# Online Appendix <br> Correcting Consumer Misperceptions about $\mathrm{CO}_{2}$ Emissions 

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## A Climate Survey

## A. 1 Design Details

## A.1.1 Consumer Products and Activities

Table A.1: Comments on the calculation of $\mathrm{CO}_{2}$ emissions.

| Product | Comment |
| :--- | :--- |
| Beer | It takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. |
| Phone callIt takes into account the $\mathrm{CO}_{2}$ emissions generated to operate the phone <br> and the communication network. |  |
| MicrowaveIt takes into account only the emissions generated by the power plants <br> that produce the energy used by the microwave. <br> It takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. <br> It takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. |  |
| EggIt takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. <br> It takes into account the emissions generated by warming up the water <br> and all the emissions connected to the water delivery and cleaning. |  |
| ChocolateIt takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. <br> It takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. |  |
| BeefIt takes into account all the emissions starting with the production and <br> ending with the distribution of the products to the consumer. <br> It takes into account only the emissions generated by burning the plane <br> fuel. |  |
| Fas heatingIt is the average of the estimates of 10 different carbon footprint calcu- <br> lators. |  |

## A.1.2 Elicitation Interface

We explain the interface and several measures we took to ensure the highest possible data quality in the survey.

Point estimates of the emission sizes. When asking about the $\mathrm{CO}_{2}$ emissions generated by driving, we allowed the participants to express their guesses either in ounces or grams so they could use the more familiar unit of measure (Figure A.1).

For all the other products, we elicited the point estimates on a single interface that allowed the participants to go back and modify their previous answers easily. The order of the products on the interface was randomized at the individual level.

The 12 questions were graphically displayed (Figure A.2). The product in each question was represented by clip art, below which the name of the product and its size appeared. The participants could see which emissions were taken into account by the scientific estimate by hovering the mouse cursor on an info icon $(\mathbf{i}$ shown above each question. The list of products, their amount, and the emissions to be considered were all described in the instructions as well.

The participants' answers were summarized in an interactive box displayed at the bottom of the page. The box appeared as soon as a participant filled in the first question on the screen and it stayed visible until the moment the participant confirmed his/her answers. The "Confirm" button appeared inside the summary box to draw the participant's attention to the box itself.

The summary box showed a participant's guesses graphically on a line. Crucially, we designed the line to avoid any anchoring effects. No number appeared on it if the participant had not entered any guesses. Moreover, the scale of the line adjusted dynamically depending on the highest guess.

Belief distribution. The elicitation interface showed the name and the quantity of the product and reminded the participants of their point estimates. The participants could see which emissions were taken into account by the scientific estimate, by hovering the mouse cursor on an info icon (i)

The interface displayed five bins for each question (Figure A.3). The participant's point estimate for the product, call it $m$, was taken as the midpoint of the central bin. The central bin covers numbers from $0.95 m$ to 1.05 m . The two bins on both sides of the central bin cover numbers from 0.85 m to 0.95 m and from 1.05 m to 1.15 m . Finally, the farthest two bins cover numbers below 0.85 m and above 1.15 m , respectively.

The interface showed a box containing the 20 balls the participants had to allocate among the bins. The participants could move the balls to a bin by (i) moving a slider below the bin, (ii) directly typing the number of balls they wanted to move in a text field below the bin, or (iii) clicking on the arrows next to the text field. The participants could move all the balls back to the box by pressing the button "Reset".

Willingness to mitigate. The participants indicated their WTMs using sliders (Figure A.4). In each of the eight questions, the current value of the slider was indicated both in $£$ and in $\$$. The participants could also directly type their WTM in the text fields below the slider.

The interface was designed to (i) not anchor participants' answers and (ii) help participants make consistent choices. To achieve the first objective, the sliders had no default value, and the participants had to click on the slider for a cursor to appear. Moreover, all the sliders were presented on the same page, and they all ranged from $£ 0$ to $£ 100$. To achieve the second objective, we designed the interface in the following way.
(i) We showed the sliders in increasing order of emission sizes and they were aligned vertically.
(ii) We made sure that more than one slider was visible on the page simultaneously so that participants could see their answers to the other questions.
(iii) We displayed a summary box at the bottom of the page, which showed the participant's answers on a line ranging from $£ 0$ to $£ 100$. If two or more responses were identical or close to each other, the label position was vertically adjusted to avoid overlapping.
(iv) We placed the "Submit" button inside the summary box to draw the participant's attention to the summary. The button appeared only after the participant entered his/her WTM for all eight emission levels.

Additional measures. At the beginning of the experiment, we explicitly asked the participants not to use external help while taking the survey. We implemented a "Google trap" to check whether the participants complied with this request. The trap consists of three questions about climate-related facts that are hard to know by heart but that are easily googlable. We rewarded each correct answer with an additional $£ 0.20$ bonus. This bonus is paid for sure, making the incentives stronger than the incentives to report the point beliefs at the beginning of the survey. ${ }^{1}$

Only 47 participants answered all three questions with values close to the ones that could be found on Google or Wikipedia at the time (call them Google answers for brevity); another 132 and 214 participants reported two or one answer(s) close to the Google answers, respectively. Finally, 629 participants reported responses that were always far from the Google answers. We conclude that Googling was not widespread during the survey. We verified that excluding the 179 subjects who reported two or more answers close to the Google answers does not change our qualitative results.

[^0]As a final quality check, at the end of the survey, we asked the participants whether we should use their answers in the analysis or we should discard their data because they were not attentive during the survey, Only 21 participants out of 1,022 indicated we should not use at least some of their answers. Excluding these participants does not change our results.

## Questions about driving a car

Your bonus will not depend on your answer to these questions, but please give us your best guess


## For the first question, you need to select the unit of measure of your answer <br> 1) Driving one mile by car generates Unit of measure $\neg \leqslant \mathrm{CO}_{2}$

Figure A.1: Beliefs about $\mathrm{CO}_{2}$ emissions from driving one mile by car.


Figure A.2: Beliefs about $\mathrm{CO}_{2}$ emissions from consumer products and activities.


Figure A.3: Belief distribution.


Figure A.4: Willingness to mitigate.

## Information about $\mathrm{CO}_{2}$ emissions

Below you can find the information for some of the products you encountered in this study. In Session 2 you will find the information for the remaining products.

Please copy the name and the $\mathrm{CO}_{2}$ emissions of each product into the relevant blank spaces.

If you are using a mobile device, this page is better seen keeping the screen horizontally


Figure A.5: Information provision in Session 1.

## Memory Test

Please try to remember the $\mathbf{C O}_{2}$ emissions of each of the products below.

You will earn an additional bonus of $£ 0.2$ for each
correct answer.


Figure A.6: Short-term memory task in Session 1.

UK Department for
Business, Energy \& Industrial Strategy(2019)

Nordhaus (2018)
American Economic Review


291 g
$0.08 \$$
1 mile

| Poore, J., \& Nemecek, I. | $\begin{array}{c}\text { Cimini, A., \& Moresi, M. } \\ (\underline{2018})\end{array}$ |
| :---: | :---: |
| $\underline{\text { Science }}$ | $\underline{\text { Journal of Cleaner }}$ |

Smith, A. J. B. et al. (2009)

Tobacco Control
$\begin{array}{cc}\text { UK Department for } & \text { Padgett, J. P. et al. } \\ \begin{array}{ll}\text { Business, Energy \& }\end{array} & \begin{array}{c}(2008)\end{array} \\ \begin{array}{ll}\text { Environmental impact }\end{array} \\ \text { assessment review }\end{array}$

Poore, J., \& Nemecek, T. Clune, S. J. et al.(2017)
2.6 miles $\quad 1.2$ miles
(2018)

Science

Poore, J., \& Nemecek, T. Clune, S. J. et al.(2017)
(2018)

Journal of Cleaner

Figure A.7: Information provision in Session 2.

## A.1.3 Survey Questions

## Questions asked in Part 1

Page 1/2: Climate change

1. How much higher was the average global temperature in 2017 compared to the average in the pre-industrial era (1870-1900)? $\square\left[{ }^{\circ} \mathrm{C} /{ }^{\circ} \mathrm{F}\right]$.
2. Compare the consequence of a $1.5^{\circ} \mathrm{C}$ and a $2^{\circ} \mathrm{C}$ increase in global temperature. How many more million people will be exposed to extreme heatwaves at least once every 5 years with an increase of $2^{\circ} \mathrm{C}$ ? $\qquad$ million.
3. Compare the consequence of a $1.5^{\circ} \mathrm{C}$ and a $2^{\circ} \mathrm{C}$ increase in global temperature. How many more million people will be exposed to the impacts of sea-level rise globally in 2100 with an increase of $2^{\circ} \mathrm{C}$ ? $\qquad$ million.

Page 2/2: Driving a car

1. Driving one mile by car generates [g/oz] of $\square$ $\mathrm{CO}_{2}$.
2. The social cost of carbon takes into account all future cost to humans of a given amount of $\mathrm{CO}_{2}$ emissions today. The scientific estimate for the social cost of driving one mile by car is $\$$ $\qquad$
3. Some people think scientists either over- or underestimate the social cost of carbon. Please give us your best guess of the social cost of driving one mile by car. I think that the social cost is $\$$ $\qquad$

## Survey questions at the end of Session 1

Page 1/5: Demographic information

1. Age
2. Gender

Male; Female; Other
3. Ethnicity

White; Black; Asian; Mixed; Other
4. In which state do you live?
5. What are the first 5 digits of your ZIP code?
6. Generally speaking, where do you place yourself on the Liberal-Conservative political spectrum?
Liberal; Somewhat Liberal; Somewhat Conservative; Conservative
7. Generally speaking, how do you consider yourself?

