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Sarah Mochhoury Central bank communication and trust: an experimental study on the European Central Bank and the general public

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Abstract

While it has become clear that communication is a monetary policy tool for central banks, and extensive research has been conducted on central bank communication with financial markets, little is known so far on central bank communication with the general public. My research provides new insights into this field, confirming that the efforts of central banks to connect with a wider public are not in vain. In a randomised controlled trial, I focus on the determinants of trust in the European Central Bank (ECB) and on understanding of its communication about the Pandemic Emergency Purchase Programme, which was set up as part of the ECB's response to the COVID-19 crisis. I find that the ECB's simplified and relatable communication leads to greater trust in the central bank among the general public, as it has a positive impact on perceptions of the ECB among laypeople. The simplified content also proves to contribute to increased understanding of the central bank's messages among the wider public.

JEL Codes: C83, C93, D83, E52, E58.

Keywords: Central bank communication, Trust, Behavioural economics, Experimental economics, European Central Bank

Non-technical summary

While central bank communication has traditionally been targeted to financial markets, central banks have recently started to increase their engagement with the general public in an effort to build understanding and trust. Effective communication with the general public is more challenging than with financial markets as the former lack the expert knowledge on central banking and economics. While it is more challenging, it is no less important. Public trust in the central bank is crucial for the effectiveness of the central bank's monetary policy, its credibility and its independence.

Against this background, this paper aims to widen the focus on central bank communication by not only looking at economic outcomes of such communication but by examining how communication can also build understanding of, and trust in, the central bank. This paper provides the first empirical study on the effect of the ECB's simplified and relatable communication on understanding of, and trust in, the central bank among the general public. In a randomised controlled trial, a panel of 134 students from the Sorbonne University in Paris participated in an online survey in April 2021. Two groups were surveyed to evaluate the effect of the treatment overall as well as in each group: a group of economists and a group of non-economists. Participants in both groups were randomly assigned to the simplified version (treatment group) or the technical version (control group) of the ECB's communications on the Pandemic Emergency Purchase Programme (PEPP), which was set up by the ECB in March 2020 to limit the economic fallout caused by the COVID-19 pandemic. The communications extracts shown to participants were taken from existing material on the ECB website. The aim of the randomised controlled trial was to test and measure the way changes in the ECB's communication on its policy response to the coronavirus pandemic affect comprehension of the ECB's policy messages on the PEPP, and trust in the ECB, among the general public.

I find that the ECB's simplified and relatable communication contributes to higher levels of trust in the ECB. My findings show that participants are more likely to report an improvement in their perceptions of the ECB, an indicator of trust, when they are confronted with the simplified communication relative to the technical communication. My findings also show that the ECB's simplified and relatable communication on the PEPP has a positive and statistically significant effect on comprehension of the PEPP, relative to more technical communication, especially among non-economists. These findings show that central banks' efforts to reach a wider

public are not in vain: the ECB can better connect with people, improve their trust in the institution and increase their understanding of central bank issues by using simplified and relatable language. In line with findings in the financial literacy literature, my results also confirm that coursework in economics enhances understanding of more technical content. Moreover, women tend to show less interest in central bank topics, as demonstrated by the significant difference in drop-out rates in the survey between women and men. However, interestingly, when women do read the content, they are more inclined than men to report that they trust the content. The findings also show that individuals who know who the ECB President is express greater trust in the ECB and score considerably better in comprehension questions.

Such findings can inform the ECB's communication strategy. They show that the ECB can effectively reach a wider audience by making its communication less complex and more relatable: simplified communication can help build understanding of, and trust in, the ECB among the general public. In particular, simplified and relatable central bank communication, relative to technical communication, seems to help better connect with women, thereby helping to break a "glass ceiling of engagement". This finding suggests that it could be beneficial for the ECB to create relatable communications and social media campaigns targeted at women to help increase engagement and thereby contribute to building trust in the institution. The positive effect of knowledge of who the ECB President is on trust in the ECB and comprehension of the content suggests that the ECB could further leverage Madame Lagarde's social media channels and speaking engagements to share relatable content relevant to the ECB's policy action in order to build understanding of, and trust in, the ECB among the general public.

1 Introduction

The current European Central Bank (ECB) President Christine Lagarde has emphasised in several occasions the need to speak not only to financial markets but also to the general public. At her first hearing before the European Parliament in September 2019, she declared: “The ECB needs to be understood by the markets that transmit its policy, but it also needs to be understood by the people whom it ultimately serves. People need to know that it is their central bank, and it is making policy with their interests at heart. One of the priorities of my Presidency, if confirmed, will be to reinforce that bridge with the public.”¹ The general public is a harder audience for central banks to reach and engage with than financial markets, as the former lack the expert knowledge of, and interest in, information on central banking (Kumar et al., 2015; Binder, 2017). But citizens’ trust is crucial for the effectiveness of the central bank’s monetary policy which relies on reputation and credibility (Kydland and Prescott, 1977; Barro and Gordon, 1983; Bank of England, 2003; Kohn, 2011; Reid, 2015; Christelis et al., 2020), and for the central bank’s independence. Increased public accountability is essential to legitimising central bank independence (Issing, 1999). It is therefore desirable that central banks communicate effectively with the general public, as part of an effort to increase people’s understanding of, and trust in, central banks.

Against this background, this paper studies the effect of the ECB’s simplified communication on understanding of, and trust in, the central bank among the general public. It aims to fill the gap in the existing literature on central bank communication with the general public by asking the following question: does the ECB’s simplified and relatable communication improve understanding of the ECB’s messages on the Pandemic Emergency Purchase Programme (PEPP) and increase trust in the ECB among the general public? To answer this question, I conducted a randomised controlled trial in which participants were assigned to either the simplified version (treatment) or the technical version (control) of the ECB’s communications on the PEPP. I find that the ECB’s simplified and relatable communication on the PEPP, relative to technical communication, leads to greater levels of trust in the ECB and improves comprehension of the PEPP, especially among a non-expert audience.

To the best of my knowledge, my study is the first to conduct a controlled experiment to empirically assess the impact of the ECB’s simplified and relatable communication on under-

¹Opening Statement by Christine Lagarde to the Economic and Monetary Affairs Committee of the European Parliament, September 4, 2019

standing of, and trust in, the central bank. Using a similar methodology to that developed by Bholat et al. (2018; 2019) who studied the effect of the Bank of England's (BoE) relatable communications on understanding and trust, I conducted an online survey in which economics and non-economics students from the Sorbonne University in Paris participated in April 2021. All participants were randomly assigned to either the simplified or technical version of the ECB's communication on the PEPP. They were asked the same set of questions to assess their understanding of the content they read and their trust in the ECB. I also included participant profile questions at the beginning of the experiment, focusing on participants' socio-demographic characteristics and prior knowledge of the ECB.

My results show that the ECB's efforts to reach a wider public are not in vain. I contribute to the strand of the central banking literature dedicated to communication with the general public (Ehrmann et al., 2013; Haldane and McMahon, 2018; Bholat et al., 2019; Jost, 2017). I find that the ECB's simplified communication leads to greater levels of trust in the central bank: participants are more likely to report an improvement in their perceptions of the ECB, an indicator of trust, when they read the simplified communication relative to the technical communication. My results also indicate that simplified and relatable communication by the ECB on the PEPP improves comprehension of the PEPP, especially among non-experts who are not studying for an economics degree. I also contribute to the financial literacy literature (Hung et al., 2012; Fluch, 2007), as my results confirm that coursework in economics enhances understanding of more technical content. My findings also confirm the gender gap commonly found in that literature: women tend to feel less concerned by central bank topics although, interestingly, they are more inclined than men to report that they trust the content they read. Furthermore, my findings also show that individuals who know who the ECB President is express greater trust in the ECB and score considerably better in comprehension questions.

