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Conference Paper

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Beiträge zur Jahrestagung des Vereins für Socialpolitik 2022: Big Data in Economics

Provided in Cooperation with:

Verein für Socialpolitik / German Economic Association

Suggested Citation: Lamla, Michael; Vinogradov, Dmitri (2022) : Is the Word of a Gentleman as Good as His Tweet? Policy Communications of the Bank of England, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2022: Big Data in Economics, ZBW - Leibniz Information Centre for Economics, Kiel, Hamburg

This Version is available at:

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Is the Word of a Gentleman as Good as His Tweet? Policy communications of the Bank of England[‡]

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February 28, 2022

Abstract

In a series of original surveys, we educate consumers' attentiveness, news sources and correctness of policy news received to explore the channels and the effectiveness of central bank communication with the general public. We administer surveys just before and right after press conferences of the Bank of England, to draw causal inference on announcements: they increase the probability of receiving correct news and reaching those who do not actively search for it. Information improves expectations. BoE followers on social media are more likely to get news, however, they report less accurate expectations, and yet are more confident in their beliefs.

Keywords: perceptions, expectations, central bank communication, consumer, attention, social media.

JEL classification: E52; E58.

[‡]We thank participants of research seminars at the University of Glasgow, the Bank of England, Nottingham Business School, University of Hannover, University of Essex and of the international Conference on applied research in economics (iCare 2020) at NRU HSE Perm. Financial support through the Bank of England research donations scheme, Leverhulme grant RF-2020-581 and The James Cusator Wards Fund are gratefully acknowledged.

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1 Introduction

Since [Blinder et al. \(2008\)](#) called for more attention to central bank communication with the general public, there has been some rapid growth in research investigating effects of central bank communication on the information set and the resulting beliefs of the general public. Information does affect beliefs and decisions ([Haldane and McMahon, 2018](#); [Coibion et al., 2020](#); [Binder, 2020](#)) but the effect appears short-lived ([Coibion et al., 2019](#)) and overall minuscule given the low proportion of those who receive news about the central bank policy ([Lamla and Vinogradov, 2019](#)). How can central banks improve transmission of information to the public? For instance, if central banks wish to ensure more people are properly informed about their policies and current and projected economic situation, should they resort to direct communication (via social media) or further rely on intermediated communication (via news media)? Over the last few years, central banks intensified their social media engagement, aiming to improve the efficiency of their communication with the greater public. However, so far there is no evidence this greater presence in social media is any better than policy communication through conventional outlets. In this paper, besides providing new evidence for the Bank of England, complementing the Fed focus of earlier research, we detail the information channels, investigate whether communication can activate the inattentive, and explore whether the news received is actually correct, in order to elucidate the transmission mechanism from policy communication events to macroeconomic expectations of consumers.

Our attention is on communications by the Bank of England (BoE), known for using simple words and concise infographics in its communications with consumers via social media. Theoretically, presenting news in accessible versus traditional (complex and technical) form makes a difference - decision-makers adjust beliefs stronger after receiving easier to digest policy news ([Haldane and McMahon, 2018](#); [Bholat et al., 2019](#)). Providing households with simple statistics has a much stronger effect on expectations than giving them a typical post-meeting statement or a news article ([Coibion et al., 2019](#)). The simplified language used by the BoE in its Twitter communications makes it a suitable object to investigate

policy communication effects on the general public. All communications of the decisions of the BoE's Monetary Policy Committee (MPC) in our sample-period were accompanied by the publication of the Inflation Report.¹ For convenience and brevity we refer to them as monetary policy communication, although the information issued by the BoE following the MPC meetings addresses topics beyond setting the Bank base rate. In particular, Inflation reports cover current (last month) inflation rate, estimate of the inflation rate for the current quarter, inflation expectations of the BoE for the next 12 months and beyond, and measures of inflation expectations derived from existing surveys of the general public and companies.

To identify the information provision effect, the common approach is to measure expectations before and after the information inflow: in [Haldane and McMahon \(2018\)](#); [Coibion et al. \(2019\)](#) and [Binder \(2020\)](#) information comes within the survey wave, in [Coibion et al. \(2020\)](#) the after-effect is measured in a follow-up survey, and in [Lamla and Vinogradov \(2019\)](#) information comes exogenously through policy announcements between the two adjacent waves of a survey. We follow the latter and administer our surveys around the official publication of MPC decisions and the press-conference, allowing us to infer causal effects of announcements. In comparison to [Lamla and Vinogradov \(2019\)](#) who focus on the Fed, the questionnaire in the current paper is designed to provide more details regarding the sources of information the public relies on, including the social media presence of the BoE. Furthermore, we elicit the information content of received news by asking participants about the change in the policy rate they recall from what they heard; we then compare it with the actual MPC decision that week and through that conclude on correctness of the central bank signal respondents report back to us. Finally, we elicit information on consumers' attentiveness to central bank news in the sense that they have been actively searching for this news or just came across it unintentionally: attentive consumers make an effort to overcome information collection and processing cost, while the inattentive strategy is effortless, as in [Sims \(2003\)](#), [Huang and Liu \(2007\)](#), [Caplin et al. \(2020\)](#).

¹[Born et al. \(2014\)](#) detect a significantly stronger reaction of financial markets to published reports than to information coming through interviews and speeches of central bank officials.

In our estimates, announcements increase the fraction of people who heard monetary policy news by 20%, twice as much as in the U.S. sample in [Lamla and Vinogradov \(2019\)](#). We further qualify this result by showing that the share of respondents who receive correct news increases by even more (approx. 22%), which in turn has positive follow-up effects on the quality of perceptions and expectations as well as on confidence in them. Lastly, we find that the increase in news received due to the announcement activates the inattentive and is not driven by consumers attentive to this type of news. With respect to direct communication (via social media) we observe that it does not add much in terms of news dissemination in comparison to traditional channels. However, BoE followers on social media (for brevity we call them Twitter users), tend to make greater errors in their assessments of current inflation and interest rates, yet report higher confidence in these estimates. Potential precision and reliability benefits of the single-source direct communication by a Central bank are overridden by poorer quality of expectations of Twitter users. All results are robust to controlling for socio-demographic factors, hence this Twitter effect can hardly be associated with the conventional "Twitter-type" (i.e., younger, better educated, and higher-earning, see, e.g. [Wojcik and Hughes, 2019](#), in whose data, noteworthy, only 22% of the US public use Twitter). A possible explanation is that the continued flow of information through Twitter contaminates the Central bank's message and its effect on expectations, yet knowing that one receives news from the Central bank directly, improves confidence. All in one, our results indicate that more communication is not always better and more efforts are needed to utilize the full potential of the direct communication channel via social media.

2 Related literature

Social networks receive increasingly more academic attention as tools of communication of government agencies and political leaders with and to the public.² A new and growing strand studies communication and dissemination of information across social network users - also in the context of inflation expectations. [Haldane and McMahon \(2018\)](#) report that monetary policy news trigger substantial Twitter activity, independent of the communication channel - hence, news spread over social media potentially becomes an important source informing economic expectations of social media users. A recent study by [Ehrmann and Wabitch \(2020\)](#) uses Twitter to differentiate experts from non-experts and confirms Twitter activity significantly informs non-experts on monetary policy news. In [Gorodnichenko et al. \(2021\)](#) the focus is on the activity of users in response to Fed communications on Twitter and Facebook: in particular, they show Twitter is used by far more than Facebook, the majority of those who engage with messages from the central bank (retweeting or commenting) are the general public, and more activity takes place around policy announcement events. While [Gorodnichenko et al. \(2021\)](#) detect some market reaction to social media posts by the Fed, it remains unclear whether the general public updates expectations in response to those posts. In this paper, we focus on social networks exclusively as an alternative channel through which central banks directly communicate policy decisions to the general public; our interest is in whether and how this communication affects expectations and their responses to policy an-

²Much better established is the literature that studies and uses social networks as the source of information on public preferences, tastes and opinions. Most existing studies of government or political leaders' communication with the general public via social networks are in political sciences and public administration. [Rainie et al. \(2012\)](#) report survey results indicating already a decade ago about a third of adult internet users in the U.S. received at least some information about government activities through social networks. An early documentation and analysis of the role of Twitter as a tool of political communication is, for example, in [Parmelee and Bichard \(2011\)](#), who list the desire to be informed and shared political views among the motivating factors that drive Twitter users to follow political leaders; we may expect the same factors to lead people to follow a central bank - either out of the desire to be informed, or/and out of shared interests (someone interested in central banking would be more likely to follow them on social networks). [Jungherr \(2016\)](#) reviews extant literature on the usage of Twitter in election campaigns and notes, in particular, that the opposition tends to be more likely to use Twitter than the government, yet even the opposition prefers the "communication" mode to the "interaction", by merely informing followers about events and opinions, rather than engaging in an interactive dialogue. Survey results in [Park et al. \(2016\)](#) suggest communications of government agencies on Twitter improve public trust in those agencies and the government as a whole, especially if communications are by the relevant heads of agencies or executive officers.

nouncements. Concurrently, [Conrad et al. \(2020\)](#) investigate the role of information channels for consumer expectations in Germany, using a similar gradation of information sources, yet their data contains only one wave, and the focus is on the information about the European Central Bank's (ECB) monetary policy flowing in through Facebook or Twitter, which may be a general discussion on social networks but not necessarily the message coming through the ECB account. We use the high frequency feature of our data to detect causal effects of policy announcements (if any) and the precise identification of central bank followers on Twitter or Facebook to explore the role of the central bank communication.

