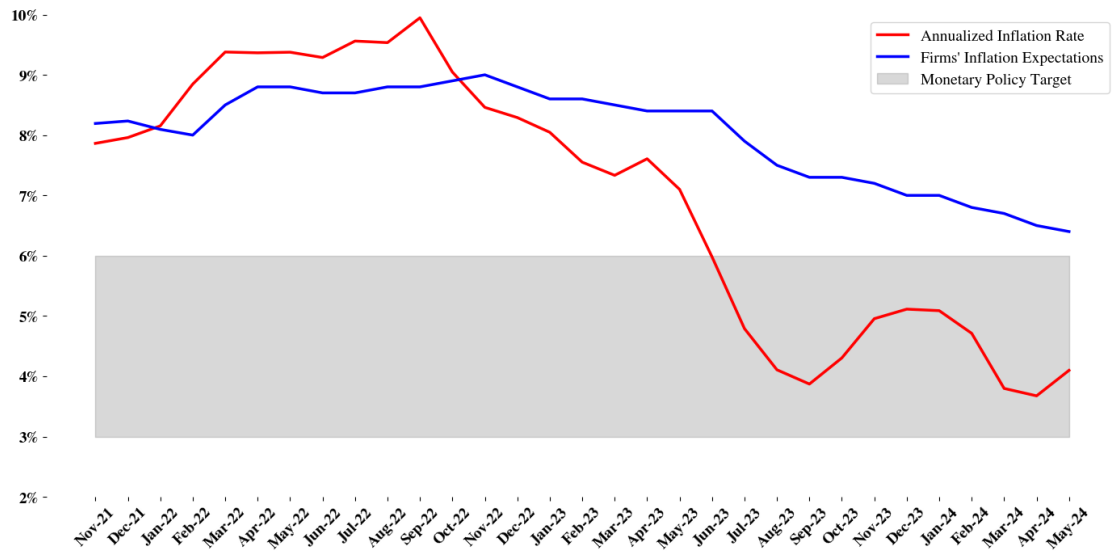

Figure 1: Annualized inflation, firms' 12 months average inflation expectations and monetary policy inflation target range.

The second treated group (T2) received a very **simple text** with the same information provided in Figure 1: *"Inflation in Uruguay has decreased from 10% to 4%. It has remained within the target range of the Central Bank, which is between 3% and 6%. Although firms' expectations have also decreased, they have done so to a lesser extent and are outside the range."*

The third treated group (T3) received a **difficult text**. This information treatment is a larger piece of information than the simple text, which is also written in a more complex way: *"In recent years, the year-on-year inflation rate in Uruguay has experienced a downward trend, falling from levels close to 10% in mid-2022 to a value that is around 4% at the end of 2023. The inflation rate, in the most recent period, is within the target range of the Central Bank of Uruguay (BCU), which is set between 3% and 6%. On the other hand, inflation expectations of Uruguayan*

[4]The study by Medina et al. (2024) explores the influence of who answers the BES and their understanding of monetary policy. They find that decision-makers generally do not distinguish between projection horizons (12 or 24 months) for their inflation expectations, but when they do, their expectations are more aligned with the central bank's objectives. In contrast, external advisors to the firm show variability in their expectations across different forecasting horizons.

firms have been much more rigid in recent years, since in 2022 these expectations remained at levels close to 8%, later increasing to around 9% in the middle of the year 2022, and decreasing to levels of 7% towards the end of the year 2023, dynamics of the inflation expectations of businessmen that determine that their average remains outside the target range of the BCU."

To assess the difficulty in understanding the text treatments, we use the readability index developed by Fernández Huerta (1959) and the perspicuity index proposed by Pazos (1993), both of which are specifically tailored for Spanish, the language in which the BES is conducted. For completeness, we also consider the Flesch Reading Ease Index, developed by Flesch (1948). These indicators measure readability based on the number of words, sentences, and syllables, while perspicuity is assessed through the logical structure, coherence, and clarity of the text. The formulas used by these indicators generate scores that reflect the ease or difficulty of understanding the text and suggest the education level required for the target audience.[5]

Table 1 presents the set of indicators that measure the readability and perspicuity of our text treatments, together with their lecture time in seconds.

	Flesch		Fernández-Huerta		Pazos		Lecture time
Treatment	Score	Readability	Score	Readability	Score	Perspicuity	Seconds
Simple	84.55	Easy	88.27	Easy	86.20	Very easy	13
Difficult	39.43	Difficult	42.59	Difficult	41.94	Difficult	50

Table 1: Readability and perspicuity indicators for the simple and difficult text treatments

According to the text analysis, the simple text that was received by group T2 is easy to read, and its style is very easy, meaning that it can be understood by a 10-11-year-old person. In contrast, the difficult text that was given to T3 is difficult to read and has a somewhat difficult style, meaning that it can be understood by someone of the university level. In terms of the lecture time, it takes almost four times more to read the difficult text given to T3 than the simple text given to T2.

After the information treatment, all participants were asked two questions: one about their inflation expectations and another about their credibility in the central bank.[6] Regarding inflation expectations, firms are asked to assign probabilities to inflation falling within different range values in the following 12 months. The same question has been asked every September since 2015. From the resulting distribution of 12-month inflation expectations[7], we approximate the posterior firms' inflation

[5]The mappings between scores, education level, and style of the text are presented in Appendix A.1.

[6]Post treatment questions are presented in Appendix A.2.

