Debiasing Motivated Reasoning Through Learning: Evidence from an Online Experiment

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Pre-Analysis Plan

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Introduction and Theory of Motivated Reasoning

When people receive information about controversial issues such as immigration policies, upward mobility, and racial discrimination, the information often evokes both what they currently believe and what they are motivated to believe. In this project, the theory of *motivated reasoning* posits that people misupdate from information by treating these motivated beliefs as an extra signal.

The main objective of this experiment is to test whether a "debiasing treatment" can help attenuate motivated reasoning. This treatment tells people when they have erred and asks them their opinion on whether motivated reasoning played a role.

The primary outcome is a constructed measure of motivated reasoning that looks at the directional deviation from Bayes' rule, and is described in more detail below. Secondary outcomes include overconfidence, overprecision, and belief polarization on politicized topics. An additional treatment tests whether people motivatedly reason towards optimistic beliefs about the world around them; results from this treatment may be an additional independent paper.

The design of this experiment extends upon the design of my previous work (Thaler, 2019) in order to identify motivated reasoning, and is most different in its additional debiasing treatment. As such, primary hypotheses and many secondary hypotheses aim to first replicate results from that paper, and then test whether a debiasing treatment attenuates these effects.

Identifying Motivated Reasoning Using News Veracity Assessments (from Thaler, 2019)

The primary goal of the experimental design is to identify motivated reasoning as a bias in updating. However, on many issues studied in this experiment, people may have preconceived beliefs that differ and reflect something about what they are motivated to believe. As such, the experiment is designed to take people's current beliefs and construct an environment in which they have the same priors over a state and receive information with the same subjective likelihood, but different hypothesized motivated beliefs.

To test the hypothesis that subjects bias their updating in the direction of their political preference, we see whether subjects find news more trustworthy if it says they should change their beliefs even more in the "Pro-Motive" versus the "Anti-Motive" direction, and to argue that this trust discrepancy is due to motivated reasoning. Potential motives in this study relate to politics, ego, and optimism.

The main test of this in the experiment involves three steps. See the Study Materials section for screenshots of subjects' instruction pages.

1. **Beliefs:** Subjects are asked to guess the answers to questions like the refugee one above. Importantly, they are asked and incentivized to guess their median belief (i.e. such that find it equally likely for the answer to be above or below their guess). They are also asked and incentivized for their interquartile range.

2. **News:** Subjects receive a binary message from one of two news sources: True News and Fake News. The message from True News is always correct, and the message from Fake News is always incorrect. The probability of either source is 1/2 and iid across questions. This is the main (within-subject) treatment variation.

   The message says either "The answer is **greater than** your previous guess of [previous guess]." or "The answer is **less than** your previous guess of [previous guess]." Note that the message space is *different* for each subject since subjects have different priors. These customized messages are designed so that they have the same *subjective* likelihood of occurring.

3. **Assessment:** After receiving the message, subjects assess the probability that the source was True News on a scale from 0/10 to 10/10 and are incentivized to state their true belief. This is the main outcome measure. The page is identical to the beliefs page but the guess boxes are replaced with assessment choices. The effect of variation in

news on veracity assessments is the primary outcome variable for identifying motivated reasoning.

The general point of this setup is that subjects receive messages that compare the answer to their median, so they should not rationally update their assessment based on the message. Directionally different assessments are difficult to reconcile with Bayesian updating; they are also difficult to reconcile with general misweighting of priors (since the prior of source is fixed at $1/2$) or likelihoods (each message is equally likely, so the message is uninformative about source veracity). However, these deviations can be explained by motivated reasoning.

The most direct test is to hypothesize what people are motivated to believe, and compare their assessments on "Pro-Motive" news and "Anti-Motive" news. If Pro-Motive news is trusted more than Anti-Motive news, this indicates that motivated reasoning is likely with these hypothesized motives is at play.

Interacting this assessment gap with a treatment provides an estimate for the effect of the treatment on the degree of the motivated reasoning bias. If this gap is positive, and the interaction of news type (Pro/Anti-Motive) and treatment is negative, then the treatment likely is effective in debiasing subjects.

