Lottery Treatment

Instructions: Part 1

Welcome to our decision making study! Thank you for your participation. Please turn off and put away your cell phones, put away any books or other things you've brought with you, and please refrain from talking to other participants during the study.

Here in the Economics Experimental Lab, our research does not involve deception of any kind. You might have participated in experiments elsewhere on campus where that was not the case, but it will always be true here. What this means is that, in this Lab, we will provide you with all relevant information and we will be truthful. The instructions accurately reflect how decisions and processes will unfold. We will not deceive or lie to you in any way.

This study will take approximately 90 minutes. You will receive $10 for showing up on time. In addition to this "show up payment," you may earn additional money throughout the study. Your earnings may depend on your decisions and on elements of chance.

There are two separate "Parts" to this experiment, and each Part has multiple Tasks. These instructions are for Part 1. Part 2 will take place after Part 1 is finished. Your decisions in Part 1 will not in any way affect your decisions or payoffs in Part 2.

Task 1: Lotteries

The Lottery

Your earnings from Part 1 will be determined by the outcome of a lottery which will take place in two steps. We will represent the lottery as drawing a ball from an urn.

- There are 2 possible urns the ball could be drawn from, Urn 1 and Urn 2.
- Each urn will have some balls in it, and the balls can be either red or blue.
- In Step 1 of the lottery, we will pick either Urn 1 or Urn 2.
- In Step 2 of the lottery, we will draw a ball from the selected urn.
- Step 2 will not occur immediately after Step 1 – some time will pass in between (more on this below)

Payoffs

The color of the chosen ball will determine your payoff from the lottery.

- If the ball drawn from the urn is red, you will receive the high prize -- $11.
- If the ball drawn from the urn is blue, you will receive the low prize -- $2.

Overall Odds

Overall, there is a 50% chance that a red ball will be drawn and a 50% chance that a blue ball will be drawn. This means that there's a 50% chance you will earn the high prize and a 50% chance you will earn the low prize.

Your Choice

There are many different possible lotteries that can be played, all with the same Overall Odds. You will be choosing the lottery that you want to participate in. All the available lotteries have the same Overall Odds and same Payoffs. Essentially, you will decide how many balls of each color you would like in Urn 1 and Urn 2, and you will determine the probability of choosing Urn 1 and Urn 2 in Step 1 of the lottery.

Choosing Lotteries

Every lottery will have the same Overall Odds, 50% chance of drawing a red ball and 50% chance of drawing a blue ball. However, there are many possible lotteries that have the same Overall Odds. There are three things that determine a lottery, and you will be choosing these three things –

1. The fraction of red and blue balls in Urn 1
2. The fraction of red and blue balls in Urn 2
3. The likelihood of selecting Urn 1 vs. Urn 2

When you make your decisions, your screen will have three "sliders" on it. The slider on top determines the likelihood of choosing Urn 1 vs. Urn 2. The bottom left slider determines the fraction of red and blue balls in Urn 1, and the bottom right slider determines the fraction of red and blue balls in Urn 2.

On your screen, you'll also see three "Auto" buttons, one corresponding to each slider. You must put exactly one slider on "Auto" at all times. You can put any of the three sliders on Auto, and then you can adjust the other two in any way you want. This way, the computer will automatically adjust the Auto slider in order to maintain the Overall Odds. We'll go through some examples in a minute to give you an idea how the computer interface works.

Lottery Details

The first important thing to realize is that the Overall Odds of drawing a red ball or a blue ball **does not change** when you make your decisions or adjust the sliders. No matter which lottery you choose, overall there is a 50% chance of drawing a red ball and a 50% chance of drawing a blue ball.

- When you choose your most preferred lottery, you are choosing how you want the odds to be determined in Step 1 relative to Step 2.
- For example, in Lottery 4 in the table, the outcome is ultimately determined in Step 1, since after the Urn is selected the outcome is known. You will either know for sure that we will draw a red ball and you will earn $11, or you will know for sure that we will draw a blue ball and you will earn $2.
- On the other hand, in Lottery 1 above, you will know after drawing Urn 1 or Urn 2 that you still have a 50% chance of drawing a red ball and a 50% chance of drawing a blue ball.

- For Lotteries 2 and 3, the outcome is determined partially in Step 1 and partially in Step 2, since the chosen Urn will have a higher or lower fraction of red (blue) balls than the Overall Odds, but there is still a chance of drawing a red (blue) ball from either Urn.
- You are choosing how to spread the odds across Step 1 and Step 2, which is also like choosing what you want Step 1 to tell you about your chances of drawing a red (blue) ball later.