[7]The summary statistics for this post-treatment question are presented in Table 13 in Appendix A.4.

expectations by calculating the product of the midpoint[8] of each interval range and the probability assigned to each bin:

$$E_i^{Post}[\pi_{i,12}] = \sum_k p_{i,k,12} \times m_k,$$

where $p_{i,k,12}$ is the probability assigned by firm i to the inflation in the following 12 months being within the k-th inflation range interval, and m_k is the midpoint of the k-th interval.[9]

Regarding the credibility of the central bank's monetary policy, in Section 3.2 we will exploit the post-treatment distribution of the 12-month inflation expectations. We will also use the answers to the following question that was asked to firms as part of the treatment in June 2024: *How likely do you consider that inflation will remain within the BCU's target range [3%-6%] in the next 24 months? [0, 100].* The answers to this question provide a measure of credibility in the 24-month horizon.

2.4 Pre-treatment characteristics

We perform some statistical tests to check that there are no biases in the selection of our treatment groups. We regress three key variables in our analysis against dummies referring to each of the selected groups before the treatments: 12-month and 24-month inflation expectations and a proxy of ex-ante credibility. Since there is no pre-treatment question that explicitly asks to firms about their trust in the monetary authority, we construct a proxy for ex-ante credibility considering whether their pre-treatment inflation expectation falls within the central bank's inflation target range. In particular, our ex-ante credibility proxy consists of a dummy variable that takes the value of 1 if the 24-month inflation expectation is within the monetary policy target range.

If there is no bias in the selection of our treatment groups, the treatment dummies should have no statistically significant effect on the selected pre-treatment outcome variables. To test whether this is indeed the case, we estimated the following regression by ordinary least squares (OLS):

$$Y_i = \alpha + \beta_j \, T_{i,j} + \varepsilon_i,$$

where our outcome variables Y_i are: 12-month, and 24-month inflation expectations, and our measure of credibility of firm i; $T_{i,j}$ is a dummy variable that takes the value of 1 if the firm i belongs to the treatment group j, while ε_i is an error term.

[8] Using the median of each interval does not alter the results.

[9] The midpoint of the first interval, i.e. "Inflation will be less than 3%", was assigned to 1.5%. Regarding the last interval, i.e. "Inflation will be higher than 20%", the midpoint corresponds to 20% which corresponds to the percentile 90th of the answers on that interval.

The results are presented in Appendix A.3. As anticipated, we find that belonging to any of the treatment groups does not explain firms' 12- and 24-month inflation expectations nor their credibility regarding the central bank's ability to maintain inflation within the target range over the monetary policy horizon. These findings provide empirical evidence that the assignment of firms to treatment groups was indeed random, providing reassurance that any observed effects are indeed attributable to the information treatments.

2.5 Descriptive statistics

Table 2 presents the descriptive statistics of inflation expectations before and after the information treatments for each group.

	Control			Graph			Simple text			Difficult text		
Variable	Obs	Mean	S.D.	Obs	Mean	S.D.	Obs	Mean	S.D.	Obs	Mean	S.D.
$E_i^{Prior}[\pi_{i,12}]$	67	6.19	1.49	59	6.42	1.40	63	6.40	1.42	63	6.39	1.54
$E_i^{Post}[\pi_{i,12}]$	67	6.17	2.45	59	6.27	2.09	62	6.10	2.00	63	6.68	2.72
$P_i(\pi_{24} \in [3,6])$	67	65.58	29.22	59	63.39	30.46	62	60.23	29.22	63	57.97	29.08
$\frac{E_i^{Post}[\pi_{i,12}]}{E_i^{Prior}[\pi_{i,12}]}$	67	0.99		59	0.98		63	0.95		63	1.05	
$\frac{\sigma^{[\pi_{i,12}^{Post}]}}{\sigma^{[\pi_{i,12}^{Prior}]}}$	67	1.65		59	1.50		63	1.42		63	1.76	
$DecisionMaker(\%)$	67	0.36		59	0.32		63	0.33		63	0.37	
$Employee(\%)$	67	0.37		59	0.39		63	0.37		63	0.29	
$Eco.Advisor(\%)$	67	0.03		59	0.08		63	0.03		63	0.05	
$Acc.Advisor(\%)$	67	0.16		59	0.17		63	0.16		63	0.27	

Table 2: Descriptive statistics by group

We observe that there are no significant differences in pre-treatment inflation expectations, $E_i^{Prior}[\pi_{i,12}]$, between the four different groups. Conversely, there is a decline in the average post-treatment inflation expectations, $E_i^{Post}[\pi_{i,12}]$, for the groups that received the graphic and simple text treatments, while the group that received the complex text treatment exhibited an increase, with no change observed for the control group.

Table 2 also presents the relationship between the means and standard deviations of inflation expectations by group, before and after the information treatments. We observe that participants who received the graphical and simple message treatment have a lower standard deviation in their 12-month inflation expectations compared to the control group, while those who received the difficult text treatment exhibit a higher standard deviation.

Looking at the probability that firms assign to the fact that inflation is within the central bank's target range over the monetary policy horizon ($P_i(\pi_{24} \in [3,6])$), it appears that the information treatments negatively affect credibility, understood as

the fact that the central bank will deliver on its mandate in the 24-month horizon. The probability of all treatments having a significant effect in improving credibility in the monetary authority is lower than that of the control group, a discrepancy that increases with the level of communication difficulty.

Regarding heterogeneity in survey respondents, we observe that the survey is primarily completed by decision-makers or employees of the firms, followed by accounting advisors, with economic advisors representing a smaller fraction. The distribution of roles across groups is generally even, except in the difficult text group, where there is higher participation from accounting advisors and lower participation from employees.