Such findings can inform the ECB's communication strategy. They show that the ECB could have a lot to gain by increasing its engagement with a wider public by using simplified and relatable language to communicate on complex monetary policy topics. My findings also indicate that the ECB could further leverage Madame Lagarde's social media channels and speaking engagements to share relatable content relevant to the ECB's policy action in order to build understanding of, and trust in, the ECB among the general public. This could be of particular relevance in the ECB's efforts to reach a young and female audience.

There are many reasons for studying the determinants of trust in central banks and specif-

ically the role of simplified central bank communication with the general public. Ultimately, trust in the central bank is what guarantees consensus in a non-elected body and grants its freedom: it is the general public that give central banks their democratic legitimacy, build the central bank's accountability and thereby enhance its independence (Issing, 1999). Given that there is a “twin deficit” problem (Haldane, 2017) comprised of an “understanding deficit” and a “trust deficit”, the 3 E's – Explanation, Engagement and Education – are key to connecting with the public (Haldane et al., 2020). Communication, in the sense that it favours transparency, can improve accountability and trust (Geraats, 2002; Haldane and McMahon, 2018; Bergbauer et al., 2020).

The remainder of this paper is organised as follows. Section 2 reviews the literature on central bank communication with the general public, the characteristics of the general public as a different audience than financial markets and the role of communication as a tool for building understanding of, and trust in, central banks. Section 3 describes the survey and the methodology used. Section 4 outlines the results of my study. Section 5 concludes and discusses possible future research paths.

2 Related literature

This paper taps into, and contributes to, several strands of the central banking and behavioural economics literature.

One strand of the literature acknowledges the difference between central bank audiences. A central bank's audience can be divided between the general public and its political representatives on the one side, and the financial markets on the other (Blinder and Wyplosz, 2004). I extend this literature by providing empirical evidence that simplified communication, relative to technical communication, can help the ECB to communicate effectively with the general public as a group distinct from financial markets, as it leads to greater trust in the central bank and improves the general public's understanding of complex policy messages. My paper provides empirical evidence which shows that, given that there are different audiences, central bank communication should be formed with this in mind.

In this vein, another strand of the literature, which is not limited to central banking, shows that there are transaction costs for the general public to receive and process understandable information (Sims, 2003; 2005; 2010). People are very reluctant to acquire information that is not easy to process – such “rational inattention” seems to be more pronounced when it comes to the reception of central bank communication (Carvalho and Nechio, 2014; Dräger et al., 2015; Cuckierman, 2007). Research has shown that knowledge of monetary policy, and especially of the ECB, is a key determinant of citizens' trust in the institution (Hayo and Neuenkirch, 2014; Ehrmann et al., 2013). By providing new evidence for the case of the ECB, I extend the literature which shows that knowledge of central banking or economics among the general public is positively correlated with people's approval of, and trust in, the central bank's policy (Mellina and Schmidt, 2018; van der Cruijssen et al., 2019; Jost, 2017).

A strand of the literature has recently started studying how accessible and relatable communication could help build understanding of, and trust in, the central bank (Bholat et al., 2018; 2019; Haldane and McMahon, 2018; Jost, 2017). My research contributes mainly to this literature, as it is the first study which brings empirical evidence on the effect of the ECB's simplified communication, relative to technical communication, on the general public's trust in the ECB and comprehension of the ECB's policy messages. It follows the works of Haldane and McMahon (2018) and Bholat et al. (2018; 2019) which focus on the BoE's communication. The former surveyed MPhil students at Oxford University and a representative sample of the UK

population in 2017. The aim was to investigate the impact of the BoE's monetary policy communication on consumers' beliefs by focusing on the accessibility and readability of the message conveyed. They tested if participants had understood the content they read: some participants received the Visual Inflation Summary written in plain language and others received the traditional Inflation Report written in more technical language. Their results show that simplified communication can contribute to building public understanding, which is important as a means of establishing trust and credibility about central banks and their policies. Bholat et al. (2018; 2019) built on Haldane and McMahon's research and conducted an online survey to test the impact of simplified and relatable central bank messages on the general public's understanding of the Inflation Report and trust in the BoE. They increased the sample size, included a "Relatable Summary" of the Inflation Report and a question testing direct comprehension. Building on the survey designed by Bholat et al. (2018; 2019), I also include a within-subject experiment design to get a sense of how much participants knew about the ECB and inflation before receiving the treatment. This is a major improvement relative to Bholat et al.'s study as it allows one to see whether participants actually learned something new from reading the publications, and, if so, which publication contributed more.

3 Methodology

The experiment was conducted online on the LimeSurvey platform in April 2021 and was completed by 134 respondents. Two different groups were surveyed: one consisted of 81 third-year Bachelor's in Economics students at the Sorbonne University in Paris, while the second group was made up of 53 students in Law, Social Sciences and Philosophy, also from the Sorbonne University.

The link to the online survey was shared with students across different classes and students participated on a voluntary basis.

The survey was anonymous. Each participant was assigned a random id, and no personal information was gathered.

Participants in both groups were randomly assigned to the simplified version of an ECB publication on the PEPP (treatment group) or the technical excerpt (control group).

3.1 Communication measure

Technical version: The text for the control condition was the Monetary Policy decisions press release published on 10 December 2020, which focused on the PEPP. The audience for such a press release is generally a specialised one, including analysts and journalists.

Simplified version: The treatment group received a simplified version of the messages contained in the Monetary Policy decisions press release about the PEPP. This *simplified version* is existing material on the ECB website and was created by the ECB's team with the aim of making some of the ECB's key communications more relatable to a wider public.

Different techniques were used to make the *simplified version* text more relatable. First of all, the first-person plural pronoun (e.g. “we”) was used instead of the third-person singular pronoun which is more abstract (e.g. “The Governing Council”). While the *technical version* stated, “The Governing Council expects the key ECB interest rates to remain at their present or lower levels”, the *simplified version* read “We have kept our key interest rates at historically low levels so borrowing costs remain low”. Moreover, the *simplified version* included everyday words which are relatable to people, such as “citizens, firms and governments” and “boost spending and investment”, instead of “sectors of the economy” and “favourable financing conditions”. Also, the *simplified version* contained fewer words. Table 1 shows the word count and readability of the two experimental conditions. The survey material is included in the Annex.

Table 1: The word count and readability of the two experimental conditions

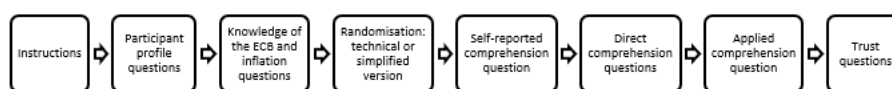
Condition	Word count	Flesch-Kincaid grade level	Automated readability index	Gunning Fog index	SMOG index
Technical version	362	19,4	20,2	24,6	17,5
Simplified version	256	15,6	16,4	18,7	13,6

Note: Lower scores in readability indices mean the text is more accessible to a wider public.

3.2 Stages of the experiment

Participants went through different stages in the survey, exemplified in Figure 1. Each step is described in order below, together with listed hypotheses reflecting the expected responses based on the existing literature. The survey questions are included in the Annex (Tables 8 and 9).

Figure 1: The stages of the experiment



- **Participant profile questions:** the aim was to obtain individual characteristics such as gender, age, field of study, habits on participants' ways of accessing the news and the extent to which they are interested in economic news. Economics students are used as a proxy for a specialised audience in economics. Thus:

H0: I expect economics students to score better than non-economics students in the comprehension questions overall and the gap in scores between economists and non-economists to be wider when they are exposed to the *technical version* of the publication rather than to the *simplified version*.