Subject Pool

Subjects will be recruited from Amazon's Mechanical Turk platform. Batches will be run until 1050 subjects who pass comprehension checks are reached. Of these, 350 will be in the control group and 700 will be in the treatment group. The treatment is only implemented partway through the experiment, so the relevant groups are actually "control plus pre-treated" and "post-treated", and they will have a similar number of observations.

Experiment Design: Identifying Motivated Reasoning

There are Demographics, Question, News, and Results pages, and subjects see them in the following order:
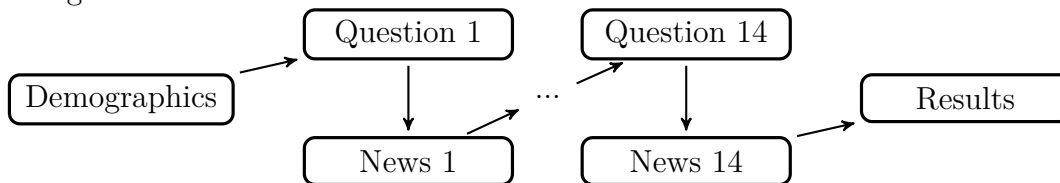
Before seeing Demographics, subjects must consent to participate in the experiment.

The Demographics page includes questions about party ratings (which will be used to determine subjects' relative party preference), party affiliation, ideology, gender, age, race and ethnicity, annual income, highest education level, state or territory of residence, religion, and opinion questions (one each about each politicized topic in the study and one about Donald Trump's performance). It then asks for opinions on issues covered in later questions.

Before subjects see the Results page, they are given a definition of motivated reasoning and asked whether they believe they motivatedly reasoned and whether Republicans and Democrats motivatedly reasoned.

The Results page tells subjects what their overall performance was, what their score on each question and assessment was, and the correct answer to each question and assessment.

The order of Questions 1-12 is randomized between subjects, but Questions 13 and 14 are the same for each subject. These last two questions are "meta-questions" that rely on previous questions: Question 13 asks subjects about their performance on the first 12 questions relative to 100 other (pilot) subjects, and Question 14 asks about other Democratic subjects' performance compared to other Republican subjects' performance on Questions 1-12.

Each of the other main questions are equally likely to be selected in each round, but the comprehension check is restricted to be between Question 2-11, inclusive.

On several topics, subjects will randomly see one of two questions. For instance, some subjects will be told the murder and manslaughter rate in 2008 and be asked to predict the rate in 2016, while other subjects will be told the rate in 2016 and asked to predict the rate in 2008. This variation allows for partialing out the effect of political motives from the effect of optimistic motives.

Experiment Design: Debiasing Treatment and Learning Page

Subjects in the control and treatment groups will both see all the pages above. Treatment groups will potentially see an additional page between News r and Question $r + 1$.

They will see this page if and only if the round number r is at least 3 and they score fewer points on round r's news assessment than if they had answered "5/10 chance it's True News; 5/10 chance it's Fake News".

Figure 4 is a screenshot of the debiasing page. There are two parts to the page. The first part informs subjects how many points they scored *on their previous news assessment*, the correct source, and how many points they would have scored on this news assessment

if they gave answers of 5/10 or greater about the correct source. For instance, a subject who guesses that a True News source has a 2/10 chance of being True News earns 36 points. She is told this, and how many points she would have earned were she to have guessed 5/10 chance of True News, 6/10 chance of True News, ..., 10/10 chance of True News.

The second part gives subjects a definition of motivated reasoning and asks two unincentivized Likert scale questions. The first asks them whether they were more motivated to believe the previous source was True News or Fake News, and the second asks them whether they believe motivated reasoning affected their assessment.

The objective of this treatment is to have subjects become aware of motivated reasoning and that it may be an explanation for their underperformance on news assessments. If subjects internalize and believe this, the hypothesis is that they will learn from their mistakes and debias future assessments.

Data Cleaning

Subjects will be dropped from the analysis if any of the following conditions are met:

- The subject does not complete the experiment within 60 minutes.

- The subject does not correctly answer the attention check question ("What year is it?"). This requires answering the question and setting upper and lower bounds correctly (all equal to 2019).