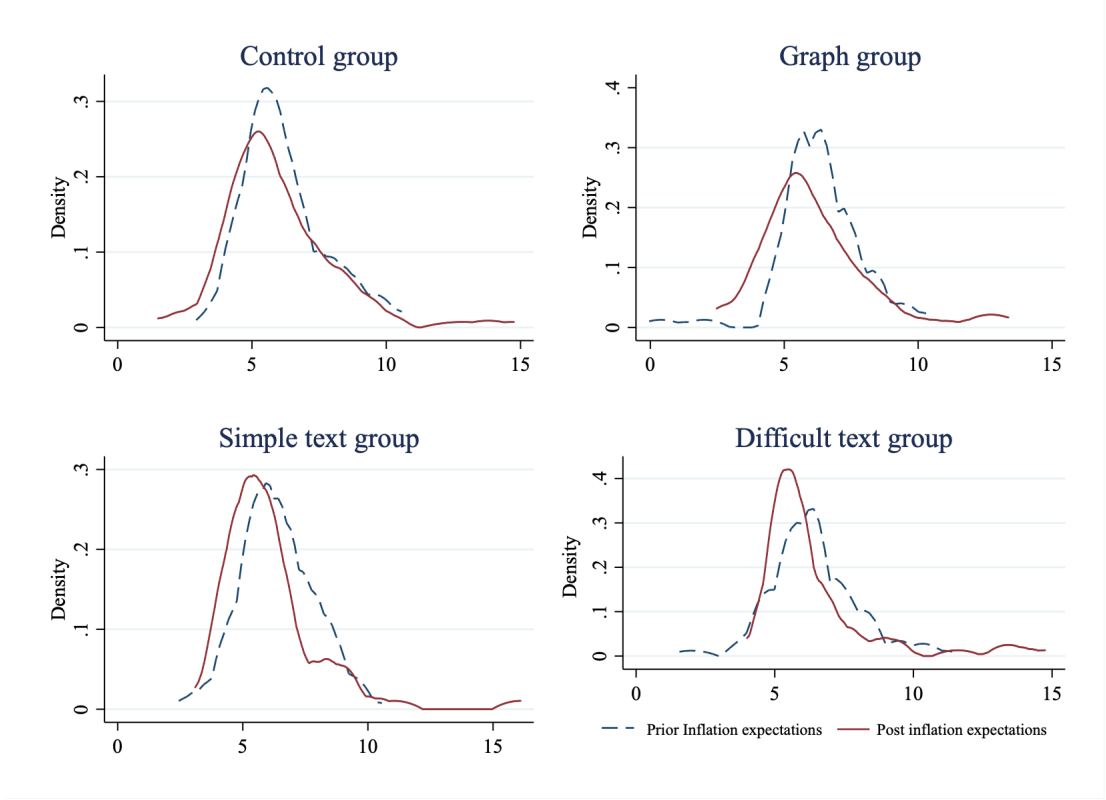

Figure 2: Firms' inflation expectation density functions before and after information treatments

Figure 2 presents the distributions of firms' inflation expectations before and after the information treatments for all four groups. For the control group, both density functions practically overlap; for the graphic and simple text message treatments, the density functions of the posterior inflation expectations are notoriously shifted to the left. For the group of firms that received the complex text message treatment, this shift in the density of inflation expectations is not so striking, standing out that a higher probability is accumulated around 6% of expected inflation.

The descriptive statistics and visual inspection suggest that the graphical and simple text treatments were effective in aligning inflation expectations with the

inflation target, reducing dispersion among the respondents. In contrast, the effect of the difficult text treatment is less clear. We formally test the impact of our information treatments in the following section.

3 Econometric analysis

This section presents an econometric analysis of the outcomes of our information treatment experiment in inflation expectations and credibility in the monetary authority.

3.1 Inflation expectations

We formally test the effect that the different information treatments had on firms' inflation expectations by estimating by OLS the following regression:

$$E_i^{Post}[\pi_{i,12}] = \alpha + \beta\ E_i^{Prior}[\pi_{i,12}] + \sum_j \delta_j\ T_{i,j} + \sum_j \gamma_j\ T_{i,j}\ E_i^{Prior}[\pi_{i,12}] + \sum_j \theta_j X_{i,j} + \varepsilon_i, \tag{1}$$

where α is a constant, $E_i^{Post}[\pi_{i,12}]$ and $E_i^{Prior}[\pi_{i,12}]$ are the post-treatment (posterior) and pre-treatment (prior) 12-month inflation expectations of firm i, respectively. $T_{i,j}$ is a dummy variable that takes the value of 1 if the firm i belongs to the treatment group $j \in \{\text{Graph, Simple, Difficult}\}$, while $X_{i,j}$ are other control variables: economic sector and size of the firms. ε_i is an error term.

In principle, no changes should be observed in the control group, as they were not exposed to any treatment, implying that $\alpha = 0$. Firms should place full weight on their prior beliefs, suggesting $\beta = 1$, while γ_j should be negative, reflecting the extent to which firms in treated group j adjust their priors in response to the information treatments.

Following Weber et al. (2023), we consider as the most informative metric of the effect of the treatment on firms' inflation expectations the ratio of γ_j over β:

$$\tau_j = \frac{\gamma_j}{\beta}, \tag{2}$$

which captures how much of the effect of the prior is outset by the information treatment. Otherwise stated, τ_j measures how much flatter the relationship between priors and posteriors is for the treatment group j relative to the control group. This measure allows us to focus on how firms' beliefs change when exposed to new

information, accounting for the fact that treated firms and those in the control group assign different weights to their prior beliefs.

