

Design Document for WTA/P and DOSE Rehash

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This document describes a new survey for the World Econographics Project, to be run in a representative sample of the US population. Many of the questions come from the prior survey(s), “Robust Econographics” (CAIT0007). To keep things easier to keep track of, modules will keep their numbering from that document.

We have removed a number of the modules from the CAIT0007 survey. These include:

- Probability Weighting (formerly Section III.B)
- Ambiguity Aversion (formerly Section III.C)
- Distributional Preferences (formerly Section III.H)
- Altruism and Trust (formerly Section III.I)
- Punishment (not Reciprocity) (formerly Section III.J)
- Overconfidence and Overplacement (formerly Section III.K)
- Additional, Incentivized, Risk- and Time- Questions (formerly Section III.N)
- Risk Aversion 1 (formerly Section III.P)
- Compound Urns (formerly Section III.S)
- Strategic Sophistication (formerly Section III.T)

If a module has been changed, the keyword **CHANGED** will precede the title of that module. The modules that have been changed are:

- Instructions (??)
- Qualitative Questions (??)
- Loss Aversion (??)
- Payment Probabilities (??)
- Sample Size and Rollout (??)
- Question Ordering and Randomization (??)

- Progress (??)
- Additional Data (??)

For all changed modules the first paragraph describes the changes therein.

We have added a couple of modules. The first added module is Section ??, and all those thereafter are also added.

This document also adds back in BROAD from the document “Description of First Pilot for the World Econographics Project” (CAIT0005). The description of this process can be found in Section ??, and the module itself is in Section??, as it was in CAIT0005. This module has been changed slightly from its former state, see Section?? for details.

I Useful Global Definitions

I.A Payments

Payments to respondents will be in points. The exchange rate is roughly 1 point = \$0.001. For more on payment information, see ??.

I.B Adaptive Procedure

An adaptive procedure determines a list of binary choice questions where each choice leads to a different further choice. These question trees will be generated beforehand by us. The adaptive procedure we will use is called BROAD. BROAD will only be used as an elicitation procedure in ?? and ??.

I.C Design Principles

Once we identified a number of traits that we wanted to elicit, we used four design principals to decide how to elicit them. In particular, we looked for ways that would:

1. Be implementable on a survey,
2. Be implementable cross-culturally,
3. Avoid correlated measurement error across traits, and
4. Take steps to minimize measurement error within a trait.

These were listed in order of importance. So, for example, if a way of measuring a trait was proposed that would reduce correlated measurement error between that trait and another, but it was not implementable cross-culturally, then this proposed way would not be used.

Some examples of how this was used follow.

1. When deciding on measures of time discount (or time inconsistency) we rejected those that would require the survey taker to log in again at some point in the future (principle 1).
2. When looking for intelligence measures, we focused on those that could be measured using questions that relied on graphical representations (principle 2).
3. When deciding between different ambiguity aversion measures, we separately estimated risk aversion just for use in that measure, so as to avoid correlated measurement errors between risk and ambiguity aversion (principle 3).
4. When eliciting the WTP–WTA gap, we separated the questions for WTP and WTA so as not to introduce measurement error caused by a consistency bias (principle 4).
5. When eliciting a trait we did so twice, as this would reduce measurement error within a trait by instrumenting (principle 4).

I.D Multiple Price List

Many of the modules will use a **Multiple Price List** (MPL) to determine the certainty equivalent of a lottery. This is a series of questions presented simultaneously with the choices in two columns. Each question asks the respondent if they would like one item or the other. One column of these questions always contains the same answer (say, a monetary amount), while the other varies (for example, lotteries with different probabilities of payoff). These require some training on the part of respondents, and may also require some additional work to code up properly.

For an example of an MPL, see Figure ???. This example is constructed to elicit the certainty equivalent for a 50/50 lottery over \$5 and \$0. For this to be incentive compatible, the respondent will be told that should question be (randomly) selected to be paid, then one of the lines will be chosen (randomly), and they will get the choice from that line. For more on incentives, see ???.

Other things of note are that the top right and bottom left boxes are already filled in. This is because no one should want to buy the lottery for more than \$5, or less than \$0, and also because filling in these top and bottom boxes has been shown to prevent multiple cross-overs. That is, if this is used correctly by a respondent, the responses on the right will be filled in up to some point, above which only boxes to the left will be filled in. For example, if someone had a certainty equivalent of \$2.10, then the bottom 6 boxes on the left should be filled in, and the top 5 boxes on the right should be filled in.

If there is some other pattern than the one described above, then this would have multiple cross-overs, and we wouldn't be able to determine the respondent's certainty equivalent. To prevent this, we suggest a couple things. First, there should be some sort of brief training before the first MPL. Second, there should be an auto-complete feature, such that once a cross over has been made (say by ticking the bottom 4 right boxes, and then the left box

Figure 1: An Example of Using MPL to elicit a certainty equivalent

**Now consider a lottery that has a 50% chance of paying \$5,
and a 50% chance of paying \$0. Would you rather have?**

<input checked="" type="checkbox"/> Lottery	or	<input type="checkbox"/> \$0 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$1.50 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$2.00 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$2.50 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$2.65 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$2.80 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$2.95 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$3.10 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$3.35 dollars?
<input type="checkbox"/> Lottery	or	<input type="checkbox"/> \$3.50 dollars?
<input type="checkbox"/> Lottery	or	<input checked="" type="checkbox"/> \$5.00 dollars?

for the 5th from the bottom), then a button could be pushed to fill in the rest of the boxes. Third, if a respondent tries to move forward with anything other than a single cross-over pattern (or all boxes on one side or the other ticked), then they should be given an error message and be asked to try again.

The error messages that will be given will be graphical and demonstrate the “correct” pattern that we are looking for. There will be two error messages. The first, in Figure ??, should be displayed if the respondent tries to autofill or advance without specifying a single-crossover. This will usually occur because they have left a “gap” somewhere by not filling in a box in one of the rows between the last time they checked a box on the left side and the first time they checked a box on the right side. (It can also occur if they don’t check any boxes on one of those sides.)

The second error message is displayed in Figure ?. This one should be used when there are multiple crossovers, that is, when the respondent picks a box on the left-hand-side below checking one on the right-hand-side. (Note that the “sides” may be reversed in some places when the options are ascending. This can happen in Section ?? and Section ??, and is noted there.) Once again, this error can be given if they try to advance or autofill without the proper configuration.

Note further that the spacing between options on the right are irregular. This is done to make sure that we are 1) covering the full range of values, while 2) emphasizing discrimination in the range where respondent’s values are likely to lie, and 3) being as parsimonious as