- **Knowledge of the ECB and inflation questions:** participants were asked whether they know who the President of the ECB is, if they know what the ECB's role is and if they are aware of the levels of inflation in France for 2020. The aim was to know the effect of prior knowledge of the ECB and inflation on understanding of the ECB's communications and trust in the ECB. It was also a way to understand if survey participants actually learned something from reading the texts. Following empirical evidence that knowledge

of economic topics enhances understanding and trust in financial institutions (van der Crujsen et al., 2019) and specifically that knowledge of the ECB is a key determinant of people's trust in the institution (Ehrmann et al., 2013):

H1: I expect that participants who know who the ECB President is and are aware of the ECB's role and of inflation will score better in comprehension questions and tend to express greater trust in the ECB.

At this point, participants were shown one of the two versions of the information.

- **Self-reported comprehension question:** the aim was to see the extent to which participants felt they understood the publication they were presented with:

H2: I expect a greater effect of the *simplified version* on self-reported comprehension scores among the sample of non-economists, building on studies showing that breaking down complex content on central banking can make the content more relatable and thus contribute to higher comprehension scores especially among laypeople (Haldane and McMahon, 2018).

- **Direct comprehension questions:** I complemented the self-reported comprehension question with direct comprehension questions as previous studies show that respondents tend to overestimate their understanding (Galizzi and Navarro-Martinez, 2017) and that the two types of questions may actually not be so correlated (Loewenstein et al., 2013). For all three direct comprehension questions – asking participants why the ECB is keeping interest rates low, what the aim of the PEPP is, and to select the true statement about the PEPP:

H3: I expect that the *simplified version* will lead to improvements in understanding among the public, in line with previous research.

- **Applied comprehension question:** I included a question on the aim of the ECB's monetary policy.

H4: I expect a greater effect of knowledge of economics over other factors in this question as the answer is not explicitly given in the *simplified version*. Also, Bholat et al. (2018; 2019) showed that participants scored extremely poorly in applied comprehension questions.

- **Trust questions:** the aim was to test the effect of the treatment on participants' levels of trust in the ECB.

H5: I hypothesise that as the subjects of the experiment were randomised, trust levels

before the treatment should be on average similar across individuals. This way, I consider that the differences in trust levels observed at the end of the experiment reflect the effect of the treatment, i.e. receiving the technical or simplified communication. I included several questions to have different indicators of trust. Specifically, participants were asked:

How the content affected participants' perceptions of the ECB: I expect that the *simplified version* will lead to reports of improved perceptions of the ECB which are higher than for the *technical version*, as existing studies show that better understanding of the central bank's communication increases people's satisfaction in the central bank (Bholat et al., 2018; 2019; Haldane and McMahon, 2018; Jost, 2017).

To what extent do participants trust the ECB: I expect that trust in the ECB will be positively associated with participants' exposure to the *simplified version*, as I expect that the latter will help increase understanding and knowledge of the ECB, which is a key determinant of trust in the institution (Ehrmann et al., 2013).

If participants would recommend the content: I expect that participants will recommend the content more often when they read the *simplified version* compared to the *technical version*, as empirical evidence shows that people relate to, and engage more with, the content when it is more accessible (Garner, 2005; Perry and Blumenthal, 2012; Behavioural Insights Team, 2012).

If the content changed participants' views or expectations on the outlook for the economy: I expect more participants to report positive changes in their expectations on the outlook for the economy when they read the *simplified version*, as the content is more accessible and relatable.

3.3 Sampling strategy

Participants in both groups received either the *technical version* or the *simplified version*. Participants were not informed of the purpose of the experiment – they only knew that it was related to central banks and the general public. They were unaware of the existence of two different versions of the ECB publication which were shown randomly in this experiment.

There was no time limit for completing the survey. Participants were free to participate or not and could exit the survey at any time. They did not receive any financial compensation nor bonuses on their grades for participating in this survey. The distribution of the demographic categories across the realised sample as well as for each treatment (*simplified version* and *technical*

version) is shown in Table 2.

Table 2: Distribution of demographic categories across the sample

Demographic	Sub-group	Overall sample	Simplified version	Technical version
Age	18-20	42,54%	44%	40%
	21-23	48,51%	46%	52%
	24+	8,96%	10%	8%
Gender	Female	50%	51%	48%
	Male	49,25%	49%	50%
	Other	0,75%	0%	2%
Economic engagement	Yes (participant ranks their interest in economic news between 4-5)	63,43%	64%	63%
	No (participant ranks their interest in economic news between 1-3)	36,57%	36%	37%
Economics degree	Yes	60,45%	63%	58%
	No	39,55%	38%	42%
News source	Digital (online newspapers, social media, podcast)	83,58%	85%	82%
	Traditional (television, radio, newspapers)	16,42%	15%	18%

Note: N=134

The completion rate of the survey was 60,08% overall. The completion rate for the *simplified version* was four percentage points higher than that of the *technical version* (Table 3). In particular, the drop-out rate which occurred exactly at the question showing the publication is higher for the *technical version* than for the *simplified version*. This indicates that as the *technical version* contains more text and is more complex, participants were discouraged from reading it and pursuing the survey. Also, the drop-out rate is higher among non-economists. These facts point to a potential selection bias in the sample analysed.

Furthermore, my results show that women tend to drop out more frequently than men when faced with either publication: they are approximately four times more likely to quit the survey (12,65% versus 3,75%). This gender gap appears to be commonly found in financial literacy studies, and one possible explanation is women's lack of interest in financial topics (Hung et al., 2012): as women may be less familiar with economic content, they would consequently be more

easily discouraged than men when confronted with a publication on the topic.

Table 3: Completion rates across treatments of the experiment

Condition	Started	Completed	Completion rate
Technical version	107	62	57,94%
Simplified version	116	72	62,06%
Total	223	134	60,08%

3.4 Modelling approach and variables of interest

My first variables of interest were participants' answers to the questions on trust, in particular the determinants of trust in the ECB and changes in perceptions of the ECB following the treatment. In the regression model, I compared the treatment condition (*simplified version*) against the control condition (*technical version*). T_i is the dummy variable equal to 1 if participant i is assigned to the *simplified version* and 0 otherwise. I was also interested to see the effect of prior knowledge of the ECB's role, awareness of who the ECB President is and knowledge of inflation on participants' scores in the questions on trust. These knowledge variables are included in K_i . To do so, I ran ordinary least squares (OLS) regressions and logistic regressions with robust standard errors. I included a vector of controls (A_i): I controlled for gender, the course in which participants are enrolled, economic engagement and news source.

$$Y_i^{trust} = \beta_0 + \beta_1 T_i + \beta_2 K_i + \beta_3 A_i + \epsilon_i$$

My second variables of interest were participants' responses to the direct comprehension questions. I was particularly interested to see the determinants of correct answers to the questions on the true statement about the PEPP and the aim of the PEPP.

$$Y_i^{comp} = \beta_0 + \beta_1 T_i + \beta_2 K_i + \beta_3 A_i + \epsilon_i$$

The Annex includes further information on the regression models.