	Graph	Simple	Difficult	All firms
$E_i^{Prior}[\pi_{i,12}]$	1.179***	0.827***	0.935***	1.047***
	(0.072)	(0.124)	(0.087)	(0.060)
$T_{i,Graph}$	6.250***			3.688*
	(1.137)			(1.166)
$T_{i,Graph}\ E_i^{Prior}[\pi_{i,12}]$	-0.970***			-0.638**
	(0.215)			(0.262)
$T_{i,Simple}$		-3.087		-0.539
		(2.043)		(1.138)
$T_{i,Simple}\ E_i^{Prior}[\pi_{i,12}]$		0.386		-0.019
		(0.301)		(0.154)
$T_{i,Diff}$			0.637	1.279
			(1.898)	(1.396)
$T_{i,Diff}\ E_i^{Prior}[\pi_{i,12}]$			-0.111	-0.170
			(0.396)	(0.217)
Constant	-2.443***	1.314	0.840	0.101
	(0.522)	(0.738)	(1.744)	(0.753)
Observations	126	130	130	252
R^2	0.630	0.812	0.823	0.571
Size FE	Yes	Yes	Yes	Yes
SectorFE	Yes	Yes	Yes	Yes
τ_{Graph}	-0.823***			-0.609**
τ_{Simple}		0.467		-0.018
τ_{Diff}			-0.119	-0.162

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

Standard errors clustered by economic sector.

Significance levels for τ_j are approximated applying the Delta Method. (Wooldridge (2010)).

Table 3: Effects of information treatments on 12-month inflation expectations

Table 3 reports the relevant coefficients of the regression of Equation (1), detailing the effect of the information treatments on the adjustments for 12-month inflation expectations. The graphic message treatment stands out as the only information treatment that has a statistically significant effect. This treatment outsets around 82% of the effect of the prior with respect to the control group and 61% relative to the rest of the firms responding to the June 2024 wave of the survey.

This result is of great significance, not only for the magnitude of the effect but also because the reduced size of the sample makes it hard to get statistically significant effects.

The observed reduction in inflation expectations due to the graphical message treatment suggests that visual communication may be key to shaping the inflation expectations of non-professional agents in an economy with relatively high inflation levels, a task that has remained challenging. This finding supports the notion that customized monetary policy communication is necessary to influence expectations among non-professional agents (Medina et al., 2024). Moreover, it underscores that tailored communication is not only about the content of the information provided but, perhaps more importantly, about how the information is presented to the target audience.

Our exploratory analysis in Section 2.5 suggested that the simple message treatment could influence inflation expectations. However, our statistical analysis using the metric τ finds no significant overall effect. Nevertheless, the simple message has a statistically significant impact in the expected direction when we use a different prior. We will see these results in the next section where we conduct robustness checks to assess the reliability of our results on the impact of the information treatments on inflation expectations.

3.1.1 Robustness checks

Prior inferred from a distribution of probabilities. A potential concern with the previous analysis is that the prior is based on point estimate questions, whereas the posterior is derived from firms' responses about the probability distribution of inflation falling within specific intervals. Hence, we re-estimate Equation (1), replacing the prior with a variable constructed using Equation (2.3) based on the probability distribution question from the September 2023 wave (see Appendix A.2.1). The results of these regressions are presented in Table 4.

We find that the simple message treatment has a statistically significant effect in reducing inflation expectations in a disinflationary context, offsetting approximately 77% of the effect of the prior relative to the control group. In contrast, while the graphical and difficult text treatments show the expected signs, their effects are not statistically significant. Using September 2023 inflation expectations as priors reduces the sample size and alters its composition. This change likely explains the loss of significance for the graphical treatment and why the simple message treatment, which previously appeared effective based on graphical inspection, now emerges as statistically significant. Furthermore, as we will show in Section 3.1.2, the effect of the graphical treatment is not long-lasting.

The most robust finding regarding the impact of our information treatments on

	Graph	Simple	Difficult	All firms
$E_i^{Prior}[\pi_{i,12}]$	0.528***	0.532***	0.509***	0.524***
	(0.097)	(0.097)	(0.085)	(0.089)
$T_{i,Graph}$	0.764			0.743
	(1.526)			(1.567)
$T_{i,Graph}$ $E_i^{Prior}[\pi_{i,12}]$	-0.122			-0.120
	(0.190)			(0.194)
$T_{i,Simple}$		2.524**		2.491**
		(0.903)		(0.863)
$T_{i,Simple}$ $E_i^{Prior}[\pi_{i,12}]$		-0.410**		-0.401**
		(0.134)		(0.127)
$T_{i,Diff}$			1.423	1.428
			(1.287)	(1.279)
$T_{i,Diff}$ $E_i^{Prior}[\pi_{i,12}]$			-0.138	-0.150
			(0.168)	(0.159)
Constant	2.821***	2.998***	2.455***	2.722***
	(0.637)	(0.590)	(0.634)	(0.608)
Observations	105	108	113	214
R^2	0.261	0.217	0.238	0.202
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
τ_{Graph}	-0.231			-0.765
τ_{Simple}		-0.771**		-0.765**
τ_{Diff}			-0.271	-0.286

** p<0.10, ** p<0.05, *** p<0.01*
Standard errors clustered by economic sector.
Significance levels for τ_j are approximated applying the Delta Method. (Wooldridge (2010)).

Table 4: Effect of information treatments on inflation expectations, using September 2023 inflation expectations as prior and June 2024 post-treatment inflation expectations as posterior

firms' 12-month-ahead inflation expectations is that complex text communication is ineffective, whereas simple text and graphical communication are effective in shaping expectations.

Placebo tests. We conduct two placebo tests, both estimating Equation (1) but using different priors. The first test employs firms' 12-month-ahead inflation expectations from the September 2023 BES wave. The second test infers expectations from the probability distribution reported by firms in the same wave. In both cases, we use firms' responses to the June 2024 pre-treatment inflation expectations question as the posterior.

As expected, we find that no treatment effect is statistically significant, reinforcing that the previously observed effects are indeed driven by the information

treatments. The regression results are presented in Appendix A.5.

3.1.2 Persistence

The periodic nature of the BES allows us to analyze the persistence of our treatment effects, as firms are surveyed monthly about their inflation expectations, as explained in Section 2.2. Therefore, for the period from July to October 2024, we consider firms' responses to the standard question – i.e., their point estimates of inflation expectations– as posteriors.