- The subject does not correctly answer the attention check news veracity assessment. The subject will see the message: "The correct answer is equal to your previous guess of 2019." A correct answer involves assessing that this has a 10/10 chance of being True News, and by giving a second guess of 2019.

- On any other question, the subject gives an answer that is not possible. For instance, on questions that ask for percentages that are between 0 and 100, subjects will be dropped if their guess, reguess, upper bound, or lower bound is greater than 100 or less than 0.

Subjects who give a higher rating to the Republican Party are classified as Pro-Rep; subjects who give a higher rating to the Democratic Party are classified as Pro-Dem; subjects who give the same rating to each are disregarded for the analysis regarding Pro-Party / Anti-Party news.

Occasionally, a subject will exactly guess the answer to the initial question. In this case, she skips the news assessment page. This is not expected to happen frequently, as correct answers tend to be precise.

Primary Outcomes

In general, this experiment allows for two types of tests: Replication (of the results in Thaler, 2019) and the effect of the debiasing treatment. Treatment effects use intent-to-treat analysis; that is, subjects in the control group (in all rounds) plus subjects in the treatment group (round 3 and earlier) are compared to subjects in the treatment group (round 4 and later).

Overtrusting Pro-Motive News

This is the most important outcome. Motives are hypothesized in Table 1.

- **Replication:** Subjects in the control group give larger assessments to Pro-Party news than Anti-Party news. The gap between Pro-Party and Anti-Party news increases in polarization (the absolute difference in opinion ratings between the Democratic and Republican parties). These specifications regress assessment on news type with subject-, topic-, and round-fixed effects. This is tested on every topic individually by interacting news type with topic dummies.

- **Debiasing treatment effect:** The gap between assessments on Pro-Party and Anti-Party news is smaller for subjects in the treatment group. The main specification for this regresses assessment on news type, a dummy for being treated, and the interaction between news type and treatment dummy, with the same fixed effects. There will additionally be news type and topic dummy interaction fixed effects. Alternate specifications may use different news type interactions such as polarization and opinion.

Overtrusting Fake News

This is the second most important outcome.

- **Replication:** Subjects in the control group give larger assessments to Fake News than True News on the politicized topics. These specifications regress assessment on news source with subject-, topic-, and round-fixed effects. Additionally, this specification controls for Pro-Party news.

- **Debiasing treatment effect:** The gap between assessments on Fake News and True News is smaller for subjects in the treatment group. The main specification for this regresses assessment on news source, a dummy for being treated, and the interaction between news type and treatment dummy, with the same fixed effects. There will additionally be news type and topic dummy interaction fixed effects.

Changing Guesses

Whether subjects change their guess after seeing the message is another relevant outcome variable. In particular, this outcome variable is an indicator for whether the subject *follows the message*: i.e. if she changes her guess upwards conditional on seeing a "Greater Than" message or changes downwards conditional on seeing a "Less Than" message. The effect of news type, and debiasing treatment, should affect veracity assessment and changing guesses similarly. As above, this will test replication and treatment effect hypotheses for guess changes:

- **Replication:** Subjects in the control group are more likely to follow messages from Pro-Party news than Anti-Party news. This specification regresses the follow message dummy on news type with subject-, topic-, and round-fixed effects.

- **Debiasing treatment effect:** The gap between message following on Pro-Party and Anti-Party news is smaller for subjects in the treatment group. The main specification for this regresses the follow message dummy on news type, a dummy for being treated, and the interaction between news type and treatment dummy, with the same fixed effects.

Secondary Outcomes

Overconfidence

This is a between-subject analysis, comparing treatment group to control group, of whether the treatment affects confidence. The hypotheses are that treatment lowers confidence, that more partisan control subjects are more overconfident than more moderate subjects, and that the partisan-moderate confidence gap is no longer significant in the treatment group.

Confidence is measured by subjects' answer to the question of how many other subjects a subject thinks she outperformed. Overconfidence is equal to Confidence minus the true answer.

A tertiary hypotheses interacts gender with treatment effect. I hypothesize that overconfidence is larger for male subjects than female subjects, and will test whether this gap is smaller for the treatment group.