4 Results

4.1 Descriptive statistics

- **Treatment, trust and comprehension scores**

My results indicate that a greater number of participants who read the *simplified version* say that the content affects their perceptions of the ECB positively. These results are confirmed by participants' scores in comprehension questions, which show that the *technical version* was perceived as more difficult than the *simplified version*, both by economists and non-economists. Participants were given the opportunity to self-evaluate their understanding of the content they had read on a scale from 1 to 5, where 1 was "None of it" and 5 was "All of it". While a little over a quarter of participants who read the *simplified version* rated their understanding at 5, they were only approximately 6% to do so for the *technical version*. The average self-reported comprehension score is higher for the *simplified version* both among economists and non-economists, indicating that the *technical version* was perceived as being too complex for participants to feel that the content was fully understood. The direct comprehension scores are in line with participants' self-reported comprehension: overall, my results show that comprehension scores were on average slightly higher for the *simplified version* relative to the *technical version*.

- **Knowledge of economics and the ECB and comprehension scores**

As expected, prior knowledge of economics and of the ECB is associated with higher comprehension scores. The difference in comprehension scores between economists and non-economists is higher for the *technical version*. Moreover, the results show that participants who did not know who the ECB President is scored lower in the comprehension questions, and 83% of participants who knew about the ECB's role before taking the survey obtained either three or all four comprehension questions right. Furthermore, the within-subject experiment design allows one to see that people who did not know anything about the ECB scored better when assigned to the *simplified version* rather than the *technical version*.

4.2 Regression analysis

I conducted several regressions to evaluate the impact of the simplified and relatable communication on understanding of the ECB's communications and trust in the ECB.

- **The impact of the simplified version on trust**

Overall, the *simplified version* has a positive and statistically significant effect on overall trust (an aggregate indicator of participants' responses to the trust questions, constructed by adding up participants' answers to each question) among non-economists. Non-economists who read the *simplified version* score on average 0.62 points higher in the questions on trust than those who are assigned to the *technical version* (Table 4; Column 2). These findings indicate that more relatable communication by the central bank can foster trust in the institution among a public who is not familiar with economics.

Specifically, the results show that, among non-economists, participants are more likely to report improvements in their perceptions of the ECB when they read the *simplified version* relative to the *technical version*. Table 5 reports the results. It shows that participants who are not enrolled in an economics course are 14% (0.30 points) more likely to report improvements in their perceptions of the ECB when they read the *simplified version*.

Regarding the other questions attempting to evaluate participants' trust in the ECB and its messages on the PEPP, the *simplified version* does not appear to have a statistically significant effect. For instance, for the question asking participants if they would recommend the content they have just read to someone who is looking for trustworthy information on the economy, the direction of the effect of the *simplified version* is what was expected, but the effect is not statistically significant. An interpretation of these results can be that it is not sufficient to give participants a treatment only once for it to have an effect on trust, as research shows that trust is hard to build and easy to lose in survey experiments (Angino et al., 2021). However, the fact that a vast majority of respondents stated that they would recommend the content (86% and 83% in the *simplified version* and *technical version* respectively) indicates a high level of trust in the ECB's publications.

- **The impact of the simplified version on understanding**

Overall, my results show that simplified and relatable communication by the ECB can help build understanding of the content among the general public.

Table 4: Regression results for trust questions overall

	Dependent variable		
	Overall score in trust questions (3-12)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	-0.077 (0.235)	0.621* (0.345)	-0.504 (0.320)
Economics degree	-0.385 (0.266)		
Knowledge of ECB President	0.444 (0.349)	0.389 (0.317)	0.437 (0.668)
Knowledge of inflation	-0.097 (0.294)	0.282 (0.444)	-0.466 (0.413)
Knowledge of ECB role	0.179 (0.320)	0.685 (0.436)	-0.135 (0.435)
Digital news source	-0.015 (0.090)	-0.287* (0.147)	0.032 (0.130)
Interest in economic news	0.134 (0.137)	0.170 (0.154)	0.010 (0.212)
Female	0.551** (0.249)	0.262 (0.349)	0.596* (0.343)
Constant	7.939*** (0.665)	8.447*** (0.628)	8.560*** (1.429)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.076	0.280	0.120
Adjusted R ²	0.017	0.168	0.036
Residual Std. Error	1.360 (df = 125)	1.199 (df = 45)	1.378 (df = 73)
F Statistic	1.287 (df = 8; 125)	2.502** (df = 7; 45)	1.423 (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors are in parentheses.

Table 5: Regression results for perceptions of the European Central Bank question

	Dependent variable		
	Perceptions of the European Central Bank (1-3)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	0.001 (0.070)	0.306** (0.121)	-0.147* (0.086)
Economics degree	-0.014 (0.087)		
Knowledge of ECB President	0.080 (0.139)	0.228* (0.121)	-0.252 (0.407)
Knowledge of inflation	0.028 (0.089)	0.025 (0.142)	-0.043 (0.105)
Knowledge of ECB role	0.107 (0.097)	0.129 (0.141)	0.106 (0.123)
Digital news source	-0.025 (0.026)	-0.125*** (0.044)	-0.012 (0.035)
Interest in economic news	-0.095** (0.040)	-0.105** (0.048)	-0.105* (0.061)
Female	-0.004 (0.080)	-0.004 (0.139)	-0.050 (0.088)
Constant	2.464*** (0.205)	2.678*** (0.275)	2.898*** (0.520)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.060	0.236	0.108
Adjusted R ²	0.0002	0.117	0.022
Residual Std. Error	0.397 (df = 125)	0.414 (df = 45)	0.363 (df = 73)
F Statistic	1.004 (df = 8; 125)	1.985* (df = 7; 45)	1.259 (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

Table 6 presents the results for the two comprehension questions on the PEPP. Participants who receive the *simplified version* score better at the two comprehension questions on the PEPP than those who view the *technical version*. Overall, the *simplified version* leads to a statistically significant improvement by 13% (0.20 points) in comprehension scores on the PEPP (Table 6; Column 1). The overall effect in the sample is driven by non-economists alone: the *simplified version* of the publication increases non-economists' scores by 36% (0.43 points) in the questions asking about their understanding of the ECB's communications on the PEPP (Table 6; Column 2).

Specifically, the *simplified version* has a positive and statistically significant effect on comprehension of the aim of the PEPP: participants who receive the *simplified version* score 9% higher relative to the *technical version* (Annex; Table 10). Furthermore, my results indicate that the *simplified version* improves comprehension scores among non-economists by 33% in the question asking to select the true statement about the PEPP (Annex; Table 10).

Besides the direct comprehension questions, participants were asked to rate the extent to which they understood the publication they had read. Table 7 reports the results. Overall, my findings show that simplified and relatable communication is successful in improving the way people feel they understand the content. More specifically, the results show that the *simplified version* leads to a statistically significant improvement by 0.67 points out of 5 in self-reported comprehension scores in the overall sample (Table 7, Column 1), which is in line with the findings of Bholat et al. (2018; 2019). In other words, the *simplified version* of the publication increases self-reported comprehension scores by 18% overall, relative to the *technical version*. The effect is stronger among the group of non-economists: the *simplified version* leads to an increase in self-reported comprehension scores by 26% (0.85 points out of 5) (Table 7, Column 2).

These findings show that using more colloquial language and breaking down complex economic concepts can make the content more accessible to a wider public and enhance their understanding of complex topics like the ECB's policy. Such simplified communication appears to be beneficial not only to laypeople but also to those who are already familiar with economic topics.