A growing field of research deals with *information overload* in social networks. A thorough review of managerial and accounting information overload literature in [Eppler and Mengis \(2004\)](#) emphasises the drop in decision accuracy that it causes and places information technology among key causes of the overload, while listing selectivity, ignorance of information, general lack of perspective and cognitive stress among main symptoms of it. [Sasaki et al. \(2016\)](#) report that although Twitter users can control the amount of information they receive, they rarely "unfollow" someone, and continue to increase the number of "Twitter-friends" despite information overload; informationally overloaded users avoid viewing all tweets. [Agnew and Szykman \(2005\)](#) show that information overload distorts financial decisions; in their pension plan experiment the degree of this distortion depends on financial literacy of participants. In a public policy context, [Persson \(2018\)](#) argues information disclosure rules (aimed at providing consumers with correct decision-relevant information) are inefficient if many other market participants compete in the information provision space: the signal designed by the regulator gets contaminated by the surrounding noise, and effectively consumer knowledge gets reduced due to information overload. This latter argument applies to policy communication via social media, where users compete for attention, and the Central bank becomes just one of many. Information overload may reduce or reverse the effect of simplified communication. At the same time, having received news from the reliable source (even if not having used that news) may give a feeling of being better informed, and thus boost

confidence in own decisions and beliefs. Beliefs and confidence, and their relationship to the source of information, are the subject of our investigation.

Our paper is linked to a broader body of research on consumer expectations, focused on factors that drive them. [Easaw et al. \(2013\)](#) as well as [Dräger and Lamla \(2017\)](#) analyze how expectations of consumers are adjusted and which factors might affect the adjustment process. [van der Crujssen et al. \(2015\)](#) distill from a survey how much consumers know about the European Central Bank's objectives. Understanding of economic concepts by consumers and professionals is analyzed in [Carvalho and Nechio \(2014\)](#) who use the Michigan survey of consumers to explore how many people are aware of the Taylor rule, and by [Dräger et al. \(2016\)](#) who look at both consumers and professionals and test whether central bank communications improve consistency of expectations with the Taylor rule and the Phillips Curve. More recently, [Dräger and Nghiem \(2021\)](#) show that news on monetary policy or financial markets improve consistency of consumer expectations and spending decisions with the Euler equation.

With respect to the news sources, extant research suggests dispersed opinions published by different media may adversely affect consumer expectations. In [Vinogradov \(2012\)](#) the lack of a single articulated signal about the central bank policy generates heterogeneity in beliefs, distorting the savings decisions of consumers. The issue of dispersed experts' opinions about monetary policy is addressed in [Ehrmann and Fratzscher \(2013\)](#) who investigate whether members of monetary policy committees should communicate a collegiate (unified) view on monetary policy or provide a diversity of opinions. They find, in particular that consistent communication by committee members makes monetary policy decisions more predictable and reduces uncertainty about future macroeconomic parameters, such as interest rates. In a similar vein, [Born et al. \(2014\)](#) distinguish between the official publication of formal reports by central banks and less formal interviews and speeches. They find that formal reports have a stronger effect on abnormal returns, suggesting markets see them as more reliable and precise sources. Generally, policy announcements reduce uncertainty ([Bauer et al., 2021](#), show this formally by measuring market uncertainty from derivative prices), and the direct

communication via Twitter and Facebook may have a potential to amplify this effect as it delivers a single-source reliable signal, in contrast to the diversity of opinions present in media reports. As part of our analysis, we test whether recipients of this direct communication indeed perceive less uncertainty about inflation and interest rates, and whether this has implications for their expectations.

3 Survey design and data

As in [Lamla and Vinogradov \(2019\)](#), the key feature of our survey design is field-experimental: a random sample of consumers report their opinions shortly before monetary policy announcement (control group), and another non-overlapping random sample of equal size report their opinions right after the announcement (treatment group). We focus on the quarterly monetary policy committee (MPC) meetings, which come with a publication of Monetary Policy Report, containing precise assessments of the current CPI inflation rate and its projections one and two years ahead. The speed with which responses are collected is crucial for the identification of the announcement effect. Conventional ways to target respondents (letters or telephone interviews) do not allow one to collect enough responses within this short event window. We have chosen Pollfish.com as our survey provider for this study.³ Pollfish respondents are incentivized by an opportunity to earn e-rewards in mobile phone apps upon completion of the survey. Pre-registered users are invited to participate in the survey. The panels are balanced according to census data of age, gender, and location.

Figure 1 depicts the timeline of data collection per announcement event. Within each round, first wave invitations are sent out on Tuesday morning, 2 days before the press-conference on a Thursday, and the second wave invitations are sent out on Friday morning. Each wave yields 550 complete responses⁴; this target is usually achieved within 1-2 hours,

³In [Lamla and Vinogradov \(2019\)](#) the US data was collected through SurveyMonkey.com. For the UK study in this paper we have chosen the most cost efficient option available to us. The only implication in terms of the survey design was the need to re-word questions as Pollfish administers surveys via mobile phones, which means restrictions on the length of the question and for the presentation of options.

⁴Pollfish do not deliver responses where subjects left any questions unanswered or dropped out.

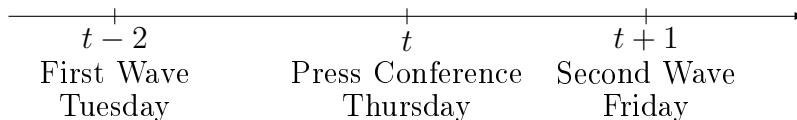


Figure 1: Timeline Survey

which gives us two non-overlapping cross-sections of expectations and perceptions taken within a maximum of 4 days between each other, minimizing the potential impact of other macroeconomic factors. This paper reports nine quarterly survey rounds from November 2017 to November 2019, yielding us a maximum of 9900 observations in total.

The questionnaire consists of 17 questions, see Appendix A. Core questions are as in Lamla and Vinogradov (2019) and relate to perceptions and expectations of inflation and interest rates, suitably re-worded for the UK market.⁵ We refer to these four variables in general as "*beliefs*". The style of these questions follows that of the University of Michigan Survey of Consumers and, in particular, allows respondents to enter any answer, including text, helpful to allow for "don't know" responses.⁶ Unlike the Michigan survey, we do not follow a multistep procedure to elicit the answer where the response appears surprisingly high or surprisingly low. Instead, the number range for inflation is suggested to be $[-30, 30]$ and for interest rates $[0, 30]$; on the Pollfish platform this is shown as an advice "Inputs should be at least ... and no more than ...", while preserving the possibility to enter textual responses. After each of these questions we further ask how confident (on a 5-point scale) respondents are in their answers. This set of four confidence questions measures the degree of uncertainty respondents perceive. Notation for beliefs and confidence variables is self-explanatory.

⁵For example, the UK survey asks about the interest rate on a car loan of £10 000 instead of \$10 000.

⁶Here is one example (style, typos, grammar and punctuation preserved): "Don't know all I know is we don't paid enough to live a propped life due to hyper inflation and ridiculous taxes from a greedy government who would rather spend 4 Billion pounds on champagne than put the money were it belongs". The fraction of responses that cannot be interpreted as a number is very low, which we explain by the fact that Pollfish only deliver completed questionnaires, whereas subjects who do not know how or do not want to answer our questions are likely to drop out before they complete the full set of questions, hence their responses are not delivered to us.

By design, we assign $Announcement_i = 1$ if responses of consumer i are obtained in the post-announcement wave of the survey, $Announcement_i = 0$ if they come from the pre-announcement wave. With respect to the information set, we identify respondents' exposure to news by asking whether they heard any news on that week's central bank's policy decision and what they heard. We assign $NewsBoE_i = 0$ if consumer i 's answer to this question is "I heard NO news about the Bank of England", otherwise $NewsBoE_i = 1$. The remaining answer options show whether respondents who are classified as having heard news about the BoE can correctly summarize the policy move that week. For example, if respondent i answers "The Bank would raise the official interest rate" in the week when the Bank's decision was indeed to raise the rate (all these decisions in our sample period were well anticipated and widely discussed in news media ahead of the announcement), we assign $NewsBoEC_i = 1$, otherwise if the respondent's answer does not correspond to that week's policy decision (including "I heard no news"), we assign $NewsBoEC_i = 0$. The mean of $NewsBoEC_i$ is thus the fraction of correctly informed participants in the overall sample. This distinction is not only relevant from a theory perspective but seems sizable as well. On average, about one in six respondents who report having heard some news about the central bank, report the policy decision incorrectly (see the difference between $NewsBoE$ and $NewsBoEC$ in Table 1). Furthermore we ask respondents whether they actively searched for this news or just "came across" this monetary policy news. We assign $Searched_i = 1$ to attentive respondents who report having searched for this type of news and $Searched_i = 0$ to the rest of the sample, and $Received_i = 1$ to inattentive consumers who report coming across them unintentionally and $Received_i = 0$ to everybody else. This classification as attentive or inattentive is in line with the idea that attentive subjects have to overcome information cost to reach it, while those inattentive bear no information cost (see, e.g., [Sims, 2003](#); [Caplin et al., 2020](#)).

For the information channel, we assign $Twitter_i = 1$ if the respondent's answer to the question "During the last week, what were your main sources of information on economic and business conditions in the UK?" is "I follow the Bank of England on Twitter/Facebook"; if the respondent does not select this option, we assign $Twitter_i = 0$.

For control variables, we use sociodemographic characteristics such as age, gender, education, financial literacy, household income, and the area of residence. Table 1 presents summary statistics of the main variables described above.

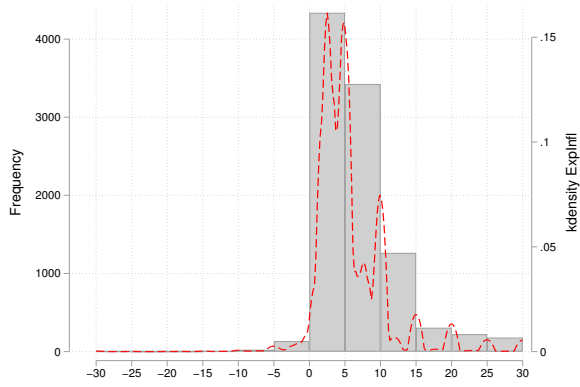
Figure 2 depicts the aggregated distributions of reported beliefs regarding past and present inflation and interest rates. The data is comparable with Lamla and Vinogradov (2019): same as theirs, the level of inflation expectations agrees with D'Acunto et al. (2019) but is higher than in the Michigan or New York Fed surveys (computing mean values from the microdata of NY Fed surveys yields values comparable to ours.) Reported confidence in future rates is lower than in current rates (see Table 1), which is consistent with the idea that predicting the future is a more difficult task than guessing the current value of rates based on contemporaneous observations. Higher expectation levels are likely due to sample selection: ours is a non-repeated sample, while in repeated samples expectation errors diminish with time (Dräger and Lamla, 2017).

