

March 2022

The Ability to “*Distill the Truth*”

Tiziana Assenza and Alberto Cardaci

The Ability to *Distill the Truth**

Tiziana Assenza¹ and Alberto Cardaci²

¹Toulouse School of Economics, University of Toulouse Capitole

²Goethe University Frankfurt

March, 2022

Abstract

Employing a representative US online panel, we document the existence of large errors in people's beliefs about their ability to assess the accuracy of news headlines. With a randomized information experiment, we show that revelation of the true ability causally adjusts beliefs and reduces these errors. The effect is stronger for subjects who are overconfident about own ability and this is driven by gender differences in the reaction to the revealed ability. Finally, we show that the adjustment in beliefs causally increases the willingness to pay to hedge against the risk of being harmed by misinformation.

Keywords: Misinformation, fake news, belief updating, information experiments, surveys

JEL Codes: C83, D84, D91

*Corresponding author: tiziana.assenza@tse-fr.eu; 1 Esplanade de l'Université, 31080 Toulouse Cedex 06, France. We are particularly grateful to Andrew Caplin, Fabrice Collard, Patrick Fève, Andreas Fuster, Ingar Haaland, Michael Haliassos, Michael Kosfeld, Marta Kozakiewicz, Chiara Lacava, Vincenzo Pezone, Chris Roth, Jean Tirole, Michael Weber and Johannes Wohlfart for precious comments. IRB approval was obtained from the Toulouse School of Economics. This experiment was registered at the AEA RCT Registry with ID AEARCTR-0007616.

“The task of separating truth from falsehood has plagued policymaking for centuries ... Today, this task of distilling the truth is more urgent than ever.”

Christine Lagarde, President of the ECB, 29 November 2021

1 Introduction

Around 63% of Americans argue that the dissemination of misinformation and fake news i.e., demonstrably false information (Acemoglu et al., 2021; Allcott and Gentzkow, 2017), has made it more difficult to make important financial decisions.¹ In fact, since economic actors base their decisions, such as consumption and investment, on the information they obtain, the diffusion of misinformation can lead to non-negligible inefficiencies that may harm individuals and generate significant economic losses through several channels of the economy. Indeed, the dissemination of misinformation and fake news results in non-negligible reputation management costs for companies, manipulated returns and higher costs for public health (Cavazos, 2019; Grinberg et al., 2019; Kogan et al., 2021; Vosoughi et al., 2018). For example, the estimated cost of financial and public health misinformation amounts to \$26.2 billion per year in the US alone (Cavazos, 2019). This represents 0.14% of US GDP in 2019 and corresponds to more than four times the welfare cost of business cycle expressed in permanent consumption, as calculated by Lucas (2003).² Thus, economic actors’ ability to *distill the truth* is essential not only for individual well-being, but also for the aggregate welfare.

Despite the rapid and viral diffusion of misinformation and fake news – especially on social media platforms, where false information spreads faster and more broadly than truthful information (Vosoughi et al., 2018) – 84% of Americans and 71% of Europeans feel at least “somewhat confident” in their ability to detect false or inaccurate news, according to recent surveys.³ However, people often hold imprecise beliefs about own abilities or characteristics, which typically lead the average person to exhibit overconfidence, both

¹See the 2017 Harris Poll by the AICPA: <https://bit.ly/3m8pvAa>.

²See Appendix C for details.

³Pew Research Survey, <https://pewrsr.ch/3qxXdiE> for the US; Flash Eurobarometer Survey <https://bit.ly/3pYwN8F> for Europe.

in absolute terms and relative to the others (Bénabou and Tirole, 2016; Grubb, 2015; Moore and Healy, 2008). This raises concerns that people may overestimate their ability to discern accurate information from inaccurate one, thus being more likely to *fall for misinformation* than suggested by subjective beliefs and to experience its harms and detrimental consequences for economic decisions and well-being.

In this paper, we employ a representative US sample and conduct an online survey to estimate people’s ability to discern the accuracy of information in news headlines and measure the error in their beliefs about such ability. Importantly, by means of a randomized information experiment, we also estimate the effect of revealing the true news-accuracy detection ability on such beliefs. Finally, we study the causal effect of the shift in beliefs on individuals’ willingness to prevent the harms caused by misinformation. To do this, we elicit people’s willingness to pay for an insurance that covers against the risk of being harmed by made-up news and information.

The core section of our survey consists of an incentivized task in which subjects have to assess the accuracy of the information contained in a series of 20 news headlines, which are vastly heterogeneous in terms of sources and topics. Independent fact-checking organizations have classified half of these news items as containing accurate information, and the remaining half as containing inaccurate information. For each headline, subjects score one point if they correctly state whether it is accurate or not, to the best of their knowledge. Our task is divided in two parts, each displaying ten news items in a random sequence. We elicit beliefs about own ability to discern the accuracy of the news headlines by asking subjects to estimate their score in three different moments. Before the task begins, we elicit respondents’ *prior beliefs* by asking them about the score they expect to obtain in the first part of the task. Then, after the first part of the task ends, we elicit *mid-task beliefs* about the score actually realized in it. Finally, at the end of the second part of the task, we elicit subjects’ *posterior beliefs* by asking them about the score realized in the second part of the task.

In order to elicit subjects’ willingness to pay to hedge against the harms of misinformation, we endow them with a hypothetical budget of 1000\$ that they can freely allocate among

consumption goods, a health insurance and an insurance contract that covers against the risk of being harmed by made-up news and information (the *misinformation insurance*, henceforth). We present this choice before and after the news-accuracy detection task.

Our main treatment variation consists in informing a randomly selected half of the participants of their score realized in the first part of the news-accuracy detection task. We provide this information immediately after eliciting mid-task beliefs and before proceeding to the second part of the task. Whether there is a change in individual beliefs, and consequently in the posterior budget amount allocated to the misinformation insurance, represent our main outcomes of interest.

Our survey also contains a series of questions aimed at obtaining a characterization of subjects' news consumption habits, views and characteristics. These include measures of frequency of news consumption from different sources, trust in news sources and in third-party fact-checking, political views and conspiratorial beliefs, cognitive reflection and sentence comprehension ability, as well as risk aversion, among others.

We document three key findings. First, subjects have limited ability to discern the accuracy of the information in the news headlines. Indeed, participants provide the correct news-accuracy evaluation only in 62.25% of the news items, on average, and only 14.3% of them correctly discern the veracity in at least 80% of the headlines. Subjects exhibit also very little awareness of their true ability to detect news-accuracy, prior to our information treatment: 85.25% of subjects have mid-task beliefs that differ from their actual score. They similarly split into overconfident subjects – those who overestimate their score – and underconfident – those who underestimate it. We find a poor assessment of the ability to discern news-accuracy for both groups. In fact, on average, overconfident subjects believe their score is 39.64% higher than its true value, while underconfident subjects believe it is 40.69% lower. We also find that greater cognitive reflection and sentence comprehension ability are important predictors of higher news-accuracy detection ability, as well as more accurate awareness of it.

Second, turning to the treatment effect on beliefs, our main result is that revelation of the true score in the first part of the task improves subjects' awareness of own ability.

In fact, treated subjects' posterior beliefs are, on average, 9.57% closer to their true score in the second part of the task, relative to the control group. We show that this improvement is obtained through an average downward adjustment in beliefs induced by our information treatment. We also find that the magnitude of the update is larger among overconfident participants, namely those who receive negative feedback – i.e. a revealed score that is lower than their belief. The stronger conservatism among underconfident respondents relates to gender differences. In fact, relative to men, women have a much larger probability of receiving a positive feedback, i.e. a score that is higher than their belief, thus being underconfident. This is consistent with abundant evidence that women tend to be more pessimistic about their abilities relative to men in a variety of domains (Barber and Odean, 2001; Niederle and Vesterlund, 2007). In addition, while men assign larger, and approximately equal, weights to positive and negative feedback, women exhibit a significant reaction to negative feedback only. This result aligns existing evidence that men and women respond differently to informative signals about own abilities (Coffman et al., 2021; Thaler, 2021).

Third, the shift in beliefs about the ability to discern the accuracy of information in the news headlines has a causal effect on treated subjects' willingness to pay to hedge against misinformation. In particular, respondents who become more pessimistic about their news-accuracy detection ability, are willing to increase spending to hedge against the risk of being harmed by misinformation. There is substantial heterogeneity in the magnitude of this effect: relative to the prior budget amount allocated to the misinformation insurance, respondents with a smaller downward adjustment in beliefs increase their posterior amount by 4.99%, while those with the largest downward shift increase the posterior amount by 22.84%.

We contribute to different strands of the literature. First, our paper relates the growing literature on misinformation, which studies the main predictors of individuals' ability to assess the accuracy of news items. Previous work relates lower ability to lower deliberation and analytical thinking (Bago et al., 2020; Pennycook and Rand, 2019), poorer science knowledge (Pennycook et al., 2020), overconfidence in news judgments (Lyons et al.,

2021) and a greater tendency to be overly accepting of weak claims (Pennycook and Rand, 2020). While these studies provide important characterizations of those who are more susceptible to misinformation, it is important to understand whether individuals have accurate beliefs about their ability to discern the veracity of news headlines and the implications of such beliefs on behavior. To the best of our knowledge, our paper is the first to take a step in this direction. We do so, by eliciting individual beliefs about news-accuracy detection ability and providing an assessment of the error in such beliefs. Importantly, ours is also the first study that exogenously shifts such beliefs to reduce their error and identifies their causal effect on subjects' willingness to act against the risk of being harmed by misinformation.

Secondly, our survey design aligns the literature that uses surveys with information experiments and randomized control trials in economics. This growing literature has studied the change in the demand for news when people are informed that this is fact-checked (Chopra et al., 2022); the change in the rate of sharing of "alternative facts" on social media, as well as variations in factual knowledge and voting intentions, when individuals are provided with fact-checked vs non fact-checked information (Barrera et al., 2020; Henry et al., 2022); the variation in economic anxiety as a reaction to information about Covid-19 contagiousness (Fetzer et al., 2021); the effect of information on individual perceptions about racial inequities and the support for pro-black policies (Alesina et al., 2021; Haaland and Roth, 2021); changes in preferences for redistribution following information that corrects the perceived standing in the income distribution (Cruces et al., 2013); and the formation of beliefs and expectations about macroeconomic variables and their reaction to the provision of experts' forecasts (Coibion et al., 2019; Haaland et al., 2020; Roth et al., 2022; Roth and Wohlfart, 2020). Our paper describes the first application of an information experiment to study the causal effect of informing individuals of their ability to discern the accuracy of news headlines.

Finally, we also relate to the literature that studies how individuals react to feedback about own characteristics and abilities (Coffman et al., 2021; Coutts, 2019; Eil and Rao, 2011; Ertac, 2011; Möbius et al., 2014; Zimmermann, 2020). These studies typically

employ probabilistic information treatments that introduce motivated beliefs and non-Bayesian behavior, with asymmetric reaction to feedback. We contribute to this literature by showing that subjects exhibit greater conservatism to positive than negative feedback, which is driven by gender differences, and this occurs even with a non-probabilistic information provision.

The rest of the paper is structured as follows: Section 2 introduces our survey design and the data collection; Section 3 presents the results on the effect of our treatment on beliefs; Section 4 discusses the effect of the update in belief on the willingness to pay for the misinformation insurance; Section 5 concludes.

2 Survey Design, Data Collection, and Sample

2.1 Sample and data collection

We use a sample of the U.S. general population with respondents aged more than 18 years old and who were born in the United States. The total sample contains 2413 respondents and we ran the survey from June 11 to August 6, 2021. The survey was implemented and distributed by the company Qualtrics. After clicking on the survey link, participants are presented a consent form providing information about the nature and research purposes of the survey. In particular, they are informed that they are taking part in an academic research survey and they are explained that participation is entirely anonymous and voluntary. After the first demographic questions, we implement a simple but widely used attention check (see, e.g., Faia et al., 2021; Roth and Wohlfart, 2020) in order to screen out participants leading to potentially low quality observations. The survey company Qualtrics was in charge of rewarding respondents for completing the survey. The median completion time was 20 minutes and 34 seconds. The sample is by construction representative of the US population along the imposed quota dimensions of age, gender, ethnicity and region. Moreover, it is also representative on non-targeted quotas such as marital status, household size, income and the share of Black/African American people (Table A1 reports the characteristics of the sample in comparison with

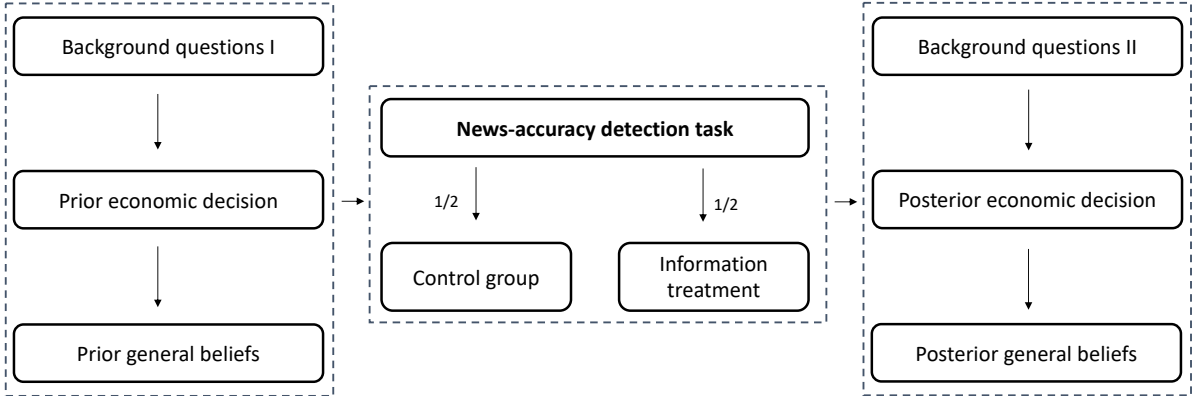


Figure 1: Survey structure

those of the overall US population). Additionally, Table A2 shows that the sample is balanced across the control and treatment group.

2.2 The survey

Figure 1 illustrates the structure of the survey. This is built around our main experimental section, which introduces our news-accuracy detection task and our information treatment. We report the full questionnaire in Appendix D. In the following, we describe the blocks of the survey and the core components.

News-accuracy detection task and information treatment. Respondents are asked to assess the accuracy of the information contained in a series of 20 headlines displayed in sequence, randomized at the individual level. To increase the information content, each headline contains a subheading containing key news highlights and the date of publication. Figure 2 shows how the news items appear to the subjects. Importantly, our focus is exclusively on people’s ability to discern the accuracy of the information based on the news content, not its visual aspects (e.g. fabricated pictures, grammatical errors, etc.). For this reason, all our news items share the same appearance, with only text elements

South Carolina House Votes to Add Firing Squad to State's Execution Methods

Members of the South Carolina House have voted to add death by firing squad as a state execution method due to a lack of lethal injection drugs.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Figure 2: Appearance of news items in the news-accuracy detection task

but no visual components, such as pictures. In addition, to disentangle the role played by news source revelation for the news-accuracy assessment, half of our respondents are randomly allocated to versions of the news items that display the source of the news.

The news-accuracy detection task is organized in two parts, each with 10 news items randomly selected from the 20 headlines. Respondents are told that they score 1 point, for a maximum of 10 in each of the two parts, for each correct answer to the following question: *“To the best of your knowledge, is the information in the above news item accurate?”* To incentivize the task, we inform participants that total points are converted into US\$, at a conversion rate of 1 point = 5\$. We inform subjects that two of them will be randomly selected and their converted payoff will be donated to a charity of their choice between Feeding America and the American Red Cross.