- **The impact of socio-demographic characteristics and knowledge of the ECB on understanding and trust**

I find interesting results on the impact of socio-demographic characteristics and knowledge

Table 6: Regression results for comprehension questions on the PEPP

	Dependent variable		
	Comprehension of the PEPP (0-2)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	0.204** (0.082)	0.434** (0.170)	0.082 (0.080)
Economics degree	0.290*** (0.111)		
Knowledge of ECB President	0.508** (0.388)	0.546** (0.229)	0.211 (0.256)
Knowledge of inflation	0.369*** (0.106)	0.683*** (0.183)	0.044 (0.095)
Knowledge of ECB role	0.021 (0.132)	0.106 (0.214)	0.00002 (0.121)
Digital news source	0.027 (0.036)	0.012 (0.076)	0.021 (0.029)
Interest in economic news	-0.036 (0.060)	-0.160* (0.089)	0.065 (0.048)
Female	0.054 (0.096)	0.148 (0.178)	-0.136 (0.085)
Constant	0.701** (0.521)	0.765* (0.423)	1.270*** (0.368)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.339	0.457	0.115
Adjusted R ²	0.297	0.373	0.030
Residual Std. Error	0.485 (df = 125)	0.592 (df = 45)	0.340 (df = 73)
F Statistic	8.019*** (df = 8; 125)	5.413*** (df = 7; 45)	1.352 (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

Table 7: Regression results for self-reported comprehension question

	Dependent variable		
	Self-reported comprehension (1-5)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	0.677*** (0.161)	0.855*** (0.214)	0.617*** (0.172)
Economics degree	0.123 (0.147)		
Knowledge of ECB President	0.429 (0.737)	0.387 (0.288)	0.695 (0.548)
Knowledge of inflation	0.316** (0.208)	0.397* (0.230)	0.226 (0.204)
Knowledge of ECB role	-0.018 (0.216)	0.291 (0.269)	-0.185 (0.259)
Digital news source	0.006 (0.064)	-0.097 (0.095)	0.048 (0.063)
Interest in economic news	0.285*** (0.095)	0.194* (0.111)	0.348*** (0.103)
Female	0.044 (0.177)	-0.092 (0.223)	0.089 (0.181)
Constant	1.886*** (0.916)	2.442*** (0.531)	1.500* (0.789)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.392	0.477	0.277
Adjusted R ²	0.353	0.396	0.208
Residual Std. Error	0.731 (df = 125)	0.743 (df = 45)	0.727 (df = 73)
F Statistic	10.082*** (df = 8; 125)	5.875*** (df = 7; 45)	3.995*** (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

of the ECB on understanding of, and trust in, the ECB. First of all, women express more trust overall, as shown by the positive and statistically significant coefficient of “Female” (0.55 points) (Table 4; Column 1). They are more likely to report that the excerpt has changed their views or expectations on the outlook for the economy positively (Annex; Table 11), and they are also more likely than men to recommend the content (Annex; Table 12). Secondly, knowledge of who the ECB President is has a positive effect on understanding of, and trust in, the ECB. Participants who know who the ECB President is – especially among the group of economists – express greater trust in the ECB (Annex; Table 13). Among non-economists, the fact of knowing who holds the position of ECB President is associated with reports of positive changes in perceptions of the ECB (Table 5; Column 2). While economic knowledge helps boost understanding – with economics students scoring 0.29 points higher than non-economists in the two direct comprehension questions on the PEPP (Table 6; Column 1) – participants who know who the ECB President is are also more likely to score higher in the comprehension questions (Annex; Tables 14 and 15), and the effect is more pronounced among non-economists. These findings show that exposure to the ECB via its President in the media can contribute to a better understanding of, and trust in, the ECB. Finally, it also appears that non-economists who report accessing most of their news on digital platforms (either on the web or on social media) express less trust overall: the coefficient is negative and statistically significant (-0.28 points) (Table 4; Column 2). This finding could reflect the fact that central banks, in this case the ECB, have historically had a higher share of voice in traditional media and less presence on social media.

5 Conclusion

The ECB's public consultation as part of its strategy review shows that Europeans wish to see clearer, simplified and relatable communication by the central bank: the report states that "simple language and concrete examples were often suggested as ways to improve the ECB's communication" (ECB, 2021). My research goes in this direction and sheds light on a topic which has been relatively absent from the literature: central bank communication with the general public. This study is the very first to provide empirical evidence on the effect of the ECB's simplified communications on understanding of, and trust in, the central bank: it shows that simplified and relatable central bank communication, relative to technical communication, can enhance people's trust in the ECB and improve people's understanding of the messages conveyed by the central bank, especially among a non-expert audience not studying for an economics degree.

Such findings have policy implications for the ECB. They show that it could be beneficial for the ECB to create more targeted communication to the general public as it appears to be successful in building understanding of, and trust in, the central bank. Although simplified central bank communication may entail risks, notably if such communication is about the economic outlook or contains some form of forward guidance, and there is a careful balance to strike as simplification may mislead the public as to future developments and raise false expectations which could in turn lead to a loss in public trust (Assenmacher et al., 2021), my findings further support the need for public economic education and justify the use of simplified and relatable communication as an effective tool for central banks to connect with a wider public.

Specifically, one way for the ECB to further engage effectively with a wider public could be via Madame Lagarde's speaking engagements and social media channels, as my results show a positive effect of knowledge of who the ECB President is on participants' trust in the ECB and scores in comprehension questions. This could be of particular relevance in the ECB's efforts to reach young women, who appear less concerned by central bank topics (as shown by the significant difference in drop-out rates in the survey between women and men) but who, interestingly, are more inclined than men to report that they trust the content when they do actually go ahead and read it. Leveraging Madame Lagarde's public communications could thus help the ECB to better reach women and thereby limit the obstacle to trust which one could call a "glass ceiling of engagement".

Future research could extend my randomised controlled trial by using a wider sample which is representative of the euro area population. Furthermore, future works could analyse whether the effect of simplified central bank communication is sustained over time, and analyse the impact of a repeated treatment on participants. Future studies could also measure the effect of other communication techniques – such as visuals, graphics and videos – to help improve the general public’s comprehension of the ECB’s communication and increase trust in the central bank. Finally, it would also be interesting to research whether the topic of a central bank’s communication is a determinant of understanding and trust and see, for example, if more central bank communication on climate change and green finance would contribute to building awareness and understanding of, and trust in, the central bank among the general public.

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Annexes

Survey material

Technical version (FR)

COMMUNIQUÉ DE PRESSE

Décisions de politique monétaire

10 décembre 2020

Compte tenu de la résurgence de la pandémie et de ses retombées économiques, le Conseil des gouverneurs a procédé, ce jour, à un recalibrage de ses instruments de politique monétaire.

Premièrement, le taux d'intérêt des opérations principales de refinancement ainsi que ceux de la facilité de prêt marginal et de la facilité de dépôt demeureront inchangés, à respectivement 0,00 pour cent, 0,25 pour cent et -0,50 pour cent. Le Conseil des gouverneurs prévoit que les taux d'intérêt directeurs de la BCE resteront à leurs niveaux actuels ou à des niveaux plus bas jusqu'à ce qu'il ait constaté que les perspectives d'inflation convergent durablement vers un niveau suffisamment proche de, mais inférieur à 2 pour cent sur son horizon de projection, et que cette convergence se reflète de manière cohérente dans la dynamique d'inflation sous-jacente.

Deuxièmement, le Conseil des gouverneurs a décidé d'augmenter l'enveloppe consacrée au programme d'achats d'urgence face à la pandémie (*pandemic emergency purchase programme*, PEPP) de 500 milliards d'euros, la portant à un total de 1 850 milliards d'euros. Le Conseil des gouverneurs a également décidé d'étendre l'horizon fixé pour les achats nets au titre du PEPP au moins jusqu'à fin mars 2022. Dans tous les cas, le Conseil des gouverneurs effectuera des achats nets jusqu'à ce qu'il juge que la crise du coronavirus est terminée.