Figure 3 complements Figure ?? by presenting the dynamics of inflation perceptions and expectations in our survey. The noticeable increase in perceived and expected interest rates in the second half of the period is consistent with the rising policy rate and forward guidance towards further increases in the base rate. Mean perceived inflation in our surveys correlates well with the BoE measures shown in Figure ??: $\rho = 0.73$ and $\rho = 0.75$ for correlation with last month and current quarter inflation respectively. Expected inflation is positively correlated with the BoE 12-month ahead forecast ($\rho = 0.34$) and with the CBI one year ahead expectation measures for companies ($\rho = 0.41$). Note that the latter survey estimates expectations from responses on a scale -10 to +10, while other surveys represented in Figure ?? operate with a shorter scale asymmetrically positioned relative to zero, such as "below zero, 1%, 2%, 3%, 4%, 5% and above 5%". Our approach is closer to the scale-free Michigan survey of consumers, which helps reduce the framing effect and allows for greater flexibility in responses.

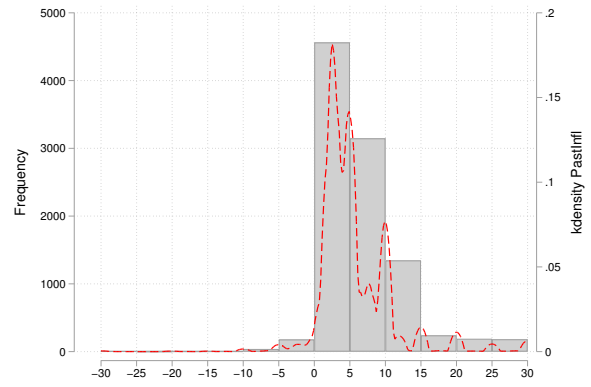
Variable	Mean	Median	SD
<i>Beliefs</i>			
Past Inflation (PastInfl)	5.06	5.00	2.80
Expected Inflation (ExpInfl)	5.12	5.00	2.73
Past Interest Rate (PastRate)	9.06	8.00	5.19
Expected Interest Rate (ExpRate)	10.32	9.00	5.6
<i>Confidence</i>			
Confidence Past Inflation	0.32		0.47
Confidence Expected Inflation	0.20		0.40
Confidence Past Interest Rate	0.16		0.37
Confidence Expected Interest Rate	0.15		0.35
<i>Information set</i>			
NewsBoE	0.35		0.48
NewsBoEC (correct news)	0.29		0.45
Announcement	0.50		0.50
Twitter	0.03		0.18
<i>Controls</i>			
Gender	0.53		0.50
Year of Birth	1974.35	1975	14.19
Income Indicator	1.7	2	0.6
Income	33793	34250	24154.28
Financial literacy	0.22		
Education (University)	0.26		

Notes: SD denotes the standard deviation of the corresponding series. Income Indicator equals 1 for low income (0-18499 GBP), 2 for middle income (18500-62499 GBP) and 3 for high income (>62500 GBP). Financial literacy is the share of people that answer the financial literacy questions correctly. NewsBoE is the share of people reporting that they heard news about the BoE. NewsBoEC is the share of people that heard the correct news, i.e. if they report that that interest rate changed and the BoE changed the interest rate this would count as receiving correct news. For education we use dummy variables in our estimation. Twitter/Facebook recipients are 331 participants.

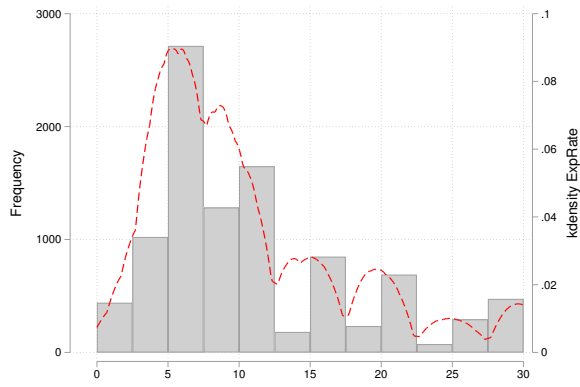
Table 1: Summary Statistics



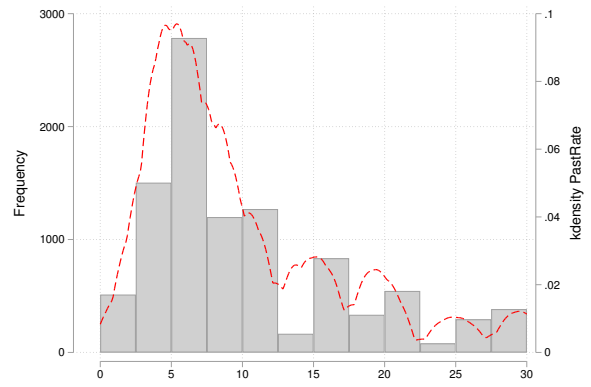
a) PastInfl



b) ExpInfl

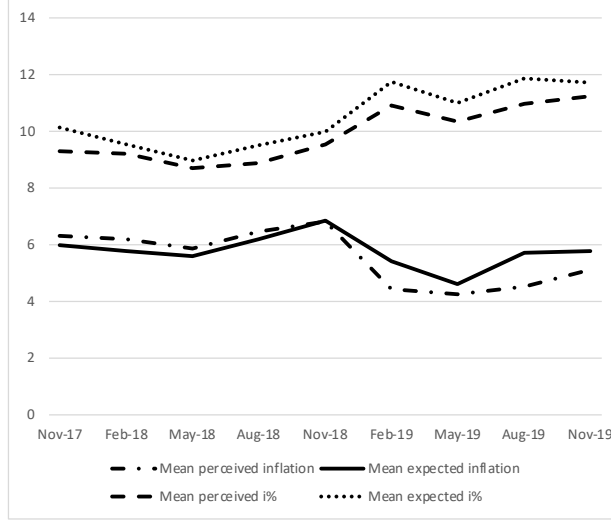


c) PastRate



d) ExpRate

Figure 2: Distribution of individual perceptions and expectations



Notes: raw data, $N = 1100$ per each data point.

Figure 3: Dynamics of expected and perceived inflation in our surveys, 2017-2019.

4 Provision of Information through Announcements

Our main focus is on the impact policy communication has on consumers' information set and expectations. We begin by testing whether announcements indeed induce an inflow of information (particularly correct information), and from there we move on to analyzing the implications for beliefs. Afterwards we disaggregate information provision by source: media and social media.

4.1 Announcements and the Information Set

The following probit regression estimates whether more consumers heard news about the central bank after the announcement than before:

$$F(NewsBoE_i) = \alpha + \beta_A \cdot Announcement_i + \sum_j \beta_j X_{i,j} + \epsilon_i, \quad (1)$$

where F is the inverse normal, α is the constant term, variables $NewsBoE_i$, $Announcement_i$ refer to exposure to news and to the pre/post-announcement wave, and $X_{i,j}$ is the set of controls - all defined above; in addition to previously defined control variables, we also include

	(1)	(2)	(3)	(4)
	NewsBoE	NewsBoE	NewsBoEC	NewsBoEC
	bivariate	with controls	bivariate	with controls
	b/se	b/se	b/se	b/se
announcement (d)	0.200*** (0.01)	0.216*** (0.01)	0.213*** (0.01)	0.230*** (0.01)
Survey	No	Yes	No	Yes
Demographics	No	Yes	No	Yes
Regional	No	Yes	No	Yes
N	9900	8984	9292	8415

Note: Probit. Marginal effects reported.

Table 2: Effects of announcements on the probability of receiving news about the BoE monetary policy (*NewsBoE*), probability of receiving correct news (*NewsBoEC*).

survey fixed effects in all specifications (in particular, this removes the effect of any announced change in the policy rate on beliefs).

Note that media reports about the central bank may be published both before and after the meeting. Especially when sharp policy changes are largely anticipated, the news coverage may begin well before the announcement itself. This increased coverage may reduce the effect of the announcement, thus our identification offers a conservative estimate of the announcement effect on exposure to news. In Table 2, column 1 shows the bi-variate system for (1) with $\beta_j = 0$ for all $j \neq A$, while column 2 controls for all available sociodemographic factors; for some consumers these are missing, hence the lower number of observations with controls. Estimates reveal a strong increase in the fraction of the public who have heard monetary policy news, by 20% on average.

An increase in exposure to news can be interpreted as a change in the information set, at least for those consumers who would have been in the uninformed cohort prior to announcement, and have received the news once the announcement has been made. One important question in that respect – the one that has not been addressed by the literature so far – is whether all consumers actually correctly understand the news they heard. To shed some first light, we re-define the informed and uninformed cohorts. So far, the uninformed cohort was defined by a negative answer to the question "During the last week, have you heard any

news about the monetary policy?", with the remainder of the sample treated as having heard something about the central bank. Yet this cohort would also include subjects who either did not pay attention to the news, or could not recall what was in the news, or even did not clearly remember when exactly they heard anything about the central bank. Clarifying whether respondents report receiving correct news is crucial for our understanding of effects of central bank communications, as (1) central banks seek to maximize the share of correctly informed people, and (2) they aim to reach people who are not actively tracking financial market data, but are to a large extent inattentive with respect to news coming from the central bank. To address this, we now focus on subjects who report having heard correct news and re-run (1) with $NewsBoE_i$ replaced by $NewsBoEC_i$ (see columns (3) and (4) in Table 2 for estimates) in order to analyze whether announcements increase the likelihood of receiving correct news. Correct news is identified by us manually for each round of the survey from the announcement of that week, and variable $NewsBoEC_i$ is constructed by matching correct news with subject i 's response as described in Section 3.⁷ This estimation gives causal evidence that announcements trigger an increase in the probability of receiving correct news: the effect is even somewhat higher than that on the likelihood of having heard anything about monetary policy.