Performance

This is a within-subject analysis. The hypotheses are that subjects score worse on news assessments on questions on motivated topics compared to if they had simply answered "5/10 chance it's True News".

- **Replication:** On politicized topics, subjects score fewer points than if they had answered "5/10 chance it's True News".

- **Debiasing treatment effect:** The main specification for this regresses news points scored on a dummy for being treated, controls for topic- and subject-level fixed effects, and controls linearly for round number. (Round fixed effects are not used since subjects in the treatment group all begin the treatment in the same round.)

Overprecision

Subjects are asked to state 50% confidence intervals (CI); that is, their 25th percentile and 75th percentile beliefs are elicited. Overprecision is a dummy that takes 0.5 if the correct answer is not within the CI and -0.5 if the correct answer is within the CI. That is, overprecision is equal to 0.5 - P(answer within 50% CI). Overprecision is positive (negative) when the CI contains the true answer less (greater) than 50% of the time.

- **Replication:** On politicized topics, average overprecision is positive and increasing in partisanship. The latter main specification regresses overprecision on partisanship with subject controls.

- **Debiasing treatment effect:** On politicized topics, this tests whether average overprecision is lower for the treated group. The main specification for this regresses overprecision on a dummy for being treated, with the same subject controls.

Polarization

There are two related questions about belief polarization: (1) Does the debiasing treatment lead subjects polarize less from the messages? (2) Does the debiasing treatment lead to less polarized beliefs in the initial guess?

1. Polarizing from the message uses the "follow message" measure. "Polarizing news" is a dummy that equals one if the news source says "Greater Than" when the subject's guess is above the mean population guess or "Less Than" when the subject's guess is below the mean population guess.

   - **Replication:** Subjects in the control group are more likely to follow messages from polarizing news than anti-polarizing news. This specification regresses the follow message dummy on the polarizing news dummy with subject-, topic-, and round-fixed effects.

   - **Debiasing treatment effect:** The gap between message following on polarizing and anti-polarizing news is smaller for subjects in the treatment group. The main specification for this regresses the follow message dummy on news type, a dummy for being treated, and the interaction between news type and treatment dummy, with the same fixed effects.

2. Initial guesses are hypothesized to be polarized as well. This polarization will be measured by z scores of the winsorized distribution of initial guesses on each question; the z scores are then hypothesized to be more in the pro-party direction.

   - **Debiasing treatment effect:** Tests whether the gap between the two parties' initial guesses is smaller for subjects in the treatment group. The main specification for this regresses the party-direction z score on party preference, a dummy for being treated, and the interaction between party and treatment dummy, with subject-, topic-, and round-fixed effects.

Overall Level of Assessments

First, this experiment tests the hypothesis that subjects tend to over-trust news overall. This is measured simply by testing whether mean veracity assessments are greater than 0.5.

Next, the treatment tests whether debiasing motivated reasoning lowers average assessments, suggesting that over-trusting news may be a motivated bias. The main specification for this regresses assessments on treatment and subject- and topic-fixed effects, and controls linearly for round number. (Round fixed effects are not used since subjects in the treatment group all begin the treatment in the same round.)

A similar test looks for a heterogeneous treatment effect, i.e. whether debiasing leads to a greater change in Pro-Party news or Anti-Party news assessments. The hypothesis consistent with the above is that debiasing affects Pro-Party assessments more.

Optimistically-Motivated Reasoning

A tangentially-related objective is to better understand what people are motivated to believe; in particular, whether people *optimistically*-motivatedly reason. To test this, several questions vary on both politics and optimism. Optimism is defined question-by-question. On politicized topics, optimism includes fewer homicides, higher GPA by high schoolers, and greater job callback rates. There is also one non-politicized question about the survival rate for children who have leukemia.

- If subjects optimistically-motivatedly reason, they will give larger assessments to Optimistic news than Pessimistic news. These specifications regress assessment on news type with subject-, topic-, and round-fixed effects. This is tested on every topic individually by interacting news type with topic dummies. This will only be tested for subjects who are in the control group or who are in the treatment group but have not yet received the treatment.