Table 5 reports the relevant coefficients for the graphical treatment. For completeness, results for the simple and difficult message treatments are presented in Appendix A.6.

	June	July	August	September	October
$E_i^{Prior}[\pi_{i,12}]$	1.179***	0.731***	0.775***	0.639***	0.105
	(0.072)	(0.046)	(0.052)	(0.158)	(0.301)
$T_{i,Graph}$	6.250***	2.288***	1.415	-0.151	1.265
	(1.137)	(0.277)	(0.915)	(3.785)	(1.924)
$T_{i,Graph}\ E_i^{Prior}[\pi_{i,12}]$	-0.970***	-0.353***	-0.188	0.022	-0.098
	(0.215)	(0.104)	(0.127)	(0.528)	(0.297)
Constant	-2.443***	1.461**	0.570	2.509	5.587***
	(0.522)	(0.473)	(0.434)	(1.538)	(1.199)
Observations	126	102	100	97	66
R^2	0.630	0.821	0.898	0.766	0.732
Size FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes
τ_{Graph}	-0.823**	-0.483*	-0.243	0.034	-0.933

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

Standard errors clustered by economic sector. Significance levels for τ_j are approximated applying the Delta Method. (Wooldridge (2010))

Table 5: Persistence effects of the graph treatment on inflation expectations

We observe that the significant effect that the graphical treatment had in shaping inflation expectations, as documented in Section 3.1, starts to dissipate, reducing its impact almost by half in the following month and disappearing altogether a couple of months after the treatment.

3.2 Credibility

To evaluate how the information treatments affect the credibility that firms have in the central bank over the 24-month horizon, we follow Ehrmann et al. (2023) by estimating by OLS the following equation:

$$C_{i,t+24} = \alpha + \sum_j \beta_j\ T_{i,j} + \sum_j \theta_j X_{i,j} + \upsilon_i, \tag{3}$$

where $C_{i,t+24}$ is a credibility measure about the central bank keeping inflation between the target range in the 24-month horizon. The rest of the variables are defined as before. The dependent variable, $C_{i,t+24}$, comes from the answers to the following survey question after the treatment in June 2024: *"How likely do you consider that inflation will remain within the BCU's target range [3%-6%] in the next 24 months? [0, 100]"*

Figure 3 presents the distribution of the responses to this question.

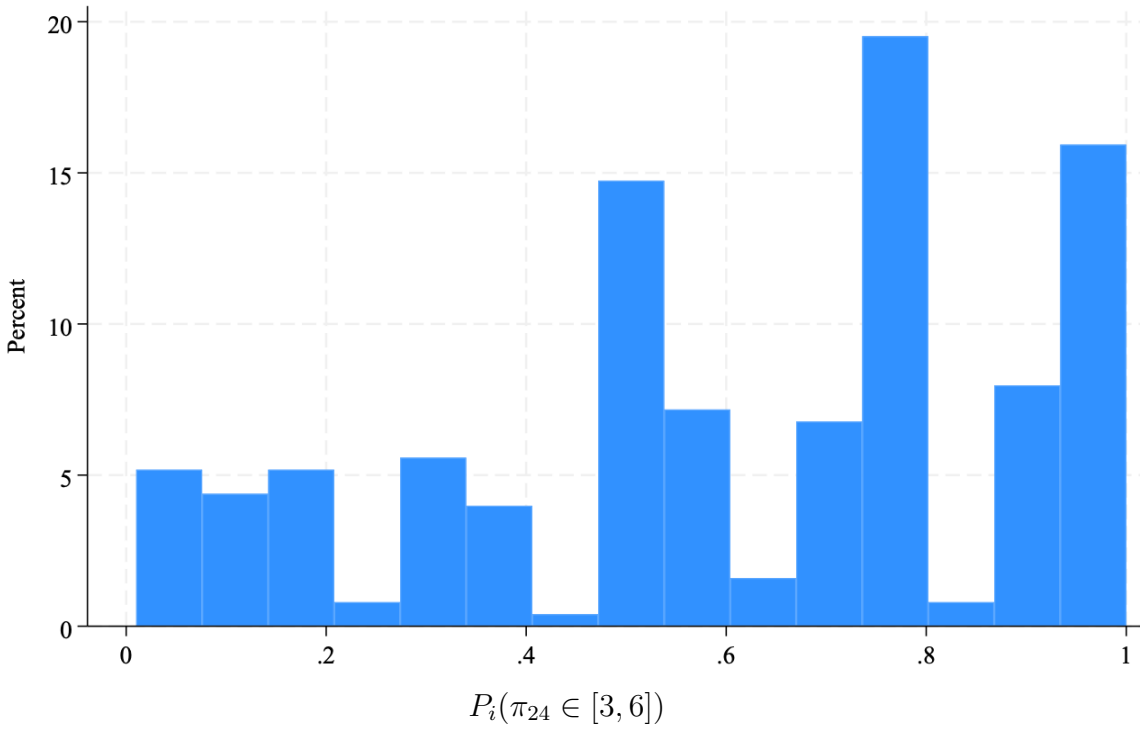

Figure 3: Histogram for credibility over the 24-month horizon

Figure 3 presents the distribution of probabilities that firms assigned to the central bank maintaining inflation within its target range over the next 24 months following the information treatments. Approximately 70% of firms assign a probability greater than 50% to the central bank fulfilling its legal mandate. Additionally, we observe a concentration of responses around 0.5, 0.75, and 1, suggesting that respondents may use round numbers to express uncertainty (Binder, 2017).

To evaluate how the information treatments affect the credibility that firms have in the central bank over the 24-month horizon, we estimate by OLS Equation 3. The results are reported in Table 6.