A Republican; A Republican-leaning Independent; Independent; A Democrat-leaning Independent; A Democrat
8. What is the highest level of school you have completed or the highest degree you have received?
Less than high school degree; High school degree; Some University but no degree; Bachelor's degree; Postgraduate degree
9. How much total combined money did all members of your household earn last year?

Below \$5,000; \$5,000 to \$15,000; \$15,000 to \$30,000; \$30,000 to \$45,000; \$45,000 to \$60,000; \$60,000 to \$75,000; \$75,000 to \$90,000; \$90,000 to \$105,000; \$105,000 to $\$ 120,000 ; \$ 120,000$ to $\$ 135,000 ; \$ 135,000$ to $\$ 150,000 ; \$ 150,000$ and up
10. Which device are you using to complete this session?

Phone; Tablet; Laptop or Desktop
11. Do you trust that the researchers will indeed buy $\mathrm{CO}_{2}$ offsets as described in the instructions?
1-Not at all; 2; 3; 4; 5 - Completely
12. Did you encounter any problem with the way the pages of the experiment were displayed? If so please indicate the model of your device, the browser you are using, and the problem you encountered.
13. Was there anything in the instructions that was unclear or do you have any other feedback?

Page 2/5: Current consumption, intention to reduce future consumption, and difficulty in reducing consumption (for all 12 products)

1. How many hours do you spend making phone calls from a cell phone per week?
2. Do you intend to reduce your call consumption in light of its $\mathrm{CO}_{2}$ emissions?

No.; Yes, I am prepared to reduce the time I spend on the phone by about $10 \%$.; Yes, I am prepared to reduce the time I spend on the phone by about 25\%.; Yes, I am prepared to reduce the time I spend on the phone by about 50\%.; Yes, I am prepared to reduce the time I spend on the phone by more than $50 \%$.
3. How difficult would it be to reduce the time you spend on the phone by half?

Not applicable, I am not consuming this product.; Very easy.; Easy.; Neither easy nor difficult; Difficult.; Very difficult.

Notes: Similar questions were asked for all 12 products.

## Page 3/5: Climate change knowledge

"Climate change, which includes global warming, is widely seen as a significant issue today. We are often asked to make changes in our lives that will lessen climate change. However, there may be reasons leading us to choose not to make changes."

1. How well-informed do you consider yourself on the issue of climate change?

1-Not informed; 2; 3; 4; 5-Completely informed;
2. To what extent do you believe human activity is contributing to climate change?

1-Not at all; 2; 3; 4; 5-A lot
3. How severe do you consider the problem of climate change?

1 - Not a problem; 2; 3; 4; 5-A huge problem
4. How soon should climate change be dealt with?

1-Never; 2; 3; 4; 5 -Immediately
5. Have you changed your actions, at least partly, due to consideration of climate change?
No; Yes
6. If you answer Yes to the last question. How much has climate change been a factor in changing your actions?
1-A minor factor; 2; 3; 4; 5-A major factor
7. How influential have the following factors been in shaping your own decisions about actions that might affect climate change?
1 - Not influential; 2; 3; 4; 5 - Very influential
(a) The monetary cost of changing my actions.
(b) The availability of options for change.
(c) The inconvenience of options for change.
(d) Fitting changes in with family and others.
(e) Lack of knowledge about possible changes I can make.
(f) Uncertainty about the best option to contribute to reducing climate change.
(g) Uncertainty as to whether climate change is a significant problem.
(h) Select option 4 in this question. [Attention check]
(i) The feeling that my actions will not affect the outcome of climate change.
(j) Feeling that other individuals will not change their actions even if I do.
(k) Other countries or people not taking equivalent action currently.
(1) Feeling that government policies, like carbon taxes, should be used to fix climate change, not individual action.

## Page 4/5: Covid-19

1. Have you or someone in your close family suffered severe physical symptoms due to a Covid-19 infection?

No; Yes
2. How worried are you that you or someone in you close family will get infected with Covid-19?
1-Not worried; 2; 3; 4; 5-Very worried
3. Have you incurred personal economic losses due to Covid-19?

No; Yes
4. How worried are you about the future economic impact that Covid-19 will have on your personality?
1-Not worried; 2; 3; 4; 5-Very worried
5. How much do you think unemployment in your country increased due to Covid-19?
6. How long do you think the economic depression/recession in your country induced by Covid-19 will last?

## Page 5/5: Self-reported data quality

"For the success of this study, it is essential that we analyze only those responses that have been dully answered. Therefore, we would like to know if you answered the questions attentively and in an honest way. Your answers here will not compromise your approval and bonus. Should we use your answers for the following parts of the experiment?"

1. Questions about the size of $\mathrm{CO}_{2}$ emissions (Parts 1,2 , and 3)

Yes, I paid attention to this part of the study and you should use my answers.; No, I didn't pay much attention to this part of the study and you should not use my answers.
2. Questions about getting a bonus vs emitting $\mathrm{CO}_{2}$ (Part 4)

Yes, I paid attention to this part of the study and you should use my answers.; No, I didn't pay much attention to this part of the study and you should not use my answers.
3. Final questionnaire

Yes, I paid attention to this part of the study and you should use my answers.; No, I didn't pay much attention to this part of the study and you should not use my answers.

## Survey questions at the end of Session 2

Page 1/3: Trust

1. The information provided about $\mathrm{CO}_{2}$ emissions in Session 1 reflects the best scientific knowledge on the topic. 1-Completely disagree; 2, 3; 4; 5-Completely agree
2. The scientific estimates in the original survey reflect the actual $\mathrm{CO}_{2}$ emissions of the different consumption activities. 1-Completely disagree; 2, 3; 4; 5-Completely agree

Page 2/3: Consumption pattern after Session 1 (for all 12 products)
"Have you reduced the time you spend on the phone after filling out our initial survey (Session 1 of this study)?
No.; Yes, I spend on the phone about $90 \%$ of the time I otherwise would.; Yes, I spend on the phone about $75 \%$ of the time I otherwise would.; Yes, I spend on the phone about $50 \%$ of the time I otherwise would.; Yes, I spend on the phone less than $50 \%$ of the time I otherwise would.
Notes: Similar questions were asked for all 12 products.

## Page 3/3: Self-reported data quality

"For the success of this study, it is essential that we analyze only those responses that have been dully answered. Therefore, we would like to know if you answered the questions attentively and in an honest way. Your answers here will not compromise your approval and bonus. Should we use your answers for the following parts of the experiment?"

1. Questions about the size of $\mathrm{CO}_{2}$ emissions (Parts 5 and 6)

Yes, I paid attention to this part of the study and you should use my answers.; No, I didn't pay much attention to this part of the study and you should not use my answers.
2. Questions about the new scientific estimates (Part 7)

Yes, I paid attention to this part of the study and you should use my answers.; No, I didn't pay much attention to this part of the study and you should not use my answers.
3. Final questionnaire

Yes, I paid attention to this part of the study and you should use my answers.; No, I didn't pay much attention to this part of the study and you should not use my answers.

## A. 2 Additional Results

## A.2.1 Demographic Characteristics

Table A.2: Demographic characteristics.


Notes: 1,022 participants completed Session 1.

Table A.3: Representativeness of the sample.

|  |  |  |  |
| :--- | :---: | :---: | :---: |
| Age | Sample | Population |  |
| $18-27$ | 0.200 | 0.172 |  |
| $28-37$ | 0.230 | 0.176 |  |
| $38-47$ | 0.173 | 0.160 |  |
| $48-57$ | 0.162 | 0.162 | $\chi^{2}(16)=20$ |
| 58+ | 0.235 | 0.330 | $p=0.2202$ |
| Gender |  |  |  |
| Female | 0.511 | 0.504 | $\chi^{2}(1)=2$ |
| Male | 0.489 | 0.496 | $p=0.1573$ |
| Ethnicity |  |  |  |
| Asian | 0.070 | 0.064 |  |
| Black | 0.139 | 0.142 | $\chi^{2}(4)=6$ |
| White | 0.790 | 0.794 | $p=0.1991$ |

Notes: Population-level data is retrieved from US Census Bureau (2022).

## A.2.2 Beliefs about $\mathrm{CO}_{2}$ Emissions



Figure A.8: Empirical CDFs of beliefs about $\mathrm{CO}_{2}$ emissions. Notes: Vertical dashed lines indicate "true" emission sizes (numbers in parentheses). The $x$-axis is cut at the larger of the true emission size and the bound Q3 $+1.5 \times \mathrm{IQR}$.

Table A.4: Summary statistics of elicited (point) beliefs about $\mathrm{CO}_{2}$ emissions (in kilograms) from 12 consumer products and activities. Cf. Table 2.

|  |  | Belief |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Product | Emissions | Q1 | Median | Q3 | Under-est. |
| Beer | 0.425 | 0.007 | 0.100 | 0.851 | 0.67 |
| Phone call | 0.451 | 0.006 | 0.082 | 0.648 | 0.71 |
| Microwave | 0.512 | 0.011 | 0.191 | 1.494 | 0.62 |
| Milk | 0.757 | 0.009 | 0.112 | 1.232 | 0.69 |
| Shower | 1.135 | 0.007 | 0.100 | 0.800 | 0.79 |
| Egg | 1.400 | 0.007 | 0.121 | 1.000 | 0.78 |
| Poultry | 1.973 | 0.010 | 0.192 | 1.814 | 0.75 |
| Chocolate | 4.665 | 0.007 | 0.090 | 1.000 | 0.85 |
| Coffee | 12.923 | 0.009 | 0.142 | 1.417 | 0.90 |
| Beef | 19.901 | 0.020 | 0.271 | 2.835 | 0.87 |
| Flight | 88.639 | 0.300 | 5.670 | 98.129 | 0.75 |
| Gas heating | 176.544 | 0.060 | 1.000 | 15.444 | 0.93 |

Notes: The last column "Under-est." shows the fraction of participants who underestimated the size of emissions.