- The Changing Guesses measure will also be tested as secondary analysis. These specifications regress the follow message dummy on news type with subject-, topic-, and round-fixed effects. This will only be tested for subjects who are in the control group or who are in the treatment group but have not yet received the treatment.

Study Materials

Example Pages (Topic: Crime Under Obama)

Question

Question 1 of 14: Crime Under Obama

Some people believe that the Obama administration was too soft on crime and that violent crime increased during his presidency, while others believe that President Obama's pushes towards criminal justice reform and reducing incarceration did not increase violent crime.

This question asks how murder and manslaughter rates changed during the Obama administration. In 2008 (before Obama became president), the murder and manslaughter rate was 54 per million Americans.

In 2016 (at the end of Obama's presidency), what was the per-million murder and manslaughter rate?

My guess:

My lower bound:

My upper bound:

Please choose your bounds so that you think there's a 50% chance that the answer is between the bounds.

Next

Figure 1: Crime Under Obama question page.

News Assessment

Original question 1 of 14: Crime Under Obama

Some people believe that the Obama administration was too soft on crime and that violent crime increased during his presidency, while others believe that President Obama's pushes towards criminal justice reform and reducing incarceration did not increase violent crime.

This question asks how murder and manslaughter rates changed during the Obama administration. In 2008 (before Obama became president), the murder and manslaughter rate was 54 per million Americans.

In 2016 (at the end of Obama's presidency), what was the per-million murder and manslaughter rate?

Message:
The answer is **less than** your previous guess of **57.0**.

Do you think this information is from True News or Fake News?
- ○ 0/10 chance it's True News; 10/10 chance it's Fake News
- ○ 1/10 chance it's True News; 9/10 chance it's Fake News
- ○ 2/10 chance it's True News; 8/10 chance it's Fake News
- ○ 3/10 chance it's True News; 7/10 chance it's Fake News
- ○ 4/10 chance it's True News; 6/10 chance it's Fake News
- ○ 5/10 chance it's True News; 5/10 chance it's Fake News
- ○ 6/10 chance it's True News; 4/10 chance it's Fake News
- ○ 7/10 chance it's True News; 3/10 chance it's Fake News
- ○ 8/10 chance it's True News; 2/10 chance it's Fake News
- ○ 9/10 chance it's True News; 1/10 chance it's Fake News
- ○ 10/10 chance it's True News; 0/10 chance it's Fake News

Figure 2: Crime Under Obama news assessment page.

News Assessment

Original question 1 of 14: Crime Under Obama

Some people believe that the Obama administration was too soft on crime and that violent crime increased during his presidency, while others believe that President Obama's pushes towards criminal justice reform and reducing incarceration did not increase violent crime.

This question asks how murder and manslaughter rates changed during the Obama administration. In 2008 (before Obama became president), the murder and manslaughter rate was 54 per million Americans.

In 2016 (at the end of Obama's presidency), what was the per-million murder and manslaughter rate?

Message:
The answer is **less than** your previous guess of **57.0**.

Do you think this information is from True News or Fake News?

- ○ 0/10 chance it's True News; 10/10 chance it's Fake News
- ○ 1/10 chance it's True News; 9/10 chance it's Fake News
- ○ 2/10 chance it's True News; 8/10 chance it's Fake News
- ○ 3/10 chance it's True News; 7/10 chance it's Fake News
- ○ 4/10 chance it's True News; 6/10 chance it's Fake News
- ○ 5/10 chance it's True News; 5/10 chance it's Fake News
- ○ 6/10 chance it's True News; 4/10 chance it's Fake News
- ○ 7/10 chance it's True News; 3/10 chance it's Fake News
- ○ 8/10 chance it's True News; 2/10 chance it's Fake News
- ○ 9/10 chance it's True News; 1/10 chance it's Fake News
- ○ 10/10 chance it's True News; 0/10 chance it's Fake News

After seeing this message and assessing its truthfulness, what is your guess of the answer to the original question?

Figure 3: Crime Under Obama news assessment page: Second Guess question.

Instructions for Question Pages

Throughout this study, you will see several types of pages, including 14 Question pages.