Les mesures de politique monétaire adoptées aujourd'hui contribueront à préserver des conditions de financement favorables pendant la période de pandémie, favorisant ainsi le flux de crédits vers l'ensemble des secteurs de l'économie, soutenant l'activité économique et maintenant la stabilité des prix à moyen terme. Cela étant, l'incertitude reste forte, notamment en ce qui concerne la dynamique de la pandémie et le calendrier du déploiement des vaccins. Nous continuerons également de surveiller les évolutions du cours de change en lien avec leurs implications éventuelles pour les perspectives de stabilité des prix à moyen terme. Le Conseil des gouverneurs reste donc prêt à ajuster l'ensemble de ses instruments, de façon adéquate, pour assurer le rapprochement durable de l'inflation par rapport à son objectif, conformément à son engagement en faveur de la symétrie.

Simplified version (FR)

Notre réponse face à la pandémie de coronavirus

Nous avons, à la BCE, mis en place une série de mesures de politique monétaire et de supervision bancaire visant à atténuer l'incidence de la pandémie de coronavirus sur l'économie de la zone euro et à soutenir tous les citoyens européens.

Aider l'économie à absorber le choc de la crise actuelle

Le programme d'achats d'urgence face à la pandémie (*Pandemic Emergency Purchase Programme*, PEPP), à hauteur de 1 850 milliards d'euros, vise à réduire les coûts d'emprunt et à accroître les prêts dans la zone euro, ce qui devrait aider les citoyens, les entreprises et les gouvernements à accéder aux fonds dont ils peuvent avoir besoin pour surmonter la crise. Ce programme, à travers lequel nous acquérons différents types d'actifs, complète les programmes d'achats d'actifs que nous avons mis en place depuis 2014.

En achetant directement des obligations aux banques, par exemple, nous libérons plus de fonds qu'elles peuvent prêter aux ménages et aux entreprises. Nous pouvons aussi acquérir des obligations d'entreprises, ce qui leur fournit une nouvelle source de crédit. Ces deux types d'achats d'actifs concourent à stimuler les dépenses et l'investissement, afin de soutenir la croissance économique.

Maintenir les emprunts à un coût abordable

Ayant maintenu nos taux d'intérêt directeurs à des niveaux historiquement bas, les coûts d'emprunt restent faibles.

Nos taux directeurs influencent le coût des prêts. Lorsque les taux sont peu élevés, il est plus facile pour les ménages et les entreprises de contracter un emprunt, ce qui devrait favoriser les dépenses et l'investissement.

Technical version (EN)

PRESS RELEASE

Monetary policy decisions

10 December 2020

In view of the economic fallout from the resurgence of the pandemic, today the Governing Council recalibrated its monetary policy instruments as follows:

First, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 0.00 per cent, 0.25 per cent and -0.50 per cent respectively. The Governing Council expects the key ECB interest rates to remain at their present or lower levels until it has seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2 per cent within its projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics.

Second, the Governing Council decided to increase the envelope of the pandemic emergency purchase programme (PEPP) by €500 billion to a total of €1,850 billion. It also extended the horizon for net purchases under the PEPP to at least the end of March 2022. In any case, the Governing Council will conduct net purchases until it judges that the coronavirus crisis phase is over.

The monetary policy measures taken today will contribute to preserving favourable financing conditions over the pandemic period, thereby supporting the flow of credit to all sectors of the economy, underpinning economic activity and safeguarding medium-term price stability. At the same time, uncertainty remains high, including with regard to the dynamics of the pandemic and the timing of vaccine roll-outs. We will also continue to monitor developments in the exchange rate with regard to their possible implications for the medium-term inflation outlook. The Governing Council therefore continues to stand ready to adjust all of its instruments, as appropriate, to ensure that inflation moves towards its aim in a sustained manner, in line with its commitment to symmetry.

Simplified version (EN)

Our response to the coronavirus pandemic

We at the ECB have put in place a set of monetary policy and banking supervision measures to mitigate the impact of the coronavirus pandemic on the euro area economy and to support all European citizens.

Helping the economy absorb the shock of the current crisis

The €1,850 billion pandemic emergency purchase programme (PEPP) aims to lower borrowing costs and increase lending in the euro area. This in turn should help citizens, firms and governments get access to funds they may need to weather the crisis. This programme complements the asset purchase programmes we have had in place since 2014.

We buy several different kinds of assets in this programme. For example, when we buy bonds directly from banks, we make more funds available that they can lend to households or businesses. We can also buy companies' bonds, giving them an additional source of credit. Both kinds of purchases help boost spending and investment, with the aim of supporting economic growth.

Keeping borrowing affordable

We have kept our key interest rates at historically low levels so borrowing costs remain low.

Our rates impact how much it costs to take out a loan. Low rates make it easier for people and companies to borrow funds, and should support spending and investment.

Table 8: Survey questions (EN); Correct answers are underlined, where applicable

Participant profile questions
1. What is your gender? a. Female b. Male c. Other d. Prefer not to say
2. Your age category: a. 18-20 b. 21-23 c. 24 or above d. Prefer not to say
3. On a scale from 1-5, how interested are you in economic news? (1: A little; 5: A lot) a. 1 b. 2 c. 3 d. 4 e. 5
4. Where do you get most of your news? a. In newspapers b. In online newspapers c. On television d. On social media e. By listening to podcasts f. On the radio g. On forums
5. What are you studying? a. Economics b. Law c. Other
Knowledge of the ECB and inflation questions
6. What is the role of the European Central Bank? a. To provide financial support to failing banks in Europe b. <u>To keep prices stable in the eurozone</u> c. To set the value of the euro in relation to other currencies d. Don't know
7. Who is the current head of the European Central Bank? a. Ursula von der Leyen b. Mario Draghi c. <u>Christine Lagarde</u> d. Don't know
8. What was the approximate inflation rate in France in 2020? a. 7% b. 2% c. <u>0.5%</u> d. Don't know
Self-reported comprehension question
9. On a scale from 1-5, to what extent are you able to understand the content and messages of the material you just read? (1: None of it; 5: All of it) a. 1 b. 2 c. 3 d. 4 e. 5

Direct comprehension questions

10. Based on what you have read, why is the European Central Bank keeping interest rates low?

- a. To help banks give credits to all European citizens
- b. To increase inflation in the eurozone
- c. To keep supporting credit flows for people and businesses in the eurozone
- d. Don't know

11. Based on what you have read, which of these statements is true about the Pandemic Emergency Purchase Programme?

- a. It consists in selling private and public sector bonds
- b. It consists in buying bonds from banks and businesses
- c. It contributes to protecting banks
- d. Don't know

12. Based on what you have read, what is the aim of the Pandemic Emergency Purchase Programme?

- a. To raise interest rates in the eurozone
- b. To increase investment and growth in the eurozone
- c. To lower bank lending in the eurozone
- d. Don't know

Applied comprehension question

13. Based on what you have read, what is the purpose of the monetary policy conducted by the European Central Bank?

- a. To help finance banks in the eurozone
- b. To keep inflation levels steady and support economic growth in the eurozone
- c. To ensure the euro's value doesn't increase too rapidly compared to other currencies
- d. Don't know

Trust questions

14. How has the content you have just read affected your perceptions of the European Central Bank (ECB)?

- a. It positively affected how I perceive the ECB
- b. It negatively affected how I perceive the ECB
- c. It didn't affect how I perceive the ECB

15. Would you recommend the content you have just read to someone who is looking for trustworthy information on the economy?

- a. Yes
- b. No

16. On a scale from 1-5, to what extent do you trust the European Central Bank? (1: I don't trust it; 5: I totally trust it)

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

17. How has reading this excerpt changed your views or expectations on the outlook for the economy?

- a. It affected my views and expectations positively
- b. It affected my views and expectations negatively
- c. It didn't affect my views or expectations

Note: The questions were originally phrased in French. This translation attempts to reflect all the nuances of the original version. See Table 9 for French version.