To infer whether communication indeed influences people who are not actively tracking and following central banks we rely on our survey question asking whether respondents searched for the news or just came across this news. This distinction is relevant for two reasons: (a) as mentioned above, central banks should cater to general public which is largely inattentive, and (b) the news effect could be driven by those actively seeking for news. To better understand the effect, we re-estimate (1) for dependents $Searched_i$ and $Received_i$.

Results in Table 3 show that announcements have no significant effect on people that reported actively searching for news but increase in the cohort of those who came across

⁷Recall, in all estimates the benchmark is receiving no news: for the comparability of effects we have to exclude all consumers classified as having incorrect news, hence the drop of observations in columns (3) and (4).

	(1)	(2)	(3)	(4)
	Searched	Searched	Received	Received
	b/se	b/se	b/se	b/se
announcement	0.006	0.008	0.066***	0.062***
	(0.01)	(0.01)	(0.01)	(0.01)
Survey	No	Yes	No	Yes
Demographics	No	Yes	No	Yes
Regional	No	Yes	No	Yes
N	9900	8984	9900	8984

Note: Marginal Effects reported

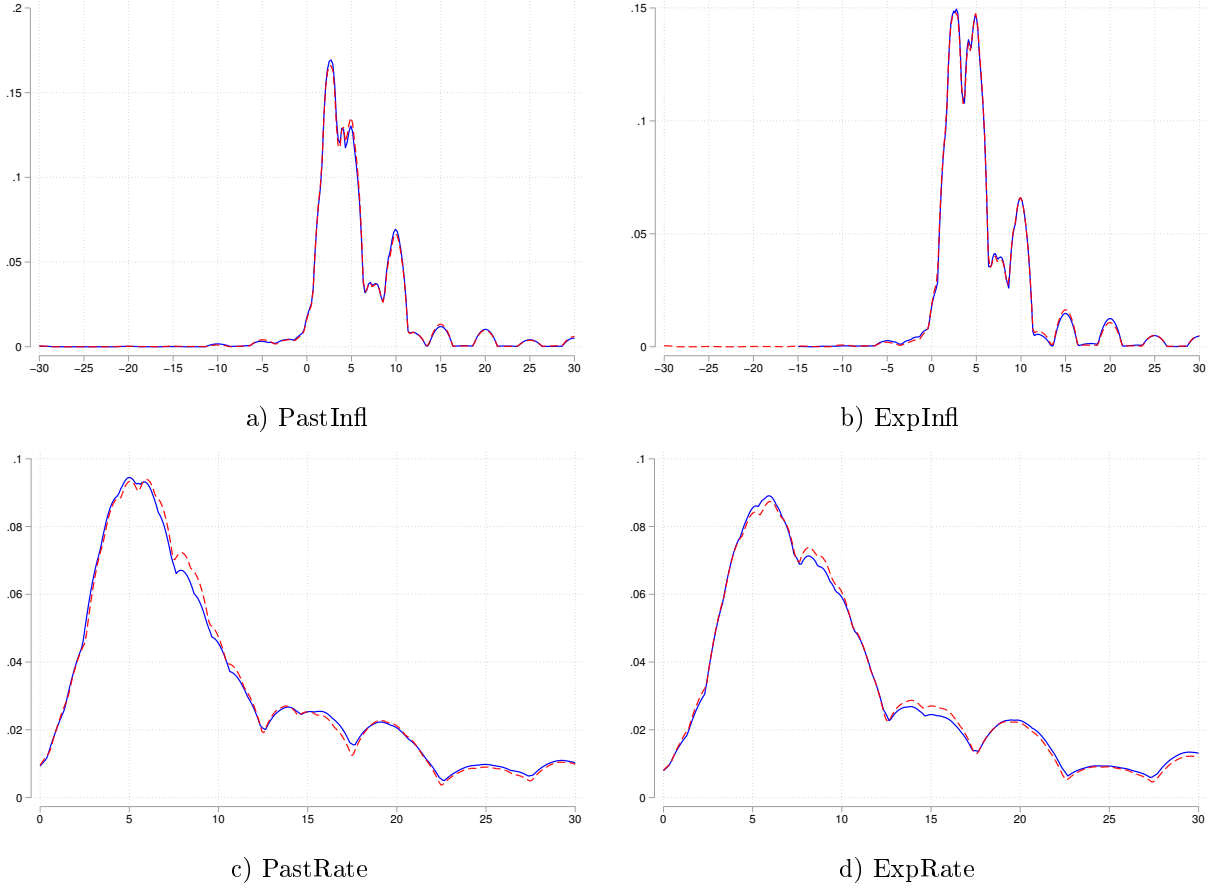
Table 3: Effects of announcements on the probability of receiving news about the BoE monetary policy (*NewsBoE*) by people who actively searched for this type of news (*Searched*) and those who did not search but came across this news (*Received*).

economic. It follows that the increased coverage induced by policy announcement events is mainly due to people who otherwise would not come across this information.

An important takeaway from this section is that announcements (policy communication events) trigger an increase in the fraction of people aware of the monetary policy move. In our UK data, this effect is almost twice as strong as in the U.S. sample in [Lamla and Vinogradov \(2019\)](#). This remarkable difference could potentially be linked to the increased efforts of the BoE to provide information about monetary policy in a more accessible fashion, triggering higher media coverage and discussions. Extending this result to the provision and reception of news, we additionally qualify the digestion of news by the public: information provided by the central bank is widely correctly understood, and announcements causally increase the proportion of people reporting correct Bank rate decisions, as well as the proportion of inattentive people who receive news without looking for it. These qualifications are new.

4.2 Announcements and Average Beliefs

We turn now to the question whether announcements have implications for expectations and perceptions. Here we report results for the overall sample, which includes all communication channels. Later, we will focus on respondents reporting having heard correct news. Figure 4 plots distributions of beliefs pre- and post-announcement. While we observe a slightly



Notes: Kernel density plots. **Blue line** (solid) shows the distribution 1-2 days before the announcement, **red line** (dashed) depicts the distributions on the next day after the announcement.

Figure 4: Effects of Monetary Policy Announcement Events

increased concentration of the post-announcement densities with some shift to the left, the changes are not substantial.⁸ For the overall sample, the announcement effect on expectations and perceptions of both inflation and interest rates is close to nil. This result is in line with the one reported for the U.S. in [Lamla and Vinogradov \(2019\)](#).

We estimate the following regression to elicit more precisely any potential causal effects of announcements on beliefs:

$$Belief_i = \alpha + \beta_A \cdot Announcement_i + \sum_j \beta_j X_{i,j} + \epsilon_i, \quad (2)$$

⁸The Kolmogorov-Smirnov test shows no statistically significant difference between pre- and post-announcement distributions for each belief.

where, $Belief_i$, $Announcement_i$ and the set of controls $X_{i,j}$ are defined above; again, survey fixed effects are included in controls. OLS estimates of equation (2) are in Table 4: none of the coefficient estimates of the announcement variable is statistically significant.⁹ This, of course, does not mean that announcements are irrelevant for perceptions and expectations. As we have already shown, announcements trigger higher exposure to news, which in turn is likely to affect expectations and perceptions.

One could argue that each announcement event is different. Although we control for the survey round fixed effects in all regressions, to further elaborate on this, we now first account for changes in the Bank rate, and then estimate the announcement effect for each announcement event separately.

Table 5 includes a dummy $di = 1$ if a change in the base rate was announced and zero otherwise, and estimates the following regression with an interaction term:

$$Belief_i = \alpha + \beta_A \cdot Announcement_i + \beta_{di} \cdot di_i + \beta_{Adi} \cdot Announcement_i \times di_i + \sum_j \beta_j X_{i,j} + \epsilon_i, \quad (3)$$

Note, in our sample period we had two increases of the base rate and no decreases. While interest changes seem relevant for perceptions and expectations the announcement effect remains insignificant and unaffected by those policy changes.

Figure 5 depicts the value of β_A and the corresponding 95% confidence interval based on equation (2) but estimated separately for each announcement event. This allows checking whether there have been any significant announcement effects, i.e. events that changed perceptions and expectations substantially. While we observe individual events cause movements up or down, based on the 95% threshold only the May 2018 event caused a statistically significant reduction in expected interest rate.

To sum up, announcements have much lower effects on perceptions and expectations on consumers, if compared with financial markets. As we have shown that announcements cause

⁹Note that in all estimations we use a truncated sample removing the top and bottom 5% of the dependent variable.