On each of the Question pages, you will be asked to guess the answer to a factual question; each question has a correct numerical answer. In addition to your guaranteed HIT payment, you will have a chance to win an additional bonus of $10.00 based on your guesses to these questions and questions on other pages. At least one question is an "attention check" for which the correct answer will be obvious.

You will also be asked to provide an upper bound and lower bound for your guess. You should choose these bounds in a way such that you think the answer has a 50% chance of falling between your bounds. The more confident you are, the smaller the difference should be between your upper and lower bound.

The details of the point system used to determine your chance of winning the prize are a bit complicated, but explained below if you are interested. **What is important to know is that the way your earnings are determined ensures that your chances of winning the bonus are maximized by carefully and honestly answering these questions.**

At the end of the study, the points you receive on all choices you make will be averaged, and this will determine the chance (out of 1000) that you win the bonus. For example, if you earn 90 points on average, you will have a 90 out of 1000 chance of winning the bonus.

Your final score, whether you won the prize, and a list of correct answers and sources will be provided at the end of the study.

You will see a Question page on the next screen.

Next

Point system for your guess:
You will receive between 0 and 100 points for each guess you give. The closer your guess is to the correct answer, the more likely it is that you'll win the prize.

If you guess the answer correctly, you will receive 100 points (the maximum) for that question.
If your guess is more than 100 away from the answer, you will receive 0 points for that question.
If your guess is less that 100 away from the answer, you will receive points equal to 100 minus the distance from your guess to the correct answer.

It is in your best interest to guess an answer that is in the "middle" of what you believe is likely. For example, if you think the answer is equally likely to be 10, 40, and 60, you should guess 40.

Point system for your bounds:
*If the answer is **above** your **upper** bound, you will receive points equal to 100 minus 3 times the distance from your guess to the correct answer.*
*If the answer is **below** your **upper** bound, you will receive points equal to 100 minus the distance from your guess to the correct answer.*
*If the answer is **above** your **lower** bound, you will receive points equal to 100 minus the distance from your guess to the correct answer.*
*If the answer is **below** your **lower** bound, you will receive points equal to 100 minus 3 times the distance from your guess to the correct answer.*
You cannot earn negative points. All negative point values will be rounded up to zero.

It is in your best interest to choose a lower bound such that you think it's 3 times more likely to be above the bound than below it, and an upper bound such that it's 3 times more likely to be below the bound than above it. For example, if you think the answer is equally likely to be any number from 100 to 200, you should set a lower bound of 125 and an upper bound of 175.

Instructions for News Assessment Pages

After most Question pages, you will see a News Assessment page.

There has been a growing debate about the accuracy of news sources, with both the left and the right accusing each other's primary media of spreading "Fake News." News sources like CNN and Fox News have reported extensively on topics such as crime, global warming, and gun laws; some give factual information, while others may distort the truth or lie outright. This part of the study is testing whether people can recognize Fake News and True News.

On each News Assessment page, you will see the previous Question page and be given a message related to your previous guess from either a True News source or Fake News source. In addition to your guaranteed HIT payment, you will have a chance to win an additional bonus of $10.00 based on your answers to these questions and questions on other pages. The message will say either "The answer is *greater than* your previous guess" or "The answer is **less than** your previous guess."

The True News source will *always* tell you the truth, while the Fake News source will *never* tell the truth.

If the answer truly is greater than your previous guess, True News will tell you "The answer is *greater than* your previous guess" and Fake News will tell you "The answer is *less than* your previous guess."

If the answer truly is less than your previous guess, True News will tell you "The answer is *less than* your previous guess" and Fake News will tell you "The answer is *greater than* your previous guess."

Whether you get your message from True News or Fake News is random *and each source is equally likely*; different messages may come from different sources. Seeing Fake News on one page does not affect the chances of seeing Fake News on any other page.

After each question, you will assess whether you think it is more likely that the source is True News or Fake News on a scale of 0/10 to 10/10, and your assessment will determine how many points you will earn for that page.