We elicit respondents' beliefs in three different moments of the task (Figure 3). First, after describing the set up of the task, we elicit *prior beliefs* by asking the following question: *“How many points do you think you will score?”*. We instruct subjects to provide a value between 0 and 10. Secondly, after exposing subjects to the first 10 news items, we elicit their *mid-task beliefs* by means of the following question: *“You have seen 10 news items. How many points do you think you scored?”*. Eventually, subjects begin

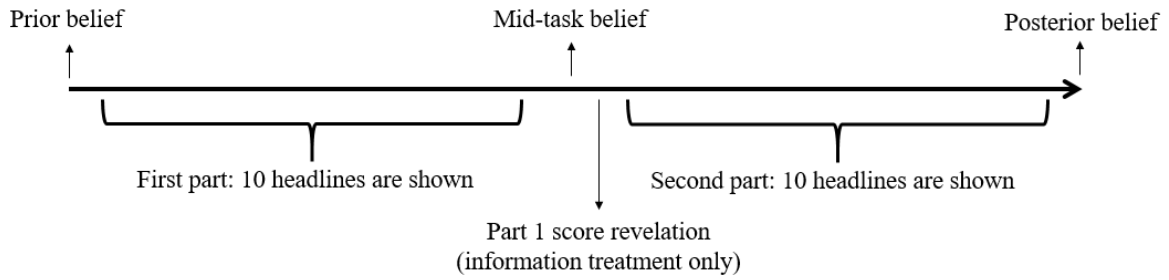


Figure 3: News-accuracy detection task timeline

the second part of the task and assess the accuracy of the remaining 10 news items. Finally, after the second part of the task, we elicit *posterior beliefs* by asking subjects to answer this question: “*You have seen another set of 10 news items. How many points do you think you scored?*”. Moreover, for each of the three questions above, we also elicit subjects’ confidence in their beliefs by asking them how sure they are about their answers, from “*Very unsure*” to “*Very sure*”.

To implement our information experiment we randomly allocate 50% of subjects to our *score revelation treatment*. Treated subjects are revealed their true score in the first part of the task. This occurs immediately after eliciting their mid-task beliefs and before starting the second part of the task.

Background questions I-II. These two blocks include a series of standard demographic questions, together with respondents’ socioeconomic background, such as income category, education attainment, religion, employment status, marital and family status, and political affiliation. Importantly, to have a better characterization of attitudes towards news and information, we also include a rich set of questions about subjects’ level of trust in others, trust in non-partisan fact-checkers, their news consumption habits and major news source types (tv, social media, etc.), including the level of trust in each of them. We also add a question to understand whether, and to what extent, subjects consider misinformation as a problem for the country and whether they have been harmed by made-up news and information. To control for any relation between subjects’ news-accuracy assessment and their tendency to believe in conspiracy theories we also include four questions, developed by Enders and Smallpage (2018), intended to measure respon-

dents’ conspiratorial beliefs. We also measure subjects’ tendency to rely on intuitive thinking via the Cognitive Reflection Test (CRT) (Frederick, 2005), since Bago et al. (2020) have already found that greater deliberation, measured by higher CRT scores, predicts a greater ability to distinguish the accuracy of news items. Moreover, by means of a test developed by Vernice et al. (2019), we measure subjects’ ability to comprehend sentences with varying levels of syntactic complexity. This allows to verify whether the ability to assess the accuracy of the news items relates to subjects’ text comprehension skills. As in Dohmen et al. (2011), we then elicit respondents’ risk aversion by asking about their general willingness to take risks on a scale from 0 to 10, where 0 indicates no willingness to take risks at all and 10 indicates strong risk taking. Finally, we query participants about their attitudes towards charity donations and their honesty in answering the survey questions.

Economic decision. Our question relies on the “reported preference” approach, which elicits quantitative variations in spending in hypothetical scenarios (Christelis et al., 2019; Fuster et al., 2021; Jappelli and Pistaferri, 2014; Parker and Souleles, 2019), providing a great amount of flexibility in treatment design (Fuster et al., 2021).⁴ Specifically, we provide subjects with a hypothetical 1000\$ budget that they can freely allocate to consumption goods, a health insurance or an insurance contract that covers against the risk of being harmed by made-up news and information, i.e. a *misinformation insurance*. We present this economic choice before and after the news-accuracy detection task, thus being able to establish a causal relation between changes in subjects’ willingness to pay for the misinformation insurance, the revelation of news-accuracy detection ability and the change in beliefs about it.

General beliefs. These two blocks include questions to elicit respondents’ general qualitative beliefs about their own and the average American’s ability to detect the accuracy

⁴Fuster et al. (2021) point to the comprehensive analysis carried out by Parker and Souleles (2019) and Parker et al. (2013): the former show that comparing reported consumption responses to hypothetical tax rebates with actual spending responses from past tax rebates, produces very little differences; the latter, found that reported preferences match actual behavior, in that subjects who reported spending their 2008 fiscal stimulus payment did in fact do so. These considerations support the idea that reported preferences in hypothetical scenarios may provide significant indications of individual behavior in actual decision-making contexts.

of news items. Specifically, we ask subjects the following question: *“In your opinion, how good is your ability to identify news or information that misrepresents reality or is even false?”* We repeat the question a second time, asking about the average American’s ability to identify misinformation. For both questions, subjects can provide an answer on a scale from 1 (very bad) to 5 (very good). We ask these questions before and after the news-accuracy detection task, thus eliciting both prior and posterior beliefs.

2.3 News headlines dataset

We select our headlines from a set of news items fact-checked by different non-partisan organizations (including Politifact, Snopes, Reuters, Science Feedback and Factcheck.org).⁵

The chosen news items appeared in news media between July 2020 and May 2021.

Half of our news items have been classified as containing accurate (inaccurate) information, i.e. their primary elements are correct and demonstrably true (incorrect and demonstrably false). We do not provide subjects with this distribution, but we inform them that all news items have been fact-checked by independent third parties.

In addition, our news items guarantee heterogeneity along two important dimensions. Firstly, half of our news items appeared on alternative news sources (e.g. Natural-news.com, Breitbart, Raw Story) and the other half on mainstream news sources (e.g. FOX News, the Wall Street Journal, the New York Times). Secondly, we include news items covering a wide range of topics, such as crime, science, politics, Covid-19, climate change and health.

3 Beliefs about the ability to detect news-accuracy

In this section, we provide a descriptive analysis of subjects’ ability to detect the accuracy of the information in the news headlines and the error in their beliefs about it. We then study whether revelation of the true ability reduces such error and characterize the magnitude and direction of the adjustment in beliefs.

⁵Table A8 in Appendix A reports the 20 headlines and the related characteristics.

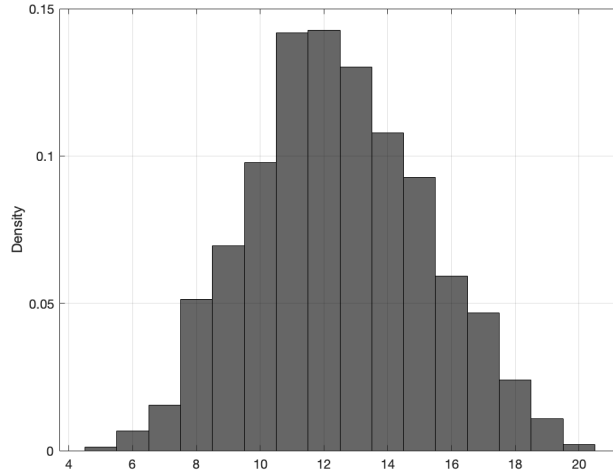


Figure 4: Total score in the news-accuracy detection task.

News-accuracy detection. Figure 4 shows the distribution of the total score in the news-accuracy detection task across the entire sample. The average score in the task is 12.45 out of 20, thus implying that survey participants provide the correct accuracy assessment in 62.25% of the news items. While this result suggests that subjects have a sufficiently good ability to detect information accuracy on average, their score is far from a 100% correct discernment. This implies that, to a large extent, subjects make wrong assessments of the veracity of the information in the headlines. There is also a substantial degree of heterogeneity among participants: a considerable share (24.2%) provide the correct evaluation in less than half of the news items and only 14.29% do so in at least 80% of the headlines.

Interestingly, subjects seem equally likely to *fall for inaccurate news* and to mistakenly believe that accurate news is false. Indeed, participants provide the correct evaluation in 62.55% of the accurate headlines and in 61.99% of those that are inaccurate. There is also no significant difference between the score in the first and the second part of the task across the entire sample ($p = 0.301$).

Turning to heterogeneity, an OLS regression of the total score on individual characteristics (Figure A2) shows that a greater news-accuracy detection score correlates with a higher score in both the Cognitive Reflection Test and the Sentence Comprehension Test. These results align existing evidence on the importance of analytical and deliberate thinking

for truth discernment (Bago et al., 2020; Pennycook and Rand, 2019) and, although no specific direction of causality can be inferred, they suggest that effort in thinking and the ability to understand the information content of a text are important predictors of the capacity to assess the accuracy of information. Greater news-accuracy detection score is associated also with trust in fact-checking and the tendency to consider misinformation as a problem for the country. This result could relate to a greater motivation to exert effort in assessing the accuracy of information by those who value the importance of fact-checking to contrast misinformation. Subjects who consume information from a larger set of sources – including TV and radio, printed and online newspapers, as well as social networks – also have a better assessment of the accuracy of the news items.⁶ On the contrary, a lower news-accuracy detection score is observed among those who indicate social media as a major source of news consumption.⁷ Finally, the revelation of the sources of the headlines does not significantly affect the overall score in the task.

Beliefs about own ability. Before the beginning of the news-accuracy detection task, 82.64% of subjects feel good or very good at identifying news and information that misrepresents reality or is even false, thus exhibiting great confidence in their own ability to evaluate news-accuracy.⁸ In addition, only 37.61% of these subjects think that also the other Americans are good or very good, thus providing evidence of overplacement à la Moore and Healy (2008).

Although these beliefs suggest that subjects feel generally confident in their ability to assess the accuracy of news and information, they cannot be easily related to the ability

⁶To build our indicator of the set of sources for information consumption, i.e. *news media consumption*, we ask subjects to indicate how major or minor of a news source the following media are for them: 1. Television and/or radio; 2. Online social networks and/or messaging apps; 3. Online newspapers and news magazines; 4. Printed newspapers and news magazines. Subjects provide an answer on a scale from 1 to 5, where 1 is “I am not familiar with this news source” and 5 is “It is a major source of news for me”. News media consumption equals the sum of the scale-points across the four types of media sources, and as such *news media consumption* $\in [4, 20]$. Therefore, a higher score indicates greater use of a heterogeneous set of sources.

⁷Although we cannot verify this in the context of our analysis, the latter could relate to the large diffusion of misinformation on social media (Vosoughi et al., 2018) that, given the major role played by social media platforms for news consumption (Allcott et al., 2020; Mosquera et al., 2020), could hamper individuals’ ability to assess the veracity of news.

⁸This is strikingly in line with the recent findings in the Pew Research Surveys mentioned in the Introduction. See <https://pewrsr.ch/3qxXdiE> and <https://pewrsr.ch/3qwVb2f>

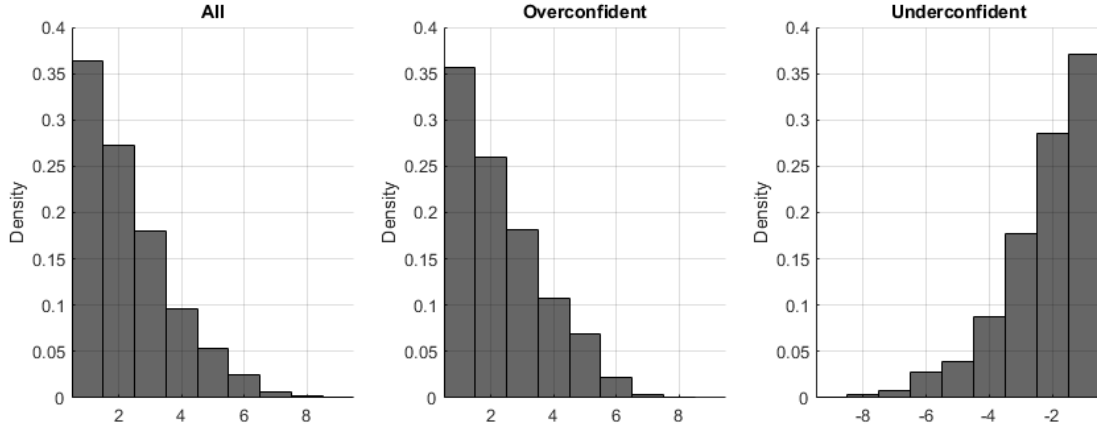


Figure 5: Distribution of $error_i$ for mid-task beliefs. Left: absolute value of $error_i$ for all subjects with $error_i \neq 0$; center: $error_i > 0$ (overconfident subjects); right: $error_i < 0$ (underconfident subjects).

to detect news-accuracy in our task. For this reason, we now focus on subjects’ mid-task beliefs. These beliefs are elicited after exposing subjects to the first 10 news items, which allows participants to familiarize with the nature of the task and possibly adjust the initial assessment of their true ability in it.⁹

To determine whether subjects’ beliefs match their actual scores, we first define the error in beliefs as the difference between subject i ’s belief and her true news-accuracy detection score in the first part of the task, i.e. $error_i = belief_i - score_i$, with $error_i \in [-10, 10]$. We find that only 14.75% of subjects have $error_i = 0$, providing evidence of a strikingly low share of subjects with correct awareness of own ability. The share of subjects with $error_i > 0$ and those with $error_i < 0$ is similar (41.07% and 44.18%, respectively), indicating the presence of a similar number of overconfident and underconfident individuals. We then quantify the magnitude of the error in mid-task beliefs. Figure 5 plots the distribution of $error_i$ for overconfident and underconfident subjects separately. It also adds the distribution of $error_i$ in absolute value for all subjects with incorrect beliefs, namely those with $error_i \neq 0$. First, conditional on having incorrect beliefs, the average error amounts to 2.32 points, implying a deviation from the true score by a large 34.22%, approximately.¹⁰ Interestingly, albeit different in sign, we find that the magnitude of

⁹Appendix B reports the same analysis for prior beliefs.

¹⁰In fact, $\frac{1}{N} \sum_{i=1}^N |\log(belief_i) - \log(score_i)| = 0.3422$. Note that 15 of the 2413 subjects in our sample have either $belief_i$ or $score_i$ equal to 0 and, as such, they have been excluded from the computation of this number.