	(1)	(2)	(3)	(4)
	Past Infl	Expected Infl	Past IR	Expected IR
	b/se	b/se	b/se	b/se
announcement	-0.010 (0.06)	0.059 (0.06)	-0.023 (0.11)	-0.045 (0.13)
Survey	Yes	Yes	Yes	Yes
Demographics	Yes	Yes	Yes	Yes
Regional	Yes	Yes	Yes	Yes
R^2	0.123	0.061	0.039	0.036
N	7789	7706	7907	7740

Table 4: Effects of BoE policy announcements on perceptions and expectations of inflation and interest rates

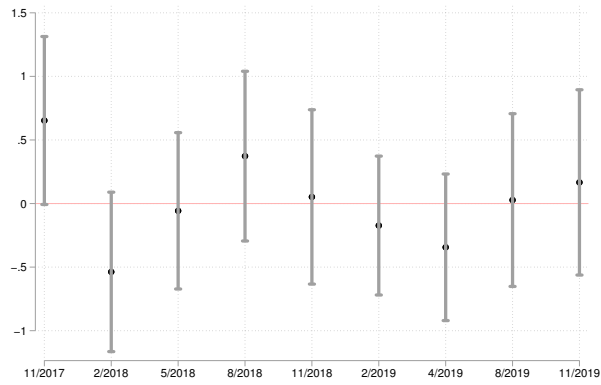
	(1)	(2)	(3)	(4)
	Past Infl	Expected Infl	Past IR	Expected IR
	b/se	b/se	b/se	b/se
announcement	-0.047 (0.07)	0.007 (0.07)	-0.026 (0.13)	-0.075 (0.14)
di	1.230*** (0.15)	0.682*** (0.15)	-1.802*** (0.29)	-1.874*** (0.31)
announcement \times di	0.170 (0.15)	0.235 (0.15)	0.012 (0.28)	0.138 (0.31)
Survey	Yes	Yes	Yes	Yes
Demographics	Yes	Yes	Yes	Yes
Regional	Yes	Yes	Yes	Yes
r2	0.123	0.061	0.039	0.037
Obs	7789	7706	7907	7740

Table 5: Effects of BoE policy announcement events and announced changes in the base rate on perceptions and expectations of inflation and interest rates

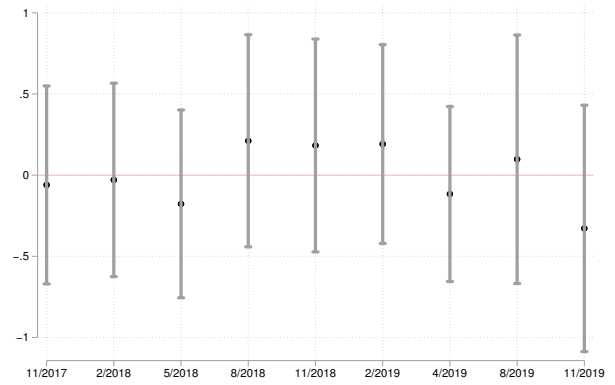
an increase in exposure to news, we continue with the analysis of the news effects, including news coming through traditional and social media.

4.3 Information Set and Beliefs

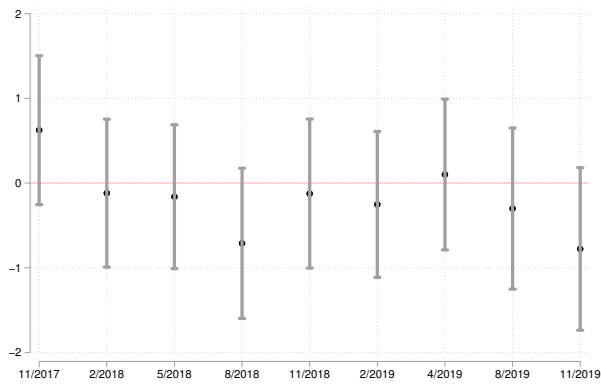
The overall effect of announcements on expectations may be blurred by the large share of consumers who do not get the news: only 35% of our sample receive monetary policy news (see Table 1), averaged across pre- and post-announcement waves. Figure 6 compares expectations and perceptions of consumers who heard news about the BoE’s monetary policy with those



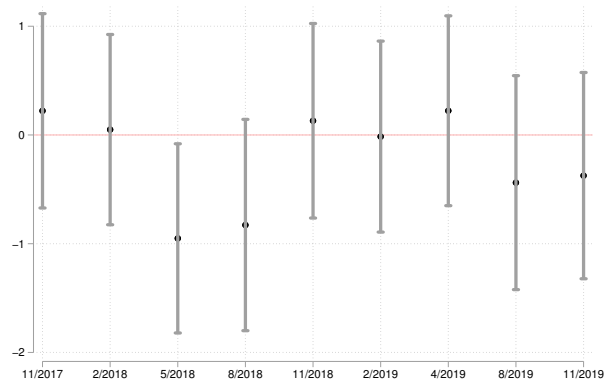
a) PastInfl



b) ExpInfl

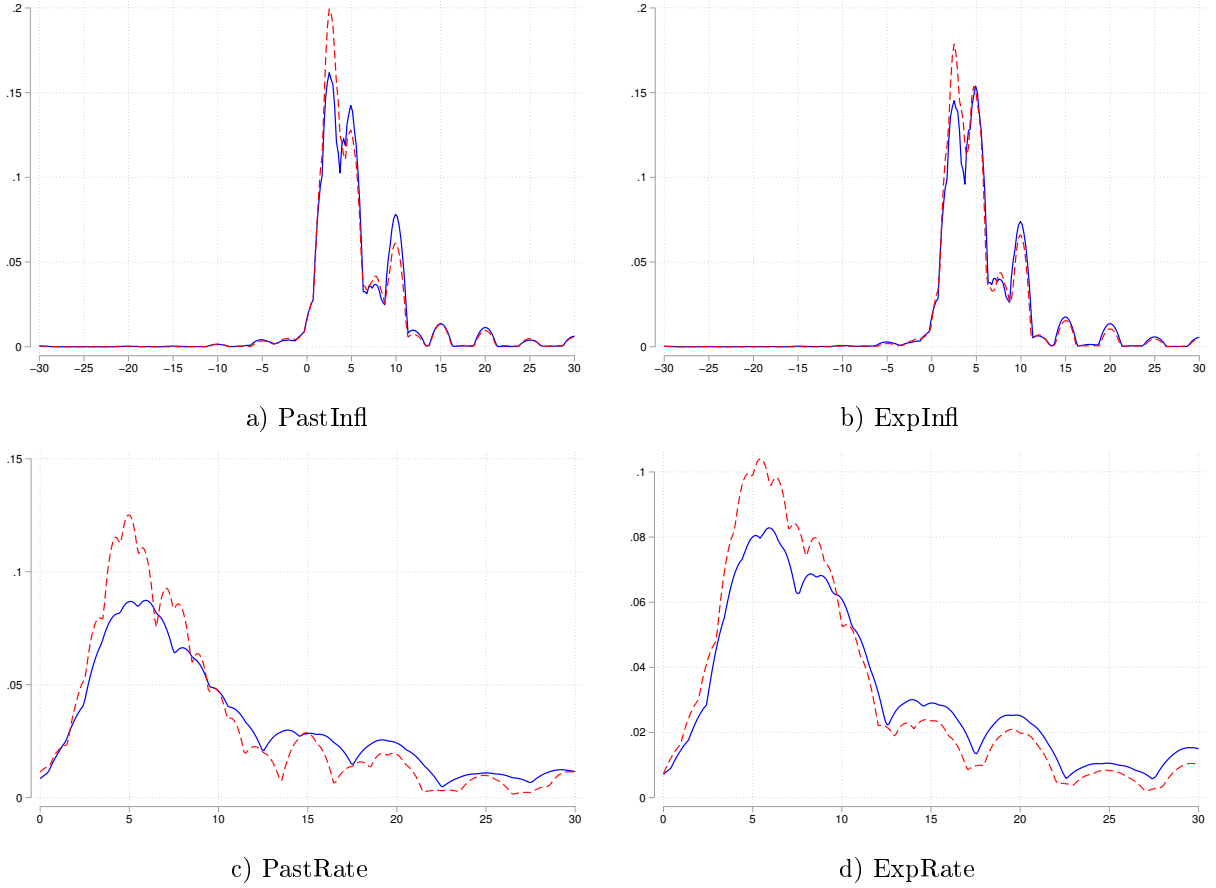


c) PastRate



d) ExpRate

Figure 5: Effects of Announcements across all Announcement Events



Notes: Kernel density plots. **Red line** (dashed) shows the distribution of consumers that heard news about the BoE, **blue line** (solid) depicts the distribution of consumers that heard no news about the BoE MPC meeting.

Figure 6: Effects of Monetary Policy News

who did not. There is a substantial and statistically significant difference¹⁰ between the two cohorts: the densities of informed respondents are more centered, and perceptions and expectations are less dispersed.

To quantify the role of the information set, Table 6 (Panel A) estimates

$$Belief_i = \alpha + \beta_N \cdot NewsBoE_i + \sum_j \beta_j X_{i,j} + \epsilon_i. \quad (4)$$

¹⁰We use the Kolmogorov-Smirnov and the Epps-Singleton two-sample test of similarity of distributions, both leading to qualitatively identical results, not rejecting similarity of distributions before and after the announcement, but strongly rejecting similarity of distributions generated by different exposure to news at $p < .001$.

Informed subjects on average report 0.2-0.3% lower inflation (both perceived and expected) and about 1% lower interest rate (again, both perceived and expected). Note that inclusion of controls in the even columns has almost no effect in terms of statistical significance of being informed, although it reduces the size of the impact, especially so for perceived and expected interest rates. This may indicate that the difference in expectations between the informed and the uninformed cohort is in part due to the composition of these cohorts, e.g. if individuals with low expectations are more likely to be informed than individuals with high expectations. Adding all available socioeconomic variables controls, to a large extent, for the type of the individual, thus revealing the net effect of being informed, which is evidently non-negligible. Note also that controlling for the type has the most pronounced effect for interest rates. These are heterogeneous, information on them is not delivered in the news on BoE. For this reason interest rates are harder to assess than the rate of inflation, which is explicitly discussed in the news and in the BoE report. That individual control factors mainly affect interest rate assessments and not the inflation, thus further confirms that information matters for beliefs.