The details of the point system to determine your chance of winning the prize are a bit complicated, but explained below if you are interested. **What is important to know is that the way your earnings are determined ensures that your chances of winning the bonus are maximized by carefully and honestly answering these questions.**

Your final score, whether you won the prize, and a list of correct answers and sources will be provided at the end of the study. You may also receive feedback on your assessments before the end of the study.

You will see a News Assessment page on the next screen.

Next

Point system:

Your estimate	Points earned if the source is True News	Points earned if the source is Fake News
0/10 chance it's True News; 10/10 chance it's Fake News	0 points	100 points
1/10 chance it's True News; 9/10 chance it's Fake News	19 points	99 points
2/10 chance it's True News; 8/10 chance it's Fake News	36 points	96 points
3/10 chance it's True News; 7/10 chance it's Fake News	51 points	91 points
4/10 chance it's True News; 6/10 chance it's Fake News	64 points	84 points
5/10 chance it's True News; 5/10 chance it's Fake News	75 points	75 points
6/10 chance it's True News; 4/10 chance it's Fake News	84 points	64 points
7/10 chance it's True News; 3/10 chance it's Fake News	91 points	51 points
8/10 chance it's True News; 2/10 chance it's Fake News	96 points	36 points
9/10 chance it's True News; 1/10 chance it's Fake News	99 points	19 points
10/10 chance it's True News; 0/10 chance it's Fake News	100 points	0 points

For instance, if you estimate a 7/10 chance of True News, then for that round you will earn 91 points if the source is True News and 51 points if the source is Fake News.

At the end of the study, the points you receive on all choices you make will be averaged, and this will determine the chance (out of 1000) that you win the bonus. For example, if you earn 90 points on average, you will have a 90 out of 1000 chance of winning the bonus.

Introduction

You are invited to participate in this online study on political attitudes. This is a research project being conducted by Michael Thaler, a PhD student in economics at Harvard University.

Your participation in this survey is entirely voluntary. You may refuse to take part in the research or exit the survey at any time without penalty.

If you choose to be in the study, you will complete a series of questions related to issues affecting the United States today. The study should take approximately 20 minutes to complete, but you may take up to 60 minutes. You will have a chance to earn a bonus of $10.00 in addition to your participation earnings.

Your specific answers will not be shared with anyone, and for the purpose of privacy please do not include your name or other personally identifiable information in your responses. Please make sure to mark your Amazon Profile as private if you do not want it to be accessible via your Mechanical Turk Worker ID.

If you have any questions or concerns, please contact Michael Thaler at michaelthaler@g.harvard.edu.

You may print or save a copy of this information sheet for your own records. **Please do not press the back button, refresh, or leave the page at any time or else you might have a server error; if this happens, you will not be able to reenter the study or earn your payment.**

If you wish to participate in the study, please indicate below that you have read the instructions and enter your Mechanical Turk Worker ID for payment.

What is your MTurk Worker ID number? This is required for payment.

○ I have read the above information and would like to participate in the study.

Next

Opinions

For each of the following statements, please indicate whether you agree or disagree.

Your earnings and bonus are not affected by your answers to these questions.

The United States media tends to be biased in favor of Democrats over Republicans.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
Donald Trump is doing a good job as president.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
Gun laws should be more strict than they are today.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
There is solid evidence that the Earth is getting warmer and that this is due to human activity.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
Racial discrimination is a major reason why many black people can't get ahead these days.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
The Obama administration did a good job at dealing with violent crime.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
United States healthcare policy should include an individual mandate for citizens to have health insurance or pay a tax penalty.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
Donald Trump's economic policies have helped increase wages faster than Barack Obama's policies did.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
The United States has a responsibility to accept refugees into the country.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
The tax reform bill that Donald Trump signed into law in 2017 will help lower-income Americans get ahead.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
One reason why there are more men than women working in science, technology, engineering, and math is that men are inherently more interested in these fields.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree

Next

Demographic Information

It is important for this study that you answer these questions honestly.

Your earnings and bonus are not affected by your answers to these questions.

What is your age?