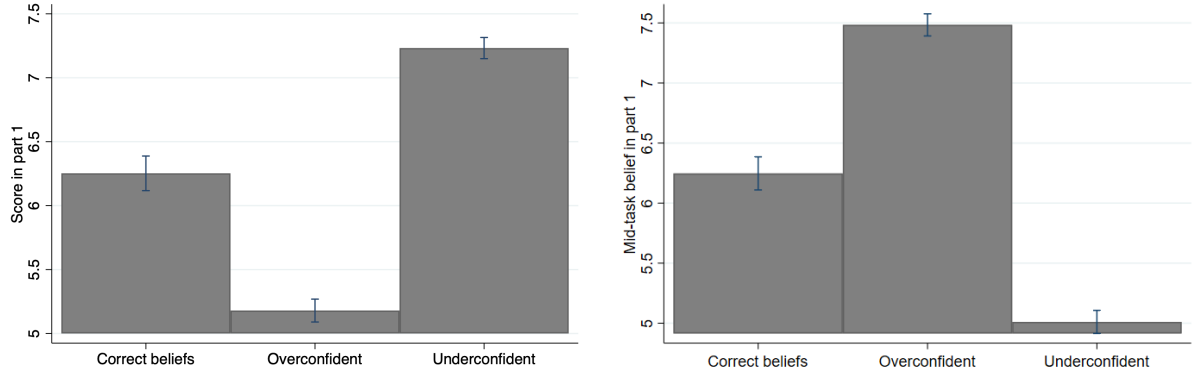


Figure 6: Average news-accuracy detection score in part 1 of the task (left) and level of mid-task beliefs (right) for subjects with $error_i = 0$ (correct beliefs), $error_i > 0$ (overconfident subjects) and $error_i < 0$ (underconfident subjects).

the average error in beliefs is roughly similar for overconfident and underconfident participants, and equals 2.36 and -2.27 points respectively. This implies that the mid-task beliefs of overconfident subjects are 39.64% higher than their true score, while those of underconfident subjects are 40.69% lower than their true score, on average. These results suggest that subjects with incorrect beliefs have largely inaccurate perceptions of their true ability to detect the accuracy of news items, regardless of whether they over- or under-estimate it. However, it is worth pointing out that overconfident subjects exhibit a significantly lower actual news-accuracy detection ability prior to our information treatment, as their score in the first part of the task is, on average, 1.95 points, or 27.22%, lower than the score of underconfident subjects (Figure 6). This is consistent with abundant evidence highlighting the negative correlation between overconfidence and performance in decision-making across a wide range of domains (see Grubb, 2015, for some examples). We finally explore which individual characteristics help explaining the magnitude of the error in beliefs. Results in figure 7 show that errors in mid-task beliefs are negatively correlated with the scores in the Cognitive Reflection Test and the Sentence Comprehension Test. Hence, greater cognitive reflection, as well as the ability to comprehend a syntactically complex sentence, correspond not only to a better discernment of the accuracy of news items – as found above – but also to a greater awareness of own news-accuracy detection abilities. We can finally summarize our first result as follows:

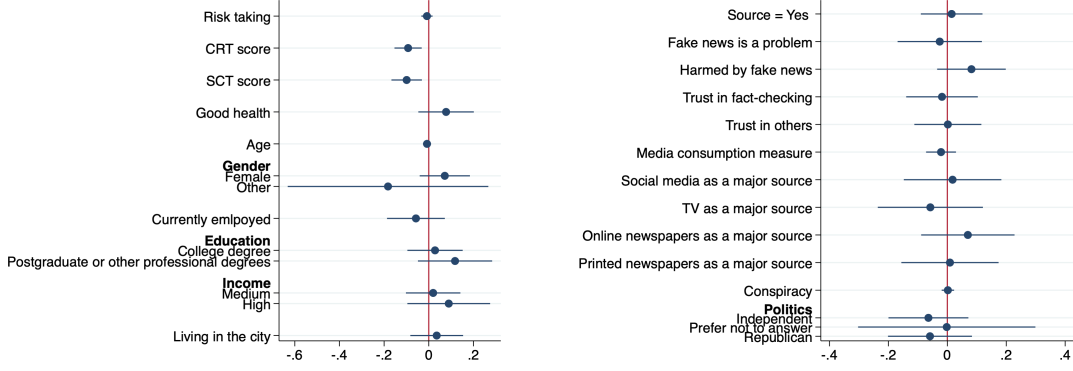


Figure 7: Predictors of the errors of mid-task beliefs.

Result 1. *Subjects exhibit limited news-accuracy detection ability, on average. A very small share of subjects are fully aware of their true ability; the remaining fraction, albeit similarly distributed between overconfident and underconfident individuals, has a large average error in beliefs.*

3.1 Treatment effect on beliefs

Next, we study whether, and to what extent, subjects react to information about their true score in the first part of the task. We first explore whether the presence of this feedback changes the error in beliefs and then turn to its effect on the size and direction of belief updating.

3.1.1 Effect on the error in beliefs

To characterize how our information treatment affects the error in beliefs, we estimate:

$$POE_i = \alpha_0 + \alpha_1 S_i + \alpha_2 MTE_i + \beta \mathbf{X}_i + \epsilon_i \quad (1)$$

POE_i is the error in posterior beliefs, i.e. the absolute value difference between the posterior belief and the score in the second part of the task; S_i is a treatment dummy equal to 1 if the subject has received the information on her true score; MTE_i is the error in mid-task beliefs, i.e. the absolute value difference between the mid-task belief and the

Table 1: Error in beliefs

	(1) POE	(2) POE	(3) POE
S	-0.203*** (0.0613)	-0.202*** (0.0611)	-0.203*** (0.0609)
MTE	0.303*** (0.0225)	0.303*** (0.0227)	0.349*** (0.0267)
Δ score		0.0582*** (0.0188)	0.0707*** (0.0224)
Δ effort		-0.00455 (0.0163)	-0.00484 (0.0158)
internet		0.176 (0.147)	0.221 (0.149)
<i>MTE sign</i>			
overconfident			-0.475*** (0.111)
underconfidence			-0.294*** (0.105)
mid-task belief			-0.0216 (0.0227)
Controls	Yes	Yes	Yes
Observations	2413	2413	2413
Adjusted R^2	0.096	0.101	0.109

Notes. OLS estimates from Equation 1. The specifications also control for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey (columns 2 and 3); a variable identifying whether the subject has over(under)confident mid-task beliefs, and the level of their mid-task beliefs (column 3). All specifications control for age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

score in the first part of the task; and X_i is a vector of individual-specific controls.¹¹ Note that α_1 identifies the average difference in the error of posterior beliefs in the treatment group relative to the control group. We use robust standard errors throughout the paper. We find that subjects who receive the information on their score end up with an error in posterior beliefs that is 0.20 points lower relative to the control group average error of 2.09 points (Column 1, Table 1). This corresponds to a 9.57% lower error in posterior beliefs relative to the control group. Table 1 also shows that our main result is robust to

¹¹ X_i includes age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion.

different specifications. In particular, the feedback on the score may induce a variation in subjects' performance or effort in the task that, in turn, may drive the observed variation in the error in beliefs. However, column 2 in Table 1 shows that the estimated value and significance level of α_1 are unchanged when controlling for the variation in the score between the two parts of the task (Δscore), as well as the time spent on it (Δeffort), i.e. our proxy for individual effort. In the specification in column 3 we also add the actual level of mid-task beliefs and control for $MTE\text{sign}_i$, i.e. a variable that identifies whether subjects are overconfident, underconfident or have accurate mid-task beliefs. Also in this case we find that the coefficient of our treatment dummy is unchanged, both in value and significance level.

3.1.2 Belief updating: magnitude and direction

We have established that the provision of information on the score reduces the error in beliefs, also when controlling for the change in the score between the two parts of the task. This suggests that the observed reduction in the error originates from a shift in the level of beliefs that is induced exogenously by the information treatment. This motivates us to explore the dynamics of the adjustment in beliefs and assess the magnitude and direction of belief updating upon receiving the feedback on the ability to detect the accuracy of the news headlines.

As a first step, Figure 8 plots the distribution of $updating_i$ i.e. the difference between posterior and mid-task beliefs for the control and treatment group. This variable represents our main outcome of interest. The share of subjects who do not change beliefs equals 44.94% for the control group and 35.38% for the treatment group. Moreover, relative to the control group, treated subjects appear to exhibit a larger negative shift in beliefs, as the average value of $updating_i$ equals -0.21 for the control group and -0.48 for the treatment group. To quantify precisely the magnitude of the change in beliefs, and estimate its direction, we regress $updating_i$ on our treatment dummy, S_i , and the vector

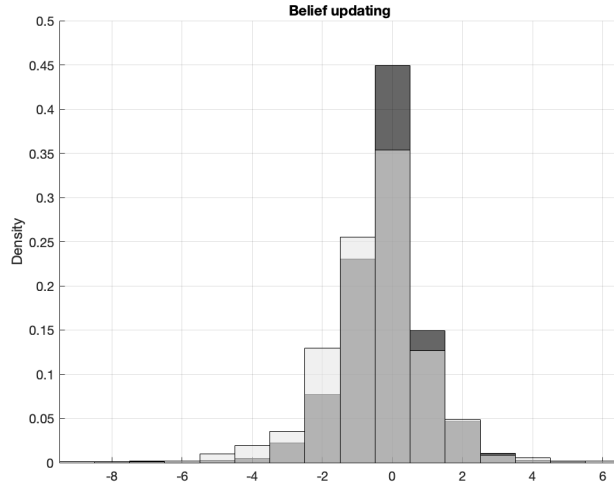


Figure 8: Distribution of $updating_i$ for control group (dark grey) and treatment group (light grey).

of individual-specific controls, X_i , defined above:

$$updating_i = \alpha_0 + \alpha_1 S_i + \beta \mathbf{X}_i + \epsilon_i \quad (2)$$

Table 2 reports our estimates. Revelation of the true score in the first part of the task induces a downward update in beliefs, on average. Specifically, information provision lowers beliefs by -0.29 points relative to the control group. This corresponds to a total downward updating of -0.49 points (-0.20 for the control group), or 7.89% from the level of mid-task beliefs of 6.21 points. Also in this case, the result is robust to different specifications (see columns 2 and 3 in Table 2). Specifically, our main effect holds when controlling for the change in the score between the two parts of the task, the time spent on it (in both Columns 2 and 3) and, importantly, the actual level of mid-task beliefs (Column 3).

Magnitude and direction. We now want to quantify subjects' learning rate, that is the weight they attach to the information in updating their beliefs. To do this, we regress $updating_i$ on the treatment dummy interacted with MTE_i , the error in mid-task beliefs. In fact, since MTE_i is the absolute value difference between the level of mid-task beliefs and the score in the first part of the task, it can be interpreted as a measure of the intensity

Table 2: Belief updating

	(1) updating	(2) updating	(3) updating
S	-0.287*** (0.0557)	-0.283*** (0.0558)	-0.285*** (0.0515)
Δ score		0.0101 (0.0135)	0.0125 (0.0142)
Δ effort		-0.00765 (0.0141)	-0.00842 (0.0125)
internet		-0.170 (0.150)	0.0115 (0.133)
<i>MTE sign</i>			
overconfident			-0.136 (0.0967)
underconfident			-0.0397 (0.0921)
MTE			-0.0169 (0.0238)
mid-task belief			-0.266*** (0.0211)
Controls	Yes	Yes	Yes
Observations	2413	2413	2413
Adjusted R^2	0.019	0.019	0.161

Notes. OLS estimates from Equation 2. The specifications also control for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, (columns 2 and 3); a variable identifying whether the subject has over(under)confident mid-task beliefs, the error in mid-task belief (MTE), and the level of these beliefs (column 3). All specifications control for age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

of the information feedback. Therefore, the coefficient of the interaction term represents the extent to which subjects incorporate the feedback into their beliefs. Moreover, to increase our power to estimate the precise learning rate, we also include a vector that groups a series of controls. First, we control for the level of mid-task beliefs. In fact, there may be a correlation between the level of mid-task beliefs and their error, such that subjects with more extreme beliefs may be more likely to have more inaccurate beliefs and, thus, exhibit mechanically greater updating. Secondly, we control for $MTEsign_i$ to keep over/underconfidence constant. Finally, we also control for the change in the

Table 3: Learning rates and feedback sign: marginal effects

	updating
Positive feedback	0.1185** (0.0517)
Negative feedback	-0.2341*** (0.0599)
Observations	2413

Notes. Marginal effects for a regression of $updating_i$ on $Sign_i$ interacted with MTE_i . The specification (see Table A4) also controls for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, a variable identifying whether the subject has over(under)confident mid-task beliefs, the level of mid-task beliefs, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

score between the two parts of the task and the time spent on it, to make sure that the observed learning rates are not related to changes in performance or effort.

Since we find a non significant coefficient of -0.056 for the interaction term (Table A3), we test whether this muted learning rate hides different reactions to the revelation of the score, depending on the feedback sign, namely whether the revealed score is above or below the mid-task belief. In other words, this corresponds to analyzing the magnitude and direction of the update among underconfident and overconfident individuals. We thus estimate the previous regression, replacing our treatment dummy with the variable $Sign_i$. The latter identifies whether the subject is in the control group or whether she has received a positive feedback, a negative feedback, or a revealed score that matches her mid-task belief.

We find a statistically significant coefficient of the interaction term, equal to 0.10 for subjects with positive feedback and -0.25 for those with negative feedback (Table A4). The estimated marginal effects of MTE_i on $updating_i$, reported in Table 3, show that participants update beliefs in the direction of the information they receive: individuals with positive feedback adjust beliefs upwards, while those with negative feedback adjust downwards. However, the magnitude of the estimated average learning rate differs between the two groups, with greater conservatism among participants who receive a positive feedback: a 1-point deviation of the revealed score from the belief induces a smaller

adjustment for those with positive feedback (0.12 points), compared to those with negative feedback (0.23 points). This result raises a further question: what drives the greater conservatism of beliefs among subjects with positive feedback?

The role of gender. To answer the question above, we run a multinomial logistic regression of $Sign_i$ on a series of individual characteristics (Figure A3). Results shows that gender is a better predictor of the feedback sign that treated subjects receive, compared to the other individual characteristics analyzed, such as the level of trust in different types of news sources (including TV, online newspapers, etc.), trust in fact checking and general trust in others.¹² Specifically, we find that, relative to men, women have a larger probability of receiving a positive feedback – indicating stronger underconfidence – and a lower probability of receiving a negative feedback – i.e. weaker overconfidence. These results align recent findings showing that women and men have different levels of confidence in own abilities, with women being generally more pessimistic, even absent any actual difference in abilities (Barber and Odean, 2001; Niederle and Vesterlund, 2007). Importantly, men and women react differently to the provision of informative signals about own abilities (Thaler, 2021), to the extent that women hold persistently lower beliefs even after receiving feedback (Coffman et al., 2021).

Motivated by this result, we quantify the extent to which gender drives the observed heterogeneous responses to positive and negative feedback. To do so, we project $updating_i$ on $Sign_i$ interacted with MTE_i , for women and men separately. The estimated marginal effects of MTE_i on $updating_i$ for each level of $Sign_i$ show that women exhibit a smaller learning rate to the revealed score for both feedback signs, compared to men (Table 4). Most importantly, while men attach roughly the same weight to both positive and negative feedback, women exhibit a substantially more conservative and non-significant reaction to the positive one, relative to the negative one. Hence, these gender differences in the intensity of belief updating represent the key driver of the observed conservatism

¹²Note that (i) some of the other variables included in the analysis predict the probability of receiving a positive or negative feedback, but these predictions are substantially weaker, either in the magnitude of the probabilities or in the statistical significance; and (ii), most importantly, we find that these characteristics do not drive the observed heterogeneous responses to positive and negative feedback. As such we do not report these tables in the paper but make them available upon request.

Table 4: Belief updating and gender differences: marginal effects

	updating Male	updating Female
Positive feedback	0.2238** (0.0355)	0.0718 (0.0647)
Negative feedback	-0.2616*** (0.0758)	-0.1955** (0.0979)
Observations	1145	1234

Notes. Marginal effects for a regression of $udpating_i$ on $Sign_i$ interacted with MTE_i . Estimates are for men and women, separately. The specification (see Table A5) also controls for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, a variable identifying whether the subject has over(under)confident mid-task beliefs, the error in mid-task belief (MTE), the level of these beliefs, and the socio-demographic variables: age, age squared, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

to positive feedback. All in all, our results on the effect of the information treatment on the update of beliefs may be summarized as follows:¹³

Result 2. *Revelation of the news-accuracy detection score produces a strong and significant reduction in the error in posterior beliefs relative to the control group. In fact, treated subjects update beliefs following the direction of the information received. The magnitude of the adjustment is stronger among subjects receiving a negative feedback. The stronger conservatism among subjects with positive feedback is driven by the larger presence of women, who exhibit no significant reaction to positive feedback, compared to men.*

4 The causal effect of beliefs: Hedging against misinformation risk

We have established that the provision of a feedback on the ability to discern the veracity of the information in the news headlines shifts beliefs, thus leading individuals to have a more accurate assessment of such ability. We now explore whether, as a result of this improvement in awareness, subjects change their willingness to hedge against the risk of

¹³Appendix B reports additional results exploring (i) the consistency our results with Bayesian updating and (ii) the effect of our treatment on general qualitative beliefs about oneself and other Americans.

being harmed by misinformation.

We begin by providing an overview of subjects' allocation of the 1000\$ hypothetical budget prior to the beginning of the news-accuracy detection task. Eventually, by exploiting our exogenously induced variation in beliefs, we explore their causal effect on the amount allocated to the misinformation insurance.

4.1 Prior budget allocation

Before the accuracy detection task, subjects allocate 36.06% of their hypothetical 1000\$ budget to the purchase of consumption goods; 43.77% to the health insurance; and 20.17% to the insurance against the risk of being harmed by made-up news and information. Hence, although it represents the smallest fraction of the budget, the willingness to pay for the misinformation insurance is a non-negligible component of the total allocation. Importantly, subjects who state that they have already been harmed by made-up news and information that is intended to mislead the public (amounting to roughly 40% of our sample) allocate a significantly larger fraction of the budget to the misinformation insurance (+4.39 p.p.) (Figure 9), potentially suggesting greater awareness of the risks and harms associated with the diffusion of misinformation. A greater prior allocation to the misinformation insurance correlates positively also with considering misinformation at least as a moderately big problem for the country. On the contrary, spending in the misinformation insurance is negatively related with greater trust in others, relying on online newspapers as a major news source, having postgraduate or other professional education and being more sophisticated, in terms of both CRT and SCT scores.