In the same Table 6 (Panel B), we re-estimate (4) with $NewsBoEC_i$ as the main independent variable, to track the impact of receiving correct news. Qualitatively results remain the same, correctly informed subjects have lower expectations and perceptions than those uninformed, yet quantitatively we observe 1.3-1.5 times larger coefficients for inflation estimates, and less pronounced and inconclusive changes in coefficients for interest rates, as compared to those in Panel A of Table 6. Recall that all the BoE policy announcements in our period are accompanied by a publication of the inflation report, and as such the inflation figure is actively discussed in the news. While the announcement contains a clear value for the policy rate, it is not so straightforward to link this rate to the consumer loan rates, which may explain the lack of difference in effects information sets have on beliefs. To get a deeper insight, we now re-run (4), where $NewsBoE_i$ is decomposed into correct and wrong news (results are in Table 7):

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Past Infl	Past Infl	Expected Infl	Expected Infl	Past IR	Past IR	Expected IR	Expected IR
	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se
Panel A								
NewsBoE								
	-0.371***	-0.309***	-0.280***	-0.168**	-1.193***	-0.794***	-1.113***	-0.734***
	(0.06)	(0.06)	(0.06)	(0.07)	(0.11)	(0.12)	(0.12)	(0.13)
Survey	No	Yes	No	Yes	No	Yes	No	Yes
Demographics	No	Yes	No	Yes	No	Yes	No	Yes
Regional	No	Yes	No	Yes	No	Yes	No	Yes
N	8586	7789	8483	7705	8715	7906	8551	7739
Panel B								
NewsBoEC								
	-0.570***	-0.406***	-0.418***	-0.239***	-1.163***	-0.817***	-0.983***	-0.636***
	(0.06)	(0.07)	(0.06)	(0.07)	(0.12)	(0.13)	(0.13)	(0.15)
Survey	No	Yes	No	Yes	No	Yes	No	Yes
Demographics	No	Yes	No	Yes	No	Yes	No	Yes
Regional	No	Yes	No	Yes	No	Yes	No	Yes
N	8071	7302	7969	7223	8185	7406	8053	7276

Table 6: Awareness of the MPC meeting (NewBoE = 1) and perceptions and expectations of inflation and interest rates

$$Belief_i = \alpha + \beta_{NC} \cdot NewsBoEC_i + \beta_{NW} \cdot NewsBoEW_i + \sum_j \beta_j X_{i,j} + \epsilon_i. \quad (5)$$

An intriguing question here is: do people who report having heard incorrect news differ from those who have not heard any news? Or are they just white noise, i.e. randomizers? Table 7 highlights several noteworthy patterns. First, for inflation expectations the lack of attention to the content of the news (resulting in reporting the incorrect policy move) is associated with an overestimation of inflation and of its expected value, opposite to the bias of the informed cohort. Second, this overestimation becomes statistically insignificant once we control for respondents' types (sociodemographic controls). This confirms our control variables have the intended effect: if subjects do not pay attention to information they receive, their inflation estimates are mainly dictated by their personal characteristics (such as pessimism, for example). Controlling for the type removes this effect for the cohort that reports wrong policy moves yet does not suffice to remove the information effect on people who have heard and report the correct news.

The analysis of correct versus incorrect news in this section sheds further light on understanding (digestion) of news, versus receiving news. Here NewsBoEC serves a proxy for digestion: the likelihood that people understood the news is higher in the cohort that report receiving the correct news than in the cohort that say they heard the news but didn't get it right.

5 Social Media as Communication Channel

5.1 Social Media Communication and Coverage

Thus far, we have established that announcements trigger higher exposure to news, and exposure to news is associated with reduced expectations and perceptions. We now focus on the role of the communication channel/source of information and distinguish between respondents who follow the BoE on Twitter and those who don't. The overall number of the

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Past Inf	Past Inf	Expected Inf	Expected Inf	Past IR	Past IR	Expected IR	Expected IR
	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se	N/b/se
NewsBoEC	-0.570*** (0.06)	-0.414*** (0.07)	-0.418*** (0.06)	-0.240*** (0.07)	-1.163*** (0.12)	-0.819*** (0.13)	-0.983*** (0.13)	-0.650*** (0.14)
NewsBoEW	0.606*** (0.13)	0.138 (0.13)	0.393*** (0.13)	0.137 (0.13)	-1.340*** (0.23)	-0.688*** (0.24)	-1.772*** (0.25)	-1.108*** (0.26)
Survey	No	Yes	No	Yes	No	Yes	No	Yes
Demographics	No	Yes	No	Yes	No	Yes	No	Yes
Regional	No	Yes	No	Yes	No	Yes	No	Yes
N	8586	7789	8483	7705	8715	7906	8551	7739

Table 7: Impact of receiving correct (NewBoEC = 1) and wrong (NewBoEW = 1) information about the MPC meeting on perceptions and expectations of inflation and interest rates.

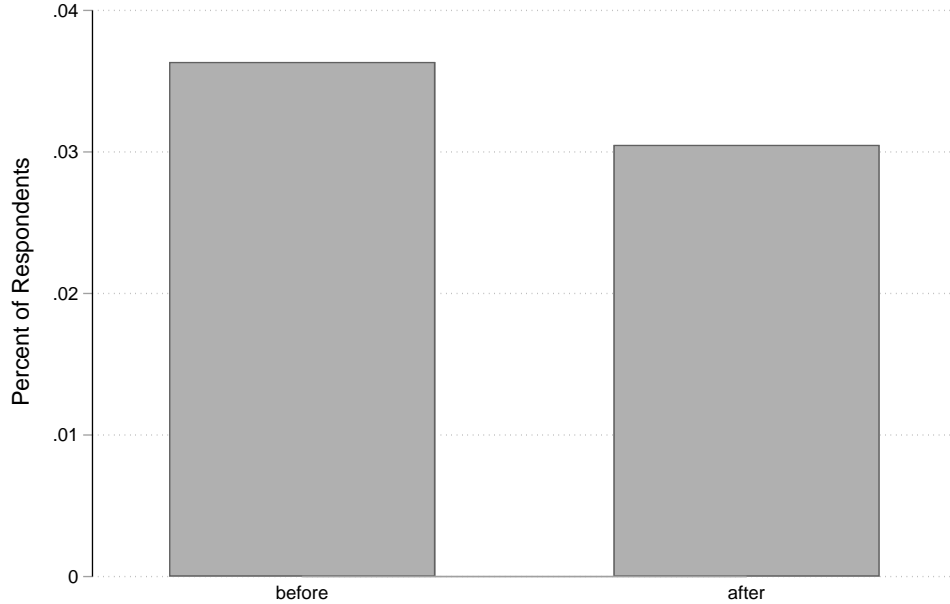


Figure 7: Twitter followers of BoE: averages for pre- and post-announcement waves.

central bank’s Twitter/Facebook followers is not large: as shown in Figure 7, they constitute roughly 3-4% of the sample, and the difference between pre- and post-announcement waves is statistically nil. Our interest is in testing whether announcements have an effect on followers’ awareness and beliefs: since the tweets of the BoE automatically appear in their news feed, one could conjecture that the effect should be sizable.¹¹

We start by estimating the value added of Twitter communication in terms of informing people, effectively decomposing the estimates of (1) in Table 2 into those for Twitter followers and non-followers:

$$F(NewsBoE_i) = \alpha + \beta_A \cdot Announcement_i + \beta_T \cdot Twitter_i + \beta_{AT} \cdot Announcement_i \times Twitter_i + \sum_j \beta_j X_{i,j} + \epsilon_i, \quad (6)$$

where notation is as above, and $Twitter_i$ is a dummy equal to 1 if the respondent follows the Bank of England on Twitter, zero otherwise. Results are in Table 8: the announcement

¹¹Note, that despite the low percentage, our sample size still allows for statistical inference, as we have about 300-400 observations with $Twitter_i = 1$.

	News		Correct News	
	(1)	(2)	(3)	(4)
	b/se	b/se	b/se	b/se
1.announcement				
Twitter=0	0.209*** (0.01)	0.227*** (0.01)	0.211*** (0.01)	0.225*** (0.01)
Twitter=1	0.006 (0.05)	0.003 (0.05)	-0.079 (0.05)	-0.082 (0.06)
Survey	No	Yes	No	Yes
Demographics	No	Yes	No	Yes
Regional	No	Yes	No	Yes
N	9900	8984	9900	8984

Note: Marginal Effects reported

Table 8: Twitter and non-Twitter channels of the announcement effect on receiving news (columns 1 and 2) and receiving correct news (columns 3 and 4)

does not affect the fraction of informed subjects on Twitter, the overall effect we observed in Table 2 comes exclusively through other channels of communication. Recall that we ask people "During the last week, have you heard any news about the monetary policy of the Bank of England?". The explicit policy of the Bank is not to disclose the decision prior to the official announcement. However, the bank continues to tweet almost daily on other issues, which may include notes in circulation and new notes design, regulation of the financial industry and financial services in a broader sense, etc. Respondents who follow the Bank on Twitter may register this news as relating to monetary policy. Another explanation is that the followers of the BoE have an interest in central banking, and as such would be highly likely to follow monetary policy news published in traditional media. In both cases effectively all followers would have received news about the Bank before and after the announcement, and as such the fraction of followers classified as "informed" would indeed remain unchanged, as estimated in columns (1-2) in Table 8.

