

Experiment Instructions for: “When Guidance Changes: Government Inconsistency and Public Beliefs”

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In this document, we present screenshots of the experiment instructions/survey instruments for “When Guidance Changes: Government Inconsistency and Public Beliefs.” See the main paper [here](#).

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1 Incentives

After obtaining consent, the experiments started with an explanation of accuracy incentives and the lottery system, captured in the screenshots below.

Figure 1: Incentives Presentation

We now would like to ask you some questions about the novel coronavirus. Please answer to the best of your knowledge.

To encourage thoughtful answers, you may get a prize to reward accuracy. You will know at the end of the survey if you are eligible for **an Amazon gift card of at least \$10**. We will send the gift card to a newly created email account for you if you are selected.

If you are eligible, we will randomly select one of your answers. The gift card amount will depend on how close your answer is to the truth, measured 6 months from now.

We use a statistical formula called binarized quadratic scoring to determine the gift card amount, between \$10 and \$40. You do not need to understand the details: this simply means that **you can earn the largest potential bonus by giving your best answer**.

What would you like to do next?

☐ I am ready to answer the questions

☐ I want more details about the statistical formula first

The spirit of the incentives, rewarding accurate answers, was explained in the first page, but details were made available on an optional page. This is a common practice in experimental economics, since many participants would find the detailed calculations of incentives too long and might disengage. For instance, Danz et al. (2020) show that providing no quantitative information about incentives (but incentivizing via the Binarized Scoring Rule) reduces the elicitation error rate.

Figure 2: Incentives Details, Part 1

Below is a more detailed explanation of how we will evaluate your answers. **Please continue the survey at the bottom of the page.** Your chance of winning the bonus prize is 1 in 1,000 (0.1%). If you win, we will randomly **select one of your predictions and compare it to the truth in 6 months.** We will ask you to predict the number of deaths and death rates from coronavirus over the next 6 months and the Dow Jones Industrial Average index level 6 months from now. Again, **the best way to earn the largest reward is to give your best prediction for each question.** Understanding these details is not important for your bonus or our survey.

We will score using quadratic scoring rules. While the bonuses may look strange, we use them to ensure that it is **always in your best interest to answer your best guess** about the truth. **One of the questions below will be selected randomly and the corresponding bonus calculation applied.**

If you have concerns about the payment details, you can contact the Principal Investigator at (312) 533-8205.

1) Your estimate for the total number of deaths or the Dow Jones Industrial Average Index:

You will get \$10 for sure. You may get an additional \$30, depending on how close your answer is to the truth.

A perfectly correct guess gives an extra \$30 for sure

If you are off by 10% of the truth, you have a 99% chance of an extra \$30

If you are off by 20% of the truth, you have a 96% chance of an extra \$30

If you are off by 50% of the truth, you have a 75% chance of an extra \$30

If you are off by 70% of the truth, you have a 49% chance of an extra \$30

If you are off by 90% of the truth, you have a 19% chance of an extra \$30

Figure 3: Incentives Details, Part 2

2) Your estimate of how death rate from coronavirus compares to death rate from the flu for adults aged 20–50 or 50–80:

You will get \$10 for sure. You may get an additional \$30, depending on how close your answer is to the truth. We will calculate the death rate per 1000 cases implied by your answer compared to the death rate from the flu of 0.02% for people aged 18–49 and 0.3% for people aged 50+.

For example:

A perfectly correct guess gives the extra \$30 for sure

If you are off by 10% of the truth, you have a 99% chance of an extra \$30

If you are off by 20% of the truth, you have a 96% chance of an extra \$30

If you are off by 50% of the truth, you have a 75% chance of an extra \$30

If you are off by 70% of the truth, you have a 49% chance of an extra \$30

If you are off by 90% of the truth, you have a 19% chance of an extra \$30

3) If we randomly select your confidence for the total number of deaths:

You will get \$10 for sure. If the true number is between the low and high estimates implied by your guess and confidence, you may get an additional \$30, depending on how far apart the high and low estimates are. For example, if the truth falls between your high and low estimates:

If your estimates are apart by a distance equal to 5% of the truth, you have a 95% chance of an extra \$30

If your estimates are apart by a distance equal to 20% of the truth, you have a 75% chance of an extra \$30

If your estimates are apart by a distance equal to 60% of the truth, you have a 25% chance of an extra \$30

2 Prior Beliefs

We then elicited prior beliefs about the severity of COVID, along with confidence bounds for some of these. To reduce response noise and help respondents form a coherent answer that reflect their beliefs, we first asked in which order of magnitude they thought the number of deaths would lie, and then to report a point estimate. The point estimate had to be consistent with this order of magnitude:

Figure 4: Prior beliefs about total deaths

How many people do you think will die in the US from COVID-19 in the next 6 months?

For reference, the US population is 331,000,000 and between 22,000 and 55,000 people have died from common seasonal flu in the United States since October 1st, 2019.

Do you think the number of deaths from COVID-19 will be...

- ☐ Below 1,000
- ☐ Between 1,000 and 10,000
- ☐ Between 10,000 and 100,000
- ☐ Between 100,000 and 1,000,000
- ☐ Between 1,000,000 and 10,000,000
- ☐ Above 10,000,000

What is your **best guess** for the total number of deaths from coronavirus in the next 6 months in the US? (Guesses which will prove more accurate may increase your potential bonus.)

We then also elicited confidence bounds:

Figure 5: Prior beliefs about total deaths, confidence intervals

How confident are you in your best guess? Please give us a low and a high estimates such that you are almost certain the truth will be in between.

The potential bonus amount for this question depends on whether the true value is between your low and high estimates, and how close your estimates are to each other. If you choose estimates that are far apart, the truth is more likely to be between them. However, you may receive a smaller award.

Your best guess is 20000 deaths from coronavirus in the next 6 months in the US.

What is your **low estimate** for the number of deaths from coronavirus in the next 6 months in the US?

What is your **high estimate** for the number of deaths from coronavirus in the next 6 months in the US?

To elicit the death rate, we asked separately about death rate for people below and above 50 years old, and we elicited in terms of comparisons to the flu death rate:

Figure 6: Prior beliefs about death rate

Do you predict COVID19 to be deadlier or less deadly than the flu for these groups of adults? We will compare death rates from COVID19 in the US in the next 6 months to death rates from the flu in the US for the same period last year. (Guesses which prove more accurate may increase your potential bonus.)

COVID19 will be approximately...

100 times less deadly 10 times less deadly 5 times less deadly Half as deadly as the flu Equally deadly as the flu Twice as deadly as the flu 5 times more deadly 10 times more deadly 100 times more deadly

For adults aged 20-50



For adults aged 51-80



Finally, we also elicited prior beliefs about the future value of the Dow Jones Industrial Average Index:

Figure 7: Prior beliefs about DJI index value in 6 months

We will now ask you to predict how strong the stock market will be 6 months from now. One measure of the stock market's strength is the Dow Jones Industrial Average at the end of each business day.

On February 19, 2020, the Dow Jones Industrial Average index ended at 29,348 points. On March 26, 2020, it ended at 22,552 points following a downturn associated with the coronavirus crisis.

What is your best guess of the Dow Jones index's value at market close on October 1, 2020 (about 6 months from now)? (Guesses which prove more accurate may increase your potential bonus.)

3 Political Leaning and Prior Opinions About Government

We then asked participants about their vote in the 2016 Presidential election, along with their opinions about the government's handling of the COVID crisis.

Figure 8: Following the news

Please tell us how closely you are following news coverage about the coronavirus.

Not at all 0 1 2 Not very closely 3 4 5 Somewhat closely 6 7 8 Very closely 9 10



Figure 9: Past vote

Who did you vote for in the 2016 Presidential election?

☐ Donald Trump

☐ Hillary Clinton

☐ Gary Johnson or Jill Stein or others

☐ I did not vote

☐ I was not eligible to vote

☐ Prefer not to answer

Figure 10: Prior opinions about government

How much do you agree with the statements below about the **federal** government in the COVID-19 crisis?