4.2 Belief updating and misinformation insurance

We now study whether the change in beliefs about own ability to discern the veracity of news headlines results in a change in the willingness to hedge against misinformation.

First, in order to establish a causal effect of the update in beliefs on the willingness to pay for the misinformation insurance, we project the latter on the magnitude of the change in beliefs. We find no significant effect (results are reported in Table A6). Then, we

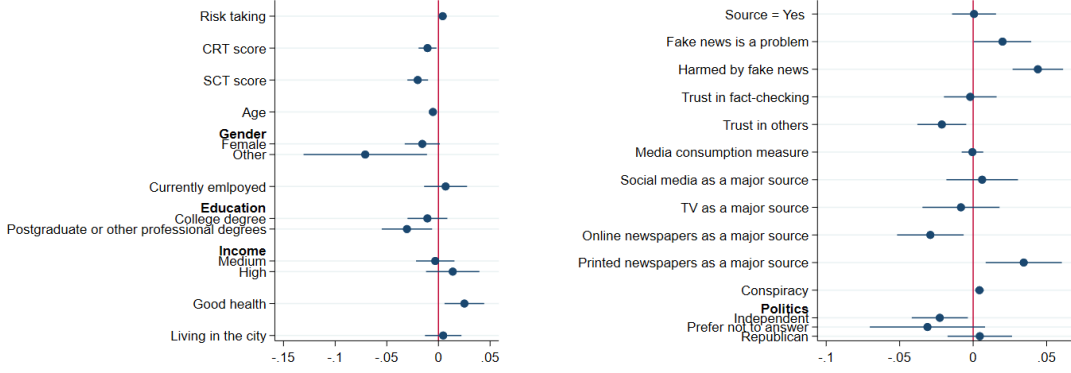


Figure 9: Predictors of the prior budget allocation to the misinformation insurance.

project the willingness to pay for the misinformation insurance on our treatment dummy, therefore testing if the mere fact of being informed about own ability to detect accurate content in the news headlines has any causal effect on the willingness to hedge against misinformation. Again, we find no significant effect (results are reported in Table A7). However, when we project the willingness to pay on the magnitude of belief updating interacted with the treatment dummy, the effect is significantly negative.¹⁴ Table 5 reports the marginal effects for the control and treatment group. We find that, differently from the control group, a larger update in beliefs among treated subjects produces a significant variation in the willingness to spend in the misinformation insurance. Specifically, as subjects in the information treatment exhibit a downward update in beliefs on average (see Table 2), the negative value of the marginal effect represents a 5.8\$ increase in the willingness to pay for a 1-point increase in belief updating. Although this average effect among treated subjects seems quantitatively small, Figure 10 (left panel) shows that there is substantial heterogeneity. In particular, subjects with more intense downward adjustment in beliefs experience a substantial increase in the posterior amount allocated to the misinformation insurance. This ranges from an estimated raise of 10.66\$ ($p = 0.032$), or +4.99%, for those with a downward adjustment in beliefs of 1 point, to 57.1\$ ($p = 0.049$),

¹⁴In all these regressions we include the vector of socio-demographic controls (\mathbf{X}_i) and another vector of controls \mathbf{P}_i that includes Δscore and Δeffort , as well as the amount allocated to the misinformation insurance prior to the beginning of the news-accuracy detection task ($I\text{prior}_i$). Moreover, since the choice to insure could relate to risk attitudes, we include also subjects' level of risk taking (risk_i). Finally, we also add a dummy equal to 1 if subjects report being at least in a good health status (hd_i), since participants are given the option to allocate the budget also to a health insurance.

Table 5: Belief updating and misinformation insurance: marginal effects

	updating
Control	-2.6069 (5.4670)
Treatment	-5.8054* (3.3281)
Observations	2413

Notes. Marginal effects from a regression of the change in the budget amount allocated to the misinformation insurance on the treatment dummy interacted with the $updating_i$. The specification also controls for the amount allocated to the misinformation insurance prior to the beginning of the news-accuracy detection task (I_{prior_i}) subjects' level of risk taking ($risk_i$), a dummy equal to 1 if subjects report being at least in a good health status (hd_i), the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

or +22.84%, for those with a downward shift by 9 points. These two variations bring the posterior amount up to an average of 216.85\$ and 263.30\$, respectively (right panel in Figure 10).

Our results above motivate the following considerations. First, Figure 10 shows that the estimated average effect is driven exclusively by subjects who adjust beliefs downwards, while those who revise them upwards do not exhibit any significant change in their posterior willingness to pay for the insurance. This indicates that those who increase their willingness to spend to hedge against misinformation are individuals who become more concerned about their ability to discern the veracity of information in the news headlines. Secondly, the revelation of own news-accuracy detection ability has no effect, *per se*, on the willingness to hedge against misinformation. Neither does a shift in beliefs alone. Instead, a meaningful change in the willingness to pay for the misinformation insurance is observed only if subjects adjust beliefs as a consequence of information on own news-accuracy detection ability. In fact, since our information treatment is exogenous and subjects are randomly allocated to the treatment group, we can conclude that the adjustment in beliefs causally increases the willingness to pay for the misinformation insurance only among treated agents i.e., those who have been informed of their true score. Therefore, our third result can be summarized as follows:

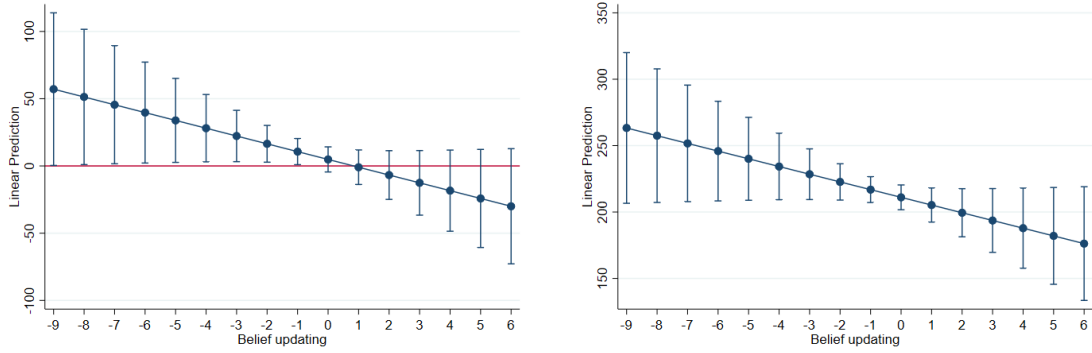


Figure 10: Left: Average variation in the budget amount allocated to the misinformation insurance, per level of $updating_i$ in the treatment group. Right: Average posterior budget amount allocated to the misinformation insurance, per level of $updating_i$ in the treatment group.

Result 3. *A greater adjustment in beliefs, upon revelation of own ability to discern the accuracy of information in the news headlines, induces subjects to increase their willingness to hedge against the harms of misinformation. The effect is driven by subjects who revise beliefs downwards, indicating that the stronger desire to hedge is induced by a greater concern about own ability.*

5 Concluding remarks

By means of an online survey with a randomized information experiment with a US representative sample, this paper assesses the error in people’s beliefs about their ability to discern the accuracy of news items and investigates whether such beliefs respond to the provision of information about their own true ability. We first find that individuals make non-negligible mistakes, both when evaluating the accuracy of the news headlines and when assessing their ability at it. Our main result is that a feedback about own true ability to detect the accuracy of the information in news items causally shifts people’s beliefs and significantly reduces the error in beliefs about their own ability. This effect is stronger among overconfident subjects. Underconfident individuals exhibit a more conservative reaction to the provided information and this is driven by the larger share of women in this group, who have a less pronounced response to positive feedback, compared

to men. By means of a hypothetical budget allocation question, we also show that a larger magnitude of belief updating, upon revelation of own ability, causally increases subjects' willingness to pay for the misinformation insurance. The effect is driven by subjects who revise beliefs downwards, suggesting that they are willing to increase spending to hedge against the risk of being harmed by misinformation, because they become more concerned about their ability.

Our results suggest that informing subjects of their ability to discern the accuracy of information increases their awareness about such ability. This has the effect of raising individuals' willingness to act against the risk of being harmed by misinformation. Further research should investigate the implications of our treatment on news consumption habits and information sharing intentions.

References

- Acemoglu, D., Ozdaglar, A., and Siderius, J. (2021). Misinformation: Strategic Sharing, Homophily, and Endogenous Echo Chambers. *Mimeo*.
- Alesina, A., Ferroni, M. F., and Stantcheva, S. (2021). Perceptions of racial gaps, their causes, and ways to reduce them. Working Paper 29245, National Bureau of Economic Research.
- Allcott, H., Braghieri, L., Eichmeyer, S., and Gentzkow, M. (2020). The welfare effects of social media. *American Economic Review*, 110(3):629–676.
- Allcott, H. and Gentzkow, M. (2017). Social media and fake news in the 2016 election.
- Bago, B., Rand, D. G., and Pennycook, G. (2020). Fake news, fast and slow: Deliberation reduces belief in false (but not true) news headlines. *Journal of Experimental Psychology: General*, 149(8):1608–1613.
- Barber, B. M. and Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116(1):261–292.

- Barrera, O., Guriev, S., Henry, E., and Zhuravskaya, E. (2020). Facts, alternative facts, and fact checking in times of post-truth politics. *Journal of Public Economics*, 182.
- Bénabou, R. and Tirole, J. (2016). Mindful economics: The production, consumption, and value of beliefs. In *Journal of Economic Perspectives*, volume 30, pages 141–164.
- Cavazos, R. (2019). The Economic Cost of Bad Actors of on the Internet. *Technical Report*.
- Chopra, F., Haaland, I., and Roth, C. (2022). Do People Demand Fact-Checked News? Evidence from U.S. Democrats. *Journal of Public Economics*.
- Christelis, D., Georgarakos, D., Jappelli, T., Pistaferri, L., and Van Rooij, M. (2019). Asymmetric consumption effects of transitory income shocks. *Economic Journal*, 129(622):2322–2341.
- Coffman, K. B., Collis, M., and Kulkarni, L. (2021). Stereotypes and Belief Updating. *Harvard Business School Working Paper*, 19-068.
- Coibion, O., Gorodnichenko, Y., and Weber, M. (2019). Monetary policy communications and their effects on household inflation expectations. Working Paper 25482, National Bureau of Economic Research.
- Coutts, A. (2019). Good news and bad news are still news: experimental evidence on belief updating. *Experimental Economics*, 22(2):369–395.
- Cruces, G., Perez-Truglia, R., and Tetaz, M. (2013). Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment. *Journal of Public Economics*, 98:100–112.
- Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., and Wagner, G. G. (2011). Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association*, 9(3):522–550.
- Eil, D. and Rao, J. M. (2011). The good news-bad news effect: Asymmetric processing of objective information about yourself. *American Economic Journal: Microeconomics*, 3(2):114–138.

- Enders, A. M. and Smallpage, S. M. (2018). On the measurement of conspiracy beliefs. *Research and Politics*, 5(1).
- Ertac, S. (2011). Does self-relevance affect information processing? Experimental evidence on the response to performance and non-performance feedback. *Journal of Economic Behavior and Organization*, 80(3):532–545.
- Faia, E., Fuster, A., Pezone, V., and Zafar, B. (2021). Biases in Information Selection and Processing: Survey Evidence from the Pandemic. *SAFE Working Paper*, 307.
- Fetzer, T., Hensel, L., Hermle, J., and Roth, C. (2021). Coronavirus Perceptions and Economic Anxiety. *The Review of Economics and Statistics*, pages 1–11.
- Frederick, S. (2005). Cognitive Reflection and Decision Making. *Journal of Economic Perspectives*, 19(4):25–42.
- Fuster, A., Kaplan, G., and Zafar, B. (2021). What Would You Do with \$500? Spending Responses to Gains, Losses, News, and Loans. *The Review of Economic Studies*, 88(4):1760–1795.
- Grinberg, N., Joseph, K., Friedland, L., Swire-Thompson, B., and Lazer, D. (2019). Political science: Fake news on Twitter during the 2016 U.S. presidential election. *Science*, 363(6425):374–378.
- Grubb, M. D. (2015). Overconfident consumers in the marketplace. *Journal of Economic Perspectives*, 29(4):9–36.
- Haaland, I. and Roth, C. (2021). Beliefs about Racial Discrimination and Support for Pro-Black Policies. *The Review of Economics and Statistics*, pages 1–38.
- Haaland, I. K., Roth, C., and Wohlfart, J. (2020). Designing Information Provision Experiments — Publication — CESifo. *CESifo Working Papers*, (8406).
- Henry, E., Zhuravskaya, E., and Guriev, S. (2022). Checking and Sharing Alt-Facts. *American Economic Journal: Economic Policy*.

- Jappelli, T. and Pistaferri, L. (2014). Fiscal policy and MPC heterogeneity. *American Economic Journal: Macroeconomics*, 6(4):107–136.
- Kogan, S., Moskowitz, T. J., and Niessner, M. (2021). Social Media and Financial News Manipulation. *SSRN Working Paper*.
- Lucas, R. E. (2003). Macroeconomic priorities. *American Economic Review*, 93(1):1–14.
- Lyons, B. A., Montgomery, J. M., Guess, A. M., Nyhan, B., and Reifler, J. (2021). Overconfidence in news judgments is associated with false news susceptibility. *Proceedings of the National Academy of Sciences of the United States of America*, 118(23).
- Möbius, M. M., Niederle, M., Niehaus, P., and Rosenblat, T. S. (2014). Managing Self-Confidence *. *Working paper*.
- Moore, D. A. and Healy, P. J. (2008). The Trouble With Overconfidence. *Psychological Review*, 115(2):502–517.
- Mosquera, R., Odunowo, M., McNamara, T., Guo, X., and Petrie, R. (2020). The economic effects of Facebook. *Experimental Economics*, 23(2):575–602.
- Niederle, M. and Vesterlund, L. (2007). Do women shy away from competition? Do men compete too much? *Quarterly Journal of Economics*, 122(3):1067–1101.
- Parker, J. A. and Souleles, N. S. (2019). Reported Effects versus Revealed-Preference Estimates: Evidence from the Propensity to Spend Tax Rebates. *American Economic Review: Insights*, 1(3):273–290.
- Parker, J. A., Souleles, N. S., Johnson, D. S., and McClelland, R. (2013). Consumer spending and the economic stimulus payments of 2008. *American Economic Review*, 103(6):2530–2553.
- Pennycook, G., McPhetres, J., Zhang, Y., Lu, J. G., and Rand, D. G. (2020). Fighting COVID-19 Misinformation on Social Media: Experimental Evidence for a Scalable Accuracy-Nudge Intervention. *Psychological Science*, 31(7):770–780.

- Pennycook, G. and Rand, D. G. (2019). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition*, 188:39–50. The Cognitive Science of Political Thought.
- Pennycook, G. and Rand, D. G. (2020). Who falls for fake news? The roles of bullshit receptivity, overclaiming, familiarity, and analytic thinking. *Journal of Personality*, 88(2):185–200.
- Roth, C., Settele, S., and Wohlfart, J. (2022). Risk Exposure and Acquisition of Macroeconomic Information. *American Economic Review: Insights*.
- Roth, C. and Wohlfart, J. (2020). How do expectations about the Macroeconomy affect personal expectations and Behavior? *Review of Economics and Statistics*, 102(4):731–748.
- Thaler, M. (2021). Gender differences in motivated reasoning. *Journal of Economic Behavior and Organization*, 191:501–518.
- Vernice, M., Matta, M., Tironi, M., Caccia, M., Lombardi, E., Guasti, M. T., Sarti, D., and Lang, M. (2019). An Online Tool to Assess Sentence Comprehension in Teenagers at Risk for School Exclusion: Evidence From L2 Italian Students. *Frontiers in Psychology*, 10.
- Vosoughi, S., Roy, D., and Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380):1146–1151.
- Zimmermann, F. (2020). The dynamics of motivated beliefs. *American Economic Review*, 110(2):337–363.