Figure 2: Error message if there is not enough information

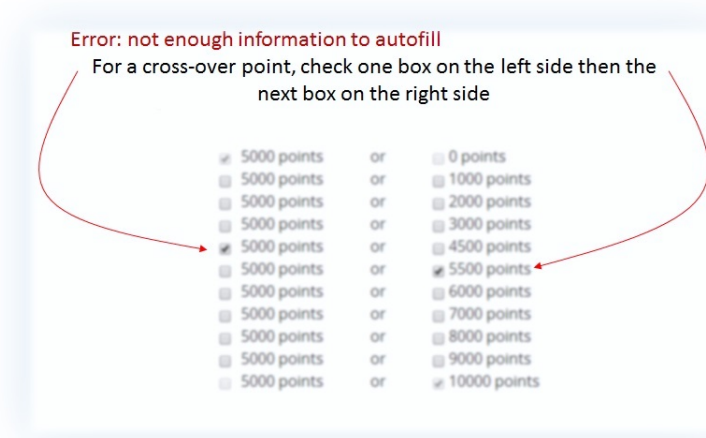
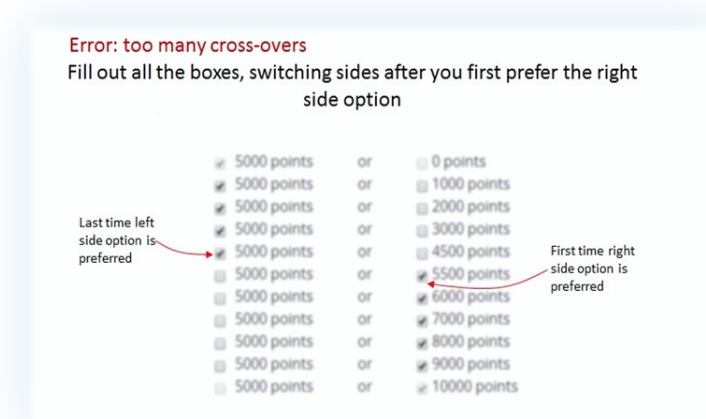


Figure 3: Error message for multiple cross-overs



possible. In the example above we would be able to tell that the respondent's certainty equivalent lay somewhere between \$2.05 and \$2.20, while if we used regular intervals we would either have a wider range of possible values, more questions, or both.

Finally, there should be a "hover" link at the bottom of the page (above the forward arrow button) that gives shortened instructions in case the respondent becomes confused. The exact text of those instructions is the same as some of the training, described in Section ??.

I.E Payment

Payment for an MPL is straightforward: if a question containing an MPL is selected for payment, then a row is selected at random from amongst the rows in the MPL, and the

respondent is paid according to their choices.

Using Figure ?? as an example, suppose that Row 3 has been randomly selected for payment, and the respondent chose “Lottery” in that row. Then the lottery would be run, and the respondent would be paid according to the outcome (which would be a 50% chance of 0, or a 50% chance of \$5). As another example, suppose instead that Row 7 was chosen for payment, and in that row the respondent had selected “\$2.95 dollars”. Then the respondent would be paid \$2.95.

II Prelude to the Survey

II.A Recruitment

We need to worry about how closely respondents pay attention and whether they understand the choices they are making. Relatedly, YouGov is worried about the fact that our survey will likely be far better compensated than their other surveys. Both of these issues may be addressed by being very specific about the nature of this survey.

Email: the email inviting members of the YouGov panel to participate in the survey should be very explicit about the fact that the survey is unusual, experimental, and will be highly compensated. Here is some suggested language:

Unlike most of our surveys, this one is experimental, and will ask you to make choices between real lotteries with real stakes. The number of points you will be given for participation will thus depend on your own choices and luck. Because this survey is experimental, and will **take between 30 and 45 minutes**, it is more highly compensated than all of the other surveys you have taken: **the average payment will be 10,000 points, and you may earn up to 32,500 points.**

II.B CHANGED: Instructions

Instructions should reflect standard experimental instructions. The language is similar to prior instantiations, but has been changed to reflect current conditions, and the high prevalence of questions involving a loss in them.

YouGov is inviting you to take a **different** kind of survey.

If you read these instructions carefully and make good decisions **you may earn up to 33,000 points** by the end of the survey. **Please pay close attention**, as you will need to correctly answer a few questions about these instructions.

[add text below, up to next square bracket, when the respondent clicks forward]

During the survey, you will be asked a number of questions that ask you to **choose between different types of lotteries and payments**. At the end of the survey, **one** of these questions will be selected randomly, and your answer to that question will determine how many points you earn.

[add text below, up to next square bracket, when the respondent clicks forward]

For example, suppose your earnings were determined, in part, by a question that asked you to decide between

- a lottery that gave a 50% chance of 10,000 points and a 50% chance of 0 points, and
- a fixed amount of 1,000 points.

If you chose the lottery, then it would be run, and you would get **either** 0 or 10,000 points, each with 50% probability. **If you chose 1,000 points**, then 1,000 points would be directly credited to your account.

Thus, the points you earn will depend on **both** your choices and luck.

[add text below, up to next square bracket, when the respondent clicks forward]

Some sections will **start you with a fixed number of points**, say 5,000, and choices in that section will have the possibility of a loss from that total.

For example, suppose your earnings were determined, in part, by a question that asked you to decide between

- a lottery that gave a 50% chance of losing 3,000 points and a 50% chance of gaining 5,000 points, and
- a loss of 1,000 points.

If you chose the first option, and the lottery selected the loss of 3,000 points, then you would receive $5,000 - 3,000 = 2,000$ points if this question were chosen for payment. **If the lottery selected the gain**, you would receive $5,000 + 5,000 = 10,000$ points. **If you chose the second option**, then you would receive $5,000 - 1,000 = 4,000$ points if this question were chosen for payment.

[add text below, up to next square bracket, when the respondent clicks forward]

In addition to the points earned for your choices, you will earn **3,000** points for completing the survey. Thus, the **minimum** number of points you will earn for taking this survey is **3,000**. The **maximum is 33,000**. The **average is 15,000**. You will not earn points unless you complete the survey.

The survey pays so much more than usual because the survey will take about **45 minutes**, and we want you to pay close attention for that entire time.

II.C Attention Quiz

After reading the instructions respondents should be asked a series of questions. Failure to get all of them correct should send them back to the instruction screen with a note at the top stating: “You did not correctly answer all questions about the instructions. Please read them closely again.” This should repeat until the respondent gets all questions correct. The questions are:

1. At the end of the survey, how many questions will be randomly selected so that points will be allocated according to your answers? [multiple choice, 1–5, correct answer is 1]
2. Your payment for this survey will depend on i. luck, ii. your choices, iii. your choices and luck, iv. none of the above? [correct answer is iii.]
3. Suppose you were given 5,000 points at the start of a module, and chose an option with a sure loss of 2,000 points in a question in that module. How many points would you end the module with if that question were chosen for payment? i. -2,000 ii. 0 iii. 2,000, iv. 3,000 v. 5,000? [correct answer is iv.]
4. How long will the survey take? i) Between 10 and 15 minutes, ii) between 10 and 20 minutes, iii) about 45 minutes, iv) one hour [correct answer is iii]
5. What is the maximum number of points you can earn for taking this survey? i. 3,000, ii. 13,000, iii. 23,000, iv. 33,000, v. 43,000? [correct answer is iv.]

II.D MPL Training

This describes a training that we would like all respondents to go through before beginning the survey. In addition, the text from below “[next page]” to the beginning of the “Example Question” should be available as a “Help” link at the bottom of the page, as described in Section ??.

This survey often uses a special type of question. We want to help you answer these questions **quickly** and **accurately**.

This special type of question has many similar choices, as in the example below. The options on the left are always the same, while those on the right change—getting better and better.

If a question like this is picked for payment, **one row** will be selected, and you will be paid according to the choice **you made in that row**. It is important that your answers in each row **are accurate** so you will get the payment **you want**.

You will see a screen that looks like this.

[example figure here—should just be a miniaturized screen shot of the MPL on the next screen]

[next page]

To answer these types of questions **quickly** and **accurately** we suggest you:

1. Start by looking at the **top row**, and think carefully about each row in turn.
2. For each row where you **prefer the option on the left** over the option on the right, check the box on the left hand side.
3. When you find the **first question where you prefer the option on the right** over the option on the left, check the box on the right.
4. Notice that the option on the right is always better as you go down the list. This means that after you choose one option on the right, you should choose the option on the right for all rows below. Your answers should therefore “cross over” from left to right **only once**.
5. Once you have filled in the “cross over” point you may hit the Autofill button to fill in the rest of the chart faster. Alternatively, you may check every box manually.