Figure A.9: Summary statistics of reported $\mathrm{CO}_{2}$ emissions in (A) miles and (B) kilograms. Notes: Medians and IQRs are plotted on a logarithmic scale. The actual amount of $\mathrm{CO}_{2}$ emissions from driving one mile by car is 291 grams. The participants' beliefs about $\mathrm{CO}_{2}$ emissions from driving one mile by car were elicited in Part 1 of the study.

## A.2.3 Willingness to Mitigate $\mathrm{CO}_{2}$ Emissions

## Summary statistics

Table A.5: Summary statistics of willingness to mitigate $(N=1,022)$.

| Emission size | Mean | SD | SEM | Q1 | Median | Q3 | Interior | $\$ 0$ | $\$ 134$ |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 1 | 40.94 | 46.22 | 1.45 | 3.90 | 20.08 | 67.00 | 835 | 80 | 107 |
| 5 | 45.42 | 45.22 | 1.41 | 6.70 | 27.93 | 73.47 | 848 | 72 | 102 |
| 20 | 51.73 | 44.35 | 1.39 | 12.15 | 40.20 | 80.81 | 854 | 68 | 100 |
| 50 | 57.07 | 45.33 | 1.42 | 14.75 | 50.00 | 93.56 | 845 | 59 | 118 |
| 100 | 61.79 | 46.21 | 1.45 | 18.76 | 59.19 | 100.50 | 834 | 59 | 129 |
| 200 | 66.22 | 47.90 | 1.50 | 20.01 | 67.00 | 110.00 | 820 | 57 | 145 |
| 450 | 70.08 | 49.57 | 1.55 | 20.01 | 73.15 | 120.60 | 801 | 58 | 163 |
| 700 | 74.54 | 51.48 | 1.61 | 20.10 | 80.53 | 129.99 | 749 | 58 | 215 |

Notes: The last three columns show the number of interior WTMs and corner WTMs, respectively.


Figure A.10: Willingness to mitigate and demographic characteristics. Notes: Points represent the means and bars represent SEMs. In panel C, "Republican-leaning independent" and "Democratic-leaning independent" are grouped into Republican and Democratic, respectively. In panel D, "somewhat liberal" and "somewhat conservative" are grouped into liberal and conservative, respectively.

Table A.6: Summary statistics of willingness to mitigate. Participants whose WTMs are all strictly between 0 and 100 are included ( $N=686$ ). Cf. Table A. 5 .

| Emission size | Mean | SD | SEM | Q1 | Median | Q3 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 1 | 30.83 | 34.26 | 1.31 | 5.00 | 17.42 | 46.81 |
| 5 | 34.82 | 32.94 | 1.26 | 6.92 | 26.71 | 52.68 |
| 20 | 41.15 | 33.13 | 1.26 | 13.34 | 33.52 | 64.96 |
| 50 | 45.70 | 34.42 | 1.31 | 14.81 | 40.20 | 69.87 |
| 100 | 50.24 | 36.11 | 1.38 | 18.43 | 45.03 | 77.91 |
| 200 | 54.51 | 38.52 | 1.47 | 20.01 | 51.90 | 88.88 |
| 450 | 58.89 | 41.21 | 1.57 | 20.01 | 58.81 | 93.82 |
| 700 | 64.03 | 44.59 | 1.70 | 20.03 | 63.77 | 106.54 |



Figure A.11: Willingness to mitigate and demographic characteristics. Notes: Participants whose WTMs are all strictly between 0 and 100 are included ( $N=686$ ). Cf. Figure A.10. Points represent the means and bars represent SEMs. In panel C, "Republican-leaning independent" and "Democratic-leaning independent" are grouped into Republican and Democratic, respectively. In panel D, "somewhat liberal" and "somewhat conservative" are grouped into liberal and conservative, respectively.

## Shape of the individual-level WTM curve

We elicited WTM for eight levels of $\mathrm{CO}_{2}$ emissions, that correspond to emissions generated by driving $1,5,20,50,100,200,450$, and 700 miles by car. We observe a concave WTM curve at the aggregate level (Figure 3). Here we classify the shape of the individuallevel WTM curve. Let ( $e_{i}, w_{i}$ ) denote the pair of emission size $e_{i}$ and the reported WTM $w_{i} \in[0,134]$, for each $i=1, \ldots, 8$.

Step 1. For each participant, we construct a piecewise linear WTM curve by linear interpolation. The WTM curve has seven line segments. Let $s_{i}$ be the slope of the $i$ th line segment given by

$$
s_{i}=\frac{w_{i+1}-w_{i}}{e_{i+1}-e_{i}} .
$$

We apply the following rule sequentially to classify the shape of the WTM curve. ${ }^{2}$ We say that a WTM curve is

- constant if $s_{i}=0$ for all $i$;
- almost constant if $\max w_{i}-\min w_{i} \leq 1.34$ - that is deviation for a constant value are smaller than $1 \%$ of the range of possible answers;
- decreasing if $s_{i} \leq 0$ for all $i$ with at least one strict inequality;
- concave if $s_{i+1} \leq s_{i}$ for all $i$ with at least one strict inequality;
- convex if $s_{i+1} \geq s_{i}$ for all $i$ with at least one strict inequality;
- increasing if $s_{i} \geq 0$ for all $i$ with at least one strict inequality;
- non-monotonic if it is none of the above.

There are 210 (almost) constant, 34 decreasing, 107 concave, 2 convex, and 293 increasing, WTM curves. The remaining 376 WTM curves are non-monotonic.

Step 2. Let us focus on 293 participants whose WTM curves are increasing but neither concave nor convex. There are 59 participants whose WTMs are top-censored at $\$ 134$. Let $\bar{w}$ denote the largest WTM. If $\bar{w}=134$, let $\bar{e}$ be the smallest emission level $e_{i}$ at which $w_{i}=134$. If $\bar{w}<134$, let $\bar{e}=e_{8}$. Now, we draw a chord connecting two points $\left(e_{1}, w_{1}\right)$ and $(\bar{e}, \bar{w})$. We say that a WTM curve is concave ${ }^{\dagger}\left(\right.$ convex $\left.^{\dagger}\right)$ if the points ( $e_{i}, w_{i}$ ) for which $e_{i} \leq \bar{e}$ lie above (below) the chord. There are 212 concave $^{\dagger}$ and 6 convex $^{\dagger}$ WTM curves.

[^1]

Figure A.12: Classification of individual-level WTM curves.

Step 3. Finally, we turn to the remaining 376 participants whose WTM curves are non-monotonic.

First, we say that a WTM curve is almost constant $t^{\dagger}$ if the difference between the largest WTM and the smallest WTM is less than $\$ 4.02$ ( $3 \%$ of the maximum possible range, $\$ 134$ ). This relaxation captures the shape of additional 47 WTM curves.

Second, we say that a WTM curve is almost increasing ${ }^{\dagger}$ (almost decreasing ${ }^{\dagger}$ ) if the piecewise linear WTM curve has only one line segment with a negative (positive) slope, and the relative change of WTM on that segment is "not too large". ${ }^{3}$ This relaxation captures the shape of additional 42 WTM curves.

Classification summary. Allowing some margin of error, we have the following (mutually exclusive) classification of individual-level WTM curves: 257 are constant, 319 are concave, 8 are convex, 107 are increasing, 44 are decreasing, and 287 are non-monotonic.

[^2]
## A. 3 Quantify the Effect of Information

## A.3.1 Recover Subjective Belief Distribution

The goal of the belief elicitation task is to elicit the participant's subjective belief distribution $F$ about $\mathrm{CO}_{2}$ emissions from each of the 12 products.

In the first part of the belief elicitation task, we elicited a point estimate for the modal value of the emissions. Let $m \in \mathbb{R}_{+}$denote a participant's belief about how much $\mathrm{CO}_{2}$ a given product emits relative to driving one mile by car. In the second part of the task, we elicited the subjective probability distribution about the size of the $\mathrm{CO}_{2}$ emissions. We first constructed five bins around the reported modal belief $m$,

$$
\left[0, t_{1}\right),\left[t_{1}, t_{2}\right),\left[t_{2}, t_{3}\right),\left[t_{3}, t_{4}\right),\left[t_{4}, \infty\right),
$$

where each $t_{i}$ is the threshold separating bins, given by $t_{1}=0.85 \mathrm{~m}, t_{2}=0.95 \mathrm{~m}, t_{3}=$ 1.05 m , and $t_{4}=1.15 \mathrm{~m}$, as illustrated below.


The participant then allocated 20 balls into these five bins. Let $p_{i} \in[0,1]$ denote the probability assigned to the $i$ th bin (i.e., $1 / 20$ times the number of balls in the bin). The collection ( $m,\left(p_{1}, \ldots, p_{5}\right)$ ) represents the response from the participant, from which we recover the subjective belief distribution $F$.