A Extra tables and figures

Table A1: Sample characteristics

	(1) US Population	(2) Survey
Female	50.8%	51.1%
Median age	38.5	43
Never married	33.9%	31.9%
Average household size	2.6	2.7
Employment rate	60.2%	51.5%
<i>Income</i>		
\$0–\$14,999	9.8%	10.3%
\$15,000–\$24,999	8.3%	10.1%
\$25,000–\$49,999	20.3%	23.5%
\$50,000–\$74,999	17.4%	17%
\$75,000–\$99,999	12.8%	12.9%
\$100,000–\$149,999	15.7%	14.2%
\$150,000–\$199,999	7.2%	4.7%
\$200,000+	8.5%	3.7%
<i>Ethnicity</i>		
White	57.8%	71.2%
Black/African American	12.1%	12.7%

Notes. The table reports U.S. representative statistics from the Census Bureau in 2019 (column 1) alongside summary statistics from our survey (column 2). The median age in US population is determined over the total population, while in our survey is calculated only over the population of 18 years old and over (77.8% of the total population according to 2019 Census Bureau). The employment rate in US population is calculated for 16 years old and over while in our survey we include 18 years old and over.

Table A2: Test of balance of sample

	(1) Control	(2) Treatment	(3) P-value
Age	46.54	46.16	0.4083
Women	616	618	0.5029
Non-hispanic white	858	860	0.9355
Married or domestic partnership	630	617	0.5392
Income (\$25,000 - \$49,999)	283	283	0.7725
High-school diploma	392	415	0.4033
Employed, working 40 or more hours per week	449	454	0.9597
Observations	1206	1207	

Notes. Column 1 (2) reports the number of subjects in the control (treatment) group for the most frequent value of each socio-demographic variable [for Age: average value]. Column 3 reports the p-values from a Wilcoxon rank-sum test for each variable.

Table A3: Learning rate

	updating
S	-0.173** (0.0864)
MTE	0.0113 (0.0271)
S \times MTE	-0.0564 (0.0400)
<i>MTE sign</i>	
overconfident	-0.135 (0.0967)
underconfident	-0.0356 (0.0926)
mid-task belief	-0.266*** (0.0212)
Δ score	0.0125 (0.0142)
Δ effort	-0.00949 (0.0125)
internet	0.0168 (0.132)
Controls	Yes
Observations	2413
Adjusted R^2	0.162

Notes. OLS estimates from Equation ???. The specification also controls for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, a variable identifying whether the subject has over(under)confident mid-task beliefs, the level of their mid-task beliefs, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Learning rate and feedback sign

	updating
<i>Sign</i>	
positive	-0.124 (0.143)
negative	-0.139 (0.155)
same	-0.226* (0.132)
MTE	0.0163 (0.0279)
<i>Sign</i> × <i>MTE</i>	
positive × MTE	0.102* (0.0573)
negative × MTE	-0.250*** (0.0674)
<i>MTE sign</i>	
overconfident	-0.0632 (0.131)
underconfident	-0.181 (0.125)
mid-task belief	-0.213*** (0.0211)
Δ score	0.0360** (0.0145)
Δ effort	-0.00992 (0.0121)
internet	0.116 (0.129)
Controls	Yes
Observations	2413
Adjusted R^2	0.190

Notes. OLS estimates from a regression of $updating_i$ on $Sign_i$ interacted with MTE_i . The specification also controls for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, a variable identifying whether the subject has over(under)confident mid-task beliefs, the level of their mid-task beliefs, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Belief updating and gender differences

	(1) Males updating	(2) Females updating
<i>Sign</i>		
positive	-0.121 (0.226)	-0.187 (0.195)
negative	-0.000239 (0.200)	-0.338 (0.247)
same	0.0655 (0.200)	-0.429** (0.178)
MTE	0.0516 (0.0355)	-0.0368 (0.0496)
<i>Sign × MTE</i>		
positive × MTE	0.172 (0.107)	0.109 (0.0716)
negative × MTE	-0.313*** (0.0824)	-0.159 (0.114)
<i>MTE sign</i>		
overconfident	0.0790 (0.183)	-0.165 (0.193)
underconfident	-0.0807 (0.187)	-0.226 (0.173)
mid-task belief	-0.189*** (0.0290)	-0.229*** (0.0343)
Δ score	0.0386* (0.0201)	0.0324 (0.0224)
Δ effort	0.0134 (0.0187)	-0.0189 (0.0155)
internet	0.0883 (0.166)	0.275 (0.219)
Controls	Yes	Yes
Observations	1145	1234
Adjusted R^2	0.184	0.195

Notes. OLS estimates from the regression in Equation ??, for males (column 1) and females (column 2) separately. The specification also controls for the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, a variable identifying whether the subject has over(under)confident mid-task beliefs, the error in mid-task belief (MTE), the level of these beliefs, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Belief updating effect on the willingness to pay for the misinformation insurance

	Δ misinformation insurance
misinformation insurance (prior)	-0.430*** (0.0310)
<i>updating_i</i>	-4.133 (2.939)
Δ score	0.0671 (1.560)
Δ effort	-1.701 (1.625)
mid-task belief	-0.934 (2.192)
good health	17.96** (8.601)
risk	2.417 (1.586)
internet	20.78 (18.33)
Controls	Yes
Observations	2413
Adjusted R^2	0.209

Notes. OLS estimates from a regression of the difference between the posterior and prior budget amount allocated to the misinformation insurance on the change in beliefs (*updating_i*). The specification also controls for the prior budget amount allocated to the misinformation insurance, a dummy equal to 1 if subjects report being at least in good health, the level of risk taking (risk), the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Treatment effect on the willingness to pay for the misinformation insurance

	Δ misinformation insurance
misinformation insurance (prior)	-0.430*** (0.0310)
S	-4.881 (6.656)
<i>updating_i</i>	-4.345 (2.967)
Δ score	0.0533 (1.561)
Δ effort	-1.659 (1.618)
mid-task belief	-0.994 (2.189)
good health	17.96** (8.599)
risk	2.412 (1.585)
internet	21.22 (18.37)
Controls	Yes
Observations	2413
Adjusted R^2	0.208

Notes. OLS estimates from a regression of the difference between the posterior and prior budget amount allocated to the misinformation insurance on the treatment dummy (S). The specification also controls for the prior budget amount allocated to the misinformation insurance, a dummy equal to 1 if subjects report being at least in good health, the level of risk taking (risk), the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source	Topic	Accuracy	Date	Headline	Highlights	Fact-check link	News link
beforeditsnews.com	crime	false	04-2021	Trafficked Children, Bodies, Weapons Found on Evergreen Ship Blocking Suez Canal	Over a thousand trafficked children and dead bodies have been rescued out of shipping containers in the Suez Canal by US Navy Seals	Fact check	News
Futurism	science	false	05-2021	Scientists Claim to Spot Fungus Growing on Mars in NASA Rover Photos	The team, which includes researchers from the Harvard-Smithsonian Center for Astrophysics and George Mason University, believes they have found photographic evidence of a variety of fungus-like organisms, some resembling the shape of puffballs, a round cloud-like fungus found in abundance back here on Earth, on the Red Planet	Fact check	News
Gateway Pundit	politics	false	04-2021	THIS IS BIG: US Census Bureau Confirms HUGE CONFLICT in Total Number of Voters in 2020 Election	The results of the 2020 Election are again not supported by evidence. This time the data reported by the Census Bureau conflicts with the election results.	Fact check	News
Naturalnews.com	health	false	03-2021	MEDICAL SHOCKER: Scientists at Sloan Kettering discover mRNA inactivates tumor-suppressing proteins, meaning it can promote cancer	In a medical shocker to the whole world of vaccine philosophy, scientists at Sloan Kettering found that mRNA itself carries cancer CAUSING changes – changes that genetic tests don't even analyze, fixing completely under the radar of oncologists across the globe	Fact check	News
This song is stik	miscellaneous	false	04-2021	Kanye West Uses New Billionaire Wealth to Acquire Spotify	It's official: the fashion and music mogul has just acquired the ever-popular audio streaming platform, Spotify	Fact check	News
FOX News	education	false	04-2021	Virginia moving to eliminate all accelerated math courses before 11th grade as part of equity-focused plan	The Virginia Department of Education (VDODE) is moving to eliminate all accelerated math options prior to 11th grade, effectively keeping higher-achieving students from advancing as they usually would in the school system	Fact check	News
FOX News	covid	false	05-2021	Tucker Carlson: How many Americans have died after taking the COVID vaccine?	Between late December of 2020, and last month [April], a total of 3,362 people apparently died after getting the COVID vaccines in the United States. The data we just cited come from the Vaccine Adverse Events Reporting System — VAERS	Fact check	News
FOX News	politics	false	04-2021	Kudlow: Biden's Green New Deal means no meat for the 4th of July, have grilled Brussels sprouts instead	There's a study coming out of the University of Michigan which says that to meet the Biden Green New Deal targets, America has to stop eating meat, stop eating poultry and fish, seafood, eggs, dairy, and animal-based fats.	Fact check	News
FOX News	covid	false	04-2021	Herpes infection possibly linked to COVID-19 vaccine, study says	Herpes infections may be a side effect of the COVID-19 vaccine, experts have revealed	Fact check	News
Wall Street Journal	climate change	false	05-2018	The Sea Is Rising, but Not Because of Climate Change	Of all known and imagined consequences of climate change, many people fear sea-level rise most. But efforts to determine what causes seas to rise are marred by poor data and disagreements about methodology	Fact check	News
Breitbart	miscellaneous	true	05-2021	South Carolina House Votes to Add Firing Squad to State's Execution Methods	Members of the South Carolina House have voted to add death by firing squad as a state execution method due to a lack of lethal injection drugs.	Fact check	News
Good Word News	covid	true	04-2021	Local Woman Accidentally Given Saline Injection, Instead of COVID Shot at Walgreens in Monroe	The company admits some people who were supposed to get a COVID shot were accidentally injected with a saline solution instead	Fact check	News
Politically Correcter	politics	True	05-2021	Mysterious Billboard Targeting Biden and Harris Is Causing a Stir in Maryland	"Don't blame Trump!" it says. "You are struck with these two sh!theads!! From all your deplorables in Calvert County."	Fact check	News
Raw Story	miscellaneous	true	04-2021	Facebook says hackers 'scraped' data of 533 million users in 2019 leak	Hackers "scraped" personal data of some half-billion users back in 2019 by taking advantage of a feature designed to help people easily find friends using contact lists	Fact check	News
Polygon	miscellaneous	true	05-2021	Target stops selling Pokémon cards in store, citing safety concerns	Target has temporarily suspended the sale of Pokémon cards and other trading cards in store in response to reports of violent confrontations related to the collectibles, whose value has soared in the past year	Fact check	News
CNN	science	true	04-2021	Defense Department confirms leaked video of unidentified aerial phenomena is real	The Defense Department has confirmed that leaked photos and video of "unidentified aerial phenomena" taken in 2019 are indeed legitimate images of unexplained objects	Fact check	News
FOX News	crime	true	04-2021	Houston police say crystal meth found in breakfast burrito	Two x-ray scans revealed the smuggling attempt at Hobby Airport	Fact check	News
New York Post	health	true	04-2021	Racism is a 'serious threat' to public health, CDC director says	Racism is a "serious threat" to public health in the United States — and the COVID-19 pandemic only exacerbated the inequities, the Centers for Disease Control and Prevention warned.	Fact check	News
New York Times	climate change	true	07-2020	Global Warming Is Driving Polar Bears Toward Extinction, Researchers Say	By century's end, polar bears worldwide could become nearly extinct as a result of shrinking sea ice in the Arctic if climate change continues unabated, scientists said	Fact check	News
Washington Post	politics	true	09-2020	Mike Bloomberg Raises \$16 Million to Allow Former Felons to Vote in Florida	Former New York mayor Mike Bloomberg and his team have raised more than \$16million to pay the court fines and fees of nearly 32,000 Black and Hispanic Florida voters with felony convictions, an effort aimed at boosting turnout for Democratic presidential candidate Joe Biden	Fact check	News

Table A8: Headlines shown to respondents

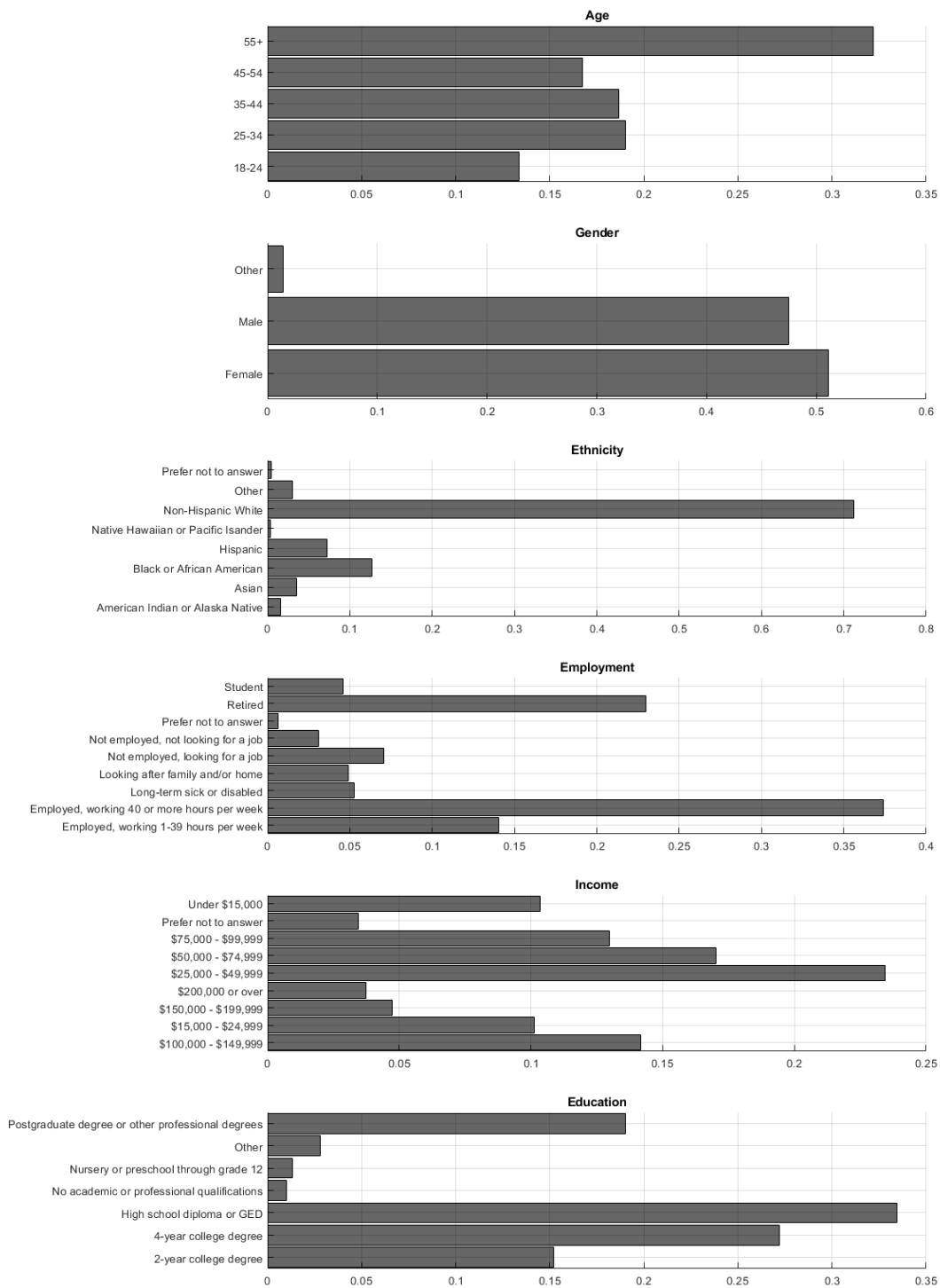
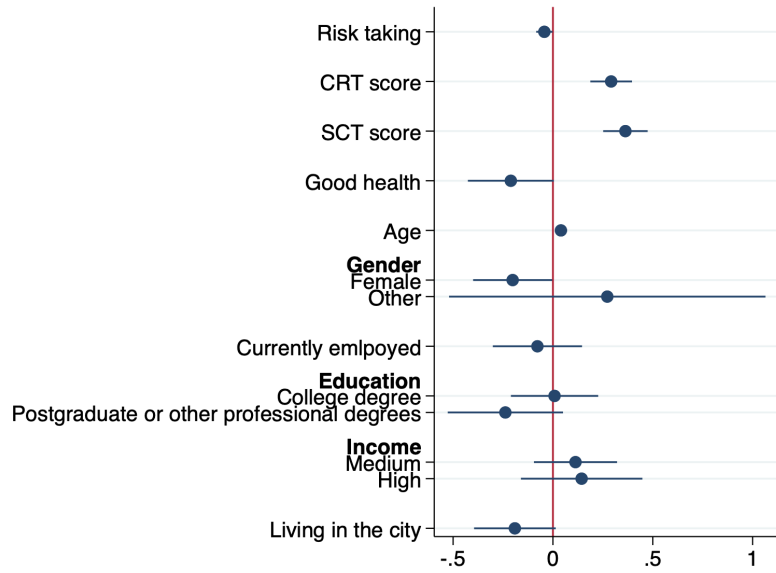
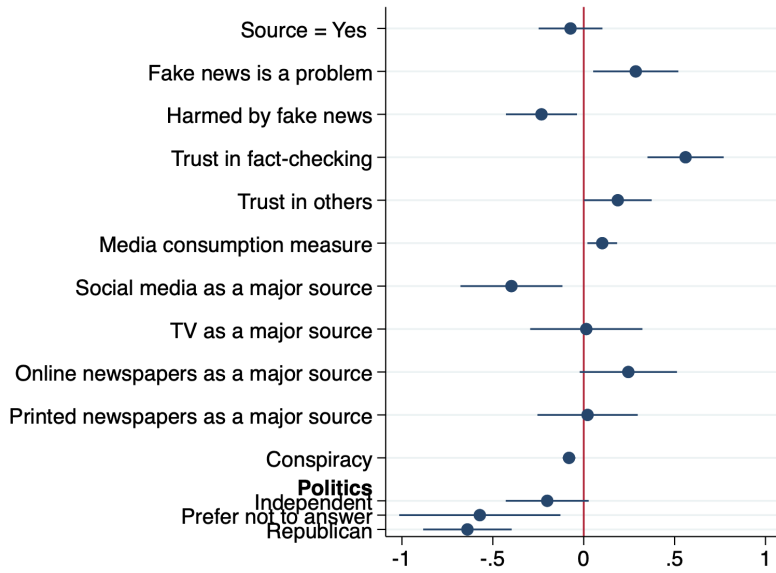