Strongly disagree 0 1 Disagree 2 3 Somewhat disagree 4 Neither agree nor disagree 5 Somewhat agree 6 7 Agree 8 9 Strongly agree 10

I do not really know what measures the government is taking

☐

The government is handling this crisis appropriately

☐

The government is not taking strong enough measures to contain COVID-19

☐

The government is over-reacting in trying to contain COVID-19

☐

Please select the number 7

☐

The government has high-quality information that is not public, and bases its decisions on this information

☐

I am likely to vote for Donald Trump in the 2020 Presidential Election

☐

Outside of this crisis, I can trust the government to do what is right

☐

I am likely to abstain from voting in the 2020 Presidential Election

☐

4 Treatment, First Dose

All participants received information about a contemporaneous government projection that up to 240,000 Americans would die from COVID:

On March 31 government officials projected that between 100,000 and 240,000 people could die from COVID-19 in the United States.

Participants in the Consistent group received two additional statements:

1. The novel coronavirus has affected American life. On March 29, President Trump announced social distancing measures would last until at least May 1st.
2. The novel coronavirus played a large role in the news. On March 31, President Trump said the coronavirus is a “great national trial unlike any we have ever faced before.”

Participants in the Inconsistent group received the following statements.

1. President Trump originally said that he wanted to re-open the country by April 12. Then, on March 29, he announced social distancing measures would last until at least May 1st.
2. President Trump repeatedly suggested that the novel coronavirus was no worse than the flu. Then, on March 31, President Trump said the coronavirus is a “great national trial unlike any we have ever faced before.”

In each group, we presented one of these statements (chosen randomly) directly after the information about the government projection, before eliciting prior beliefs. We presented the other statement before eliciting our data entry task. Participants received the common projection before eliciting posterior beliefs.

Below is an example of the Inconsistent treatment:

Figure 11: Inconsistent Treatment, first presentation

We now provide you with some information about President Trump's response to the coronavirus. It's important that you read this carefully. You will be able to proceed to the next page after 20 seconds.

President Trump repeatedly suggested that the novel coronavirus was no worse than the flu.

Then, on March 31, President Trump said the coronavirus is a "great national trial unlike any we have ever faced before."

On March 31 government officials projected that between 100,000 and 240,000 people could die from COVID-19 in the United States.

Below is an example of the Consistent treatment:

Figure 12: Consistent Treatment, first presentation

We now provide you with some information about President Trump's response to the coronavirus. It's important that you read this carefully. You will be able to proceed to the next page after 20 seconds.

The novel coronavirus has affected American life.

On March 29, President Trump announced social distancing measures would last until at least May 1st.

On March 31 government officials projected that between 100,000 and 240,000 people could die from COVID-19 in the United States.

Note that we provide the second dose of the treatment later in the experiment, such that all participants are exposed to two consistent (or inconsistent) statements, depending on the treatment group to which they are assigned.

5 Posterior Beliefs about the Crisis’s Severity

Posterior beliefs about severity of COVID, both in terms of death rates and total number of deaths, were then elicited using very similar instructions as those to elicit prior beliefs, along with posterior about the DJI Index value. We explicitly asked participants whether they thought their prior was too high, too low or still their “best guess,” to isolate intentional belief updates from updating due to various forms of elicitation error. The participants who reported their prior was too low or too high then then report new posterior beliefs (which were consistent with their view about the prior being too high or too low).

Figure 13: Belief Updates (Posterior Number of Deaths)

Earlier, we asked how many people you think will die from COVID-19 in the US in the next 6 months. Your best guess was 20000. At this point, is 20000 too low, or too high, or still your best guess? Guesses which will prove more accurate will increase your potential bonus.

- ☐ Too low
- ☐ Too high
- ☐ This is still my best guess

What is your new best guess for the number of people who will die from COVID-19 in the US in the next 6 months?