Let $q_{i}=\sum_{j=1}^{i} p_{j}$ be the cumulative probability for the emission size being below threshold $t_{i}$. Assuming that there is no measurement error, we have $F\left(y \leq t_{i}\right)=q_{i}$ for each $i=1, \ldots, 4$. Given the observation $\left\{\left(t_{1}, q_{1}\right), \ldots,\left(t_{4}, q_{4}\right)\right\}$, we can bound the cumulative distribution function (CDF) of the subjective belief $F$ by the gray shaded rectangles as illustrated below.


We fit a cubic interpolating spline following Breunig et al. (2021), which took the idea from Bellemare, Bissonnette and Kröger (2012). The detail will not be shown here, but this method interpolates observed quantile points by a smooth and monotonic curve. To
apply this procedure, we need some assumptions about the boundaries of the support of $F$. We take $t_{0}=0.75 \mathrm{~m}$ and $t_{5}=1.25 \mathrm{~m}$, where $t_{0}, t_{5}$ are such that $t_{0}=\sup _{t}\left\{t \leq t_{1}\right.$ : $F(y \leq t)=0\}$ and $t_{5}=\inf _{t}\left\{t \geq t_{4}: F(y \leq t)=1\right\}$.

## A.3.2 Expected WTM

We elicited the participants' willingness to mitigate (WTM) for eight levels of $\mathrm{CO}_{2}$ emissions, corresponding to the emissions generated by driving $1,5,20,50,100,200,450$, and 700 miles by car. We recover the participant's WTM function $w$ by linear interpolation.

Given a WTM function $w$ and a subjective belief distribution $F$ about $\mathrm{CO}_{2}$ emissions associated with a given product, we can calculate the expected WTM,

$$
\bar{W}(w, F)=E_{F}[w(c)]=\int w(c) \mathrm{d} F(c),
$$

by numerically evaluating the integral with the Adaptive Gauss-Kronrod Quadrature.

## A.3.3 Prediction for Beef and Poultry



Figure A.13: Predicted effect of information provision for each demographic group. (Top) 7 oz of meat products as in the Climate Survey. (Bottom) $5 \mathrm{lb}(80 \mathrm{oz})$ of meat products as in the Meat Experiment. Notes: (D) "Somewhat liberal" and "somewhat conservative" are grouped into liberal and conservative, respectively. (E) "Are you prepared to reduce your future consumption of beef/poultry in light of its $\mathrm{CO}_{2}$ emission footprint?" (F) "How difficult would it be to reduce your current consumption of beef/poultry by half?" (G) "How many times do you eat beef/poultry per week?" Bars indicate SEM.

## A. 4 Information Treatment

## A.4.1 Assignment

Table A.7: Number of participants in each treatment.

| Product | Info | No Info |
| :--- | ---: | ---: |
| Beer | 246 | 776 |
| Phone call | 245 | 777 |
| Microwave | 256 | 766 |
| Milk | 254 | 768 |
| Shower | 255 | 767 |
| Egg | 248 | 774 |
| Poultry | 211 | 811 |
| Chocolate | 258 | 764 |
| Coffee | 232 | 790 |
| Beef | 251 | 771 |
| Flight | 245 | 777 |
| Gas heating | 266 | 756 |

Notes: Treatments are on the subject-product pair level. If a subject is informed about a particular product's emissions, the pair is in the Info treatment, if not it is in the No Info treatment.

## A.4.2 Intentions and Actual Meat Consumption



Figure A.14: Impact of information on intentions and consumption across treatments. Notes: (AC) Intentions to reduce beef/poultry consumption reported in Session 1, after information provision in the Info treatment. (BD) Actual consumption changes in Session 2. Panels A and B are identical to Figure 7, repeated here for ease of comparison.


Figure A.15: The effect of information on the intended and actual reduction of consumption. Participants who received information but did not update their beliefs in the right direction are excluded. Cf. Figure 8. Notes: Logistic regression was run on each product separately. The dependent variable is a binary indicator "intend to reduce/actually reduced consumption of [product]" and the independent variable is the indicator "received information about $\mathrm{CO}_{2}$ emissions from [product]". Bars indicate $95 \%$ CI. Numbers in parentheses indicate the number of observations.

## B Butcher Experiment

## B. 1 Design Details

## B.1.1 Information Screen



According to the picture above, how much $\mathrm{CO}_{2}$ emissions does 1 lb of chicken meat produces?

The equivalent of driving $\mathbf{8}$ miles by car The equivalent of driving $\mathbf{1 5 . 4}$ miles by car The equivalent of driving $\mathbf{1 7 . 1}$ miles by car


## According to the picture above, how much $\mathbf{C O}_{2}$ emissions does 1 lb of beef meat produces?

The equivalent of driving 95 miles by car
The equivalent of driving $\mathbf{1 5 5}$ miles by car
The equivalent of driving $\mathbf{2 3 3}$ miles by car

Figure B.1: Information screens in the Info treatment. (Left) The first product (poultry in this case). (Right) The second product (beef in this case).

## 309



## 105

Attention check, which number is inside the red box?

- 309
- 216
- 105

Figure B.2: Screen for the NoInfo treatments.

## B.1.2 WTP Elicitation Interface



Figure B.3: Willingness to pay elicitation screen for the beef product in the Info treatments. (Left) On the first list, the monetary bonus in the right option ranged from $\$ 0$ to $\$ 100$ in $\$ 10$ increment. (Right) The second list "zoomed in" around the switching point and asked another nine questions. Notes: In the NoInfo treatments, information about the true emission size is shown as?

## Initial screening questions

Page 1/6

1. What is your age?
2. What sex were you assigned at birth, such as on an original birth certificate? Male; Female
3. What is your ethnicity?

White; Black; Asian; Mixed; Other
4. In which state do you live?
5. What are the first 5 digits of your ZIP code?

Page 2/6

1. Generally speaking, where do you place yourself on the Liberal-Conservative political spectrum?
Liberal; Somewhat liberal; Somewhat conservative; Conservative
2. Generally speaking, how do you consider yourself?

A Republican; A Republican-leaning Independent; A Democrat-leaning Independent;
A Democrat
3. What is the highest level of school you have completed or the highest degree you have received?
Less than high school degree; High school degree; Some University but no degree; Bachelor's degree; Postgraduate degree

## Page 3/6

1. How many people live in your household (including yourself)?
2. What was the combined income of all the members of your household last year? Below \$5,000; \$5,000 to \$15,000; \$15,000 to \$30,000; \$30,000 to \$45,000; \$45,000 to \$60,000; \$60,000 to \$75,000; \$75,000 to \$90,000; \$90,000 to \$105,000; \$105,000 to \$120,000; \$120,000 to \$135,000; \$135,000 to \$150,000; \$150,000 and up
3. Do you eat meat? Yes; No

Page 4/6

1. Do you live with a partner?

Yes; No
2. What is the gender of your partner?

I don't have a partner; Male; Female; Other
3. What is the education level of your partner?

I don't have a partner; Less than high school degree; High school degree; Some University but no degree; Bachelor's degree; Postgraduate degree
4. This is an attention check, please answer that you strongly agree.

Strongly disagree; Disagree; Neither agree nor disagree; Strongly agree
Page 5/6

1. Which device are you using to complete this study?

Phone; Tablet; Laptop or Desktop
Page 6/6


1) Which of the pictures above does not represent fruits or vegetables?
2) Puppy is to dog as kitten is to

## NEXT

## Post-experiment questionnaire

Notes: MEAT1 below is either beef or poultry, depending on the first product the participant saw, and MEAT2 is the other meat product.

1. How many times do you eat MEAT1 per week?
2. Do you intend to reduce your MEAT1 consumption in light of its $\mathrm{CO}_{2}$ emissions? No.; Yes, I am prepared to reduce my current consumption by about 10\%.; Yes, I am prepared to reduce my current consumption by about 25\%.; Yes, I am prepared to reduce my current consumption by about $50 \%$.; Yes, I am prepared to reduce my current consumption by more than $50 \%$.
3. How difficult would it be to reduce your current MEAT1 consumption by half? Not applicable. I don't consume this product.; Very easy.; Easy.; Neither easy nor difficult.; Difficult.; Very difficult.
4. If you wanted to avoid the $\mathrm{CO}_{2}$ impact of MEAT1, how would you change your consumption patterns? Choose the answer that most applies.
I would eat more lamb and pork.; I would eat more MEAT2.; I would eat more vegetarian dishes.; I would not reduce my consumption of poultry.; I would eat less MEAT1 without necessarily eating more of anything else.
5. Do you trust that the researchers will indeed ship meat products as promised in the instructions?

1-Not at all; 2; 3; 4; 5 - Completely
6. How severe do you consider the problem of climate change?

1-Not a problem; 2; 3; 4; 5-A huge problem

## B. 2 Preregistration

ASPREDICTED

# CONFIDENTIAL - FOR PEER-REVIEW ONLY Information provision about CO2 emissions and meat consumption. (\#92070) 

Created: 03/25/2022 03:41 AM (PT)

This is an anonymized copy (without author names) of the pre-registration. It was created by the author(s) to use during peer-review A non-anonymized version (containing author names) should be made available by the authors when the work it supports is made public.

1) Have any data been collected for this study already?

No, no data have been collected for this study yet.
2) What's the main question being asked or hypothesis being tested in this study?