Figure A1: Socio-demographics.



(a) Risk, cognitive reflection, sentence-comprehension and socio-demographics



(b) Politics, views on information and media usage

Figure A2: Predictors of total news-accuracy detection score.

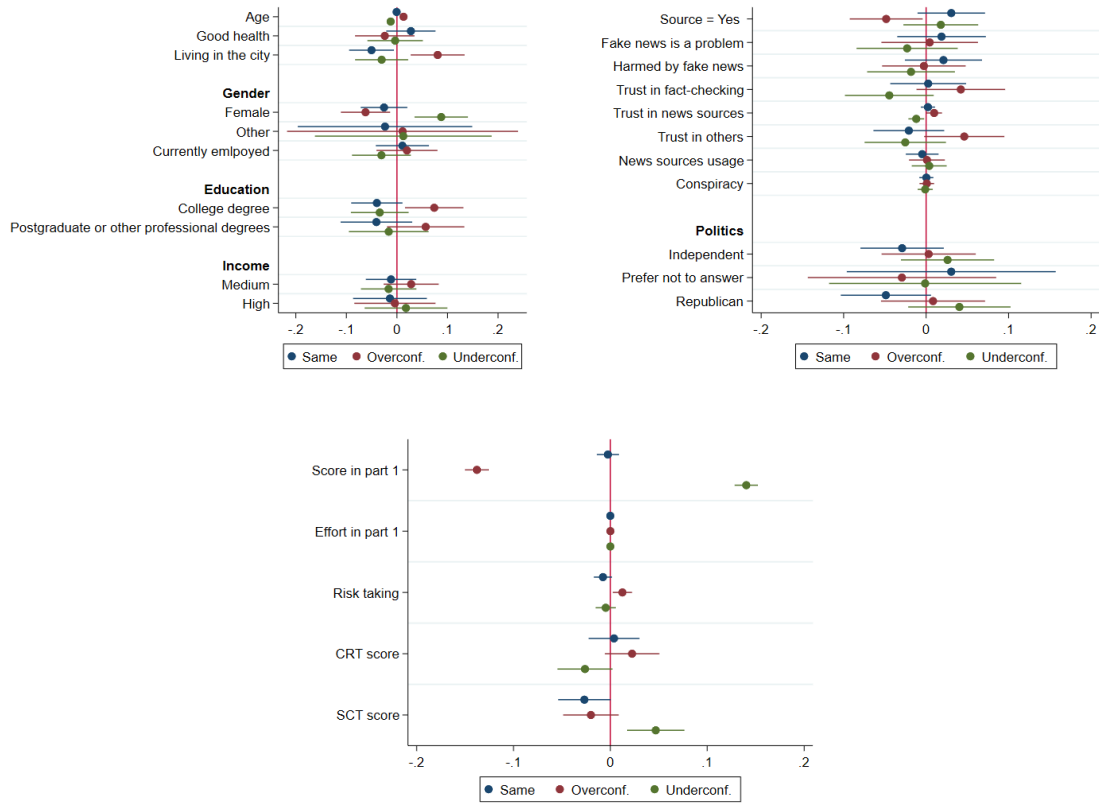


Figure A3: Predictors of feedback sign for treated subjects.

B Additional Results

B.1 Prior beliefs

The share of subjects with correct prior beliefs amounts to 13.47%, while 48.61% overestimate their news-accuracy detection ability and the remaining 37.92% underestimate it. Figure A4 plots the distribution of $error_i$ – i.e. the difference between the prior belief and the score in the first part of the task – for overconfident and underconfident subjects separately, as well as the the distribution of $error_i$ in absolute value for all subjects with incorrect prior beliefs. The average magnitude of the error in prior beliefs is 2.26 points, which implies a deviation from the true score of 37.79%. The error of overconfident subjects equals 2.64 points, while those of underconfident subjects is 2.57 points. This implies that the former believe their score is 42.42% higher than their true score, while the latter believe it is 45.75% lower.

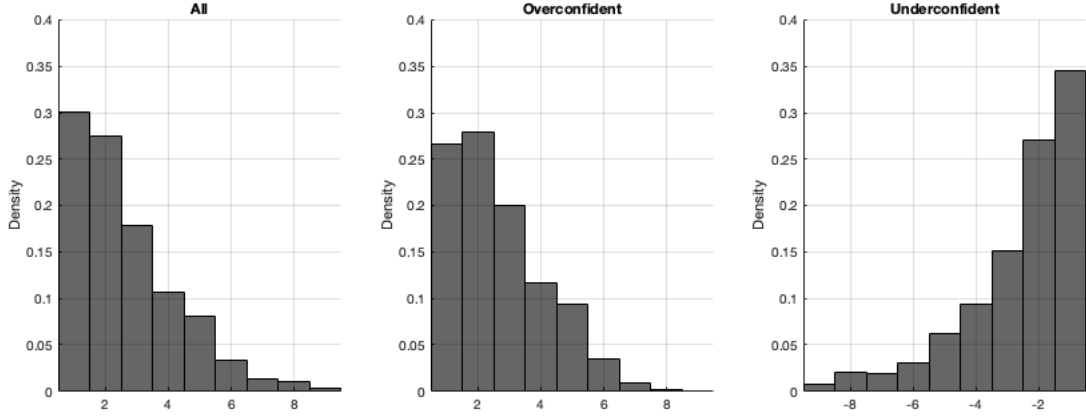


Figure A4: Distribution of $error_i$ for mid-task beliefs. Left: absolute value of $error_i$ for all subjects with $error_i \neq 0$; center: $error_i > 0$ (overconfident subjects); right: $error_i < 0$ (underconfident subjects).

B.2 Bayesian updating

To provide a more comprehensive characterization of subjects’ behavior, we also investigate whether the observed changes in beliefs are consistent with Bayesian updating. In this case we should observe greater updating among subjects with lower confidence in mid-task beliefs. To explore this, we regress $updating_i$ on MTE_i interacted with a dummy equal to 1 if subjects are at least “sure” about their mid-task beliefs. We estimate this regression for both subjects with positive and negative feedback.

We find evidence of a behavior that is consistent with Bayesian learning only among subjects receiving negative feedback: the magnitude of downward updating is large among participants who are less confident in their mid-task beliefs, while being significantly lower among those with greater confidence in their beliefs (column 2, Table B1). On the contrary, subjects with positive feedback exhibit no difference in the intensity of updating depending on the confidence in mid-task beliefs.

B.3 General qualitative beliefs

We also explore the effect of the information treatment on general qualitative beliefs about own and other Americans’ ability. We construct a dummy equal to 1 if subjects consider themselves at least good at identifying news or information that misrepresents reality

Table B1: Bayesian updating

	updating Positive feedback	updating Negative feedback
MTE	0.0586 (0.0773)	-0.521*** (0.138)
At least sure	0.0478 (0.234)	-0.595** (0.283)
At least sure \times MTE	0.0591 (0.102)	0.391** (0.159)
mid-task belief	-0.304*** (0.0551)	-0.230*** (0.0752)
Δ score	0.0820** (0.0376)	0.00538 (0.0430)
Δ effort	-0.00270 (0.0308)	0.0542* (0.0304)
internet	0.388 (0.666)	-0.138 (0.214)
Controls	Yes	Yes
Observations	523	496
Adjusted R^2	0.178	0.184

Notes. OLS estimates of a regression of $updating_i$ on the interaction between the error in mid-task belief (MTE) and a dummy equal to 1 if subjects are at least “sure” about their mid-task beliefs, for subjects with positive feedback and negative feedback separately. The specification also controls for the level of mid-task beliefs, the difference in the score between the second part and the first part of the task (Δ score), the change in effort measured as the difference between the time spent in the second part and time spent in the first part of the task (Δ effort), a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey; the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

or is false, after the news accuracy detection task. We then run a logistic regression of this dummy on the treatment dummy and the vector of individual-specific characteristics used above.¹⁵

We find no significant effect of the treatment in the aggregate, across all specifications (Table B2). However, when performing the same regression and replacing our treatment dummy with $Sign_i$, we find that a negative feedback lowers the probability of considering oneself at least good relative to the control group by 5.50 p.p., while the positive feedback

¹⁵We also control for a prior dummy. Also this dummy equals 1 if subjects consider themselves at least good at identifying news or information that misrepresents reality or is false. Moreover, in this regression we also control for the total score and effort in the task and whether subjects are overconfident, underconfident or have accurate mid-task beliefs.

Table B2: General beliefs

	General belief posterior
	-0.0082 (0.0140)
<i>Sign</i>	
positive	0.0347** (0.0172)
negative	-0.0550** (0.0263)
Observations	2413

Notes. Marginal effects from a logistic regression of a dummy equal to 1 if subjects consider themselves at least good at identifying news or information that misrepresents reality or is false, after the news accuracy detection task, on S_i (top panel) and $Sign_i$ (bottom panel). The specifications also control for a dummy equal to 1 if subjects consider themselves at least good at identifying news or information that misrepresents reality or is false, before the news accuracy detection task, the total score in the news-accuracy detection task, the total effort measured as the total time spent in the task, a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B3: General beliefs about the other Americans

	General belief posterior Average American
	-0.0071 (0.0125)
<i>Sign</i>	
positive	0.0127 (0.0200)
negative	-0.0145 (0.0190)
Observations	2413

Notes. Marginal effects from a logistic regression of a dummy equal to 1 if subjects consider the other Americans at least good at identifying news or information that misrepresents reality or is false, after the news accuracy detection task, on S_i (top panel) and $Sign_i$ (bottom panel). The specifications also control for a dummy equal to 1 if subjects consider the other Americans at least good at identifying news or information that misrepresents reality or is false, before the news accuracy detection task, the total score in the news-accuracy detection task, the total effort measured as the total time spent in the task, a dummy equal to 1 if the subject answered *yes* to whether he searched on internet during the survey, and the socio-demographic variables: age, age squared, gender, income categories, education attained, work status, residential area, ethnicity and religion. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

increases it by 3.47 p.p (Table B2).

Turning to the beliefs about other Americans, we replicate the same logistic regression but use a dummy equal to 1 if subjects consider others at least good at identifying news or

information that misrepresents reality or is false. We find that the information treatment produces no meaningful variation in such beliefs, and this holds also when decomposing the effect of the feedback based on its sign (Table B3).

B.4 News source

In order to understand whether the assessment of the accuracy of the news items changes when the news source is revealed, subjects in the task are randomly allocated to a version that displays the news source, in addition to the information provided to the remaining half of the subjects. Figure B1 shows how the news items appear to subjects in this condition.

South Carolina House Votes to Add Firing Squad to State's Execution Methods

Members of the South Carolina House have voted to add death by firing squad as a state execution method due to a lack of lethal injection drugs.

Source: Breitbart (www.breitbart.com)

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

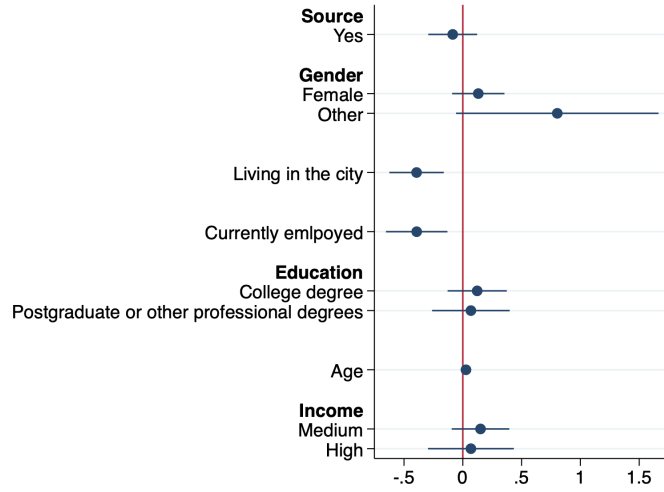
Yes

No

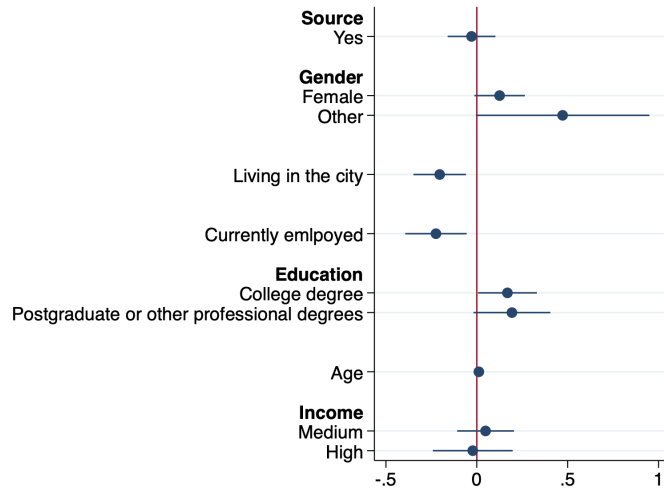
Figure B1: Appearance of news items with news source in the news-accuracy detection task

We find no significant difference across a variety of outcomes, between subjects who observe the news source and those who do not. First, Figure B2 shows that the presence of the news source has no significant impact on subjects' performance in the news-accuracy detection score, when looking at both the total score in the task and the score in each of the two parts, separately.