All rows must have a box checked for you to continue to the next page.

If you need to start over at any point, hit the **Reset** button to clear out all of the checkmarks.

1. Example Question: For each row in the table below, which option would you prefer? [MPL here]
 - a. 5,000 points OR
 - b. x points

[For values of

$$x \in \{0, 1000, 2000, 3000, 4500, 5500, 6000, 7000, 8000, 9000, 10000\}.$$

[Error checking here should not only consider the format, but in addition, it should ensure that the crossover is between 4500 and 5500. As in any other MPL, any errors in filling it out should return them to the MPL with the same boxes filled out, and a detailed error message.]

Note that if the respondent does not properly answer (that is, provide an answer with the crossover between 4500 and 5500), then the following error message should appear:

You have indicated in row **YYY** that you prefer **ZZZ** points to 5000 points. But **ZZZ** points is less than 5,000 points, which means you would get more by selecting 5000 points. Please correct this.

In all the other questions on this survey, there is no right or wrong answer. However, you should make sure that you select the option that you prefer on **each line**.

The error should fill in the YYY and ZZZ above with a line that they answered incorrectly.

III What we Would Like to Measure and How

III.A Newish / Changed: Risk- and Loss-Aversion

These are the only questions that use the BROAD procedure, described above. This module comes from CAIT0005, with some modifications. In particular, we have removed the former Sections III.A.2 and III.A.3. Thus, each person will only receive 10 questions, limited to risk- and loss- aversion, and there is no need to deal with future payments. Also, we remember from the prior implementation that the “box” around the longer option would be much larger when the respondent hovered over it. Is it possible to make these “hover boxes” the same size, regardless of text length?

These parameters will be jointly estimated by asking subjects to choose between lotteries over gains and losses and a certain outcome. The lotteries will be determined using an adaptive procedure (BROAD) to optimally fit the functional forms of $x^{-\rho}$ for gains and $-\lambda(-x)^{-\rho}$ for losses. The number of lotteries will be chosen to result in a certain standard error for the parameters ρ and λ . No lottery will contain a payout or loss greater than 10,000 points. For more on the level of incentives, see ?? and ??.

Before starting these questions, respondents will be given an introductory blurb

In the next few questions, you will be asked to choose between two lotteries.

You will start this section with 10,000 points, which you may lose based on the lotteries you choose in this section. That is, lotteries in this section may either **add** to or **subtract** from this initial 10,000 points.

For example, suppose you chose a lottery that had a 50% chance of adding 5,000 points, and a 50% chance of subtracting 5,000 points. In the case of winning, the 5,000 will be added to your additional 10,000. In the case of a loss, the 5,000 will be subtracted from your initial 10,000. Note that you will never have the possibility of losing more than 10,000, so at worst you will end this section with 0 points.

After hitting the forward button, they will be moved to the questions. Some example questions are:

1. Which of the following options do you prefer?
 - a. A lottery where you may receive 7,000 points, or lose 5,000 points, each with 50% probability,
 - OR
 - b. Receiving 0 points for certain.

2. Which of the following options do you prefer?
 - a. A lottery where you may receive 7,000 points, or receive 0 points, each with 50% probability,
 - OR
 - b. Receiving 3,000 points for certain.

Note above that if the amount in a lottery, or certain payoff, is 0 points this should be presented as “receive 0 points”.

As a matter of implementation, these lotteries will be given to YouGov as a complete tree. This will come in the form of a spreadsheet where each row contains the question number, the size of the gain, the size of the loss, the size of the sure thing, the question the respondent should be directed to if they answer A, and the question the respondent should be directed to if they answer B. So, for the example above, this would be specified as a row containing something like 1, 7000, 5000, 1000, 2, 3. Note that if question n is answered, then the question the respondent should be directed to if they answer A is $2n$, and if they answer B the question the respondent should be directed to is $2n + 1$.

When the respondent reaches a question at the end of the tree, this will be in the file as a row with a question number, NA for all fields except subsequent questions, and 0 in each subsequent section column.

Note that as different “branches” will have different lengths, the data should be passed back to us in a format that has something like:

```
riskQuestion1, riskQuestion1choice, riskQuestion2, riskQuestion2choice, . . . , riskQuestionMAX, riskQuestionMAXchoice, finalRiskQuestion
```

where MAX is the maximum length of a branch in the tree, and if a respondent goes down a branch that has less than MAX choices, then the question numbers they never answer should contain missing data indicators. Note that the last question number that the respondent is confronted with will not have a choice associated (it will be a terminal, or “leaf”, node). The number of this “question” should go in the field finalQuestion.

If one of the above questions is selected for payment, 10,000 points should be added to the payoff of the lottery (or sure amount) chosen by the respondent.

III.D Endowment Effect: WTA

All that has been changed here are the amounts in the questions, and the MPLs, to add dominated amounts. Error messages were added that are triggered when a dominated amount is chosen.

This section and the next will be used to compute the endowment effect. They are separated into two modules because they use the same lottery, and so need to be separated to avoid respondents worrying (or, at least, worrying too much) about the appearance of consistency. See ??.

In the willingness to accept (WTA) portion, a respondent will be given a lottery, and, using an MPL, have the opportunity to sell it. In the willingness to pay (WTP) portion (??)

they will be given a fixed amount of points and have the option, through an MPL, to buy the same two lotteries they were given in the WTA section.

Subjects will be given a lottery, and we will then determine how much we would need to pay them to give it up. Certainty equivalents will then be elicited using an MPL.

This section asks you two questions where you will be given a lottery and have the opportunity to sell it.

[next page]

1. For this question, you are given a lottery ticket that has a **50% chance** of paying you **9,000 points**, and a **50% chance** of paying you **1,000 points**.

You have two options for this lottery ticket:

1. Keep it or
2. Sell it for a certain amount of points (for example, 3,000 points)

[Present respondents with an MPL.]

For each row in the table below, which option would you prefer?

- a. The lottery ticket OR

- b. Sell it for x points

[where x will take the values of

$$x \in \{0, 1000, 2000, 2500, 3000, 3250, 3500, 3750, 4000, 4250, 4500, 4750, 5000, 5250, 5500, 6000, 7000, 8000, 9000, 10000\}.$$

2. For this question, you are given a lottery ticket that has a **50% chance** of paying you **8,000 points**, and a **50% chance** of paying you **2,000 points**.

You have two options for this lottery ticket:

1. Keep it or
2. Sell it for a certain amount of points (for example, 3,000 points)

[Present respondents with an MPL.]

For each row in the table below, which option would you prefer?

- a. The lottery ticket OR

- b. Sell it for x points

[where x will take the values of

$$x \in \{1500, 2000, 2500, 3000, 3250, 3500, 3750, 4000, 4250, 4500, 4750, 5000, 5250, 5500, 6000, 7000, 8000, 9000\}.$$

For Question 1 if the respondent preferred to sell the lottery for 1,000 points in the second row, the following error message should be displayed:

You indicated in the second row that you would sell the lottery ticket, which is guaranteed to pay at least 1,000 points, but possibly more, for 1,000 points. Are you sure this is what you want?

In the same question if the respondent preferred not to sell the lottery for 9,000 points (in the second to last row) the following error message should be displayed:

You indicated in the second-to-last row that you would prefer not to sell the lottery ticket, which pays at most 9,000 points, but possibly less, for 9,000 points. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

For Question 2 if the respondent preferred to sell the lottery for 2,000 points in the second row, the following error message should be displayed:

You indicated in the second row that you would sell the lottery ticket, which is guaranteed to pay at least 2,000 points, but possibly more, for 2,000 points. Are you sure this is what you want?