Table 9: Survey questions (FR); Correct answers are underlined, where applicable

1. Vous êtes :
a. Une femme
b. Un homme
c. Autre
d. Je préfère ne pas répondre
2. Vous avez :
a. 18-20 ans
b. 21-23 ans
c. 24 ans ou plus
d. Je préfère ne pas répondre
3. Sur une échelle de 1 à 5, dans quelle mesure avez-vous un intérêt pour l'actualité économique ? (1 : peu ; 5 : beaucoup)
a. 1
b. 2
c. 3
d. 4
e. 5
4. Où obtenez-vous la plupart de vos actualités?
a. Dans les journaux papier
b. Dans les journaux en ligne
c. A la télévision
d. Sur les réseaux sociaux
e. En écoutant des podcasts
f. A la radio
g. Sur des forums
5. Qu'étudiez-vous ?
a. L'économie
b. Le droit
c. Autre
6. Quel est le rôle de la Banque centrale européenne ?
a. Apporter un soutien financier aux banques européennes qui sont en difficultés financières
b. <u>Maintenir la stabilité des prix en zone euro</u>
c. Fixer la valeur de l'euro par rapport aux autres monnaies
d. Je ne sais pas
7. Qui est à la tête de la Banque centrale européenne ?
a. Ursula von der Leyen
b. Mario Draghi
c. <u>Christine Lagarde</u>
d. Je ne sais pas
8. Quel était environ le taux d'inflation en France en 2020 ?
a. 7%
b. 2%
c. <u>0.5%</u>
d. Je ne sais pas

9. Sur une échelle de 1 à 5, dans quelle mesure êtes-vous capable de comprendre le contenu et les messages de ce que vous venez de lire ? (1 : je ne comprends pas ; 5 : je comprends tout)

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

10. D'après ce que vous avez lu, pourquoi la Banque centrale européenne maintient-elle des taux d'intérêt bas ?

- a. Pour aider les banques à accorder des crédits à tous les citoyens européens
- b. Pour augmenter l'inflation en zone euro
- c. Pour continuer à soutenir les flux de crédit pour les personnes et les entreprises en zone euro
- d. Je ne sais pas

11. D'après ce que vous avez lu, laquelle de ces affirmations est vraie en ce qui concerne le *Pandemic Emergency Purchase Programme* ?

- a. Il consiste à vendre des obligations des secteurs privé et public
- b. Il consiste à acheter des obligations aux banques et aux entreprises
- c. Il consiste à contribuer à la protection des banques
- d. Je ne sais pas

12. D'après ce que vous avez lu, quel est le but du *Pandemic Emergency Purchase Programme* ?

- a. Augmenter les taux d'intérêt en zone euro
- b. Augmenter les investissements et la croissance en zone euro
- c. Baisser les prêts bancaires en zone euro
- d. Je ne sais pas

13. D'après ce que vous avez lu, quel est le but de la politique monétaire de la BCE ?

- a. Aider à financer les banques de la zone euro
- b. Maintenir des niveaux d'inflation stables et soutenir la croissance économique en zone euro
- c. Eviter que la valeur de l'euro n'augmente trop rapidement par rapport aux autres monnaies
- d. Je ne sais pas

14. Comment l'extrait que vous avez lu a-t-il affecté votre perception de la Banque centrale européenne (BCE) ?

- a. Cela a affecté ma perception de la BCE positivement
- b. Cela a affecté ma perception de la BCE négativement
- c. Cela n'a pas affecté la façon dont je perçois la BCE

15. Recommanderiez-vous le contenu que vous venez de lire à quelqu'un qui recherche des informations fiables sur l'économie ?

- a. Oui
- b. Non

16. Sur une échelle de 1 à 5, dans quelle mesure faites-vous confiance à la Banque centrale européenne ? (1 : je ne fais pas confiance ; 5 : je fais entièrement confiance)

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

17. En quoi la lecture de l'extrait a-t-elle modifié votre point de vue ou vos attentes concernant les perspectives pour l'économie ?

- a. Cela a eu un effet positif sur mon point de vue et mes attentes
 - b. Cela a eu un effet négatif sur mon point de vue et mes attentes
 - c. Cela n'a pas affecté mon point de vue ni mes attentes
-

Further information on regression models

$$Y_i = \beta_0 + \beta_1 T_i + \beta_2 K_i + \beta_3 A_i + \epsilon_i$$

T_i is a dummy variable equal to 1 if participant i is assigned to the *simplified version* (treatment group) and 0 otherwise.

K_i is a vector of knowledge variables:

Prior knowledge of the ECB's role: dummy variable equal to 1 if participant i knows the role of the ECB and 0 otherwise.

Prior knowledge of who the ECB President is: dummy variable equal to 1 if participant i knows who the ECB President is and 0 otherwise.

Prior knowledge of inflation: dummy variable equal to 1 if participant i knows the approximate inflation rate in France for 2020 and 0 otherwise.

A_i is a vector of socio-demographic control variables:

Gender: dummy variable equal to 1 if participant i is female and 0 otherwise.

Economics degree: dummy variable equal to 1 if participant i is enrolled in an economics course and 0 otherwise.

Economic engagement: continuous variable (1-5) indicating the degree to which participant i has an interest in economic news.

News source: continuous variable (1-6) indicating the degree to which participant i consumes their news from digital sources.

Regression for perceptions of the ECB question:

Y_i : continuous variable representing the extent to which participant i has positive changes in their perceptions of the ECB. Participants could answer “It negatively affected how I perceive the ECB”, “It didn’t affect how I perceive the ECB”, “It positively affected how I perceive the ECB”, coded, in order, from 1 to 3.

Regressions for recommendation of content question:

Y_i : dummy variable equal to 1 if participant i answers “Yes” and 0 if “No”.

Regression for trust in the ECB question:

Y_i : continuous variable representing the extent to which participant i trusts the ECB. Participants could rate their trust in the ECB on a scale from 1 to 5.

Regression for outlook for the economy question:

Y_i : continuous variable representing the extent to which participant i has positive changes in

their views or expectations on the outlook for the economy. Participants could answer “It affected my views and expectations negatively”, “It didn’t affect my views or expectations”, “It affected my views and expectations positively”, coded, in order, from 1 to 3.

Regression for score to trust questions overall:

Y_i : continuous variable representing the extent to which participants express trust in the ECB, constructed by adding up participants’ answers to each question on trust.

Regression for the two comprehension questions on the PEPP:

Y_i : continuous variable representing the number of correct answers of participant i in total in the two comprehension questions on the PEPP.

Regressions for each direct comprehension question:

Y_i : dummy variable equal to 1 if participant i answers the question correctly and 0 otherwise.

Regression for score to comprehension questions overall:

Y_i : continuous variable representing the number of correct answers of participant i in total in the comprehension questions.

Regression for score to direct comprehension questions overall:

Y_i : continuous variable representing the number of correct answers of participant i in total in the direct comprehension questions.