Correcting perceptions about CO2 emissions associated with meat products will affect demand for these products.
In particular, in previous work we have used data on a) misperceptions about CO2 emissions and b) willingness to pay to avoid CO2 emissions to predict the effect of providing information about the emissions. Following these predictions, we expect that providing information about CO2 emissions will have a larger negative effect on the demand for beef than on the demand for chicken.
3) Describe the key dependent variable(s) specifying how they will be measured.

The key dependent variable is the willingness to pay (WTP) for a package of meat products. Willingness to pay is measured by an incentive compatible multiple price list mechanism.
4) How many and which conditions will participants be assigned to?

The experiment has two parts. The first part contains our main design, which is a $2 \times 2$ :
The meat package consists of either beef products (sirloin steaks) or chicken products (chicken breasts).

- Participants either obtain a scientific estimate of the emissions associated with the package ("info" treatment) or not ("no info" treatment).

These four conditions are between-subjects.

In the second part of the experiment (again a $2 \times 2$ ), we will ask each subject for their WTP for the alternative meat product. In the information treatment this implies that subjects now have knowledge about both beef and chicken products ("double info" treatment)
5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

We will regress the WTP for both meat products in Part 1 of the experiment on a treatment dummy for information provision and meat type, and we will test the interaction of meat type and information provision. Our regression analysis will control for covariates like political orientation and household income.
6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We will not exclude observations. However, we will conduct robustness checks where we exclude people who were not able to reproduce the information we gave them in the info treatments or that did not give us their address for sending the meat products.
7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
We aim at collecting 2000 observations, 500 in each treatment cell. We consider an observation collected if a participant completed the first part of the experiment
) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?) We conduct a questionnaire where we ask several personal characteristics. We will correlate these characteristics with WTP. We will study how people update beliefs about CO2 emissions in response to the information and will study whether prior and posterior beliefs affect purchases. We will also conduct heterogeneity analyses by subgroups that have been shown to have a higher elasticity of meat consumption, or, per our previous survey, have shown particularly large predicted effects of information
As robustness checks for the model specification, we will conduct Tobit regressions with censoring above. We will also look quantile regressions for 10 WTP quantiles, and focus on the interaction effects among the middle quantiles that are away from the extremes of the WTP distribution. Finally, to understand the impact of information about substitutes, we will compare the results of the first part of the experiment (info vs. no info), with the results of the second part (double info vs. no info).

## B. 3 Additional Results

## B.3.1 Willingness to Pay for the First Product



Figure B.4: Distribution of the willingness to pay for the first meat product.

## B.3.2 Belief about the Second Product



Figure B.5: Beliefs about $\mathrm{CO}_{2}$ emissions from two meat products. Notes: We focus on the data from the second part of the experiment (panels AC: "poultry first" treatments; panels BD: "beef first" treatments). Vertical lines correspond to the "true" size of $\mathrm{CO}_{2}$ emissions (dash-dotted: poultry, 15.4 miles; dashed: beef, 155 miles). Cf. Figure 11.

## B.3.3 Demographic Characteristics

Table B.1: Demographic characteristics.

|  | All |  | BeefFirst |  | PoultryFirst |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | NoInfo | Info | NoInfo | Info |
| Age |  |  |  |  |  |  |
| 18-27 | 367 | 0.176 | 0.174 | 0.177 | 0.189 | 0.165 |
| 28-37 | 364 | 0.175 | 0.161 | 0.185 | 0.156 | 0.198 |
| 38-47 | 332 | 0.160 | 0.153 | 0.162 | 0.166 | 0.158 |
| 48-57 | 356 | 0.171 | 0.191 | 0.181 | 0.158 | 0.154 |
| 58+ | 662 | 0.318 | 0.320 | 0.296 | 0.331 | 0.325 |
| Gender |  |  |  |  |  |  |
| Male | 1008 | 0.484 | 0.489 | 0.483 | 0.484 | 0.482 |
| Female | 1073 | 0.516 | 0.511 | 0.517 | 0.516 | 0.518 |
| Ethnicity |  |  |  |  |  |  |
| Asian | 68 | 0.033 | 0.036 | 0.029 | 0.029 | 0.037 |
| Black | 265 | 0.127 | 0.146 | 0.117 | 0.106 | 0.140 |
| Mixed | 79 | 0.038 | 0.027 | 0.035 | 0.050 | 0.041 |
| White | 1605 | 0.771 | 0.769 | 0.785 | 0.778 | 0.753 |
| Other | 64 | 0.031 | 0.023 | 0.035 | 0.037 | 0.029 |
| Party affiliation |  |  |  |  |  |  |
| Republican | 595 | 0.286 | 0.288 | 0.312 | 0.270 | 0.274 |
| Republican leaning independent | 169 | 0.081 | 0.072 | 0.073 | 0.094 | 0.086 |
| Independent | 404 | 0.194 | 0.188 | 0.165 | 0.202 | 0.222 |
| Democratic leaning independent | 160 | 0.077 | 0.078 | 0.096 | 0.073 | 0.060 |
| Democratic | 753 | 0.362 | 0.375 | 0.354 | 0.360 | 0.358 |
| Political orientation |  |  |  |  |  |  |
| Conservative | 434 | 0.209 | 0.195 | 0.213 | 0.216 | 0.210 |
| Somewhat conservative | 662 | 0.318 | 0.320 | 0.338 | 0.289 | 0.325 |
| Somewhat liberal | 579 | 0.278 | 0.278 | 0.277 | 0.291 | 0.267 |
| Liberal | 406 | 0.195 | 0.206 | 0.171 | 0.204 | 0.198 |
| Education |  |  |  |  |  |  |
| Less than high school | 48 | 0.023 | 0.023 | 0.029 | 0.019 | 0.021 |
| High school degree | 527 | 0.253 | 0.259 | 0.248 | 0.252 | 0.253 |
| Some University but no degree | 661 | 0.318 | 0.324 | 0.319 | 0.337 | 0.290 |
| Bachelor Degree | 546 | 0.262 | 0.267 | 0.275 | 0.225 | 0.282 |
| Postgradute degree | 299 | 0.144 | 0.127 | 0.129 | 0.166 | 0.154 |
| Household income |  |  |  |  |  |  |
| - \$5,000 | 68 | 0.033 | 0.025 | 0.025 | 0.042 | 0.039 |
| \$5,000-\$15,000 | 130 | 0.062 | 0.062 | 0.044 | 0.067 | 0.076 |
| \$15,000-\$30,000 | 339 | 0.163 | 0.186 | 0.156 | 0.150 | 0.160 |
| \$30,000 - \$45,000 | 313 | 0.150 | 0.129 | 0.163 | 0.158 | 0.152 |
| \$45,000-\$60,000 | 322 | 0.155 | 0.136 | 0.165 | 0.160 | 0.158 |
| \$60,000-\$75,000 | 220 | 0.106 | 0.098 | 0.112 | 0.106 | 0.107 |
| \$75,000-\$90,000 | 188 | 0.090 | 0.102 | 0.081 | 0.092 | 0.086 |
| \$90,000-\$105,000 | 109 | 0.052 | 0.055 | 0.050 | 0.054 | 0.051 |
| \$105,000-\$120,000 | 93 | 0.045 | 0.051 | 0.037 | 0.052 | 0.039 |
| \$120,000-\$135,000 | 67 | 0.032 | 0.049 | 0.033 | 0.025 | 0.021 |
| \$135,000-\$150,000 | 89 | 0.043 | 0.030 | 0.065 | 0.037 | 0.039 |
| \$150,000 - | 143 | 0.069 | 0.076 | 0.069 | 0.056 | 0.074 |

Notes: 2,081 participants completed Part 1 of the study. The last four columns present the proportion of subjects in each treatment.

Table B.2: Representativeness of the sample.

|  | Sample | Population |  |
| :--- | :---: | :---: | :---: |
| Age |  |  |  |
| $18-27$ | 0.176 | 0.172 |  |
| $28-37$ | 0.175 | 0.176 |  |
| $38-47$ | 0.160 | 0.160 |  |
| $48-57$ | 0.171 | 0.162 | $\chi^{2}(16)=20$ |
| $58+$ | 0.318 | 0.330 | $p=0.2202$ |
| Gender |  |  |  |
| Male | 0.484 | 0.489 | $\chi^{2}(1)=2$ |
| Female | 0.516 | 0.511 | $p=0.1573$ |

Notes: Population-level data is retrieved from US Census Bureau (2022).

## B.3.4 Treatment Effect

We estimate the following linear model,

$$
W T P_{i}=\beta_{0}+\beta_{1} T_{i}+\gamma X_{i}+\varepsilon_{i}
$$

where $T_{i}=1$ if participant $i$ is assigned to the Info treatment, $X_{i}$ is a vector of dummy variables capturing demographic characteristics of participant $i$, and $\varepsilon_{i}$ is an error term.