	Graph	Simple	Difficult	All firms
$T_{i,Graph}$	-0.017			-0.017
	(0.051)			(0.048)
$T_{i,Simple}$		-0.063		-0.058 *
		(0.030)		(0.029)
$T_{i,Diff}$			-0.069**	-0.070*
			(0.026)	(0.032)
Constant	0.719***	0.732***	0.629***	0.674***
	(0.043)	(0.018)	(0.049)	(0.024)
Observations	126	129	130	251
R^2	0.100	0.125	0.092	0.075
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

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

Standard errors clustered by economic sector.

Table 6: Effect of treatments on firms' credibility in the 24-month horizon

We find that firms exposed to the difficult text message treatment experienced a statistically significant decline in their confidence in the central bank's ability to deliver on its legal mandate over the 24-month horizon. The simple text and the visual treatment have no statistically significant effect on firms' perceptions of the central bank's credibility.

In summary, our findings underscore the challenges of enhancing monetary policy credibility through communication, emphasizing the critical role of clear messaging for non-specialist agents. Furthermore, they suggest that exposing firms to complex messages about inflation may undermine confidence in the central bank's credibility.

4 Conclusions

We provide causal empirical evidence on how the format in which the same content is transmitted to firms can have different impacts on their inflation expectations and the credibility of the central bank's monetary policy. We do it by conducting a randomized controlled trial embedded in the June 2024 wave of the Business Expectation Survey for firms in Uruguay. The main results of our experiment indicate that providing firms with relevant and simple visual content about inflation is an effective tool for shaping their inflation expectations. The graphical treatment significantly reduced firms' inflation expectations, an impact that vanished after two

months.

Our findings suggest that the simplicity and clarity of information are crucial factors in shaping inflation expectations. Firms' respondents are likely to process and comprehend information more effectively when it is presented in a concise and visually appealing format. This, in turn, may lead to increased attention and a higher likelihood that the information will influence expectations. Furthermore, the visual presentation of information, such as the recent evolution of inflation and the inflation target range, offers a clear reference point for firms. This benchmark can anchor their expectations, aligning them more closely with the central bank's target. Additionally, the use of graphical content may enhance firms' familiarity with and trust in the information provided. By making the data more tangible and relatable to firms' own experiences, graphics could strengthen their confidence in the central bank's messages.

Our results suggest that simple and visual communication may be more effective in influencing short-term expectations than long-term ones. In a disinflationary context, exposing non-sophisticated agents to relevant information regarding inflation presented in a complex manner backfired, reducing their credibility in the monetary authority in the monetary policy horizon.

References

Barro, R. J. and Gordon, D. B. (1983). Rules, discretion and reputation in a model of monetary policy. *Journal of Monetary Economics*, 12(1):101–121.

Bholat, D., Broughton, N., Ter Meer, J., and Walczak, E. (2019). Enhancing central bank communications using simple and relatable information. *Journal of Monetary Economics*, 108:1–15.

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

Binder, C. and Rodriguez, A. (2018). Household informedness and long-run inflation expectations: Experimental evidence. *Southern Economic Journal*, 85(2):580–598.

Borraz, F., Licandro, G., and Sola, D. (2013). Wage and price setting: New evidence from uruguayan firms. *Banco Central del Uruguay Working Papers*, 8-2013.

Borraz, F. and Mello, M. (2020). Communication, information and inflation expectations. *BIS CCA Research Network-Fourthcoming*.

Borraz, F. and Zacheo, L. (2018). Inattention, disagreement and internal (in) consistency of inflation forecasts. *Banco Central del Uruguay Working Papers*, 7-2018.

Bracha, A. and Tang, J. (2019). Inflation thresholds and inattention. *FRB of Boston Working Paper*.

Brouwer, N. and de Haan, J. (2022). The impact of providing information about the ecb's instruments on inflation expectations and trust in the ecb: Experimental evidence. *Journal of Macroeconomics*, 73:103430.

Carotta, G., Mello, M., and Ponce, J. (2023). Monetary policy communication and inflation expectations: New evidence about tone and readability. *Latin American Journal of Central Banking*.

Caruso, M., Mello, M., and Ponce, J. (2023). News of disinflation and firms' expectations: New casual evidence. *Journal of International Money and Finance*, 137.

Cavallo, A., Cruces, G., and Perez-Truglia, R. (2017). Inflation expectations, learning, and supermarket prices: Evidence from survey experiments. *American Economic Journal: Macroeconomics*, 9(3):1–35.

Christelis, D., Georgarakos, D., Jappelli, T., and Van Rooij, M. (2020). Trust in the central bank and inflation expectation. *International Journal of Central Banking*, 16(6):1–38.

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.

D'Acunto, F., Hoang, D., Paloviita, M., and Weber, M. (2020). Effective policy communication: Targets versus instruments. *Chicago Booth Research Paper*, (20-38).

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*.

Eminidou, S. and Zachariadis, M. (2022). Firms' expectations and monetary policy shocks in the euro area. *Journal of International Money and Finance*, 122:102556.

Fernández Huerta, J. (1959). Medidas sencillas de lecturabilidad. *Consigna*, 214:29–32.

Flesch, R. (1948). A new readability yardstick. *Journal of applied psychology*, 32(3):221.

Frache, S. and Lluberas, R. (2019). New information and inflation expectations among firms. *BIS Working Paper*, 781.

Fuster, A. and Zafar, B. (2023). Survey experiments on economic expectations. In *Handbook of Economic Expectations*, pages 107–130. Elsevier.

Haldane, A. and McMahon, M. (2018). Central bank communications and the general public. In *AEA papers and proceedings*, volume 108, pages 578–583. American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203.

Korenok, O., Munro, D., and Chen, J. (2023). Inflation and attention thresholds. *Review of Economics and Statistics*, pages 1–28.

Kydland, F. E. and Prescott, E. C. (1977). Rules rather than discretion: The inconsistency of optimal plans. *Journal of Political Economy*, 85(3):473–491.