Below, we provide an example if the participant reports that the prior was her “best guess,” but then enters posterior beliefs that are different than the survey. In this case, the participant cannot advance in the survey until she either changes the report that the priors were her best guess, or aligns her posteriors to be identical to her priors. This design ensures that participants who do not update were intentionally ignoring the information.

Figure 14: Belief Updates (Posterior Number of Deaths)

Earlier, we asked how many people you think will die from COVID-19 in the US in the next 6 months. Your best guess was 120000. At this point, is 120000 too low, or too high, or still your best guess? Guesses which will prove more accurate will increase your potential bonus.

- ☐ Too low
- ☐ Too high
- ☒ This is still my best guess

 Please enter a valid number given your answer to the previous question.

What is your new best guess for the number of people who will die from COVID-19 in the US in the next 6 months?

110000

Figure 15: Belief Updates (Posterior Number of Deaths, Confidence Interval)

How confident are you in your new best guess? Please give us a low and a high estimates such that you are almost certain the truth will be in between.

The potential bonus amount for this question depends on whether the true value is between your low and high estimates, and how close your estimates are to each other. If you choose estimates that are far apart, the truth is more likely to be between them. However, you may receive a smaller award.

Your new best guess is 10000 deaths from coronavirus in the next 6 months in the US.

What is your **low estimate** for the number of deaths from coronavirus in the next 6 months in the US?

What is your **high estimate** for the number of deaths from coronavirus in the next 6 months in the US?

Figure 16: Belief Updates (Posterior Death Rate)

Do you predict COVID19 to be deadlier or less deadly than the flu for these groups of adults? We will compare death rates from COVID19 in the US in the next 6 months to death rates from the flu in the US for the same period last year. (Guesses which will prove more accurate will increase your potential bonus.)

COVID19 is...

100 times less deadly 10 times less deadly 5 times less deadly Half as deadly Equally deadly as the flu Twice as deadly as the flu 5 times more deadly 10 times more deadly 100 times more deadly

For adults aged 20-50



For adults aged 51-80



Figure 17: Belief Updates (Posterior Dow Jones Index)

Earlier, we asked how you thought the stock market would be about 6 months from now. Your best guess was that the Dow Jones would be at 28000 points on October 1, 2020. At this point, is 28000 too low, too high, or is it still your best guess? Guesses which will prove more accurate will increase your potential bonus.

- ☐ Too low
- ☐ Too high
- ☐ Still my best guess

What is your new best guess for the value of the Dow Jones on October 1, 2020?

6 Demand for Information

We asked participants to choose between a few informative links to be displayed at the end of the experiment:

Figure 18: Demand for information

When you reach the end of the survey, we will provide a link to an article we have selected. Which article do you want us to provide? Please choose carefully.

- ☐ An article that provides information about how health insurance coverage would be affected by the Senate bill to combat coronavirus
- ☐ An article that provides information about wellness and stress-reduction during COVID-19
- ☐ An article that features cute animal pictures and videos
- ☐ An article that provides information about coronavirus cases and death counts in the United States

7 Treatment, Second Dose

Participants received the second statement for their treatment group at this time, which was distinct from the (randomly chosen) first statement they saw previously. Here is an example for the Inconsistent treatment.

Figure 19: Treatment, Second Dose

We now provide you with some information about President Trump's response to the coronavirus. It's important that you read this carefully. You will be able to proceed to the next page after 20 seconds.

President Trump originally said that he wanted to re-open the country by April 12.

Then, on March 29, he announced social distancing measures would last until at least May 1st.

8 Posterior Opinions about the Government

Likewise, opinions about the government's handling of the crisis were collected post-treatment using questions that were identical to the pre-treatment measure.

9 Willingness to Pay for Notifications about Goods

Demand for certain COVID-specific, hoarded goods, was proxied by eliciting willingness to pay for notifications about the availability of these goods on Amazon.com.

Figure 20: Willingness to pay for notifications, part 1

Notifications about availability of some items online

In this question we ask you how much you would be willing to pay to receive timely notifications about availability of a few items on Amazon.