[   ]

What is your gender?
- ○ Male
- ○ Female
- ○ Other / Prefer not to answer

What is your race/ethnicity?
- ○ American Indian
- ○ Black or African American
- ○ Hispanic or Latino
- ○ Asian
- ○ White
- ○ Two or more of these
- ○ Other / Prefer not to answer

What is the highest level of education you have completed?
- ○ Did not graduate high school
- ○ High school graduate or GED
- ○ Began college, no degree
- ○ Associate's degree
- ○ Bachelor's degree
- ○ Postgraduate or professional degree

What religious group do you consider yourself affiliated with?
- ○ Mainline Protestant
- ○ Historically black Protestant
- ○ Evangelical Protestant
- ○ Catholic
- ○ Other Christian
- ○ Jewish
- ○ Muslim
- ○ Other religion or faith
- ○ Atheist
- ○ Agnostic
- ○ Unaffiliated

Which US state or territory do you currently live in?

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What was your total household income before taxes during the past 12 months?

○ Less than $20,000
○ $20,000 to $29,999
○ $30,000 to $39,999
○ $40,000 to $49,999
○ $50,000 to $69,999
○ $70,000 to $99,999
○ $100,000 to $149,999
○ $150,000 or more

In politics today, do you consider yourself a Republican, a Democrat, or an Independent?

○ Democrat
○ Republican
○ Independent

Where do you see yourself on the liberal/conservative spectrum?

○ Extremely conservative
○ Conservative
○ Slightly conservative
○ Moderate
○ Slightly liberal
○ Liberal
○ Extremely liberal

Please rate how you feel about the Republican Party using a scale of 0 to 100. The higher the number, the more favorable you feel toward the Republican Party.

| 50 |

Please rate how you feel about the Democratic Party using a scale of 0 to 100. The higher the number, the more favorable you feel toward the Democratic Party.

| 50 |

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Topic	Pro-Democrat Motives	Pro-Republican Motives
US crime	Got better under Obama	Got worse under Obama
Upward mobility	Low in US after tax cuts	High in US after tax cuts
Racial discrimination	Severe in labor market	Not severe in labor market
Gender	Girls better at math	Boys better at math
Refugees	Decreased violent crime	Increased violent crime
Global warming	Scientific consensus	No scientific consensus
Gun reform	Decreased homicides	Didn't decrease homicides
Wage growth	Higher under Obama	Higher under Trump
ACA individual mandate	Decreased uninsured	Didn't decrease uninsured
Media bias	Media not dominated by Dems	Media is dominated by Dems
Party performance	Higher for Dems over Reps	Higher for Reps over Dems
Own performance	Higher for self over others	Higher for self over others

Table 1: The list of topics and hypothesized motives in the experiment.

Topic	Optimistic Motives	Pessimistic Motives
Refugees	Low violent crime rate	High violent crime rate
US Crime	Low murder rate	High murder rate
Gun reform	Low murder rate	High murder rate
Race	High job callback rate	Low job callback rate
Gender	High math GPA	Low math GPA
Wage growth	High growth	Low growth
Party performance	High others' performance	Low others' performance
Leukemia	High survival rate	Low survival rate

Table 2: The list of topics and optimistic motives in the experiment.

Your Previous Assessment

Previous assessment 4 of 14: Refugees and Crime
You thought the chance that the message came from True News was 2/10 and the chance it came from Fake News was 8/10.

However, it came from True News. Here is how you could have earned more points:

Veracity Assessment	Points earned
Your assessment: 2/10 chance of True News	Your points: 36 points
5/10 chance of True News	75 points
6/10 chance of True News	84 points
7/10 chance of True News	91 points
8/10 chance of True News	96 points
9/10 chance of True News	99 points
10/10 chance of True News	100 points

Sometimes people fall prey to the bias of **motivated reasoning** and trust news more when it tells them something that aligns with what they are more motivated to believe. This can lead them to incorrectly distrust True News or incorrectly trust Fake News.

Do you agree or disagree with the following statements?

I was more motivated to believe that the previous news source was True News than Fake News.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree
Motivated reasoning led me to lose points on my previous news veracity assessment.	○ Strongly agree	○ Somewhat agree	○ Neither agree nor disagree	○ Somewhat disagree	○ Strongly disagree

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Figure 4: Debiasing page