In the same question if the respondent preferred not to sell the lottery for 8,000 points (in the second to last row) the following error message should be displayed:

You indicated in the second-to-last row that you would prefer not to sell the lottery ticket, which pays at most 8,000 points, but possibly less, for 8,000 points. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

III.E Endowment Effect: WTP

Changes here are to the value of the lotteries and the MPLs. We have also added dominated-option warning messages.

This is the opposite of WTA: respondents will be given a fixed amount (say 10,000 points), and then we will determine the certainty equivalent for the lotteries in WTA, above. Note that in order to be as consistent as possible, the MPL options on the right-hand-column (the purchase price of the lottery) should be descending, rather than ascending.

This section asks you two questions where you will be given a stock of points that you can use to purchase a lottery ticket.

[next page]

1. For this question, you **have been given 10,000 points**. You will be offered the opportunity to exchange some of these points for a lottery ticket. This lottery ticket has a **50% chance** of paying you **9,000 points**, and a **50% chance** of paying **1,000 points**.

For example, if you choose to pay 2,000 points for a lottery ticket, and this question is chosen for payment, you will:

- Pay 2,000 points for the lottery ticket
- Keep 8,000 points for yourself
- Earn whatever proceeds you get from the lottery ticket (if any)

[Present respondents with an MPL.]

For each row in the table below, which option would you prefer?

- a. Keep 10,000 points OR
- b. Buy the lottery ticket for $10,000 - x$ points and keep the remaining x

[where x will take the values of

$$x \in \{0, 1000, 2000, 3000, 4000, 4500, 4750, 5000, 5250, 5500, 5750, 6000, 6250, 6500, 6750, 7000, 7500, 8000, 9000, 10000\}.$$

Note that the options for the purchase price should be descending (and the remainder ascending).]

2. For this question, you **have been given 9,000 points**. You will be offered the opportunity to exchange some of these points for a lottery ticket. This lottery ticket has a **50% chance** of paying you **8,000 points**, and a 50% chance of paying **2,000 points**.

For example, if you choose to pay 3,000 points for a lottery ticket, and this question is chosen for payment, you will:

- Pay 3,000 points for the lottery ticket
- Keep 6,000 points for yourself
- Earn whatever proceeds you get from the lottery ticket (if any)

[Present respondents with an MPL.]

For each row in the table below, which option would you prefer?

- a. Keep 9,000 points OR
- b. Buy the lottery ticket for $9,000 - x$ points and keep the remaining x

[where x will take the values of

$$x \in \{0, 1000, 2000, 3000, 3500, 3750, 4000, 4250, 4500, 4750, 5000, 5250, 5500, 5750, 6000, 6500, 7000, 7500\}.$$

Note that the options for the purchase price should be descending (and the remainder ascending).]

For Question 1 if the respondent indicated he wanted to buy the lottery for 9,000 points in the second row, the following error message should be displayed:

You indicated in the second row that you would buy the lottery ticket, which pays at most 9,000 points, but possibly less, for 9,000 points. Are you sure this is what you want?

In the same question if the respondent prefers to keep the points rather than buy the lottery for 1,000 points (in the second to last row) the following error message should be displayed:

You indicated in the second-to-last row that you would prefer to keep all your points rather than pay 1,000 points for the lottery ticket, which is guaranteed to pay at least 1,000 points, but possibly more. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

For Question 2 if the respondent indicated he wanted to buy the lottery for 8,000 points in the second row, the following error message should be displayed:

You indicated in the second row that you would buy the lottery ticket, which pays at most 8,000 points, but possibly less, for ,000 points. Are you sure this is what you want?8

In the same question if the respondent prefers to keep the points rather than buy the lottery for 2,000 points (in the second to last row) the following error message should be displayed:

You indicated in the second-to-last row that you would prefer to keep all your points rather than pay 2,000 points for the lottery ticket, which is guaranteed to pay at least 2,000 points, but possibly more. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

III.L IQ

Each respondent will get 6 puzzles, 3 of the matrix type, and 3 of the 3-D rotation type. They should proceed in the order presented here. Each puzzle should have radio buttons corresponding to the various possible solutions. For the matrix puzzles, there should also be an option for “don’t know”, and another option for “none of these” (these two options are already included in the image files for the 3-D rotation). These puzzles are taken from The International Cognitive Ability Resource (ICAR—Condon and Revelle). The numbers attached to each puzzle indicate their ICAR number, and the percent correct for each puzzle in the general population is also noted.

Please find the puzzles below, along with the correct answer for each. The data file should report whether a respondent got each question correct or not, and the number of seconds taken in answering each one.

In this section we will ask you to try to solve six puzzles.

[next page]

[[[Puzzles Ommitted as per ICAR terms of use.]]]

[new page]

1. How many of the three previous puzzles do you think you correctly answered? [a text box that only allows numbers between 0 and 3]

2. Now, think about 100 typical people in the United States.

Where do you think you rank in terms of how many correct answers you got? For example,

- if you think you got the **most correct**, you should answer **1**.
- If you think you got the **least correct**, you should answer **100**.

[Text box where any number between 1 and 100 can be entered.]

[new page]

[[[Puzzles Ommitted as per ICAR terms of use.]]]

[new page]

3. How many of the three previous puzzles do you think you correctly answered? [a text box that only allows numbers between 0 and 3]

4. Now, think about 100 typical people in the United States.

Where do you think you rank in terms of how many correct answers you got? For example,

- if you think you got the **most correct**, you should answer **1**.
- If you think you got the **least correct**, you should answer **100**.

[Text box where any number between 1 and 100 can be entered.]

Respondents should be able to hit a back button (and go back to the previous question) when they are on questions 2, 3, 7, and 8. All other questions should not allow access to a back button.

III.M Cognitive Reflection Test

Questions in this section come from Fredrick, “Cognitive Reflection and Decision Making”.

In this section we ask you three simple arithmetic questions.

[next page]

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

----- cents [allow only numbers between 0 and 100]

[next page]

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

----- minutes [allow only numbers between 0 and 1000]

[next page]

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

----- days [allow only numbers between 0 and 48]

III.O CHANGED: Qualitative Questions

The changes here are three-fold. First, Some additional qualitative questions (financial shocks and attention screeners) have been added at the end. Second, questions have been moved to different modules than before, particularly when prior modules have been deleted. Third, many of these questions will not be asked: if there isn't a specified place for them, then they are no longer on the survey (I'm keeping them here for reference).

We will use qualitative questions to provide breaks between technically demanding MPLs. Each qualitative question below is assigned to a particular spot in a particular module, and should be placed as specified (below) within that module. Each question should be on its own page. The qualitative questions are collected in this section, rather than added directly into the sections where they will appear, to keep them logically separated.

All qualitative questions, except as noted, come from “An Experimentally Validated Preference Survey Module” by Falk, Becker, Dohmen, Huffman, and Sunde.

III.O.1 Risk

How do you see yourself: are you a person who is generally willing to take risks or do you try to avoid taking risks?

[The question should be followed by clickable horizontal boxes with the numbers 0 through 10 in them. To the left of 0 should be the text “completely unwilling to take risks”, and to the right of 10 should be the text, “very willing to take risks”.]

III.O.2 Time

How well does the following statement describe you as a person?

“I tend to postpone things even though it would be better to get them done right away.”

[The question should be followed by clickable horizontal boxes with the numbers 0 through 10 in them. To the left of 0 should be the text “does not describe me at all”, and to the right of 10 should be the text, “describes me perfectly”.]

III.O.3 Trust

This question should be placed at the end of Section ??.