For each service below, please enter **how much you value the reminders service in dollars**.

Do not worry about the details of this reward system. **It is in your best interest to simply report the price that is your actual valuation for each service.**

You may be selected for one of these services according to a lottery. If you are selected, a random price will be chosen between \$0 and \$30 (uniformly).

If the price is above your stated value, you will get an additional Amazon gift card equal to the randomly chosen price but not the service. If the price is below your stated value, you will get the service but no additional gift card. You will be given a new email address at the end of the survey, which will be used to send you the gift card number or the notifications. (If you wish, you can enable forwarding of all emails that arrive at this address to your regular email.)

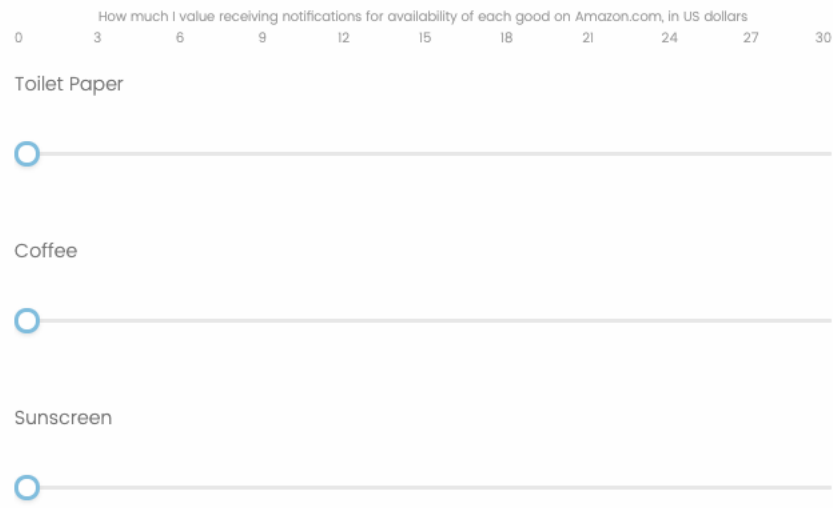
How much I value receiving notifications for availability of each good on Amazon.com, in US dollars

0 3 6 9 12 15 18 21 24 27 30

N95 Masks

Purell Hand Sanitizer

Figure 21: Willingness to pay for notifications, part 2



10 Risk and Social Preferences

We elicited a simple measure of risk preference using a simple choice between a fixed prize and a lottery:

Figure 22: Lottery Choice

If you win a bonus prize in this survey, you will get \$10 for sure.
You now have the opportunity to earn extra money if you win the bonus prize.

You get to choose the type of extra payment you get. Would you rather earn an extra \$10 for sure or take on a 50-50 chance of earning an extra \$0 or \$20 dollars? *If you choose the 50-50 chance, we will have the computer randomly choose which one you get.*

☐ I want an extra \$10 for sure, if I win

☐ I want a 50-50 chance at an extra \$20 or extra \$0, if I win

11 Data Entry Task

We measured performance on a data entry task, that were randomized to be related to COVID or not:

Figure 23: Data Entry Task Instructions

If you win a bonus prize in this survey, you will earn at least \$10 for sure. You now have the opportunity to earn an extra \$5 if you win the prize.

We are going to ask you to complete a task quickly and accurately. If your responses are completely accurate, and you are in the top 20% fastest participants, you will earn an extra \$5 if you win the prize. Otherwise, this task will not increase your bonus prize.

Figure 24: Data Entry Task

(a) Neutral Version

Here is a list of metropolitan areas and their estimated population in 2018. Please rank them from in order from the LARGEST to the SMALLEST population.

Philadelphia: 6.1 million
Seattle: 3.9 million
San Diego: 3.3 million
Virginia Beach: 1.7 million
Charlotte: 2.6 million
Miami: 6.2 million
Raleigh: 1.4 million
Milwaukee: 1.6 million

Rank these metro areas from LARGEST to SMALLEST in population.