We now focus on the cohort who correctly report the announced or about to be announced monetary policy move. This cohort demonstrates higher attention to the announcement. We may expect them to be able to better distinguish between monetary policy and other news on Twitter, in which case if Twitter was the main source of monetary policy news, we should

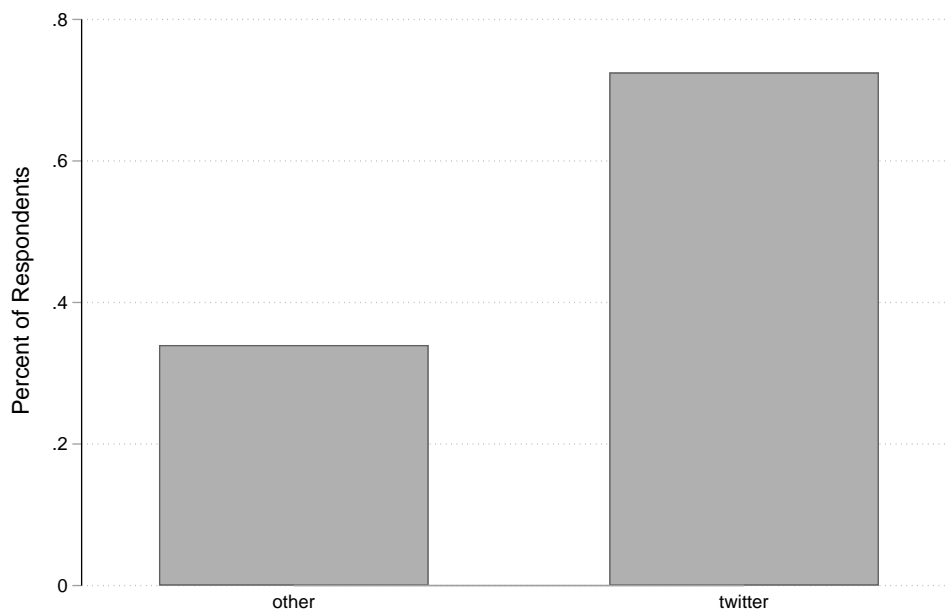


Figure 8: Fraction of informed respondents among Twitter followers of BoE and among all other respondents.

observe an increase in the fraction of informed followers of BoE. At the same time, this cohort may be even more likely to follow monetary policy news in other media before and after the announcement, in which case the announcement would not affect the fraction of correctly informed followers either. In columns (3-4) in Table 8 we run the same model (6) as in columns (1-2) replacing $NewsBoE_i$ with $NewsBoEC_i$ as the dependent. Results stay the same, the Twitter effect remains insignificant. It follows that Twitter communications of the BoE reach the same cohort before and after the announcement and the positive news effect we observe is mainly driven by consumers receiving the information from other channels.

Consonant with the above conclusion, the fraction of informed subjects among Twitter followers of the BoE is high, see Figure 8: about 80% of BoE followers report receiving news about monetary policy, a double of the fraction of informed subjects who do not follow the central bank on Twitter. These numbers include receiving news through any channel, as discussed above.

5.2 Twitter Communication and Beliefs

By definition, central bank communication before the announcement cannot cover the content of monetary policy announcement itself - otherwise, there is no need in the scheduled announcement event. This is especially true for the Bank of England as there is a substantial delay between the actual MPC meeting and the announcement of its decision.¹² On the announcement day, the Bank publishes short and informative messages with clear figures. For example, on 5 November 2020, on the day of the MPC decision announcement, the BoE tweeted "The Monetary Policy Committee voted unanimously to maintain #BankRate at 0.1% and to inject an additional £150bn into the economy through quantitative easing", "Inflation is below our 2% target. The main factor that has pulled inflation down is the spread of Covid", and "We have published our #MonetaryPolicyReport which examines the impact of Covid on the economy", but between 25 October and 4 November 2020 there have been zero monetary policy news through its account (as mentioned above, tweets may cover other related issues but not the key policy figures). This is in sharp contrast with mass media who usually begin discussions of likely monetary policy decisions well ahead of the actual announcement. Thus, if news through the BoE Twitter account matter for beliefs, we should observe at least some effect of announcement for beliefs of BoE followers. Estimating the following equation reveals this is not the case, see the triple interaction term in Table 9:

$$\begin{aligned}
 Belief_i = & \alpha + \beta_A \cdot Announcement_i + \beta_T \cdot Twitter_i + \beta_N \cdot NewsBoEC_i + \\
 & \beta_{AT} \cdot Announcement_i \times Twitter_i + \beta_{AN} \cdot Announcement_i \times NewsBoEC_i + \\
 & \beta_{ANT} \cdot Announcement_i \times Twitter_i \times NewsBoEC_i + \sum_j \beta_j X_{i,j} + \epsilon_i,
 \end{aligned}$$

¹²The Bank of England is explicit on this quiet period policy: "MPC members must not give speeches on monetary policy matters or talk to the media or other outside interests, on or off the record on such matters, from the point that the pre-MPC meeting is held (generally eight or nine days before the decision is announced), until the policy announcement is made. ... The purpose of the quiet period is to prevent public speculation about MPC decisions." - see Communications guidance of MPC members, available at <https://www.bankofengland.co.uk/about/people/monetary-policy-committee>.

with all variables defined above.

The quality of information argument would suggest better informed subjects have lower expectations and perceptions - at least, this is the effect we observed above for the *NewsBoE* variable in Table 6. However following the BoE on Twitter has either no effect, or the opposite: Twitter followers of the Bank report, on average, higher perceived and expected inflation. Controlling for potential interaction effects (in even columns) makes this variable insignificant for all dependent variables considered.

The interaction terms for Twitter and News as well as Twitter and announcement are not significant either, implying there is no difference in beliefs between informed subjects who follow BoE on Twitter and those who don't.

5.3 Twitter and Quality of Perceptions and Expectations

The above results indicate that the Twitter effect could be either insignificant at best or even detrimental to the quality of perceptions and expectations at worst. However, to provide clearer evidence in favor or against it, we need to check the quality of perceptions and expectations. We do this in Table 10 where we estimate the same model as in the previous section, but use dependent variables that help us judge on the quality of perceptions and expectations: absolute expectations gap, the absolute difference between the reported expectations figure and the expectations by the BoE over the same horizon (*aeg*) and the absolute perceptions error, the absolute difference between the realized inflation rate and the reported perceived one (*ape*).

Results show that social media (Twitter) news on average worsens perception and expectation errors (see estimates without interactions). In contrast, receiving (correct) news from the media reduces perception and expectation errors of inflation. This effect is driven by news received after the announcement for inflation perceptions and has a negative sign while being close to statistical significance for expectations.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Past Infl	Past Infl	Expected Infl	Expected Infl	Past IR	Past IR	Expected IR	Expected IR
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Announcement (Ann.)	0.060 (0.06)	0.130* (0.08)	0.118* (0.06)	0.179** (0.08)	0.121 (0.12)	0.014 (0.15)	0.057 (0.13)	0.014 (0.16)
NewsBoEC	-0.421*** (0.07)	-0.321*** (0.12)	-0.250*** (0.07)	-0.100 (0.11)	-0.715*** (0.14)	-0.901*** (0.21)	-0.461*** (0.15)	-0.644*** (0.23)
Twitter (Tw.)	0.494** (0.21)	0.221 (0.45)	0.349* (0.21)	0.502 (0.47)	0.508 (0.36)	-0.666 (0.71)	-0.037 (0.40)	0.658 (0.99)
NewsBoEC × Ann.		-0.201 (0.14)		-0.236* (0.14)		0.276 (0.26)		0.252 (0.29)
NewsBoEC × Tw.		0.578 (0.55)		-0.453 (0.58)		1.094 (0.87)		-0.433 (1.17)
Ann. × Tw.		-0.255 (0.68)		-0.208 (0.65)		1.485 (1.38)		-2.621* (1.38)
NewsBoEC × Ann. × Tw.		0.018 (0.86)		0.742 (0.84)		-0.433 (1.64)		2.669 (1.66)
Constant	-56.775*** (4.53)	-56.414*** (4.53)	-31.742*** (4.69)	-31.624*** (4.70)	-24.657*** (8.87)	-24.811*** (8.87)	-21.019** (9.69)	-21.145** (9.69)
Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
r ²	0.129	0.130	0.061	0.062	0.041	0.041	0.036	0.036
N	7302	7302	7223	7223	7407	7407	7277	7277

Table 9: Effects of BoE policy announcements on perceptions and expectations of inflation and interest rates

	(1)	(2)	(3)	(4)	(5)	(6)
	ape	ape	ape	age	age	age
	b/se	b/se	b/se	b/se	b/se	b/se
Announcement (Ann.)	0.001 (0.09)	0.085 (0.10)	0.248** (0.12)	0.062 (0.06)	0.115* (0.06)	0.173** (0.08)
NewsBoEC		-0.377*** (0.11)	-0.101 (0.18)		-0.244*** (0.07)	-0.102 (0.11)
Twitter (Tw.)		0.923*** (0.35)	0.903 (0.89)		0.331 (0.21)	0.483 (0.47)
NewsBoEC × Ann.			-0.496** (0.21)			-0.225 (0.14)
NewsBoEC × Tw.			0.262 (1.07)			-0.452 (0.57)
Ann. × Tw.			-0.869 (1.15)			-0.208 (0.65)
NewsBoEC × Ann. × Tw.			0.667 (1.43)			0.746 (0.83)
Constant	-89.323*** (6.79)	-83.122*** (7.03)	-82.505*** (7.01)	-36.198*** (4.54)	-32.926*** (4.61)	-32.816*** (4.61)
Survey	Yes	Yes	Yes	Yes	Yes	Yes
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Regional	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.079	0.081	0.082	0.050	0.052	0.052
Obs.	7223	7223	7223	7223	7223	7223

Table 10: Effects of BoE policy announcements on the quality of perceptions and expectations of inflation

5.4 Effects on Confidence

So far we have addressed the levels of expectations and perceptions. We now turn to their second moments, i.e. the degree of their perceived certainty. In a survey this is measured by respondents' self-reported confidence. Central bank communication may affect confidence because the information is coming (a) from a single official source, and (b) when the monetary policy decision has been made. Looking at confidence is of relevance because, for instance, if a consumer sees his/her expectations confirmed by the communication of the central bank, expectations would not change, but confidence may go up, indicating the information effect. For this reason, judging by effects on expectations only would lead one to conclude announcements have no effect, while in fact the consumer received and digested the news. In our surveys subjects report confidence in their beliefs on a five-point scale. We classify a respondent as confident if (s)he indicates confidence of 4 or 5 ($Conf_i = 1$), otherwise we deem him/her as lacking confidence ($Conf_i = 0$).