Lamla, M. and Vinogradov, D. (2022). Is the word of a gentleman as good as his tweet? policy communications of the bank of england. *Working Paper Series in Economics 403. Leuphana University of Lüneburg*.

Lamla, M. J. and Vinogradov, D. V. (2019). Central bank announcements: Big news for little people? *Journal of Monetary Economics*, 108:21–38.

Medina, J., Mello, M., and Ponce, J. (2024). Heterogeneous inflation expectations: A call for customized monetary policy communication? *Journal of International Money and Finance*, 149:103211.

Pazos, F. S. (1993). *Sistemas predictivos de legibilidad del mensaje escrito: fórmula de perspicuidad*. Universidad Complutense de Madrid.

Pfäuti, O. (2023). The inflation attention threshold and inflation surges. *Manuscript*.

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. *Forthcoming in Econometrica*.

Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*, volume 1 of *MIT Press Books*. The MIT Press.

A Appendix

A.1 Text readability and perspicuity

Score range	Reading level	Grade
90–100	Very Easy	11-year-old student
80–89	Easy	6th grade
70–79	Fairly Easy	7th grade.
60–69	Standard	13–15-year-olds.
50–59	Fairly Difficult	high school students.
30–49	Difficult	College
0–29	Very Difficult	University

Table 7: Reading ease scale according to Flesch (1948)

Score range	Grade	Style
0–30	Professional	Very difficult
30–50	University	Difficult
50–60	High school	Somewhat difficult
60–70	7 or 8	Normal
70–80	6	Somewhat easy
80–90	5	Easy
90–100	4	Very easy

Table 8: Readability scale according to Fernández Huerta (1959)

Score range	Grade	Style	Type
0 - 15	Professional	Very difficult	Scientific
16 - 35	Graduate student	Difficult	Technical
36 - 50	University	Somewhat difficult	Literature
51 - 65	Popular	Normal	Media
66 - 75	12 years old	Somewhat easy	Novels
76- 85	11 years old	Easy	News
86 - 100	6 to 10 years old	Very easy	Comics

Table 9: Perspicuity scale according to Pazos (1993)

A.2 Posterior treatment questions

Here we present the BES questions directly related to inflation expectations, central bank credibility, their monetary policy literacy and the role in the firm of the person who answers the survey.

A.2.1 Inflation expectations

What probability do you assign to each of the following statements regarding what will happen to inflation in the following 12 months? [in %]

1. Inflation will be less than 3%.
2. Inflation will be between 3 and 4%.
3. Inflation will be between 4 and 5%.
4. Inflation will be between 5 and 6%.
5. Inflation will be between 6 and 7%.
6. Inflation will be between 7 and 8%.
7. Inflation will be between 8 and 9%.
8. Inflation will be between 9 and 10%.
9. Inflation will be between 10 and 12%.
10. Inflation will be between 12 and 15%.
11. Inflation will be between 15 and 20%.
12. Inflation will be higher than 20%.

A.2.2 Credibility

How likely do you consider that inflation will remain within the BCU's target range [3%-6%] in the next 24 months? [0, 100]

A.2.3 Scope of information on monetary policy (literacy)

How often does your firm inform about monetary policy and its effects?

1. Never
2. Sometimes
3. Frequently
4. Always

A.2.4 Identifying who usually answers the survey

Who usually answers this survey?

1. A director or manager of the firm.
2. Another employee of the firm.
3. An external economic or financial advisor.
4. An external accounting advisor.
5. Other

A.3 Pre-treatment controls

	Graph Treatment	Simple text	Diff text	All
$T_{i,Graph}$	0.004			0.117
	(0.179)			(0.219)
$T_{i,Simple}$		0.095		0.186
		(0.152)		(0.216)
$T_{i,Diff}$			0.062	0.162
			(0.204)	(0.236)
Constant	6.469***	6.446***	6.449***	6.344***
	(0.108)	(0.109)	(0.109)	(0.184)
Observations	252	252	252	252
R^2	0.014	0.015	0.014	0.016
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

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

Standard errors clustered by economic sector.

Table 10: Pre-treatment: 12-month inflation expectations

	Graph Treatment	Simple text	Diff text	All
$T_{i,Graph}$	-0.157			-0.010
	(0.184)			(0.203)
$T_{i,Simple}$		0.276		0.318
		(0.246)		(0.218)
$T_{i,Diff}$			0.029	0.134
			(0.262)	(0.194)
Constant	6.821***	6.718***	6.780***	6.664***
	(0.202)	(0.174)	(0.242)	(0.178)
Observations	252	252	252	252
R^2	0.012	0.016	0.011	0.017
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

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

Standard errors clustered by economic sector.

Table 11: Pre-treatment: 24-month inflation expectations

	Graph Treatment	Simple text	Diff text	All
$T_{i,Graph}$	-0.010			-0.051
	(0.076)			(0.074)
$T_{i,Simple}$		-0.061		-0.090
		(0.061)		(0.065)
$T_{i,Diff}$			0.008	-0.038
			(0.089)	(0.100)
Constant	0.461***	0.475***	0.457***	0.506***
	(0.060)	(0.054)	(0.056)	(0.066)
Observations	252	252	252	252
R^2	0.009	0.011	0.009	0.013
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

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

Standard errors clustered by economic sector.