Table B.3: Effect of information on the willingness to pay for meat products.

|  | WTP (beef) |  |  | WTP (poultry) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| Info | $\begin{gathered} \hline 2.743 \\ (2.285) \end{gathered}$ | $\begin{gathered} \hline 2.907 \\ (2.281) \end{gathered}$ | $\begin{gathered} \hline 2.622 \\ (2.305) \end{gathered}$ | $\begin{gathered} \hline-2.028 \\ (2.162) \end{gathered}$ | $\begin{gathered} -1.944 \\ (2.151) \end{gathered}$ | $\begin{gathered} \hline-2.395 \\ (2.178) \end{gathered}$ |
| Age |  | $\begin{aligned} & 0.170^{* *} \\ & (0.067) \end{aligned}$ | $\begin{aligned} & 0.216^{* * *} \\ & (0.068) \end{aligned}$ |  | $\begin{aligned} & 0.189^{* * *} \\ & (0.061) \end{aligned}$ | $\begin{aligned} & 0.229^{* * *} \\ & (0.066) \end{aligned}$ |
| Female |  | $\begin{gathered} -5.400^{* *} \\ (2.276) \end{gathered}$ | $\begin{gathered} -5.287^{* *} \\ (2.312) \end{gathered}$ |  | $\begin{array}{r} -3.712^{*} \\ (2.159) \end{array}$ | $\begin{array}{r} -3.892^{*} \\ (2.201) \end{array}$ |
| Liberal |  | $\begin{gathered} -0.753 \\ (2.296) \end{gathered}$ | $\begin{gathered} -0.297 \\ (2.366) \end{gathered}$ |  | $\begin{gathered} 1.064 \\ (2.158) \end{gathered}$ | $\begin{gathered} 0.025 \\ (2.223) \end{gathered}$ |
| Belief (beef) |  | $\begin{gathered} -0.010 \\ (0.012) \end{gathered}$ | $\begin{gathered} -0.007 \\ (0.013) \end{gathered}$ |  |  |  |
| Above-median consumption (beef) |  |  | $\begin{aligned} & 6.493^{* * *} \\ & (2.410) \end{aligned}$ |  |  |  |
| Intention to reduce (beef) |  |  | $\begin{gathered} -0.412 \\ (0.979) \end{gathered}$ |  |  |  |
| Difficult to reduce (beef) |  |  | $\begin{gathered} 2.140^{* *} \\ (1.038) \end{gathered}$ |  |  |  |
| Belief (poultry) |  |  |  |  | $\begin{gathered} 0.009 \\ (0.007) \end{gathered}$ | $\begin{gathered} 0.008 \\ (0.008) \end{gathered}$ |
| Above-median consumption (poultry) |  |  |  |  |  | $\begin{gathered} 3.433 \\ (2.345) \end{gathered}$ |
| Intention to reduce (poultry) |  |  |  |  |  | $\begin{gathered} 1.330 \\ (1.000) \end{gathered}$ |
| Difficult to reduce (poultry) |  |  |  |  |  | $\begin{gathered} -0.452 \\ (0.993) \end{gathered}$ |
| Constant | $\begin{aligned} & 32.225^{* * *} \\ & (1.590) \\ & \hline \end{aligned}$ | $\begin{aligned} & 27.697^{* * *} \\ & (4.007) \\ & \hline \end{aligned}$ | $\begin{aligned} & 16.869^{* * *} \\ & (5.263) \\ & \hline \end{aligned}$ | $\begin{aligned} & 29.517^{* * *} \\ & (1.544) \\ & \hline \end{aligned}$ | $\begin{aligned} & 21.795^{* * *} \\ & (3.586) \\ & \hline \end{aligned}$ | $\begin{aligned} & 18.737^{* * *} \\ & (5.310) \\ & \hline \end{aligned}$ |
| First product | Beef | Beef | Beef | Poultry | Poultry | Poultry |
| Observations | 1,048 | 1,048 | 1,011 | 1,033 | 1,033 | 1,005 |
| $R^{2}$ | 0.001 | 0.014 | 0.032 | 0.001 | 0.013 | 0.018 |

Notes: Robust standard errors are reported in parentheses. ${ }^{*}: p<0.1 ;{ }^{* *}: p<0.05 ;{ }^{* * *}: p<0.01$.

Subgroup analysis. We estimate the following linear model for each demographic group,

$$
W T P_{i}=\beta_{0}+\beta_{1} T_{i}+\varepsilon_{i},
$$

where $T_{i}=1$ if participant $i$ is assigned to the Info treatment and $\varepsilon_{i}$ is an error term. Estimated coefficients and their $95 \%$ confidence intervals are plotted in Figure B. 6 below.


Figure B.6: Effect of information on WTP for meat products. Notes: Estimated coefficients and $95 \%$ confidence intervals are plotted. Cf. Figures 5 and A.13. (D) "Somewhat liberal" and "somewhat conservative" are grouped into liberal and conservative, respectively. (E) "Do you intend to reduce your consumption of beef/poultry in light of its $\mathrm{CO}_{2}$ emissions?" ( F ) "How difficult would it be to reduce your current consumption of beef/poultry by half?" (G) "How many times do you eat beef/poultry per week?"

## B.3.5 Stated Intentions about Future Consumption

Table B.4: The effect of information about emissions on stated intention to reduce meat consumption.

|  | $(1)$ | $(2)$ |
| :--- | :---: | :---: |
|  | Beef | Poultry |
| Information | 0.017 | -0.071 |
|  | $(0.095)$ | $(0.098)$ |
| Butcher experiment | $[-0.170,0.203]$ | $[-0.264,0.121]$ |
|  | $0.257^{* * *}$ | $0.271^{* * *}$ |
| Constant | $(0.092)$ | $(0.094)$ |
|  | $[0.077,0.438]$ | $[0.087,0.454]$ |
|  | $-0.196^{* * *}$ | $-0.269^{* * *}$ |
| Observations | $(0.067)$ | $(0.066)$ |
| Log-likelihood | $[-0.328,-0.065]$ | $[-0.399,-0.139]$ |

Notes: Logistic regression was run on each product separately. The dependent variable is a binary indicator "intend to reduce consumption of [product]" and the independent variables are the indicator "received information about $\mathrm{CO}_{2}$ emissions from [product]" and the indicator for the Butcher experiment. Robust standard errors are reported in parentheses. $95 \%$ confidence intervals are reported in square brackets. ${ }^{*}: p<0.1 ;{ }^{* *}: p<0.05 ;{ }^{* * *}: p<0.01$.

## C Instructions for the Climate Survey



Figure C.1: Timeline of the climate survey.

## C. 1 Session 1: Introduction



At the end of the study the computer will randomly select one question from the entire study.

You will get a bonus depending on your answer to that question.

The computer will select a question from:

- Part 1 with $10 \%$ probability
- Part 2 with $20 \%$ probability
- Part 3 with $10 \%$ probability
- Part 4 with $20 \%$ probability
- Part 5 with $20 \%$ probability
- Part 6 with $10 \%$ probability
- Part 7 with $10 \%$ probability

The Ethics Committee Economics and Business (EBEC) of the University of Amsterdam has approved our study (Protocol number EC 20200810100845). You can contact our Ethics Committee writing to secbs-abs@uva.nl.

To receive the approval we committed not to use misleading or untruthful instructions.

Universiteit van Amsterdam

## Comprehension questions

1. You will be paid only if you conclude all the parts of this study. The study has two sessions.
True; False
2. At the end of the study, the computer will randomly select one question. You will receive a bonus depending on your answer to this question.
True; False
3. For this study, it does not matter if you ask for help to answer the questions.

True; False
4. According to the ethical protocol under which we run this study, all the instructions you read must be truthful and not misleading.
True; False

## C. 2 Part 1



Scientific studies have investigated the causes and the effects of climate change. In particular they estimated:

- The global warming from pre-industrial era.
- The consequences of a $2^{\circ} \mathrm{C}$ global warming for humans.
- The $\mathrm{CO}_{2}$ generated by several human activities.

The most important measure of the future consequences of emitting a given amount of $\mathrm{CO}_{2}$ today is called the social cost of carbon.

The social cost of carbon puts a dollar value on the fact that:

- $\mathrm{CO}_{2}$ emissions have an impact on the earth's climate and they lead to rises in sea levels, changes in rainfall patterns, a higher frequency of extreme weather events etc. All these events affect human health and productivity.
- $\mathrm{CO}_{2}$ emissions imply a hidden cost: emitting $\mathrm{CO}_{2}$ today requires reducing consumption tomorrow to avoid a global warming of more than $2^{\circ} \mathrm{C}$.




## BONUS

$$
\begin{aligned}
& \text { Your } \\
& \text { guess }
\end{aligned}=\begin{aligned}
& \text { Scientific } \\
& \text { estimate }
\end{aligned}
$$

You will receive a bonus of $£ 4.00$ if your guess is close to the estimate.

$$
\text { We allow an error of } \pm 5 \%
$$

## For example:

If the true answer is 10 , you receive a bonus if your answer
is between 9.5 and 10.5

## Comprehension questions

1. The social cost of $\mathrm{CO}_{2}$ emissions is due both to the consequences of climate change and to the cost of reducing consumption in the future to avoid global warming of more than $2^{\circ} \mathrm{C}$.

True; False
2. If one of the questions from Part 1 is selected for payment, you can win a bonus of $£$ $\qquad$
3. If one of the questions from Part 1 is selected for payment, you will win the bonus: Only if your answer is below the scientific estimate.; Only if your answer is above the scientific estimate.; Only if your answer is equal to the scientific estimate with an error of no more than $\pm 5 \%$.; Only if your answer is exactly equal to the scientific estimate.

## C. 3 Part 2




## BONUS

If the computer selects a question from this part for payment:
You can win a bonus of $£ 4$
( $\sim 5.36$ )

$\underset{\text { gourss }}{\text { Your }}=$| Scientific |
| :--- |
| estimate |

You will receive a bonus of $£ 4.00$ if your guess is

## Comprehension questions

1. In this part, you need to compare the emissions produced by several actions with the emissions produced by driving 1 mile by car.
True; False
2. You will need to compare the emissions of a flight from New York to Chicago with the emissions of driving a car.
True; False

## C. 4 Part 3



The number of balls you place in a bin expresses the chances with which you think the scientific estimate falls into that bin.