Table 10: Regression results for each direct comprehension question

	Dependent variable					
	Question 10	Question 11	Question 12	Question 10	Question 11	Question 12
	<i>logistic (marginal effects)</i>	<i>logistic (marginal effects)</i>	<i>logistic (marginal effects)</i>	<i>logistic (marginal effects)</i>	<i>logistic (marginal effects)</i>	<i>logistic (marginal effects)</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Simplified version	-0.015 (0.084)	0.073 (0.057)	0.095* (0.046)	-0.398** (0.146)	0.333* (0.166)	0.163 (0.103)
Economics degree	-0.050 (0.096)	0.212* (0.083)	0.055 (0.048)			
Knowledge of ECB President	0.555*** (0.131)	0.153 (0.149)	0.184 (0.141)	0.550** (0.194)	0.562** (0.217)	0.107 (0.129)
Knowledge of inflation	-0.066 (0.097)	0.321*** (0.085)	0.019 (0.040)	0.163 (0.164)	0.572*** (0.137)	0.152 (0.091)
Knowledge of ECB role	-0.017 (0.119)	-0.048 (0.053)	0.094 (0.083)	-0.120 (0.171)	-0.227 (0.185)	0.249 (0.175)
Digital news source	-0.028 (0.035)	-0.003 (0.023)	0.015 (0.013)	0.139* (0.069)	-0.056 (0.076)	0.017 (0.023)
Interest in economic news	0.030 (0.048)	-0.019 (0.030)	-0.018 (0.018)	-0.026 (0.081)	-0.157 (0.100)	-0.045 (0.033)
Female	-0.056 (0.090)	0.024 (0.059)	-0.021 (0.035)	0.100 (0.165)	0.171 (0.192)	-0.011 (0.050)
Sample	All	All	All	Non-economists	Non-economists	Non-economists
Observations	134	134	134	53	53	53
<i>Note:</i>	*p<0.1;**p<0.05;***p<0.01					

Table 11: Regression results for outlook for the economy question

	Dependent variable		
	Outlook for the economy (1-3)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	0.048 (0.076)	0.108 (0.130)	-0.003 (0.100)
Economics degree	-0.038 (0.099)		
Knowledge of ECB President	0.053 (0.144)	0.055 (0.141)	-0.155 (0.417)
Knowledge of inflation	0.072 (0.094)	0.181 (0.151)	-0.013 (0.120)
Knowledge of ECB role	-0.038 (0.121)	-0.022 (0.166)	-0.072 (0.176)
Digital news source	-0.009 (0.029)	-0.061 (0.053)	-0.002 (0.042)
Interest in economic news	-0.001 (0.043)	0.082 (0.071)	-0.085 (0.056)
Female	0.133* (0.079)	0.099 (0.129)	0.126 (0.099)
Constant	2.173*** (0.208)	2.078*** (0.284)	2.763*** (0.538)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.030	0.139	0.073
Adjusted R ²	-0.032	0.005	-0.015
Residual Std. Error	0.444 (df = 125)	0.454 (df = 45)	0.430 (df = 73)
F Statistic	0.484 (df = 8; 125)	1.036 (df = 7; 45)	0.827 (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

Table 12: Regression results for recommendation of content question

	Dependent variable		
	Recommendation of the content by participants(0-1)		
	<i>logistic (marginal effects)</i>		
	(1)	(2)	(3)
Simplified version	0.025 (0.054)	0.087 (0.088)	1.0057e-05 (7.1354e-03)
Economics degree	-0.011 (0.063)		
Knowledge of ECB President	-0.007 (0.102)	-0.039 (0.085)	-1.4149e-02 (3.5682e+00)
Knowledge of inflation	-0.032 (0.063)	-0.011 (0.082)	-5.0748e-03 (1.3915e+00)
Knowledge of ECB role	-0.025 (0.073)	0.141 (0.145)	-1.0867e-01 (1.0861e+01)
Digital news source	0.026 (0.018)	0.012 (0.035)	1.6974e-03 (4.6504e-01)
Interest in economic news	0.029 (0.029)	-0.005 (0.039)	5.2247e-03 (1.4315e+00)
Female	0.177** (0.064)	0.137 (0.107)	1.3937e-02 (3.8075e+00)
Sample	All	Non-economists	Economists
Observations	134	53	81
<i>Note:</i>			*p<0.1; **p<0.05; ***p<0.01

Table 13: Regression results for trust in the European Central Bank question

	Dependent variable		
	Trust in the ECB (1-5)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	-0.145 (0.148)	0.103 (0.214)	-0.334 (0.211)
Economics degree	-0.311* (0.163)		
Knowledge of ECB President	0.322* (0.186)	0.139 (0.180)	0.937*** (0.252)
Knowledge of inflation	-0.167 (0.184)	0.093 (0.297)	-0.366 (0.263)
Knowledge of ECB role	0.134 (0.215)	0.423 (0.302)	0.013 (0.320)
Digital news source	-0.016 (0.051)	-0.122 (0.084)	0.016 (0.073)
Interest in economic news	0.192** (0.084)	0.197* (0.104)	0.138 (0.132)
Female	0.240 (0.150)	0.007 (0.202)	0.353* (0.212)
Constant	2.807*** (0.383)	3.133*** (0.439)	2.249*** (0.836)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.101	0.228	0.138
Adjusted R ²	0.043	0.108	0.055
Residual Std. Error	0.857 (df = 125)	0.777 (df = 45)	0.884 (df = 73)
F Statistic	1.756* (df = 8; 125)	1.899* (df = 7; 45)	1.667 (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

Table 14: Regression results for comprehension questions overall

	Dependent variable		
	Overall score in comprehension questions (0-4)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	0.067 (0.147)	0.053 (0.258)	0.090 (0.161)
Economics degree	0.098 (0.180)		
Knowledge of ECB President	1.174*** (0.321)	1.193*** (0.437)	0.606 (0.383)
Knowledge of inflation	0.457*** (0.163)	0.845*** (0.239)	0.116 (0.195)
Knowledge of ECB role	-0.003 (0.232)	0.065 (0.381)	-0.068 (0.259)
Digital news source	0.052 (0.051)	0.156 (0.122)	0.015 (0.058)
Interest in economic news	0.055 (0.088)	-0.135 (0.133)	0.236** (0.113)
Female	0.083 (0.158)	0.252 (0.281)	-0.185 (0.172)
Constant	1.320*** (0.432)	1.109* (0.578)	1.787** (0.773)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.275	0.404	0.142
Adjusted R ²	0.228	0.311	0.060
Residual Std. Error	0.834 (df = 125)	0.962 (df = 45)	0.715 (df = 73)
F Statistic	5.912*** (df = 8; 125)	4.355*** (df = 7; 45)	1.727 (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

Table 15: Regression results for direct comprehension questions overall

	Dependent variable		
	Overall score in direct comprehension questions (0-3)		
	<i>OLS</i>		
	(1)	(2)	(3)
Simplified version	0.189 (0.122)	0.132 (0.234)	0.213 (0.128)
Economics degree	0.245 (0.161)		
Knowledge of ECB President	1.054*** (0.298)	0.987*** (0.314)	0.726* (0.410)
Knowledge of inflation	0.311** (0.147)	0.798*** (0.251)	-0.109 (0.153)
Knowledge of ECB role	0.006 (0.200)	0.031 (0.294)	0.003 (0.194)
Digital news source	0.003 (0.043)	0.118 (0.104)	-0.031 (0.047)
Interest in economic news	-0.009 (0.087)	-0.176 (0.122)	0.158** (0.077)
Female	0.005 (0.138)	0.226 (0.244)	-0.293** (0.136)
Constant	1.032*** (0.599)	0.738 (0.580)	1.458** (0.591)
Sample	All	Non-economists	Economists
Observations	134	53	81
R ²	0.302	0.413	0.214
Adjusted R ²	0.257	0.321	0.138
Residual Std. Error	0.693 (df = 125)	0.812 (df = 45)	0.545 (df = 73)
F Statistic	6.746*** (df = 8; 125)	4.519*** (df = 7; 45)	2.837** (df = 7; 73)

Note:

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors are in parentheses.

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