How well does the following statement describe you as a person?

“As long as I am not convinced otherwise I always assume that people have only the best intentions.”

[The question should be followed by clickable horizontal boxes with the numbers 0 through 10 in them. To the left of 0 should be the text “does not describe me at all”, and to the right of 10 should be the text, “describes me perfectly”.]

This question should be placed at the end of Section ??.

Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

1. Most people can be trusted
2. Can't be too careful

This question is from the General Social Survey (GSS), and used in “Measuring Trust” by Glaeser, Laibson, Scheinkman, and Soutter.

III.O.4 Altruism

This question should be placed at the end of Section ??.

How would you assess your willingness to share with others without expecting anything in return, for example your willingness to give to charity?

[The question should be followed by clickable horizontal boxes with the numbers 0 through 10 in them. To the left of 0 should be the text “completely unwilling to share with others”, and to the right of 10 should be the text, “very willing to share with others”’.]

III.O.5 Positive Reciprocity

This question should be placed at the end of Section ??.

How would you assess your willingness to return a favor to a stranger?

[The question should be followed by clickable horizontal boxes with the numbers 0 through 10 in them. To the left of 0 should be the text “completely unwilling to return a favor”, and to the right of 10 should be the text, “very willing to return a favor”’.]

III.O.6 Negative Reciprocity

The interpretation of the scale was modified more than most, although it should be kept in mind that the original question was in German.

Are you a person who is generally willing to punish unfair behavior even if this is costly?

Please check a box below, where 0 means: “completely unwilling to punish unfair behavior if there is a personal cost” and a 10 means: “very willing punish unfair behavior if there is a personal cost”.

III.O.7 Subjective Wellbeing

Both of these subjective wellbeing questions come from Annex B of

<http://www.oecd.org/statistics/Guidelines%20on%20Measuring%20Subjective%20Well-being.pdf>

The first question should go at the end of Section ??:

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero (0) means you feel “not at all satisfied” and 10 means you feel “completely satisfied”.

Overall, how satisfied are you with life as a whole these days? [text box that only accepts numbers between 0 and 10]

The second question should go at the end of Section ??:

Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you.

On which step of the ladder would you say you personally feel you stand at this time? [text box that only accepts numbers between 0 and 10]

III.O.8 NEW: Qualitative Questions on Financial Shocks

The questions on financial shocks in this section are taken from page 4 of the Pew Report, “How Do Families Cope With Financial Shocks?” available at: https://www.pewtrusts.org/~media/assets/2015/10/emergency-savings-report-1_artfinal.pdf www.pewtrusts.org/~media/assets/2015/10/emergency-savings-report-1_artfinal.pdf.

The questions on investable assets are based on those from James Choi (see https://spinup-000d1a-wp-offload-media.s3.amazonaws.com/faculty/wp-content/uploads/sites/27/2019/09/horse_appendix.pdf).

In this section we will ask you some questions about your financial circumstances.

[next page]

The following series of questions should appear on a separate page, and be followed by a box that allows them to select “Yes” or “No.”

1. In the past 12 months, has anyone in your household brought in less income than expected due to unemployment, a pay cut, or reduced hours?
2. In the past 12 months, has someone in your household suffered an illness or injury requiring a trip to the hospital?
3. In the past 12 months, has anyone in your household divorced, separated, or was widowed from a spouse or partner?
4. In the past 12 months, has anyone in your household needed a major repair or replacement to their car, truck, or SUV?
5. In the past 12 months, has the place you live in or any appliances needed major repair or replacement?
6. Has your household had some other large, unexpected expense in the past year? [If yes, add a text box with the question: Can you tell us a bit more about this expense?]

[new page]

7. What is the value of all your investable financial assets? Include the value of your bank accounts, brokerage accounts, retirement savings accounts, investment properties, etc., but NOT the value of the home(s) you live in or any private business you own. [Allow participants to choose one option.]

- a. \$0
- b. \$1 - \$999
- c. \$1,000 - \$4,999
- d. \$5,000 - \$9,999
- e. \$10,000 - \$24,999
- f. \$25,000 - \$49,999
- g. \$50,000 - \$74,999
- h. \$75,000 - \$99,999
- i. \$100,000 or more

8. What percentage of your investable financial assets is currently invested in stocks, either directly or through mutual funds?

----- % [allow only numbers between 0 and 100]

[new page]

The following series of questions should appear on a grid, with the order randomized. Across the top should be the question, “How important are the following factors in determining the percentage of your investable financial assets that is currently invested in stocks?” Immediately below this should be a list of choices running left to right: “Not important at all”, “A little important”, “Moderately important”, “Very important”, “Extremely important”. Each of the below questions then should have a row of radio buttons that can be selected. Here are the questions:

[Order of options randomized]

8. How important are the following factors in determining the extent of your investments in the stock market? [on top of grid, see above]
 - a. Concern that when I especially need the money, the stock market will tend to drop, or it will take too long to convert stocks into spendable cash.
 - b. The risk of expenses due to illness or injury to me or someone else in my family.
 - c. The number of years I and my family have left until retirement.
 - d. How soon I will have significant expenses (like a car purchase, down payment on a home, school tuition, etc.).
 - e. I don’t have a good sense of the average returns and risks of investing in stocks.
 - f. The possibility of even small losses on my stock investments makes me worry.
 - g. Advice from a financial advisor, friend, or someone else.
 - h. My lack of knowledge about how to invest.
 - i. A rule of thumb (for example, “the percent you invest in stocks should be 100 minus your age”, or “invest one-third in stocks, one-third in bonds, and one-third in real estate”.)
 - j. The default investment allocation in my (and/or my spouse/partner’s) work-based retirement savings plan (for example, 401(k), 403(b), Thrift Savings Plan).

III.O.9 NEW: Attention Screener 1

This series of questions should go after the attention quiz. It is listed as such in the question ordering specification in Section ??.

These questions should appear on a grid. Across the top should be the question, “People spend their time doing different things. Over the last year, how frequently have you done each of these activities?” Immediately below this should be a list of choices running left to right: “Never”, “Less than once a month”, “About once a month”, “Once a week”, “More than once a week”. Each of the below questions then should have a row of radio buttons that can be selected by each one. Here are the questions:

1. Ridden a bus or subway
2. Flown on an airplane
3. Been to the gym
4. Traveled to the moon
5. Gone to the grocery store
6. Read a book
7. Cooked dinner
8. Given birth
9. Gone to a religious service
10. Gotten a haircut

III.O.10 NEW: Attention Screener 2

This question should go at the end of Section ??. Participants should not be required to provide an answer to this question.

People like many different colors. What about you? To demonstrate that you are reading this question, please select purple and yellow from the list below. That’s right, just select these two options, no matter what your favorite color is.

[Allow respondents to select as many of the below options as they would like]

- Blue
- Red
- Green
- Purple

- Black
- Orange
- Yellow
- Gold

III.O.11 NEW: Attention Screener 3

These question should go towards the end of the survey. Its exact placement is specified in Section ??.

We'd like to know how you feel about local news coverage. Please read this short article. On the next page, we will ask you a few questions about your reactions to this article.

MAN ARRESTED FOR STRING OF BANK THEFTS

Columbus Police have arrested a man they say gave his driver's license to a teller at a bank he was robbing.

According to court documents, Bryan Simon is accused of robbing four Central Ohio banks between October 3 and November 5, 2018.

During a robbery on November 5 at the Huntington Bank, the sheriff's office says Simon was tricked into giving the teller his drivers' license.

According to court documents, Simon approached the counter and presented a demand note for money that said "I have a gun." The teller gave Simon about \$500, which he took.