Table 12: Pre-treatment: 24-month forecast within the range

A.4 Posterior firms' inflation expectations

Density intervals	Obs	Mean	Std. Dev.	Min	Max
$P(\pi_{t+12} < 3)$	252	3.27	10.39	0	100
$P(3 \leq \pi_{t+12} < 4)$	252	7.44	12.12	0	80
$P(4 \leq \pi_{t+12} < 5)$	252	21.50	24.95	0	100
$P(5 \leq \pi_{t+12} < 6)$	252	28.54	26.21	0	100
$P(6 \leq \pi_{t+12} < 7)$	252	17.20	20.69	0	100
$P(7 \leq \pi_{t+12} < 8)$	252	10.19	17.87	0	100
$P(8 \leq \pi_{t+12} < 9)$	252	4.98	11.00	0	90
$P(9 \leq \pi_{t+12} < 10)$	252	2.89	8.46	0	80
$P(10 \leq \pi_{t+12} < 12)$	252	1.28	4.21	0	50
$P(12 \leq \pi_{t+12} < 15)$	252	0.62	2.10	0	15
$P(15 \leq \pi_{t+12} < 20)$	252	0.48	1.98	0	16
$P(\pi \geq 20)$	252	1.21	9.09	0	100

Table 13: Posterior firms' inflation expectations

A.5 Placebo tests

	Graph	Simple	Difficult	All firms
$E_i^{Prior}[\pi_{i,12}]$	0.134	0.149	0.150	0.138*
	(0.103)	(0.101)	(0.103)	(0.104)
$T_{i,Graph}$	0.634			0.668
	(0.968)			(0.984)
$T_{i,Graph}$ $E_i^{Prior}[\pi_{i,12}]$	-0.095			-0.098
	(0.135)			(0.137)
$T_{i,Simple}$		0.966		0.895
		(0.907)		(0.928)
$T_{i,Simple}$ $E_i^{Prior}[\pi_{i,12}]$		-0.134		-0.121
		(0.116)		(0.118)
$T_{i,Diff}$			-0.088	-0.089
			(1.030)	(1.037)
$T_{i,Diff}$ $E_i^{Prior}[\pi_{i,12}]$			-0.001	0.007
			(0.144)	(0.144)
Constant	5.415***	5.668***	5.577***	5.422***
	(0.899)	(0.844)	(0.845)	(0.841)
Observations	105	108	113	214
R^2	0.038	0.067	0.092	0.047
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

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

Standard errors clustered by economic sector.

Table 14: Effects of treatments using September 2023 12 months inflation expectations as prior and June 2024 pre-treatment inflation expectations as posterior

	Graph	Simple	Difficult	All firms
$E_i^{Prior}[\pi_{i,12}]$	0.352	0.436	0.559	0.444*
	(0.288)	(0.260)	(0.364)	(0.234)
$T_{i,Graph}$	3.052			2.304
	(3.343)			(2.892)
$T_{i,Graph}$ $E_i^{Prior}[\pi_{i,12}]$	-0.427			-0.337
	(0.442)			(0.390)
$T_{i,Simple}$		2.108		1.591
		(2.337)		(1.739)
$T_{i,Simple}$ $E_i^{Prior}[\pi_{i,12}]$		-0.294		-0.234
		(0.319)		(0.254)
$T_{i,Diff}$			3.528	1.372
			(4.651)	(3.922)
$T_{i,Diff}$ $E_i^{Prior}[\pi_{i,12}]$			-0.517	-0.222
			(0.605)	(0.495)
Constant	2.685	3.280	2.696	3.036
	(2.131)	(2.115)	(3.312)	(1.729)
Observations	105	108	113	214
R^2	0.560	0.651	0.660	0.518
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

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

Standard errors clustered by economic sector.

Table 15: Effects of treatments using inflation expectations inferred from September 2023 distribution of 12-month ahead inflation expectations as prior and June 2024 pre-treatment inflation expectations as posterior

A.6 Persistence analysis

	June	July	August	September	October
$E_i^{Prior}[\pi_{i,12}]$	0.827***	0.778***	0.819***	0.595***	0.777***
	(0.124)	(0.027)	(0.027)	(0.099)	(0.050)
$T_{i,Simple}$	-3.087	0.093	1.705	-1.865*	0.956
	(2.043)	(1.040)	(1.063)	(0.987)	(0.695)
$T_{i,Simple}$ $E_i^{Prior}[\pi_{i,12}]$	0.386	-0.050	-0.262	0.304**	-0.204*
	(0.301)	(0.187)	(0.151)	(0.119)	(0.094)
Constant	1.314	1.654*	0.774	3.512**	2.356***
	(0.738)	(0.758)	(1.063)	(1.183)	(0.524)
Observations	130	107	105	103	77
R^2	0.812	0.905	0.897	0.892	0.956
Size FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes
τ_{Simple}	0.466	-0.064	-0.320	0.511**	-0.263*

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

Standard errors clustered by economic sector. Significance levels for τ_j are approximated applying the Delta Method. (Wooldridge (2010))

Table 16: Persistence effects of the simple text treatment on inflation expectations

	June	July	August	September	October
$E_i^{Prior}[\pi_{i,12}]$	0.935***	0.808***	0.814***	0.653***	0.083
	(0.087)	(0.097)	(0.093)	(0.209)	(0.384)
$T_{i,Diff}$	0.637	0.813	0.805	1.176	-0.795
	(1.898)	(1.232)	(1.306)	(1.937)	(3.433)
$T_{i,Diff}$ $E_i^{Prior}[\pi_{i,12}]$	-0.111	-0.085	-0.088	-0.052	0.22
	(0.396)	(0.158)	(0.204)	(0.231)	(0.384)
Constant	0.840	0.876	1.419	1.557	5.822**
	(1.744)	(1.525)	(0.779)	(1.760)	(1.932)
Observations	130	110	111	111	82
R^2	0.823	0.914	0.915	0.790	0.665
Size	Yes	Yes	Yes	Yes	Yes
Sector	Yes	Yes	Yes	Yes	Yes
τ_{Diff}	-0.117	-0.105	-0.108	-0.080	2.651

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

Standard errors clustered by economic sector. Significance levels for τ_j are approximated applying the Delta Method. (Wooldridge (2010))

Table 17: Persistence effects of the difficult text treatment on inflation expectations