So, the more likely you think it is that the scientific estimate falls into a particular bin, the more balls you should place into that bin.

If you are really certain of your original guess, then you should put many balls into the central bin.

If you are rather uncertain and think that the true estimate could take any number of values, then you should distribute the balls between bins more evenly.


## BONUS

The payment mechanism is such that you have the highest chance to win the bonus if the distribution of balls reflects your level of certainty

That means that the number of balls in each bin should reflect the likelihood that the bin contains the scientific estimate

If you want more information about the payment mechanism, click on the link below this slide



## Additional information about the the payment mechanism

Your probability of winning the bonus is determined by:

- The bin that contains the scientific estimate
- How you distribute the 20 balls


## If:

- You put $B$ out of 20 balls in the selected bin
- The scientific estimate is not in the selected bin

You win the bonus with probability:

$$
100-100 *(\mathrm{~B} / 20)^{2}
$$

For example:

- If you put 20 balls in that bin you win the bonus with $0 \%$ probability.
- If you put 4 balls in the bin you win the bonus with $96 \%$ probability.
- If you put 0 balls in the bin you win the bonus with $100 \%$ probability.

If a question from this part is selected for payment, then the computer will randomly select one of the bins from this question

## If:

- You put $B$ out of 20 balls in the selected bin
- The scientific estimate is in the selected bin

You win the bonus with probability:

$$
100-100 *(1-B / 20)^{2}
$$

For example:

- If you put 20 balls in that bin you win the bonus with $100 \%$ probability.
- If you put 4 balls in the bin you win the bonus with $36 \%$ probability.
- If you put 0 balls in the bin you win the bonus with $0 \%$ probability.


## Comprehension questions

1. Your task in this part is to distribute $\square$ balls across $\square$ bins.
2. The number of balls that you place in each bin represents your level of certainty about the chance that the scientific estimate is in that bin.

True; False
3. You maximize the chances of winning the bonus if you distribute the balls according to your level of certainty.
True; False
4. It is best for you to put many balls into a bin only if:

You think there are high chances that the scientific estimate is in that bin.; You think there are low chances that the scientific estimate is in that bin.
5. If you are not very certain in your answer, then:

You should put all of your balls in one bin.; You should put balls in several of the bins.

## C. 5 Part 4

## Part 4

We will show you an amount of $\mathrm{CO}_{2}$ emissions that is equivalent to driving a number of miles by car. For instance, 5 miles as in the picture below.

5 miles
$\mathrm{CO}_{2}$
In Part 4, you will have to choose between earning money for yourself and implementing $\mathrm{CO}_{2}$ emissions.


Your task is to indicate (on a scale between $£ 0.00$ and $£ 100$ (\$134), your requested bonus.

For each $\mathrm{CO}_{2}$ emission, the requested bonus is the smallest bonus you would need to be fine with causing these emissions.


If this part is selected for payment, then your choices affect both your bonus and the emissions in the atmosphere!

We describe on the next slides how this works.


## You can check our donation!

After the study is over, we will send you a link with the proof of the donation to Carbonfund.org.

If the Offered Bonus is smaller than your Requested Bonus (i.e. it falls in the light-blue area), then:

- There will be no emissions.
- You will not obtain a bonus


If the Offered Bonus is bigger than the Requested Bonus (i.e. it falls in the dark-blue area), then:

- You will obtain the Offered Bonus

- You emit the $\mathbf{C O}_{2}$ specified on top of the scale


Thus, it is in your best interest to state the Requested Bonus that reflects the smallest bonus you would need to be fine with causing these emissions:

- If you feel strongly you don't want to implement emissions, then you should
choose a high Requested Bonus.
This guarantees that if emissions will not occur, unless you receive a high compensation.
- If you don't feel strongly about implementing emissions, then you should
choose a low Requested Bonus.
- This guarantees that you will not reject an Offered Bonus that is sufficient to compensate you.
- N.B.: choosing a Requested Bonus of $£ 100$ guarantees that emissions will not be implemented. Choosing a Requested Bonus of $£ 0$ guarantees that emissions will be implemented.

For more explanations about the payment scheme, click on the link below.

Optional instructions about the incentives

## These slides give more details on

 the payment mechanism of Part 4In the slides below, we explain why it is in your best interest to state a Requested Bonus that reflects the true minimum compensation that you need to accept the emissions.

Suppose for the sake of this explanation that your true necessary compensation is $£ 50$. We show you what goes wrong if you specify a Requested Bonus that is different from $£ 50$.

Suppose now that you specify a Requested Bonus lower than $£ 50$, for instance $£ 30$ in the picture below.

Then, if the Offered Bonus falls somewhere between $£ 30$ and $£ 50$, you
Then, if the Offered Bonus falls somewhere between $£ 50$ and $£ 70$, you will not receive the Offered Bonus, even though it is higher than the necessary compensation for the emissions.


Whenever your Requested Bonus differs from the true compensation you feel you need to receive, you can construct examples like the ones above

Thus, the only way to make sure you receive an adequate compensation for the implemented emissions, is to specify a Requested Bonus that reflects your true compensation needs.

## Comprehension questions

1. The offered bonus is randomly selected.

True; False
2. Suppose a decision from Part 4 is selected for payment. Which is true?

I will receive the requested bonus for that decision.; I will receive the offered bonus.; I will receive the offered bonus only if the offered bonus is higher than my requested bonus for that decision.; I will receive the offered bonus only if the offered bonus is lower than my requested bonus for that decision.
3. Suppose a decision from Part 4 is selected for payment. Which is true about the emissions specified in that decision?
The emissions will be implemented.; The emissions will never be implemented.; The emissions will be implemented only if the offered bonus is higher than the requested bonus for that decision.; The emissions will be implemented only if the offered bonus is lower than the requested bonus for that decision.
4. The amount of $\mathrm{CO}_{2}$ in the atmosphere might change due to your decisions in this study.
True; False
5. When the study is over we will send you the link with the proof of our donation to Carbonfund.org.
True; False
6. If you strongly feel you don't want to implement emissions then it is best for you to:
To choose a high requested bonus.; To choose a low requested bonus.
7. If you don't feel strongly about implementing emissions then it is best for you to: To choose a high requested bonus.; To choose a low requested bonus.

## C. 6 Session 2: Introduction

| Welcome to the second day of the study! |
| :---: |
| University of Amsterdam <br> LMU $\square$ |

Today you will complete parts 5,6 , and 7.
After you complete the study, the computer will randomly select a question for payment.

You will receive a total reward of $£ \mathbf{1 0 . 0 0}$ for completing both sessions of the study.
In addition, you can win a bonus of several dollars.

## C. 7 Part 5




## Comprehension questions

1. In Part 5, you need to guess the value of:

TThe same scientific estimates you were asked about in Session 1.; A new scientific estimate of the $\mathrm{CO}_{2}$ emissions of some products.
2. You will need to compare the emissions of a flight from New York to Chicago with the emissions of driving a car.
True; False

## C. 8 Part 6



The number of balls you place in a bin expresses the chances with which you think the scientific estimate falls into that bin.

So, the more likely you think it is that the scientific estimate falls into a particular bin, the more balls you should place into that bin.


## BONUS

## If the computer selects a question from this set:

You can win a bonus of $£ 6$
(~\$8.04)

## BONUS

The payment mechanism is such that you have the highest chance to win the bonus if the distribution of balls reflects your level of certainty

That means that the number of balls in each bin should reflect the likelihood that the bin contains the scientific estimate.

If you want more information about the payment mechanism, then click on the link below this slide

## Comprehension questions

1. Your task in this part is to distribute $\square$ balls across $\square$ bins.
2. The number of balls that you place in each bin represents your level of certainty about the chance that the scientific estimate is in that bin.

True; False
3. You maximize the chances of winning the bonus if you distribute the balls according to your level of certainty.
True; False
4. It is best for you to put many balls into a bin only if:

You think there are high chances that the scientific estimate is in that bin.; You think there are low chances that the scientific estimate is in that bin.
5. If you are not very certain in your answer, then:

You should put all of your balls in one bin.; You should put balls in several of the bins.

## D Instructions for the Butcher Experiment

We present the instructions for the BeefFirst treatments in which sirloin steaks are offered in Part 1 and chicken breasts are offered in Part 2. The content of the instructions for the PoultryFirst treatments is identical except for the order of the products.


Figure D.1: Timeline of the butcher experiment.

## D. 1 Introduction




The Economics and Business Ethics Committee (EBEC) of the University of

Amsterdam has approved our study (Protocol number 20210810100815).
You can contact our Ethics Committee by writing to secbs-abs@uva.nl.

## Comprehension questions

1. If you complete this study, you can win an Amazon voucher worth $\$ 500$.

True; False
2. According to the ethical protocol under which we run this study, all the instructions you read must be truthful and not misleading.
True; False

## D. 2 Part 1



## Comprehension question

"When we started this study, what was the price of the meat that you can buy in this study?"
\$65; \$80; $\$ 100$

Like many products, beef meat is associated with $\mathrm{CO}_{2}$ emissions that are linked to climate change.

In this study, we will tell you about the emissions associated with several products. The information we give you comes from the most recent scientific work.

You will find the link to the scientific work at the end of the study.

For example, on average, driving one mile by car emits the equivalent of $\mathbf{1 0 . 3} \mathbf{~ o z}$ ( 291 g ) of $\mathrm{CO}_{2}$ in the atmosphere.


