

Comparing Risky Gambles

The purpose of this research study is to improve our understanding of how people make risky decisions. The questions in this computer-based survey involve comparisons between gambles with the possibility of winning money. When you are finished with the study, we will select one of the questions at random and you will play the gamble that you chose in that question for real money. Whether you win or not depends on the outcome, but you cannot lose money in this study.

There are no anticipated risks as a result of your participation in this study. Because we have to keep track of payments, we will ask you to sign for your winnings (if any), but your name will not be associated with your data in any way. The benefit to you and others as a result of your participation is a greater understanding of decision processes, as explained in the debriefing materials that will be provided at the end of the session. The experiment will last about 30 minutes and you will receive half of one credit hour towards your REP requirement, plus any money that you win at the end. If you have questions about the research, or in the extremely unlikely event of a research-related injury, please contact Dr. Mike DeKay, 224 Lazenby Hall, phone 292-1837. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Your participation in this study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may also discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.

If you wish to participate in this study, please click the Next button.

This study is designed to explore the decisions that people make when the outcomes of those decisions are uncertain. Specifically, we will ask you to make choices between gambles with the possibility of winning real money. In addition to entering your choices on the computer, we would also like you to indicate your choices on the answer sheet provided. At the end of the study, we will use a spreadsheet to select at random **ONE** of the questions and to determine the outcome of your chosen option in that question. For example, if the spreadsheet randomly selects question 8 and your answer sheet indicates that you chose option B in that question, the spreadsheet will then randomly determine the outcome of the gamble described in option B of question 8. If the result is positive, we will pay you that amount in cash before you leave today. (Because we have to keep track of payments, we will ask you to sign for your winnings, but your name will not be associated with your data in any way.) It is possible that you will not win any money, but it is not possible to lose money in this study.

If you have questions at any time during the study, please ask the facilitator individually.

Please write the letter **D** on your answer sheet.

In this study on decision making, you are asked to choose between two options, each of which involves a series of **ONE HUNDRED** monetary gambles. On each gamble in option A, there is a 30% chance that you will receive 22¢ and a 70% chance that you will get no money. On each gamble in option B, there is a 40% chance you will receive 14¢ and a 60% chance that you will get no money.

These two options may be summarized as follows:

Option A:

- 30% chance on each gamble that you get 22¢
- 70% chance on each gamble that you get no money

Option B:

- 40% chance on each gamble that you get 14¢
- 60% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 660¢ total. There is a 90% chance that you would win between 506¢ and 836¢.

If you played Option B 100 times, you could expect to win about 560¢ total. There is a 90% chance that you would win between 448¢ and 672¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles. You may not choose option A for some gambles and option B for others. Regardless of your choice, the outcome of any particular gamble in the sequence (say the 23rd gamble) has no effect on the outcome on any other gamble in the sequence (say the 24th gamble or the 67th gamble). Each gamble is independent of the others.

1. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

- 25% chance that on each gamble you get 6¢
- 75% chance that on each gamble you get no money

Option B:

- 20% chance that on each gamble you get 10¢
- 80% chance that on each gamble you get no money

If you played Option A 100 times, you could expect to win about 150¢ total. There is a 90% chance that you would win between 108¢ and 192¢.

If you played Option B 100 times, you could expect to win about 200¢ total. There is a 90% chance that you would win between 140¢ and 270¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

3. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

- 15% chance on each gamble that you get 42¢
- 85% chance on each gamble that you get no money

Option B:

- 30% chance on each gamble that you get 24¢
- 70% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 630¢ total. There is a 90% chance that you would win between 378¢ and 882¢.

If you played Option B 100 times, you could expect to win about 720¢ total. There is a 90% chance that you would win between 552¢ and 912¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

5. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

2% chance on each gamble that you get 5¢
98% chance on each gamble that you get no money

Option B:

1% chance on each gamble that you get 12¢
99% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 10¢ total. There is a 90% chance that you would win between 0¢ and 25¢.

If you played Option B 100 times, you could expect to win about 12¢ total. There is a 90% chance that you would win between 0¢ and 36¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

7. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

- 50% chance on each gamble that you get 6¢
- 50% chance on each gamble that you get no money

Option B:

- 25% chance on each gamble that you get 9¢
- 75% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 300¢ total. There is a 90% chance that you would win between 252¢ and 348¢.

If you played Option B 100 times, you could expect to win about 225¢ total. There is a 90% chance that you would win between 162¢ and 288¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

9. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

40% chance on each gamble that you get 8¢

60 % chance on each gamble that you get no money

Option B:

30% chance on each gamble that you get 7¢

70% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 320¢ total. There is a 90% chance that you would win between 256¢ and 384¢.

If you played Option B 100 times, you could expect to win about 210¢ total. There is a 90% chance that you would win between 161¢ and 266¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

11. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

- 65% chance on each gamble that you get 15¢
- 35% chance on each gamble that you get no money

Option B:

- 85% chance on each gamble that you get 12¢
- 15% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 975¢ total. There is a 90% chance that you would win between 855¢ and 1095¢.