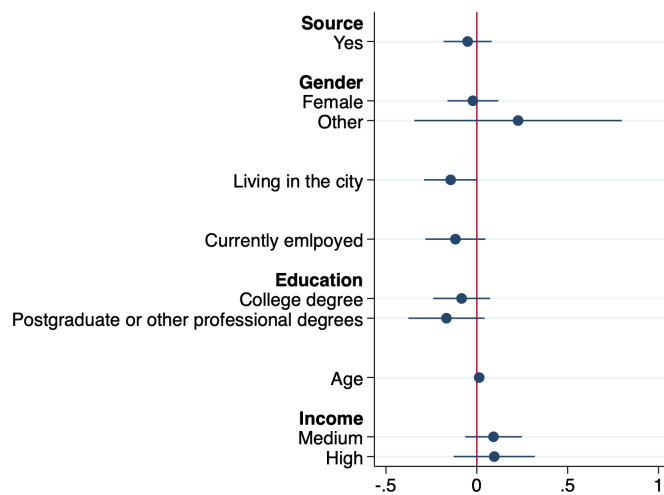
In addition, Figure B3a displays the results of a regression of the the error in posterior



(a) Total score



(b) Score in part 1



(c) Score in part 2

Figure B2: Effect of news source on the news-accuracy detection score

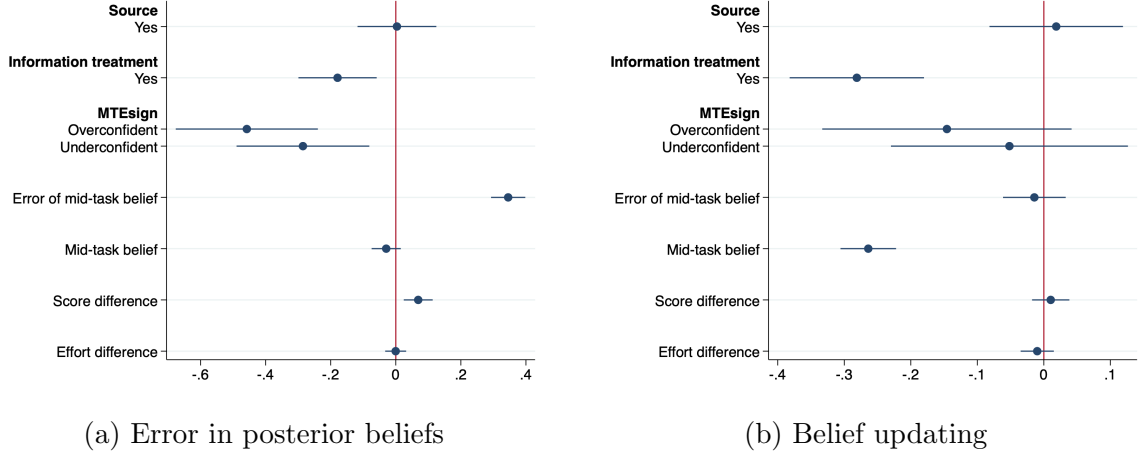


Figure B3: Effect of news source on mid-task belief error and belief updating

beliefs (POE_i), on a dummy equal to 1 if subjects observe the news source. We also control for the error in mid-task beliefs (MTE_i), for the sign of the error in mid-task beliefs ($MTEsign$), as well as for the actual level of mid-task beliefs. We also add the difference in the score between the second part and the first part of the task ($\Delta score$) and the difference between the time spent in the second part and time spent in the first part of the task ($\Delta effort$). Finally, we control also for our treatment dummy. Our result shows that displaying the news source does not have any significant effect on the error in beliefs. In fact, Figure B3b shows that beliefs do not react to the presence of the news source.

C Per-capita misinformation cost and welfare cost of business cycle

The 2019 consumption per-capita in the U.S. is $\frac{C}{N} = \$39,955$ and we know that consumption over GDP is $\frac{C}{Y} = 61\%$. Moreover, the U.S. GDP in 2019 equals \$19,032.672 billions¹⁶, while the estimated financial and public health cost of misinformation in 2019 equals \$26.2 billions (Cavazos, 2019); it follows that, the financial and public health cost of misinformation over GDP, $\frac{M}{Y}$ is 0.14%. Therefore, we can find the cost of misinfor-

¹⁶All reported data are expressed in real terms. Source: FRED.

mation per-capita, $\frac{M}{N}$, as:

$$\frac{M}{N} = \frac{M Y C}{Y C N} \quad (3)$$

Substituting, we find that the per-capita financial and public health cost of misinformation in 2019 amounts to $\frac{M}{N} \approx \$92$. This is more than four times larger than the estimated welfare cost of business cycle. In fact, Lucas (2003) finds that the share of average annual consumption that a person would be willing to pay to eliminate all fluctuations in her consumption is $\lambda = \frac{1}{2}\sigma\theta$. Where σ represents the standard deviation of the natural log of consumption, which Lucas (2003) estimated as being equal to 0.032; θ is the degree of relative risk aversion. Hence, substituting for σ , and assuming log utility, we have $\lambda = 0.0005$. It follows that the estimated welfare cost of business cycle expressed in permanent consumption is $\frac{C}{N}\lambda \approx \20 .

D Full Survey

PARTICIPANT CONSENT FORM

Welcome to the research study. We are researchers at the Toulouse School of Economics (France) and Goethe University Frankfurt (Germany). We are interested in understanding people's ability to discern true from false information content. We will show you items of information relevant to the study and we will ask you to answer various questions about your political ideology and beliefs, thinking style, and various demographics. The survey should take around 20 minutes to complete and you will be incentivized for your participation. Participation in this research study is voluntary. Hence, you have the right to withdraw at any point during the study, for any reason, and without any prejudice. Given the large and anonymous nature of the data collection process, participants cannot withdraw after they have submitted their responses. Responses to the survey will be stored securely by the researchers in an anonymized way with password protection. The data collected will be analyzed exclusively for scientific research, presented at conferences and submitted for publication in an academic journal. If you would like to discuss this research please e-mail to: researchexperiment2@gmail.com.

By clicking below, you acknowledge that your participation in the study is voluntary, you are 18 years of age or older, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- I consent, begin the study
- I do not consent, I do not wish to participate
-

To the best of your knowledge, have you already been harmed by made-up news and information that is intended to mislead the public?

- Yes
- No
-

Q2 What is your age?

What is your gender?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

Which best describes your ethnicity? Please choose one response that best applies.

- Non-Hispanic White
- Hispanic
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Other
- Prefer not to answer

Where were you born?

- United States of America
 - Other (please answer in the box)
-

Where are you currently residing?

- In the city
 - In the suburbs
 - In the countryside
 - Other
 - Prefer not to answer
-

Please select your state of residence

▼ Alabama (AL) (1) ... District of Columbia (DC) (51)

What is your marital status?

- Single, never married
 - Married or domestic partnership
 - Widowed
 - Divorced
 - Separated
-

Including yourself, how many people currently live in your household?

Display This Question:

If Including yourself, how many people currently live in your household?\${q://QID4/ChoiceTextEntryValue} Text Response Is Greater Than 1

How many are children less than 18 years old?

To show that you read our questions carefully, please choose **"Very strongly interested"** and **"Not at all interested"** as your answer to this question: How interested are you in politics?

- Very strongly interested (1)
- Very interested (2)
- A little bit interested (3)
- Almost not interested (4)
- Not at all interested (5)

What is the highest level of education you have completed? If currently enrolled, mark the highest qualification received.

- No academic or professional qualifications
- Nursery or preschool through grade 12
- High school diploma or GED
- 2-year college degree
- 4-year college degree
- Postgraduate degree or other professional degrees
- Other

How would you describe your religious affiliation?

- Roman Catholic
- Protestant
- Christian Orthodox
- Jewish
- Hindu
- Muslim
- Buddhist
- Other
- Atheist or agnostic
- Prefer not to answer

How would you evaluate the overall health of the members of your household (including yourself)?

- Very good
- Good
- Fair
- Bad
- Very bad

Please indicate how much you agree with the following statement:

"Health insurance is affordable to you."

- Strongly agree
 - Agree
 - Neither agree, nor disagree
 - Disagree
 - Strongly disagree
-

Which of the following best describes your current employment status?

- Employed, working 40 or more hours per week
 - Employed, working 1-39 hours per week
 - Not employed, looking for a job
 - Not employed, not looking for a job
 - Student
 - Looking after family and/or home
 - Retired
 - Long-term sick or disabled
 - Prefer not to answer
-

What was your total annual household income in USD (\$) from all sources before tax in 2020?

- Under \$15,000
 - \$15,000 - \$24,999
 - \$25,000 - \$49,999
 - \$50,000 - \$74,999
 - \$75,000 - \$99,999
 - \$100,000 - \$149,999
 - \$150,000 - \$199,999
 - \$200,000 or over
 - Prefer not to answer
-


Please indicate how much you agree with the following statement:

"Generally speaking, most people can be trusted."

- Strongly agree
 - Agree
 - Neither agree, nor disagree
 - Disagree
 - Strongly disagree
-

Are you generally a person who is willing to take risks or do you try to avoid taking risks? Give your answer on a scale from 0 to 10, where 0 indicates “Not at all willing to take risks”, 10 indicates “Very willing to take risks”.

0 1 2 3 4 5 6 7 8 9 10

Answer () 

In the following section, we will ask you about your consumption of news. By news we mean information about current events and issues in the U.S. and around the world that involve more than just your friends and family. Please answer as accurately as possible.

For each of the following, please indicate how major or minor of a news source it is for you.

	Is a major source of news for me	Is a minor source of news for me	Is rarely a source of news for me	Is never a source of news for me	I am not familiar with this news source
Television and/or radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online social networks and/or messaging apps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online newspapers and news magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Printed newspapers and news magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If For each of the following, please indicate how major or minor of a news source it is for you. =
Television and/or radio [Is a major source of news for me]

How frequently do you **listen or watch** news content through television and/or radio?

- Multiple times a day
 - Once a day
 - A few times a week
 - Once a week
 - A few times a month
 - Once a month
 - Less than once a month
 - Rarely/never
-

Display This Question:

If For each of the following, please indicate how major or minor of a news source it is for you. =
Online social networks and/or messaging apps [Is a major source of news for me]

How frequently do you **read, listen or watch** news content through online social networks and/or messaging apps?

- Multiple times a day
 - Once a day
 - A few times a week
 - Once a week
 - A few times a month
 - Once a month
 - Less than once a month
 - Rarely/never
-

Display This Question:

If For each of the following, please indicate how major or minor of a news source it is for you. =
Online newspapers and news magazines [Is a major source of news for me]

How frequently do you **read, listen or watch** news content through online newspapers and news magazines?

- Multiple times a day
 - Once a day
 - A few times a week
 - Once a week
 - A few times a month
 - Once a month
 - Less than once a month
 - Rarely/never
-

Display This Question:

If For each of the following, please indicate how major or minor of a news source it is for you. =
Printed newspapers and news magazines [Is a major source of news for me]

How frequently do you **read** news content through printed newspapers and news magazines?

- Multiple times a day
- Once a day
- A few times a week
- Once a week
- A few times a month
- Once a month
- Less than once a month
- Rarely/never

Which of the following news content sources are you most likely to **read, listen or watch**? You can select as many as you wish.

- Before It's News
- Breitbart
- BuzzFeed News
- Chicago Sun-Times
- CNN
- Daily Mail
- Drudge Report
- Fox News
- Futurism
- Good Word News
- InfoWars
- Los Angeles Times
- NaturalNews
- New Republic
- Newsmax
- New York Daily News

- New York Post
 - Palmer Report
 - Politically Correcter
 - Polygon
 - Raw Story
 - The Denver Post
 - The Gateway Pundit
 - The Huffington Post
 - The Mercury News
 - The New York Times
 - The Wall Street Journal
 - The Washington Post
 - The Washington Times
 - This Song Is Sick
 - USA Today
 - I never read any of the news content sources above
-

Please indicate how much you agree with the following statement:

"Generally speaking, I trust the news and information I access through ..."

	Strongly agree	Agree	Neither agree, nor disagree	Disagree	Strongly disagree
Printed newspapers and news magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online newspapers and news magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online social networks and/or messaging apps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Television and/or radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how much you agree with the following statement:

"Generally speaking, I trust fact checking provided by non-partisan, independent experts"

- Strongly agree
- Agree
- Neither agree, nor disagree
- Disagree
- Strongly disagree

Suppose you are given 1,000\$ that you can split between the purchase of consumption goods and of two types of insurance contracts: type A and type B. Type A contract covers you against the risk of being harmed by made-up news and information. Type B contract covers you against the risk of being unable to cover your health expenses.

How would you split your 1,000\$ budget between the three items?

Consumption: _____

Type A insurance contract (covers against made-up news risk): _____

Type B insurance contract (covers against health risk): _____

Total: _____

How much of a problem do you think made-up news and information is in the country today?

- A very big problem
 - A moderately big problem
 - A small problem
 - Not a problem at all
 - I don't know
-

In the following section you will answer a series of questions regarding your assessment of your ability (and the ability of the average American) to discern the accuracy of news or information that misrepresent reality or is even false.

Please proceed when you are ready.

In your opinion, how good is your ability to identify news or information that misrepresent reality or is even false?

- Very good
 - Good
 - Somewhat bad
 - Bad
 - Very bad
-

How sure are you about your answer to the previous question?

- Very sure
 - Sure
 - Somewhat unsure
 - Unsure
 - Very unsure
-

In your opinion, how good is the **AVERAGE AMERICAN's** ability to identify news or information that misrepresent reality or is even false?

- Very good
 - Good
 - Somewhat bad
 - Bad
 - Very bad
-

How sure are you about your answer to the previous question?

- Very sure
- Sure
- Somewhat unsure
- Unsure
- Very unsure

We will now present you with **10 news items**, whose accuracy has been assessed by an independent and non-partisan team of expert fact-checkers.

We will ask you to assess the accuracy of the information in each of these news items, by answering Yes or No to the following question:

To the best of your knowledge, is the information in the above news item accurate?

Please do not look up the answers on the internet!

The example below shows how the news item will appear:

Mind-controlling fungus makes zombie cicadas lure other cicadas to a zombie fate

Male *cicadas infected* by a particularly gruesome parasitic fungus become zombies with an undercover mission: They broadcast a female's sexy come-hither message to other male cicadas, luring their unsuspecting victims to join the zombie cicada horde.

Year: July 2020

For each correct answer, you will score 1 point; otherwise, your score will be 0. Therefore, your total score can range between 0 and 10.

How many points do you think you will score? Insert a value between 0 and 10 below.

How sure are you about your answer to the previous question?

- Very sure
- Sure
- Somewhat unsure
- Unsure
- Very unsure

Your total points will be converted into US\$ as follows: 1 point = 5\$. Therefore, your payoff can range between 0 and 50\$.

At the end of the survey, 2 participants will be picked randomly. For each of these respondents, we will donate their payoff to one of the two charities below.

Which charity would you choose if you were picked?

- Feeding America** , whose mission is to ensure equitable access to nutritious food for all Americans in partnership with food banks, policymakers, supporters, and the communities we serve. (1)
- American Red Cross** , whose mission is to prevent and alleviate human suffering in the face of emergencies by mobilizing the power of volunteers and the generosity of donors. (2)

Display This Question:

If FN_1 Is Displayed

Trafficked Children, Bodies, Weapons Found on Evergreen Ship Blocking Suez Canal

Over a thousand trafficked children and dead bodies have been rescued out of shipping containers in the Suez Canal by US Navy Seals.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_2 Is Displayed

Scientists Claim to Spot Fungus Growing on Mars in NASA Rover Photos

The team, which includes researchers from the Harvard-Smithsonian Center for Astrophysics and George Mason University, believes they have found photographic evidence of a variety of fungus-like organisms, some resembling the shape of puffballs, a round cloud-like fungus found in abundance back here on Earth, on the Red Planet.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_3 Is Displayed

THIS IS BIG: US Census Bureau Confirms HUGE CONFLICT in Total Number of Voters in 2020 Election

The results of the 2020 Election are again not supported by evidence. This time the data reported by the Census Bureau conflicts with the election results.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
- No
-

Display This Question:

If FN_4 Is Displayed

MEDICAL SHOCKER: Scientists at Sloan Kettering discover mRNA inactivates tumor-suppressing proteins, meaning it can promote cancer

In a medical shocker to the whole world of vaccine philosophy, scientists at Sloan Kettering found that mRNA itself carries cancer CAUSING changes – changes that genetic tests don't even analyze, flying completely under the radar of oncologists across the globe.