Another important thing to realize is that it can't be the case where both Urns have more than 50% red balls and it also can't be the case where both Urns have fewer than 50% red balls.

- It has to be that one Urn has more than or equal to 50% red balls, but the other Urn has less than or equal to 50% red balls. This way, the Urns will "average" out to equal a 50% chance of drawing a red ball.
- The computer will only allow you to choose options that satisfy these conditions. Urn 1 will have fewer than 50% red balls and Urn 2 will have more than 50% red balls.

Restrictions

You'll be choosing your most preferred lottery under various conditions which we will call "scenarios." Remember, your most preferred lottery is determined by (i) The fraction of red and blue balls in Urn 1, (ii) The fraction of red and blue balls in Urn 2, and (iii) The likelihood of selecting Urn 1 vs. Urn 2.

- In some scenarios, the computer might place "restrictions" on one or more of these things.
- For example, the computer might require that Urn 1 contains at least 10% red balls, or that Urn 2 contains no more than 80% red balls.

Preferences

There are no right or wrong answers in any of these scenarios. We are simply interested in your preferences, so please consider the options carefully and choose the one lottery you most prefer in each scenario. In fact, you should answer each question as if it will directly determine your Part 1 earnings, since one of the scenarios will. If you don't answer according to your actual preferences, you might end up with something you prefer less than another available option.

Experiment Timing

Task 1

Part a:

You will have the chance to participate in a practice lottery, so you can get used to how the computer sliders work, how to pick your preferred lotteries, etc. As you're getting familiar with the task, we will also ask you a few comprehension questions.

Part b:

Next, you'll participate in the Lottery Task described above. You will choose your most preferred lottery from 12 different scenarios. These scenarios might differ in the restrictions that the computer places on the Urns.

Part c:

After you make all your decisions, we will determine which of the 12 scenarios will actually play out. We'll do this in the following way. The computer will randomly draw a number 1-12. Each number is equally likely to be drawn. The number chosen will correspond to the scenario that will play out. You will participate in whatever lottery you chose as your preferred lottery in that scenario.

Part d:

Now that the lottery has been selected, we will determine whether the ball will be drawn from Urn 1 or Urn 2 according to the probabilities you have chosen in your preferred lottery.

How will we do that? Here is an example. Let's say, in your most preferred lottery, Urn 1 will be chosen with 35% chance and Urn 2 will be chosen with 65% chance.

- The computer will randomly draw a number 1-100. Each number is equally likely to be drawn.
- If the number drawn is less than or equal to 35, Urn 1 will be chosen.
- If the number drawn is greater than 35, Urn 2 will be chosen.

Task 2 and 3

After we select the Urn, you will participate in Tasks 2 and 3 of the experiment. This means that, after Part d, you will be told which Urn has been chosen and you will be reminded the proportion of red and blue in that Urn. But we will not randomly draw a ball from the Urn until the very end of Part 1. So when you participate in Tasks 2 and 3, you will know the Urn that will eventually determine your payoffs from Part 1, but we will not draw a ball to determine the lottery outcome until the end of Tasks 2 and 3. Tasks 2 and 3 will take about 30 minutes, so you will be waiting for those 30 minutes to learn the outcome of the lottery.

Task 2: Coloring

After you have been notified which Urn the ball will be drawn from, you'll participate in Task 2. In Task 2, you will use the computer to "color" a representation of your chosen Urn.

More detailed instructions on the coloring task will follow.

Task 3: Questions

We will also ask you various other questions about lotteries and your choices. These questions will be hypothetical, to test your understanding of the lotteries and ask you questions about your preferences.

Remember, the actual Urn determining your payoffs will have already been chosen, but we will not have selected a ball yet to determine your payoffs.

Lottery Outcome

After Task 3, we will determine the actual outcome of the lottery. We will randomly choose a number 1-100. You've colored the 100 balls in your urn in Task 2, so the random number drawn corresponds to one of the colored balls.

If the number drawn corresponds to a ball you've colored red, you will earn the high prize of $11. If it's blue, you will earn the low prize of $2.

Part 2

After the outcome is revealed and Part 1 is finished, you will receive the instructions for Part 2, which is a short additional "bonus" task. Your decisions in Part 1 will not in any way affect your decisions or payoffs in Part 2. The two parts are completely independent.