If you played Option B 100 times, you could expect to win about 1020¢ total. There is a 90% chance that you would win between 948¢ and 1092¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

13. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

80% chance on each gamble that you get 10¢
20% chance on each gamble that you get no money

Option B:

100% chance on each gamble that you get 6¢

If you played Option A 100 times, you could expect to win about 800¢ total. There is a 90% chance that you would win between 730¢ and 860¢.

If you played Option B 100 times, you could expect to win 600¢ total.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

15. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

- 4% chance on each gamble that you get 65¢
- 96% chance on each gamble that you get no money

Option B:

- 8% chance on each gamble that you get 35¢
- 92% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 260¢ total. There is a 90% chance that you would win between 65¢ and 455¢.

If you played Option B 100 times, you could expect to win about 280¢ total. There is a 90% chance that you would win between 140¢ and 455¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

17. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

- 45% chance on each gamble that you get 12¢
- 55% chance on each gamble that you get no money

Option B:

- 90% chance on each gamble that you get 5¢
- 10% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 540¢ total. There is a 90% chance that you would win between 444¢ and 636¢.

If you played Option B 100 times, you could expect to win about 450¢ total. There is a 90% chance that you would win between 425¢ and 475¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

19. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

You are in the same situation, but the options are different. The previous options are not available, but everything else is the same as before.

The two new options are:

Option A:

10% chance on each gamble that you get 75¢
90% chance on each gamble that you get no money

Option B:

25% chance on each gamble that you get 35¢
75% chance on each gamble that you get no money

If you played Option A 100 times, you could expect to win about 750¢ total. There is a 90% chance that you would win between 375¢ and 1125¢.

If you played Option B 100 times, you could expect to win about 875¢ total. There is a 90% chance that you would win between 630¢ and 1120¢.

Your choice between options A and B applies to all **ONE HUNDRED** gambles.

21. If you had to choose one gamble to play ONE HUNDRED times, which option would you prefer? Please check one.

Strongly prefer option A	-	Moderately prefer option A	-	Neither	-	Moderately prefer option B	-	Strongly prefer option B
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. If forced to decide, which option would you choose to play ONE HUNDRED times? Please check one.

- Option A
- Option B

Now we would like you to answer some additional questions.

**23. Imagine that we roll a fair, six-sided die 1,000 times. (That would mean that we roll one die from a pair of dice.)
Out of 1,000 rolls, how many times do you think the die would come up as an even number?**

24. In the BIG BUCKS LOTTERY, the chances of winning a \$10.00 prize are 1%. What is your best guess about how many people would win a \$10.00 prize if 1,000 people each buy a single ticket from BIG BUCKS?

25. In the ACME PUBLISHING SWEEPSTAKES, the chance of winning a car is 1 in 1,000. What percent of tickets of ACME PUBLISHING SWEEPSTAKES win a car?

26. If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 1000?

27. If the chance of getting a disease is 20 out of 100, this would be the same as having a ____% chance of getting the disease.

28. Suppose you have a close friend who has a lump in her breast and must have a mammogram. Of 100 women like her, 10 of them actually have a malignant tumor and 90 of them do not. Of the 10 women who actually have a tumor, the mammogram indicates correctly that 9 of them have a tumor and indicates incorrectly that 1 of them does not have a tumor. Of the 90 women who do not have a tumor, the mammogram indicates correctly that 81 of them do not have a tumor and indicates incorrectly that 9 of them do have a tumor. The table below summarizes all of this information. Imagine that your friend tests positive (as if she had a tumor), what is the likelihood that she actually has a tumor?

	Tested Positive	Tested Negative	Total
Actually Has a Tumor	9	1	10
Does Not Have a Tumor	9	81	90
Total	18	82	100

(Answer: _____ out of _____)

29. 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?

30. In a lake, there is a patch of lilypads. 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?

31. Do you have any guesses about the specific goal of this study or about the specific hypothesis that we are testing?

If yes, please describe your guess(es) in the box below. If no, just type "no"

32. When choosing between options A and B, did you ever try to choose the option with the higher “expected value”? Please check one. If you are not sure what an expected value is, check No.

Yes

No

33. Some people prefer to avoid risks (we call these people “risk averse”). Other people seek out risks and may actually enjoy them (we call these people “risk seeking”). To what extent are you risk averse or risk seeking? Please check one.

Very risk averse - Moderately risk averse - Neither - Moderately risk seeking - Very risk seeking

Finally, we would like you to answer a few questions about yourself. This information will be very useful in helping us describe the types of people who participated in our study.

34. To what extent are you politically liberal or politically conservative? Please check one.

Very liberal	-	Moderately liberal	-	Neither	-	Moderately conservative	-	Very conservative
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>

35. How important is religion in your daily life? Please check one.

Not at all important	-	Moderately important	-	Very important
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>

36. What is your sex? Please check one.

- Male
- Female

37. What is your age in years?

38. Are you Hispanic or Latino? Please check one.

- Yes
- No

39. How would you describe your race? Please check all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other (please specify)

40. Is English your first language? *Please check one.*

Yes

No

Thank you for participating in this study!