Car: emissions generated by an average car The estimates come from the most recent scientific work.

Here are two other products and their average emissions relative to driving 1 mile by car.


Beer: average emissions from production and distribution Flight: average emissions due to burning fuel
The estimates come from the most recent scientific work.

## Prior belief

## Your estimate:

Next, you will be asked how much $\mathrm{CO}_{2}$ is emitted in the production and distribution of 1lb of beef meat. Please state your answer relative to driving 1 mile by car.

For example, you may guess that 1lb of beef meat emits 0.4 times or 301 times as much as
driving 1 mile by car. (Note that these are random numbers used for illustrative purposes.)

## Your estimate:

What do you think, relative to driving 1 mile by car, how much $\mathrm{CO}_{2}$ is generated by 1 lb of beef meat?
(You receive 50 cents if your answer is within 5 percent of the correct answer.)

"I think 1 lb of beef meat emits as much $\mathrm{CO}_{2}$ as driving $\square$ miles by car."

## Willingness to pay

## How much are you willing to pay for 10 sirloin steaks?

You are now able to buy 10 premium sirloin steaks worth $\$ 100$. To this end, you will make a series of decisions between an amount of money and receiving a free shipment of 10 sirloin steaks from Porter Road.

Your decisions may have real consequences: The computer will randomly select one in every 20 participants in this survey (100 people in total) and implement their decisions in one part of the experiment, as we will explain below. If your decisions from this part are selected, then you will receive either money or the shipment of sirloin steaks.

## Do you want to buy the sirloin steaks?

YES
You will receive a free package of 10 sirloin steaks worth \$100

| In addition | In addition |
| :---: | :---: |
| You earn an extra | You earn an extra |
| $\mathbf{\$ 0}$ for this study. | $\mathbf{\$ 5 0}$ for this study. |

$\$ 50$ for this study.

This is an example of the decisions you will have to make. You obtain either the steaks, or the bonus of \$50. In other words, you can obtain the steaks at a cost of $\$ 50$. Imagine for a moment which option you would prefer in this example.

In line with our commitment to truthful instructions, payments and shipments will take place as promised: Here is an invoice for a shipment for a previous participant.


Do you want to buy the sirloin steaks?

YES
You will receive a free package of 10 sirloin steaks worth $\$ 100$.

In addition

You earn an extra
$\$ 0$ for this study.

NO
You will not receive a free package of sirloin steaks.

In addition

You earn an extra $\$ 50$ for this study.

If you choose $\mathbf{Y E S}$, then you mark your choice as above.

Do you want to buy the sirloin steaks?

YES
You will receive a free package of 10 sirloin steaks worth \$100.

In addition

You earn an extra \$0 for this study.

## NO

You will not receive a free package of sirloin steaks.

In addition

You earn an extra $\$ 50$ for this study.

If you choose NO, then you mark your choice as above.

N.B. there are no wrong or right answers. Each decision should simply reflect whether you prefer the additional bonus payment or the free package of sirloin steaks.

Once you made your choices, we may ask you to choose between Option YES and Option NO for the second list of possible bonuses.

Do you want to buy the sirloin steaks?

YES
You will receive a free package
of 10 sirloin steaks worth $\$ 100$.
in addition

| 1) | - you earn $\$ 0$ |
| :---: | :---: |
| 2) | you earn \$ 0 |
| 3) | you earn \$ 0 |
| 4) | you earn \$ 0 |
| 5) | you earn \$ 0 |
| 6) | you earn \$ 0 |
| 7) | you earn \$ 0 |
| 8) | you earn \$ 0 |
| 9) | you earn \$ 0 |
| 10) | you earn \$ 0 |
| 11) | you earn \$ $\mathbf{0}$ |

NO
You will not receive a free package of sirloin steaks.
in addition
you earn $\$ 0$
you earn \$ 10
you earn \$ 20
you earn \$ 30
you earn \$ 40
you earn $\$ 50$
you earn $\$ 60$
you earn $\$ 60$
you earn $\$ 70$
you earn $\$ 70$
you earn $\$ 80$
you earn $\$ 80$
you earn $\$ 90$
you earn $\$ 100$

We will ask you to make several decisions, arranged in a list like above. In each row, you have to choose

> between YES and NO.

- Option YES is always the same.
- Option NO differs in the bonus you obtain.

Do you want to buy the sirloin steaks?

| YES | NO |
| :---: | :---: |
| You will receive a free package of 10 sirloin steaks worth $\$ 100$. | You will not receive a free package of sirloin steaks. |
| in addition | in addition |
| 1) you earn $\$ 0$ | - you earn \$ 0 |
| 2) you earn \$ 0 | - you earn \$ 10 |
| 3) you earn \$ 0 | you earn \$ 20 |
| 4) you earn \$ 0 | - you earn \$ 30 |
| 5) you earn \$ 0 | y you earn \$ 40 |
| 6) you earn \$ 0 | - you earn \$ 50 |
| 7) you earn \$ 0 | you earn \$ 60 |
| 8) you earn $\$ 0$ | you earn \$ 70 |
| 9) you earn $\$ 0$ | you earn $\$ 80$ |
| 10) you earn $\$ 0$ | you earn \$ 90 |
| 11) you earn \$ 0 | - you earn \$ 100 |

For most people, it is best to choose YES in row 1: there is no bonus, and hence no cost of choosing the steaks. Once you reach the row where you value the steaks less than the bonus, it is in your best interest to switch from

YES to NO.

## Payment

At the end of the experiment, the computer randomly selects one out of every 20 participants in either Part 1 or Part 2 of the study. In addition, the computer randomly selects a bonus amount between $\$ 0$ and \$100.

In case your decisions in Part 1 are selected, payment proceeds as follows: if for the selected bonus amount you chose

- Option YES, then a free package of sirloin steaks will be shipped to your home address.
- Option NO, then you will receive an email with an Amazon voucher equal to the bonus amount.
N.B.: In case the computer selects a bonus amount you did not see in that round, we will infer your preferred option using your decision for the closest bonus amount you actually saw.


## Comprehension questions

1. If you are selected to receive either the meat or the bonus AND you chose YES for the randomly selected bonus amount, then you will receive 10 sirloin steaks at your home address.
True; False
2. If you are selected to receive either the meat or the bonus AND you chose NO for the randomly selected bonus amount, then you will receive an email with an Amazon voucher equivalent to the randomly selected bonus amount.
True; False

## Posterior belief

## Question:

Let us ask you again.

Relative to driving 1 mile by car, how much $\mathrm{CO}_{2}$ is generated, on average, in the production and distribution of 1 lb of beef meat?

"I think 1 lb of beef meat emits as much $\mathrm{CO}_{2}$ as driving $\square$ miles by car."

## D. 3 Part 2

This concludes Part 1 of the experiment.
You are now starting Part 2, which will be shorter than Part 1.

In Part 2, we ask for your valuation of a package of chicken breasts, using the same interface as in Part 1.

Afterward, we will ask you a few closing questions.


## 10 chicken breasts (skinless)



- No Hormones
- US raised
- No Antibiotics
- Around 5 lb in total
- Pasture raised


## Prior belief

## Your estimate:

Next, you will be asked how much $\mathrm{CO}_{2}$ is emitted in the production and distribution of 1lb of chicken meat. Please state your answer relative to driving 1 mile by car.

For example, you may guess that 1lb of chicken meat emits 0.4 times or 301 times as much as
driving 1 mile by car. (Note that these are random numbers used for illustrative purposes.)


## Your estimate:

What do you think, relative to driving 1 mile by car, how much $\mathrm{CO}_{2}$ is generated by 1 lb of chicken meat?
(You receive 50 cents if your answer is within 5 percent of the correct answer.)

"I think 1 lb of chicken meat emits as much $\mathrm{CO}_{2}$ as driving $\square$ miles by car."

## Willingness to pay

How much are you willing to pay for 10 chicken breasts?

You are now able to buy 10 premium chicken breasts worth $\$ 100$.
Similar to Part 1, you will make a series of decisions between an amount of money and receiving a free shipment of 10 chicken breasts from Porter Road.

Your decisions may have real consequences: as before, if your decisions in this part are selected, then you will receive either money or the shipment of chicken breasts.

## Decision interface

The decision interface for Part 2 is the same as for Part 1.

On the next screen, please indicate in each row whether you would prefer the chicken breasts (left column) or the bonus (right column).

## Posterior belief


"I think 1 lb of chicken meat emits as much $\mathrm{CO}_{2}$ as driving $\square$ miles by car."

## References

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US Census Bureau. 2022. "National Population by Characteristics: 2020-2022." United States Census Bureau. https://www.census.gov/data/tables/time-series/demo/ popest/2020s-national-detail.html.


[^0]:    ${ }^{1}$ There is a $1.6 \%$ chance that any of the 12 point beliefs questions is selected for payment. Hence the expected earning from answering such a question correctly is $£ 0.07$.

[^1]:    ${ }^{2}$ This means that concave and convex WTM curves in this classification are non-decreasing, and increasing WTM curves are neither concave nor convex.

[^2]:    ${ }^{3}$ Suppose the sign of the slopes change on the segment connecting $\left(e_{j}, w_{j}\right)$ and $\left(e_{j+1}, w_{j+1}\right)$. We require the absolute relative change to be less than $10 \%$, i.e., $\left|\left(w_{j+1}-w_{j}\right) / w_{j}\right| \leq 0.1$.