Documents say Simon then told the teller he wanted more money. The teller told him a driver's license was required to use the machine to get out more cash. Simon reportedly then gave the teller his license to swipe through the machine and then left the bank with about \$1,000 in additional cash, but without his ID.

Detectives arrested him later that day at the address listed on his ID.

[Next Page, do not allow participants to go back. All questions should appear on one page.]

1. Do you think this article is typical of local news coverage?
 - Yes
 - Maybe
 - No

2. Do you think there is too much coverage of crime in local newspapers?
 - Yes

- Maybe
 - No
3. How was Simon identified by police for the crime he allegedly committed?
- A police officer recognized him
 - From video surveillance
 - Because he left his ID
 - He turned himself in
 - None of the above
4. How much money did Simon allegedly steal?
- About \$500
 - About \$1,500
 - About \$25,000
 - About \$1 million dollars
 - None of the above

III.O.12 NEW: Qualitative Questions on Gambling

This series of questions should appear at the end of the survey, immediately before YouGov's demographic questions (as specified in the question ordering in Section ??).

The questions should appear on a grid. Across the top should be the question, "When was the last time, if at all, you bet or gambled for money on each of the following?" Immediately below this should be a list of choices running left to right: "Within the past 30 days", "Between 30 days and 12 months ago", "More than 12 months ago", "Never". Each of the below questions then should have a row of radio buttons that can be selected.

Here are the questions:

1. When was the last time, if at all, you bet or gambled for money on each of the following?
 - a. Lotteries or lottos such as Powerball or Mega Millions.
 - b. Lottery scratch tickets.
 - c. Betting on sports whether online or with a sports book.

- d. Online card games, online slot machines, or other types of online gambling.
- e. Slot machines, bingo, keno, or video gambling, at a casino or elsewhere.
- f. Card games, roulette, or other games of chance or skill at a casino.
- g. Bet or wagered with friends, family, or others outside a casino (e.g., on card games, or basketball).
- h. Betting or gambling using some other game, activity, or event we have not listed.

If they choose anything except “Never” on the last option, the following question should appear on a new page:

You said that you have bet or gambled on some other game, activity, or event. Please specify what you bet on.

[Free text box]

III.Q Risk Aversion 2

In the next two questions, you will be asked to choose between a lottery and fixed amounts of points.

1. For each row in the table below, which option would you prefer?
 - a. A 50% chance of 5,000 points, and a 50% chance of 0 points OR
 - b. x points

[for values of

$x \in \{-500, 0, 500, 1000, 1250, 1500, 1750, 2000, 2250, 2500, 2750, 3000, 3250, 3500, 3750, 4000, 4500, 5000, 5500\}.$]

[next page]

2. For each row in the table below, which option would you prefer?
 - a. A 50% chance of 4,000 points, and a 50% chance of 1,000 points OR
 - b. x points

[for values of

$x \in \{600, 1000, 1400, 1600, 1800, 2000, 2200, 2400, 2600, 2800, 3000, 3200, 3400, 3600, 4000, 4600\}$.]

For Question 1 if the respondent chooses 0 points in the second row, the following error message should be displayed:

You indicated in the second row that you would prefer 0 points over the lottery, which is guaranteed to pay at least 0 points, but possibly more. Are you sure this is what you want?

In the same question if the respondent chooses the lottery over 5,000 (in the second-to-last row) points the following error message should be displayed:

You indicated in the second-to-last row that you would prefer the lottery, which pays at most 5,000 points, but possibly less, to 5,000 points for sure. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

For Question 2 if the respondent chooses 1,000 points in the second row, the following error message should be displayed:

You indicated in the second row that you would prefer 1,000 points over the lottery, which is guaranteed to pay at least 1,000 points, but possibly more. Are you sure this is what you want?

In the same question if the respondent chooses the lottery over 4,000 (in the second-to-last row) points the following error message should be displayed:

You indicated in the second-to-last row that you would prefer the lottery, which pays at most 4,000 points, but possibly less, to 4,000 points for sure. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

III.R CHANGED: Loss Aversion

The major change here is to move the former questions 3 and 4 to a different module (Section ??), in order to be able to place those questions in a different part of the survey. We have also changed the endowment from 10,000 points to 5,000 points. That is, if this module is

selected for payment, 5,000 (rather than 10,000) should be added to whatever payment they receive (which may be $-5,000$, resulting in a 0 net payment). We have also changed the introductory blurb slightly. Please just copy and paste the new text.

Another change is to replace the word “winning” in the questions with “gaining.”

For these questions, the negative and positive options in the MPL should be expressed differently. If the point amount given in x is, for example, -3000 points, then this should be shown as “Losing 3,000 points”, whereas if it is 3000 , it should be shown as “Gaining 3,000” points. 0 should be expressed as “0 points”.

Before starting these questions, respondents will be given an introductory blurb.

In the next few questions, you will be asked to choose between a lottery and fixed amounts of points.

You will start this section with 5,000 points, which you may lose based on the lotteries you choose in this section. That is, the lotteries in this section may either **add** to or **subtract** from this initial 5,000 points.

For example, suppose you chose a lottery that had a 50% chance of adding 5,000 points, and a 50% chance of losing 5,000 points. If the lottery pays 5,000 points, these will be added to your initial 5,000 points, giving you a total of 10,000 points. If the lottery chooses a loss of 5,000 points, this will be subtracted from your initial 5,000 points, so you will not receive any points. Note that you will never have the possibility of losing more than 5,000, so at worst you will end this section with 0 points.

[next page]

1. For each row in the table below, which option would you prefer?

a. A 50% chance of gaining 5,000 points, and a 50% chance of losing 5,000 points OR

b. [Losing / gaining] x points

[for values of

$x \in \{-6000, -5000, -4000, -3000, -2500, -2000, -1750, -1500, -1250, -1000, -750, -500, -250, 0, 250, 500, 1000, 3000, 5000, 7000\}$.]

[next page]

2. For each row in the table below, which option would you prefer?

a. A 50% chance of gaining 4,000 points, and a 50% chance of losing 4,000 points OR

b. [Losing / gaining] x points

[for values of

$$x \in \{-5000, -4000, -3000, -2500, -2000, -1750, -1500, -1250, -1000, -750, -500, -250, 0, 250, 500, 1000, 2000, 3000, 4000, 5000\}.$$

For Question 1 if the respondent chooses $-5,000$ points in the second row, the following error message should be displayed:

You indicated in the second row that you would prefer to lose 5,000 points over the lottery, which induces a loss of at most 5,000 points, but possibly less. Are you sure this is what you want?

In the same question if the respondent chooses the lottery over 5,000 (in the second-to-last row) points the following error message should be displayed:

You indicated in the second-to-last row that you would prefer the lottery, which pays at most 5,000 points, but possibly less, to a gain of 5,000 points for sure. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

For Question 2 if the respondent chooses $-4,000$ points in the second row, the following error message should be displayed:

You indicated in the second row that you would prefer to lose 4,000 points over the lottery, which induces a loss of at most 4,000 points, but possibly less. Are you sure this is what you want?

In the same question if the respondent chooses the lottery over 4,000 (in the second-to-last row) points the following error message should be displayed:

You indicated in the second-to-last row that you would prefer the lottery, which pays at most 4,000 points, but possibly less, to a gain of 4,000 points for sure. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

III.U NEW: Risk over Losses

These two questions were formerly questions 3 and 4 of Section ???. They are relatively unchanged from their former implementation, except that the endowment has changed from 10,000 points to 5,000 points. That is, if this module is selected for payment, 5,000 (rather

than 10,000) should be added to whatever payment they receive (which may be $-5,000$, resulting in a 0 net payment). We have also changed the introductory blurb slightly. Please just copy and paste the new text.