Table 11 estimates the following probit regression, enabling us to compare the Twitter effect on confidence with that of receiving monetary policy news (from any source) and the announcement effect:

$$F(Conf_i) = \alpha + \beta_A \cdot Announcement_i + \beta_T \cdot Twitter_i + \beta_N \cdot NewsBoEC_i + \sum_j \beta_j X_{i,j} + \epsilon_i. \quad (7)$$

Theoretically, if people receive news directly from the newsmaker, they might feel better informed, and through that be more confident in their beliefs. Inclusion of $Twitter_i$ in the regression thus enables us to estimate the effect of $NewsBoEC_i$ net of any such potential distortion. Controls include, as before, socioeconomic characteristics, region, financial literacy and time effects. On average, exposure to news raises the probability of being confident in inflation perceptions by roughly 11% and 13% respectively and for interest rates by 10% and 8%. This is a remarkably sizeable effect, amounting to 25-30% of the mean level of confidence (see Table 1). On top of this information effect, Twitter substantially increases the confidence level by 13% to 18%. Twitter followers, while having inferior beliefs, are

	(1)	(2)	(3)	(4)
	Conf PastInfl	Conf ExpInfl	Conf PastRate	Conf ExpRate
announcement	-0.0295** (-2.85)	-0.0154 (-1.49)	-0.0146 (-1.54)	-0.0122 (-1.35)
twitter	0.104*** (3.44)	0.0779** (2.61)	0.122*** (4.71)	0.0935*** (4.03)
NewsBoEC	0.0463*** (3.84)	0.0489*** (4.03)	0.0301** (2.75)	0.0187 (1.76)
<i>N</i>	7302	7223	7407	7277

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: Confidence Effects of News, Twitter and Announcements

more confident in their assessments. This seems an unwanted combination from the policy communication perspective.

6 Conclusion

Better communication with the general public is beneficial for businesses and governments alike. Central banks are special in this respect as providing guidance and aligning consumer expectations about future economic conditions is crucial to support financial and macroeconomic stability. Little is known about the extent to which central banks actually reach consumers, in contrast to financial market professionals. Our paper contributes by providing first evidence on the effectiveness of the Bank of England’s efforts in that respect. Extending our previous work on Federal Reserve communications in the U.S., we have explored here the effects of announcement events on consumers’ exposure to news and of both of them on macroeconomic beliefs and confidence in the UK context. With this new survey data we get additional characterizations with respect to whether consumers actually got correct news, whether they actively searched for it and whether communication via social media differs from traditional communication.

We re-confirm our earlier U.S. result: on average, policy announcements have no statistically significant effect on beliefs. However, announcements causally increase the probability of getting news about the monetary policy stance. Quantitatively, this effect in the UK is almost twice as strong as in the U.S., which potentially speaks in favor of the BoE efforts towards clearer and more accessible messages, which get spread through the media. Importantly, we document that this increased coverage involves people who themselves would not intentionally look for this type of information. Receiving news about monetary policy implies higher confidence as well as more accurate perceptions and expectations. Being able to control for the correct recollection of the policy announcement, we note that almost 17% of consumers who had news about the BoE, incorrectly report the interest decision of the week of the survey. However, those who received the news and reported the policy move correctly, have more accurate perceptions and expectations of inflation and interest rates.

We focused on the UK because the Bank of England was the only Central bank that by the time of our surveys had adopted a policy of using simplified language in its communications with the general public via social media, such as Twitter. Our estimates show that over the last years the number of BoE followers remained rather small, and as such could not *per se* contribute strongly to making more people aware of the moves of the central bank. The majority of Twitter followers of the BoE receive information about its policy this or the other way, but they overestimate inflation and interest rates by more than other consumers. Despite this greater error, Twitter followers of the BoE are more confident in their assessments of inflation and interest rates. The confidence-inflating effect through following the central bank on social media is stronger than that of receiving central bank news through other channels.

Following a central bank on social media adds confidence but distorts beliefs. This effect can hardly be attributed to the individual socio-demographic types usually ascribed to Twitter users (young, better educated and higher earning than the average), for which we control in all our estimates. Instead, it appears that Twitter users develop higher confidence (perhaps, but not necessarily exclusively through being in direct contact with the central bank), yet they do not fully absorb information they receive from the central bank. A possi-

ble explanation is the contamination of the information flow on social media where different unsorted news come from a large number of sources, and this large amount of news cannot get processed/digested properly. Delivery of news through other channels appears more efficient.

Our analysis highlights the importance of media as a transmission device between the central bank and the general public. As such, it justifies the great efforts of central banks over the last 20 years to become more transparent with respect to their policy. In particular, it reflects the importance of press conferences, which draw significant attention of media outlets, as a crucial tool to manage expectations of the greater public. Social media are a viable alternative to conventional media, and we see they have a significant effect on consumer beliefs. However, while traditional news outlets tend to improve perceptions and expectations, Twitter does not. We conclude there are caveats and limits to using social media in policy communications, which need to be addressed and better understood.

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Appendix

A Survey questionnaire

We want to know your view on prices and interest rates in the United Kingdom. By answering our 15 quick questions you will greatly help our research. No special knowledge is needed. There is no right or wrong answer: any answer is correct as long as it truly reflects your view. Thank you for your help!

1. By how much did prices in general change in the UK during the past 12 months? For example, if you think prices went down by about 5%, enter "-5"; if they went up by 2%, enter "2".

Answer options: free text field with an advice message "Inputs should be at least -30 and no more than 30".

2. How confident are you in your last answer? (1 star = not at all, 5 stars = absolutely sure)

Answer options: slider to highlight one, two, three, four, or five stars graphically

3. What annual interest rate would an average UK citizen be charged, if they take a car loan of £10,000 now? For example, if you think the rate would be about 10%, enter "10".

Answer options: free text field with an advice message "Inputs should be at least 0 and no more than 30".

4. How confident are you in your last answer? (1 star = not at all, 5 stars = absolutely sure)

Answer options: slider to highlight one, two, three, four, or five stars graphically

5. By how much do you think prices in general will change during the NEXT 12 months? For example, if you think prices go down by about 5%, enter "-5"; if they go up by 2%, enter "2".

Answer options: free text field with an advice message "Inputs should be at least -30 and no more than 30".

6. How confident are you in your last answer? (1 star = not at all, 5 stars = absolutely sure)

Answer options: slider to highlight one, two, three, four, or five stars graphically

7. What annual interest rate will an average UK citizen be charged, if they take a car loan of £10,000 IN A YEAR from now? For example, if you think the rate will be about 10%, enter "10".

Answer options: free text field with an advice message "Inputs should be at least 0 and no more than 30".

8. How confident are you in your last answer? (1 star = not at all, 5 stars = absolutely sure)

Answer options: slider to highlight one, two, three, four, or five stars graphically

9. If you had an extra £1,000 now, how would you spend it? Please rank the following options (1 = most important, 6 = least important):

- buy stocks
- buy safe bonds
- keep in my bank account
- repay part of my mortgage or other loan
- buy something that I long wanted (car, jewellery, holiday trip)
- spend on everyday consumption (food, clothing, utility bills, school)

Answer options: respondents allocate number 1 to 6 to the above six options.

10. Next few questions help us learn about you and your type of thinking. Did you take part in an inflation survey like this before?

Answer options: - Never. - Yes, this week. - Yes, less than 3 months ago. - Yes, more than 3 months ago. - Other.

11. Assume you have a lottery ticket with a $1/2$ chance of winning £1000 and $1/2$ chance of getting nothing. What is the LOWEST AMOUNT of money you would accept in exchange for this lottery ticket?

Answer options: field for numeric entry

12. Consider two urns, each containing 100 balls coloured either red or blue.

Urn A contains red and blue balls in an unknown proportion. Urn B contains 50 red balls and 50 blue balls.

You will get a prize if you draw a RED ball. From which urn would you draw - from urn A or B?

Answer options: - Urn A (unknown proportion) - Urn B (50/50)

From August 2019 this question has been replaced with the following:

Assume you have a similar lottery ticket, except that the chance of winning £1000 is unknown. What is the LOWEST AMOUNT of money you would accept in exchange for this new ticket?

Answer options: field for numeric entry

13. Consider the same two urns as above, again each containing 100 balls coloured either red or blue.

Urn A contains red and blue balls in an unknown proportion. Urn B contains 50 red balls and 50 blue balls.

You will get a prize if you draw a BLUE ball. From which urn would you draw - from urn A or B? w

Answer options: - Urn A (unknown proportion) - Urn B (50/50)

In August 2019 and November 2019 this question was replaced with questions unrelated to the topic of this paper. In January 2019 the question was:

How will the general financial and economic situation in the UK change during the next 12 months?

Answer options: - I'm pretty sure it will be worse - It seems like it will be better but I'm not so sure - It may become better or worse, who knows? - It seems like it will be worse but I'm not so sure - I'm pretty sure it will be worse

14. Question 14 has two versions. Question 14before is asked in the wave before the announcement and Question 14after is asked after the announcement. This way we try to make sure that there is no overlap.

Q14before

During the last week, have you heard any news about the monetary policy of the Bank of England? What did you hear?

Answer options:

- I heard NO news about the Bank of England
- The Bank would raise the official interest rate
- The Bank would keep the official rate unchanged
- The Bank would lower the official rate
- I heard some other news about the Bank: [Open box]

Q14after

During the last few days, have you heard any news about the monetary policy of the Bank of England? What did you hear?

Answer options:

- I heard NO news about the Bank of England
- The Bank has raised the official interest rate
- The Bank has not changed the official rate
- The Bank has lowered the official rate
- I heard some other news about the Bank: [Open box]

15. During the last week, what were your main sources of information on economic and business conditions in the UK?

Answer options:

- I searched for news on the Bank of England policy

- I follow the Bank of England on Twitter/Facebook
- I searched for news on the UK economy
- I did not search but came across this news
- I did not come across any information on economic and business conditions
- Other sources of information:- [open text box]

16. How would you rank your understanding of economic and business issues? (1 star = I understand very little, 5 stars = I am an expert)

Answer options: slider to highlight one, two, three, four, or five stars graphically

Thank you for taking part in our survey!