Philadelphia
Seattle
San Diego
Virginia Beach
Charlotte
Miami
Raleigh
Milwaukee

(b) COVID Version

Here is a list of states and the approximate number of positive COVID-19 tests in each state, as of March 26. Please rank them from in order from the MOST to the LEAST number of positive tests.

California: 3,000 positive tests
Illinois: 2,500 positive tests
Michigan: 2,900 positive tests
Washington: 3,200 positive tests
Colorado: 1,400 positive tests
Massachusetts: 2,400 positive tests
New Jersey: 6,900 positive tests
Pennsylvania: 1,700 positive tests

Rank these states in order from MOST to LEAST number of positive tests.

California
Illinois
Michigan
Washington
Colorado
Massachusetts
New Jersey
Pennsylvania

12 Anxiety Decomposition

Next, we asked participants to state whether the coronavirus was affecting concerns about their future:

Figure 25: Anxiety

(a) Part 1

We are now going to ask you whether you agree or disagree with the following statements. Please answer on a scale from 0 to 10: 10 indicates that you strongly agree and 0 indicates that you strongly disagree.

Strongly disagree Neither agree nor disagree Strongly agree
0 1 2 3 4 5 6 7 8 9 10

I am at risk of getting sick from the coronavirus

The coronavirus will increase national chaos

OTHER PEOPLE I care about are at risk of getting sick from the coronavirus

The coronavirus will have political consequences that I do not like

(b) Part 2

The coronavirus will financially hurt OTHER PEOPLE I care about

The coronavirus will financially hurt ME

I am worried about the chance of being forced to stay at home

Besides those listed above, other effects of the coronavirus will be bad

13 Intention to Social Distance

We asked participants about their intention to engage in social distancing policies.

Figure 26: Social Distance

How many people from outside your household are you planning to meet socially, in person, in the next 2 weeks? Please do not include people you may encounter doing essential errands like going to the pharmacy or grocery store.

No one 10 people or more
0 1 2 3 4 5 6 7 8 9 10

I am planning to meet:

14 Debrief

Finally, participants were debriefed, explained the experiment and shown statements from all treatment arms to present the full picture.

Figure 27: Debrief

You can find the most up-to-date information and recommendations about COVID-19 on the website of the Center for Disease Control and Prevention (CDC). We encourage you to visit the website and follow the guidance of your local health authorities. We hope you stay in good health and spirits.

In this survey, we have shown you some information about COVID-19. The information we provided was always from publicly available, verified sources such as newspapers or government websites. However, we randomly selected different statements about it. Below is the full list of statements, to give you the complete picture.

- Government officials projected on March 31 that between 100,000 and 240,000 people could die of COVID-19 in the United States. Source: New York Times, "White House Projects Grim Toll From Coronavirus," March 31, 2020.
- President Trump originally said that he wanted to re-open the country by April 12. Source: New York Times, "Trump Extends Social Distancing Guidelines Through End of April," March 29, 2020.
- On March 29, President Trump announced social distancing measures would last until at least May 1st. Source: New York Times, "Trump Extends Social Distancing Guidelines Through End of April," March 29, 2020.
- President Trump repeatedly suggested that the novel coronavirus was no worse than the flu. Source: New York Times, "Trump Extends Social Distancing Guidelines Through End of April," March 29, 2020.
- On March 31, President Trump said the coronavirus is a "great national trial unlike any we have ever faced before." Source: New York Times, "White House Projects Grim Toll From Coronavirus," March 31, 2020.

Source for information about metropolitan areas: Wikipedia, "List of metropolitan statistical areas."

Source for information about positive COVID-19 tests: COVID Tracking Project, covidtracking.com.

Source for information about bankruptcies: American Bankruptcy Institute.

References

Danz, David, Lise Vesterlund, and Alistair J. Wilson, “Belief Elicitation: Limiting Truth Telling with Information on Incentives,” National Bureau of Economic Research Working Paper 27327, Cambridge, MA June 2020.