Year: March 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
- No
-

Display This Question:

If FN_5 Is Displayed

Kanye West Uses New Billionaire Wealth to Acquire Spotify

It's official: the fashion and music mogul has just acquired the ever-popular audio streaming platform, Spotify.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_7 Is Displayed

Virginia moving to eliminate all accelerated math courses before 11th grade as part of equity-focused plan

The Virginia Department of Education (VDOE) is moving to eliminate all accelerated math options prior to 11th grade, effectively keeping higher-achieving students from advancing as they usually would in the school system.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_8 Is Displayed

Tucker Carlson: How many Americans have died after taking the COVID vaccine?

Between late December of 2020, and last month [April], a total of 3,362 people apparently died after getting the COVID vaccines in the United States.

The data we just cited come from the Vaccine Adverse Events Reporting System — VAERS.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
- No
-

Display This Question:

If FN_9 Is Displayed

Kudlow: Biden's Green New Deal means no meat for the 4th of July, have grilled Brussels sprouts instead

There's a study coming out of the University of Michigan which says that to meet the Biden Green New Deal targets, America has to stop eating meat, stop eating poultry and fish, seafood, eggs, dairy, and animal-based fats.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
- No
-

Display This Question:

If FN_11 Is Displayed

Herpes infection possibly linked to COVID-19 vaccine, study says

Herpes infections may be a side effect of the COVID-19 vaccine, experts have revealed.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_12 Is Displayed

The Sea Is Rising, but Not Because of Climate Change

Of all known and imagined consequences of climate change, many people fear sea-level rise most. But efforts to determine what causes seas to rise are marred by poor data and disagreements about methodology.

Year: May 2018

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_1 Is Displayed

South Carolina House Votes to Add Firing Squad to State's Execution Methods

Members of the South Carolina House have voted to add death by firing squad as a state execution method due to a lack of lethal injection drugs.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
 - No
-

*Display This Question:
If TN_2 Is Displayed*

Local woman accidentally received saline injection instead of COVID injection at Walgreens in Monroe

The company admits that some people who were supposed to get the COVID vaccine were accidentally injected with saline instead.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
 - No
-

*Display This Question:
If TN_4 Is Displayed*

Mysterious Billboard Targeting Biden and Harris Is Causing a Stir in Maryland

*“Don’t blame Trump!” it says. “You are stuck with these two sh*theads!!! From all your deplorables in Calvert County.”*

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_5 Is Displayed

Facebook says hackers 'scraped' data of 533 million users in 2019 leak

Hackers "scraped" personal data of some half-billion users back in 2019 by taking advantage of a feature designed to help people easily find friends using contact lists.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_6 Is Displayed

Target stops selling Pokémon cards in store, citing safety concerns

Target has temporarily suspended the sale of Pokémon cards and other trading cards in store in response to reports of violent confrontations related to the collectibles, whose value has soared in the past year.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

*Display This Question:
If TN_7 Is Displayed*

Q85 Racism is a ‘serious threat’ to public health, CDC director says

Racism is a “serious threat” to public health in the United States — and the COVID-19 pandemic only exacerbated the inequities, the Centers for Disease Control and Prevention warned.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

*Display This Question:
If TN_8 Is Displayed*

Defense Department confirms leaked video of unidentified aerial phenomena is real

The Defense Department has confirmed that leaked photos and video of “unidentified aerial phenomena” taken in 2019 are indeed legitimate images of unexplained objects.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

*Display This Question:
If TN 9 Is Displayed*

Houston Police Say Crystal Meth Found in Breakfast Burrito

Two x-ray scans revealed the smuggling attempt at Hobby Airport.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

*Display This Question:
If TN 10 Is Displayed*

Global Warming Is Driving Polar Bears Toward Extinction, Researchers Say

By century's end, polar bears worldwide could become nearly extinct as a result of shrinking sea ice in the Arctic if climate change continues unabated, scientists said.

Year: July 2020

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN 12 Is Displayed

Mike Bloomberg Raises \$16 Million to Allow Former Felons to Vote in Florida

Former New York mayor Mike Bloomberg and his team have raised more than \$16 million to pay the court fines and fees of nearly 32,000 Black and Hispanic Florida voters with felony convictions, an effort aimed at boosting turnout for Democratic presidential candidate Joe Biden.

Year: September 2020

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

You have seen 10 news items. How many points do you think you scored? Insert a value between 0 and 10 below.

How sure are you about your answer to the previous question?

- Very sure
 - Sure
 - Somewhat unsure
 - Unsure
 - Very unsure
-

THIS QUESTION IS SHOWN TO THE INFORMATION TREATMENT GROUP ONLY

You said you think your score was $\${Q90/ChoiceTextEntryValue}/10$

Your true score is $\${gr://SC_bskGk77ILStkTky/Score}/10$

We will now show you **another set of 10 news items**. Your task will be the same as before: for each news item, you will have to answer Yes or No the question below:

To the best of your knowledge, is the information in the above news item accurate?

Please do not look up the answers on the internet!

Just like before, for each correct answer, you will score 1 point; otherwise, your score will be 0.

Also in this case, your total points will be converted into US\$ as follows: 1 point = 5\$. So, as before, your payoff can range between 0 and 50\$. This payoff will add up to the previous one.

The total amount of your payoff will be donated to the charity you previously chose (Feeding America or the American Red Cross), if you are randomly picked at the end of the survey.

Display This Question:

If FN_1 Is Displayed

Trafficked Children, Bodies, Weapons Found on Evergreen Ship Blocking Suez Canal

Over a thousand trafficked children and dead bodies have been rescued out of shipping containers in the Suez Canal by US Navy Seals.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_2 Is Displayed

Scientists Claim to Spot Fungus Growing on Mars in NASA Rover Photos

The team, which includes researchers from the Harvard-Smithsonian Center for Astrophysics

and George Mason University, believes they have found photographic evidence of a variety of fungus-like organisms, some resembling the shape of puffballs, a round cloud-like fungus found in abundance back here on Earth, on the Red Planet.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN 3 Is Displayed

THIS IS BIG: US Census Bureau Confirms HUGE CONFLICT in Total Number of Voters in 2020 Election

The results of the 2020 Election are again not supported by evidence. This time the data reported by the Census Bureau conflicts with the election results.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_4 Is Displayed

MEDICAL SHOCKER: Scientists at Sloan Kettering discover mRNA inactivates tumor-suppressing proteins, meaning it can promote cancer

In a medical shocker to the whole world of vaccine philosophy, scientists at Sloan Kettering found that mRNA itself carries cancer CAUSING changes – changes that genetic tests don't even analyze, flying completely under the radar of oncologists across the globe.

Year: March 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_5 Is Displayed

Kanye West Uses New Billionaire Wealth to Acquire Spotify

It's official: the fashion and music mogul has just acquired the ever-popular audio streaming platform, Spotify.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_7 Is Displayed

Virginia moving to eliminate all accelerated math courses before 11th grade as part of equity-focused plan

The Virginia Department of Education (VDOE) is moving to eliminate all accelerated math options prior to 11th grade, effectively keeping higher-achieving students from advancing as they usually would in the school system.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_8 Is Displayed

Tucker Carlson: How many Americans have died after taking the COVID vaccine?

Between late December of 2020, and last month [April], a total of 3,362 people apparently died after getting the COVID vaccines in the United States.

The data we just cited come from the Vaccine Adverse Events Reporting System — VAERS.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_9 Is Displayed

Kudlow: Biden's Green New Deal means no meat for the 4th of July, have grilled Brussels sprouts instead

There's a study coming out of the University of Michigan which says that to meet the Biden Green New Deal targets, America has to stop eating meat, stop eating poultry and fish, seafood, eggs, dairy, and animal-based fats.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_11 Is Displayed

Herpes infection possibly linked to COVID-19 vaccine, study says

Herpes infections may be a side effect of the COVID-19 vaccine, experts have revealed.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If FN_12 Is Displayed

The Sea Is Rising, but Not Because of Climate Change

Of all known and imagined consequences of climate change, many people fear sea-level rise most. But efforts to determine what causes seas to rise are marred by poor data and disagreements about methodology.

Year: May 2018

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_1 Is Displayed

South Carolina House Votes to Add Firing Squad to State's Execution Methods

Members of the South Carolina House have voted to add death by firing squad as a state execution method due to a lack of lethal injection drugs.

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_2 Is Displayed

Local woman accidentally received saline injection instead of COVID injection at Walgreens in Monroe

The company admits that some people who were supposed to get the COVID vaccine were accidentally injected with saline instead.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes
 - No
-

Display This Question:

If TN_4 Is Displayed

Mysterious Billboard Targeting Biden and Harris Is Causing a Stir in Maryland

*"Don't blame Trump!" it says. "You are stuck with these two sh*theads!!! From all your deplorables in Calvert County."*

Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

- Yes (3)
 - No (4)
-

Display This Question:

If TN_5 Is Displayed

Facebook says hackers 'scraped' data of 533 million users in 2019 leak *Hackers "scraped" personal data of some half-billion users back in 2019 by taking advantage of a feature designed to help people easily find friends using contact lists.* Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_6 Is Displayed

Target stops selling Pokémon cards in store, citing safety concerns *Target has temporarily suspended the sale of Pokémon cards and other trading cards in store in response to reports of violent confrontations related to the collectibles, whose value has soared in the past year.* Year: May 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_7 Is Displayed

Q85 Racism is a ‘serious threat’ to public health, CDC director says *Racism is a “serious threat” to public health in the United States — and the COVID-19 pandemic only exacerbated the inequities, the Centers for Disease Control and Prevention warned.* Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_8 Is Displayed

Defense Department confirms leaked video of unidentified aerial phenomena is real *The Defense Department has confirmed that leaked photos and video of “unidentified aerial phenomena” taken in 2019 are indeed legitimate images of unexplained objects.* Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_9 Is Displayed

Houston Police Say Crystal Meth Found in Breakfast Burrito

Two x-ray scans revealed the smuggling attempt at Hobby Airport.

Year: April 2021

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_10 Is Displayed

Global Warming Is Driving Polar Bears Toward Extinction, Researchers Say *By century's end, polar bears worldwide could become nearly extinct as a result of shrinking sea ice in the Arctic if climate change continues unabated, scientists said.* Year: July 2020

To the best of your knowledge, is the information in the above news item accurate?

Yes

No

Display This Question:

If TN_12 Is Displayed

Mike Bloomberg Raises \$16 Million to Allow Former Felons to Vote in Florida *Former New York mayor Mike Bloomberg and his team have raised more than \$16 million to pay the court fines and fees of nearly 32,000 Black and Hispanic Florida voters with felony convictions, an effort aimed at boosting turnout for Democratic presidential candidate Joe Biden.* Year: September 2020

To the best of your knowledge, is the information in the above news item accurate?

- Yes
- No

You have seen another set of 10 news items. How many points do you think you scored? Insert a value between 0 and 10 below.

How sure are you about your answer to the previous question?

- Very sure
 - Sure
 - Somewhat unsure
 - Unsure
 - Very unsure
-

In the following section you will be asked three questions. Please do your best to answer as accurately as possible.



A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

Have you ever seen these 3 questions before?

- Yes
- No
- Don't know

In the following section, you will read a series of sentences in bold and, for each of them, you will have to choose the sentence that has the same meaning, within a set of four options.

Please proceed when you are ready.

Jennifer is able to run for a whole hour as she was ten years ago.

Which of the following sentences has the same meaning as the sentence above?

- Ten years ago Jennifer could run for a whole hour and she can do it even now.
 - Ten years ago Jennifer used to run for a whole hour but now she is no longer able to do it.
 - Jennifer can walk for an hour like ten years ago.
 - Running for an hour makes one ten years younger.
-

Once Tom buys a gift for someone, he finds hard to believe he may have made the wrong choice.

Which of the following sentences has the same meaning as the sentence above?

- After Tom buys a gift for someone, he cannot think that his choice is wrong.
 - Once Tom buys something for someone, it is likely he thinks he has made an inappropriate choice.
 - When Tom buys something for his wife, he cannot admit he has made the wrong choice.
 - Before buying a gift, Tom finds hard to believe that he has made a choice that will be appreciated.
-

Most people would behave inappropriately to take advantage of something or to avoid losing it. Which of the following sentences has the same meaning as the sentence above?

- Many people are willing to do dishonest things to obtain an advantage or to keep it.
 - To obtain a benefit or keep it, lots of people would even behave fairly.
 - Many people may go against their principles to preserve or obtain benefits for their family members.
 - Most benefits come from behaving inappropriately.
-

In the following we will ask you again: suppose you are given 1,000\$ that you can split between the purchase of consumption goods and of two types of insurance contracts: type A and type B. Type A contract covers you against the risk of being harmed by made-up news and information. Type B contract covers you against the risk of being unable to cover your health expenses.

How would you split your 1,000\$ budget between the three items?

Consumption: _____

Type A insurance contract (covers against made-up news risk): _____

Type B insurance contract (covers against health risk): _____

Total: _____

We would like to ask you again: how much of a problem do you think made-up news and information is in the country today?

- A very big problem
- A moderately big problem
- A small problem
- Not a problem at all
- I don't know

We would now like to ask you again about your assessment of your ability (and the ability of the average American) to discern the accuracy of news or information that misrepresent reality or is even false.

Please proceed when you are ready.

In your opinion, how good is your ability to identify news or information that misrepresent reality or is even false?

- Very good
 - Good
 - Somewhat bad
 - Bad
 - Very bad
-

How sure are you about your answer to the previous question?

- Very sure
 - Sure
 - Somewhat unsure
 - Unsure
 - Very unsure
-

In your opinion, how good is the **AVERAGE AMERICAN's** ability to identify news or information that misrepresent reality or is even false?

- Very good
 - Good
 - Somewhat bad
 - Bad
 - Very bad
-

How sure are you about your answer to the previous question?

- Very sure
 - Sure
 - Somewhat unsure
 - Unsure
 - Very unsure
-

We will now ask you a few questions about your political preferences.

Please proceed when you are ready.

Which of the following best describes your political preference?

- Democratic
 - Republican
 - Independent
 - Prefer not to answer
-

Who did you vote for in the **2020** Presidential election?

- Donald Trump
 - Joe Biden
 - Other
 - I did not vote
 - I could not vote
 - Prefer not to answer
-

Who did you vote for in the **2016** Presidential election?

- Hillary Clinton
 - Donald Trump
 - Other
 - I did not vote
 - I could not vote
 - Prefer not to answer
-

Please indicate how much you agree with each of the following statements.

	Strongly agree	Agree	Neither agree, nor disagree	Disagree	Strongly disagree
Politicians often lie, deflect blame, and find other ways to look innocent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In national politics, nothing happens by accident.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Government institutions are largely controlled by elite outside interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You can see patterns and other secret activities once you know where to look.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How often do you donate to charities?

- Regularly
- Often
- Occasionally
- Rarely
- Never

Skip To: Q202 If How often do you donate to charities? = Never

During the last twelve months have you made any donation to charities?

- Yes
 - No
-

Q202 Have you ever received donations (monetary or in-kind) from a charity?

- Yes
 - No
-

Skip To: End of Block If Have you ever received donations (monetary or in-kind) from a charity? = No

During the last twelve months have you received donations (monetary or in-kind) from a charity?

- Yes
 - No
-

Did you respond randomly at any point during the study? Please be honest! You will get your compensation regardless of your response.

- Yes
 - No
-

Did you search the internet (via Google or otherwise) for any of the news headlines? Please be honest! You will get your compensation regardless of your response.

- Yes
 - No
-

Do you have any comments about our survey?

Your total score in the news items assessment is [\\${gr://SC_eJ5w4UpwSdAT9qK/Score}](#)/20

The anonymized code IDs of respondents selected for the **donations** -- as well as information on fact-checkers' assessment of accuracy of the news items displayed in this survey -- will be available soon at the following web page:

<https://sites.google.com/view/surveyreceipts/>