For these questions, the negative and positive options in the MPL should be expressed differently. If the point amount given in x is, for example, -3000 points, then this should be shown as “Losing 3,000 points”, whereas if it is 3000 , it should be shown as “Gaining 3,000” points. 0 should be expressed as “0 points”.

Before starting these questions, respondents will be given an introductory blurb.

In the next few questions, you will be asked to choose between a lottery and fixed amounts of points.

You will start this section with 5,000 points, which you may lose based on the lotteries you choose in this section. That is, lotteries in this section may either **add** to or **subtract** from this initial 5,000 points.

For example, suppose you chose a lottery that had a 50% chance of losing 5,000 points, and a 50% chance of losing 0. If the lottery pays you 0 points, then you will finish this section with 5,000 points. If the lottery chooses a loss of 5,000 points, this will be subtracted from your initial 5,000 points, so you will not receive any points (nor will you lose any). Note that you will never have the possibility of losing more than 5,000, so at worst you will end this section with 0 points.

[next page]

1. For each row in the table below, which option would you prefer?
 - a. A 50% chance of losing 5,000 points, and a 50% chance of 0 points OR
 - b. [Losing / gaining] x points

[for values of

$$x \in \{-5500, -5000, -4500, -4000, -3750, -3500, -3250, -3000, -2750, -2500, -2250, -2000, -1750, -1500, -1000, -500, 0, 500\}.$$

[next page]

2. For each row in the table below, which option would you prefer?
 - a. A 50% chance of losing 4,000 points, and a 50% chance of losing 1,000 points OR
 - b. Losing x points

[for values of

$$x \in \{4400, 4000, 3600, 3400, 3200, 3000, 2800, 2600, 2400, 2200, 2000, 1800, 1600, 1400, 1000, 600\}.$$

For Question 1 if the respondent chooses losing 5,000 points over the lottery in the second row, the following error message should be displayed:

You indicated in the second row that you would prefer to lose 5,000 points for sure to taking the lottery, which induces a loss of no more than 5,000 points, and possibly less. Are you sure this is what you want?

In the same question if the respondent chooses the lottery over 0 points (in the second-to-last row) the following error message should be displayed:

You indicated in the second-to-last row that you would prefer the lottery, which gives at most 0 points, but possibly less, to 0 points. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

For Question 2 if the respondent chooses losing 4,000 points over the lottery in the second row, the following error message should be displayed:

You indicated in the second row that you would prefer to lose 4,000 points for sure to taking the lottery, which induces a loss of no more than 4,000 points, and possibly less. Are you sure this is what you want?

In the same question if the respondent chooses the lottery over losing 1,000 points (in the second-to-last row) points the following error message should be displayed:

You indicated in the second-to-last row that you would prefer the lottery, which induces a loss of at least 1,000 points, but possibly more, to a loss of 1,000 points. Are you sure this is what you want?

Below each error message should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether EITHER OF these messages were triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

III.V NEW: Mixed Risk

These questions are similar to the questions in Section III.B.1 of CAIT007 in that they have a fixed option on one side, and a lottery with a variable amount on the other. This may be a useful place to look for programming logic that you can borrow. The fixed payoffs and

lotteries are different from that (old) section, but the logic should be the same. Note that for these questions, only the lower-right box should be ticked automatically (and not the upper left).

For these questions, the negative and positive options in the MPL should be expressed differently. If the point amount given in x is, for example, -3000 points, then this should be shown as “Losing 3,000 points”, whereas if it is 3000, it should be shown as “Gaining 3,000” points. 0 should be expressed as “0 points”.

Note that this module will appear twice in the survey—see Section ?? for details.

In the next few questions, you will be asked to choose between a lottery and 0 points.

You will start this section with 10,000 points, which you may lose based on the lotteries you choose in this section. That is, lotteries in this section may either **add** to or **subtract** from this initial 10,000 points.

For example, suppose you chose a lottery that had a 50% chance of losing 3,000 points, and a 50% chance of gaining 5,000 over 0 points for sure. If the lottery pays you 5,000 points, this will be added to the 10,000 points you already have, and you will finish this section with 15,000 points. If the lottery chooses a loss of 3,000 points, this will be subtracted from your initial 10,000 points, so you will end up with 7,000 points. Note that you will never have the possibility of losing more than 10,000, so at worst you will end this section with 0 points.

[next page]

1. For each row in the table below, which option would you prefer?
 - a. 0 points OR
 - b. A 50% chance of [losing / gaining] x points, and a 50% chance of gaining 5,000 points

[for values of

$$x \in \{-10,000, -9000, -8000, -7000, -6500, -6000, -5500, -5000, -4500, -4000, -3500, -3000, -2500, -2000, -1500, -1000, 0, 1000\}.$$

[next page]

2. For each row in the table below, which option would you prefer?
 - a. 0 points OR
 - b. A 50% chance of [losing / gaining] x points, and a 50% chance of gaining 4,000 points

[for values of

$$x \in \{-10,000, -9000, -8000, -7000, -6500, -6000, -5500, -5000, -4500, -4000, -3500, -3000, -2500, -2000, -1500, -1000, 0, 1000\}.$$

For each question above, there will be an additional error message that should appear if the respondent checks a dominated option.

For Question 1 if the respondent chooses the sure amount in the second-to-last row, the following error message should be displayed:

You indicated in the second-to-last row that you prefer a sure amount of 0 over a lottery that pays at least 0 and may pay more. Are you sure this is what you want?

Below this error should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether this message was triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

For Question 2 if the respondent chooses the lottery in the second row, the following error message should be displayed:

You indicated in the second-to-last row that you prefer a sure amount of 0 over a lottery that pays at least 0 and may pay more. Are you sure this is what you want?

Below this error should be two buttons “Yes. Continue” and “No. Go back and change my answers.” For each respondent a variable should indicate whether this message was triggered. This variable should take on values of 0 or 1 (or “no” and “yes”).

III.W NEW: Additional Adaptive Questions

This module is based on that found in Section ???. The main modifications from a programming point of view are:

- There is an added question format (which is essentially the same as the first format, but with only losses instead of gains),
- The order of options in the existing format is switched,
- Some of the wording in existing options is changed, and
- The endowment (initial allotment of points) is increased to 15,000.

In addition, a randomly chosen 50% of participants should be given a screen that says simply “You are almost halfway done with this section. You will now be asked some more questions with a choice between a lottery and an amount of points for certain.” (with a button for next) after the 8th choice (out of 20). The remaining half should see this screen after the 12th choice. The final dataset should contain a variable identifying the position the screen appeared in.

Before starting these questions, respondents will be given an introductory blurb:

In the next few questions, you will be asked to choose between two lotteries.

You will start this section with 15,000 points, which you may lose based on the choices you make. That is, lotteries in this section may either **add** to or **subtract** from this initial 15,000 points.

For example, suppose you chose a lottery that had a 50% chance of gaining 5,000 points, and a 50% chance of losing 5,000 points. In the case of a gain, the 5,000 will be added to your initial 15,000. In the case of a loss, the 5,000 will be subtracted from your initial 15,000. Note that you will never have the possibility of losing more than 15,000, so at worst you will end this section with 0 points.

After hitting the forward button, they will be moved to the questions. Some example questions are:

1. Which of the following options do you prefer?
 - a. Receiving 0 points for certain,
OR
 - b. A lottery where you may gain 7,000 points, or lose 5,000 points, each with 50% probability.

2. Which of the following options do you prefer?
 - a. Gaining 3,000 points for certain,
OR
 - b. A lottery where you may gain 7,000 points, or receive 0 points, each with 50% probability.

3. Which of the following options do you prefer?
 - a. Losing 3,000 points for certain,
OR
 - b. A lottery where you may lose 7,000 points, or receive 0 points, each with 50% probability.

Note above that if the amount in a lottery, or certain payoff, is 0 points this should be presented as “receive 0 points”.

As a matter of implementation, these lotteries will be given to YouGov as a complete tree. This will come in the form of a spreadsheet where each row contains the question number, the size of the first lottery payoff, the size of the second lottery payoff, the size of the sure thing, the question the respondent should be directed to if they answer A, and the question the respondent should be directed to if they answer B. So, for the first example above, this would be specified as a row containing something like 1, 7000, 5000, 0, 2, 3. Note that if question n is answered, then the question the respondent should be directed to if they

answer A is $2n$, and if they answer B the question the respondent should be directed to is $2n + 1$.

Note that this Section adds the possibility that a sure thing may be a loss, or that a lottery will not contain a gain, which was not possible before. Losses will be denoted by negative numbers, whereas before they were denoted only by position. Code must be updated to reflect these changes, and adapt wording accordingly.

When the respondent reaches a question at the end of the tree, this will be in the file as a row with a question number, NA for all fields except subsequent questions, and 0 in each subsequent section column.

Note that as different “branches” will have different lengths, the data should be passed back to us in a format that has something like:

riskQuestion1, riskQuestion1choice, riskQuestion2, riskQuestion2choice, . . . , riskQuestionMAX, riskQuestionMAXchoice, finalRiskQuestion

where MAX is the maximum length of a branch in the tree, and if a respondent goes down a branch that has less than MAX choices, then the question numbers they never answer should contain missing data indicators. Note that the last question number that the respondent is confronted with will not have a choice associated (it will be a terminal, or “leaf”, node). The number of this “question” should go in the field finalQuestion.

If one of the above questions is selected for payment, 15,000 points should be added to the payoff of the lottery (or sure amount) chosen by the respondent.

IV Implementation Issues

IV.A Incentives

A single YouGov point is worth about \$0.001. The show up fee we pay (which is set to 500 points above), is about 1/2 of the standard YouGov points for a survey of the length we are giving here, and the minimum allowed by YouGov.

A basic description of how incentives will actually be provided are in ??, above. In terms of implementation, it is likely easiest if at the end of each module that may have payment, a question is randomly selected from that module, and, if a lottery is required, that lottery is run. Note that in some cases the selection will result in a sure amount. These per-module payments can be stored temporarily, and then at the end of the survey one module can be randomly selected for payment.

The respondent should be shown a summary of their proceeds on the last screen: which question was chosen to be executed, and what the outcome was.

IV.A.1 CHANGED: Payment Probabilities

All questions should be paid with equal probability. This is to keep things simple, but it is probably sub-optimal. Each person should be paid based on the answer to a single question, as specified in the instructions. This is different than in the past, when we have paid two questions.

To ensure that the respondents trust that they will be paid, only respondents that have answered some fixed number of surveys (say, 10) should be surveyed.

IV.B CHANGED: Question Ordering and Randomization

This has been updated to incorporate all the new modules

There should be some randomization, but there are limits. In particular, we indicate by “random1” any (randomly selected, with equal probability, without replacement) member of {??, ??}, and by “random2” any (randomly selected, with equal probability, without replacement) member of {??, ??}, and finally, by “random3” any (randomly selected, with equal probability, without replacement) member of {??, ??, ??, ??}.

Then the ordering should be:

??, random2, random1, random3, random3, random3, random3, ??, random1, ??, random2, ??, ??, ??, and ??

Note that this leads to 48 different possible orderings.

YouGov will determine how the random ordering will be noted in the data file.

IV.C Moving through the Survey

Respondents must answer all questions before proceeding to the next page, with the sole exception of ??). Note that when an MPL is used, answering the question does not correspond to actually filling in a box in each row, see ??.

Respondents cannot move back once they have left a page. There is one exception to this, on the puzzle pages in Section ??. There, the respondent should be able to hit a “back” button and revise their answers to the previous puzzles, up until the point where they are asked the number they think they got correct. For more on this, see Section ??.

IV.D CHANGED: Progress

The major change here is in the number of modules.

Progress will be noted by the Section, as in the construction of this document.

So, for example, when the subject enters the first section they will see at the top of the screen, “**Section 1 out of 10**”. This will appear only on the first page of that section, centered at the top, in bold. The attention screeners do not count as sections, thus, this the first one of these screens will be displayed before the first of ??, ??}, where the actual module chosen will be determined randomly, as in Section ??.

IV.E CHANGED: Sample Size and Rollout

1,000, genpop. Soft launch of roughly 100 people to see how well III.V is working.

IV.F Background Variables and Additional Data from YouGov

YouGov will supply certain demographic controls, and political variables, that they have as background for panelists. YouGov asks about these variables on a fairly regular basis.

The following variables will be provided to us directly:

- Zip Code
- State (can be mapped from Zip Code)
- Age
- Gender
- Race and Ethnicity
- Religion

YouGov also gives other background variables as part of its standard package. In addition, we are asking for two variables that YouGov does not commonly have background information for:

- Home Ownership
- Stock Ownership

Other variables will be asked about on the survey, and YouGov will give us both those answers, and the answers that were in their database immediately before the survey. These are:

- Household Income
- Education
- Marital Status
- Employment Status
- Religious Attendance
- Ideology (5 point)
- Party ID (7 point)
- Political Interest
- Verified voter turnout

IV.F.1 Political Question Wording

Ideology (5 point): In general, how would you describe your own political viewpoint?

- Very liberal
- Liberal
- Moderate

- Conservative
- Very conservative
- Not sure

Party ID (7 point): Generally speaking, do you think of yourself as a ...?

- Democrat
- Republican
- Independent
- Other
- Not sure

If the answer to the first question is “Democrat”, then they are asked: “Would you call yourself a strong Democrat or a not very strong Democrat?”

- Strong Democrat
- Not very strong Democrat

If the answer to the first question is “Republican”, then they are asked: “Would you call yourself a strong Republican or a not very strong Republican?”

- Strong Republican
- Not very strong Republican

If the answer to the first question is “Independent”, “Other”, or “Not Sure”, then they are asked: “Do you think of yourself as closer to the Democratic or the Republican Party?”

- The Democratic Party
- The Republican Party
- Neither
- Not Sure

Political Interest Some people seem to follow what’s going on in government and public affairs most of the time, whether there’s an election going on or not. Others aren’t that interested. Would you say you follow what’s going on in government and public affairs...

- Most of the time
- Some of the time
- Only now and then
- Hardly at all
- Don’t know

IV.F.2 CHANGED: Additional Data

In addition to the answers to all questions (it is preferable if MPLs are sent to us as columns indicating the right and left hand side answers, as currently done), we would like the following information:

- The number of points a respondent entered the survey with (in their account)
- The number of errors a respondent makes in Section ?? (The MPL Training)
- Actual Question Order for that respondent (see Section ??)
- The number of times a respondent triggers a warning on a particular question (currently we know if they made a dominated choice, but not if they did so, got an error message, did so again, got an error message, and then changed, or something like that).
- Time to answer and click through each question (response time)

The time should be given for each sub-question in Section ?? and ??.

IV.G Trust in the Survey

In order to deal with issues of trust, we should only survey those that have been surveyed some minimum number of times before (so they know that points will actually appear in their account). Beyond this, we have thought about allowing the subjects to cheat us at some point (which they will be able to do in ??), in order to show XXX: What exactly?