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Moving to the head of the class: Exam study decisions when courses grade on a curve



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Background

How do students make effort allocation decisions in an ambiguous (“fuzzy”) environment regarding their grades?

People tend to avoid selecting the risky option in decision tasks unless the risk provides an opportunity to avoid a loss.
Riskier decisions are defined as selecting the more variable of two options.

- **The Decision Task:** Choosing between two options, in which the success criterion is “fuzzy” (there is ambiguity about the cutoff to reach the goal, for example: receiving a bonus for being in the top 10% of sales for the quarter).
- **The Academic Setting (Grading Curve Conditions):**
 - Normal curve (10% A, 15% B, 50% C, 15% D, 10% F)
 - Equal distribution (20% A, 20% B, 20% C, 20% D, 20% F)

H1: People will make fewer risky choices with the normal curve distribution.

H2: People will choose the guaranteed option more often as the expected value of the choices increase.

H3: People will choose the guaranteed option more often as the spread/difference between the higher risk 50-50 outcomes increased.

Study Design

78 Participants (23 males, 55 females; 64 Caucasian, 5 African American, 4 Latinx, 3 Asian American, and 2 Other).

Fuzzy Decision Making Task (example)

Vignette: You are preparing for an upcoming exam in one of your college classes. The professor of the class assigns grades on a curve rather than by percentage of points earned. In this class, the top 10% of students receive an A, the next 15% receive a B, the next 50% receive a C, the next 15% receive a D, and the bottom 10% receive an F. You have decided that your goal for this course is to earn a B or better, so in a class of 100 students you would have to perform better than at least 75 other students to achieve your goal.

Choice A:
100% chance of scoring 60%

Choice B:
50% chance of scoring 55%
Or
50% chance of scoring 65%

This is an example of grading on a normal curve. The equal distribution has equal probability for each grade.

This is an example of an option with a 10% spread.

Results

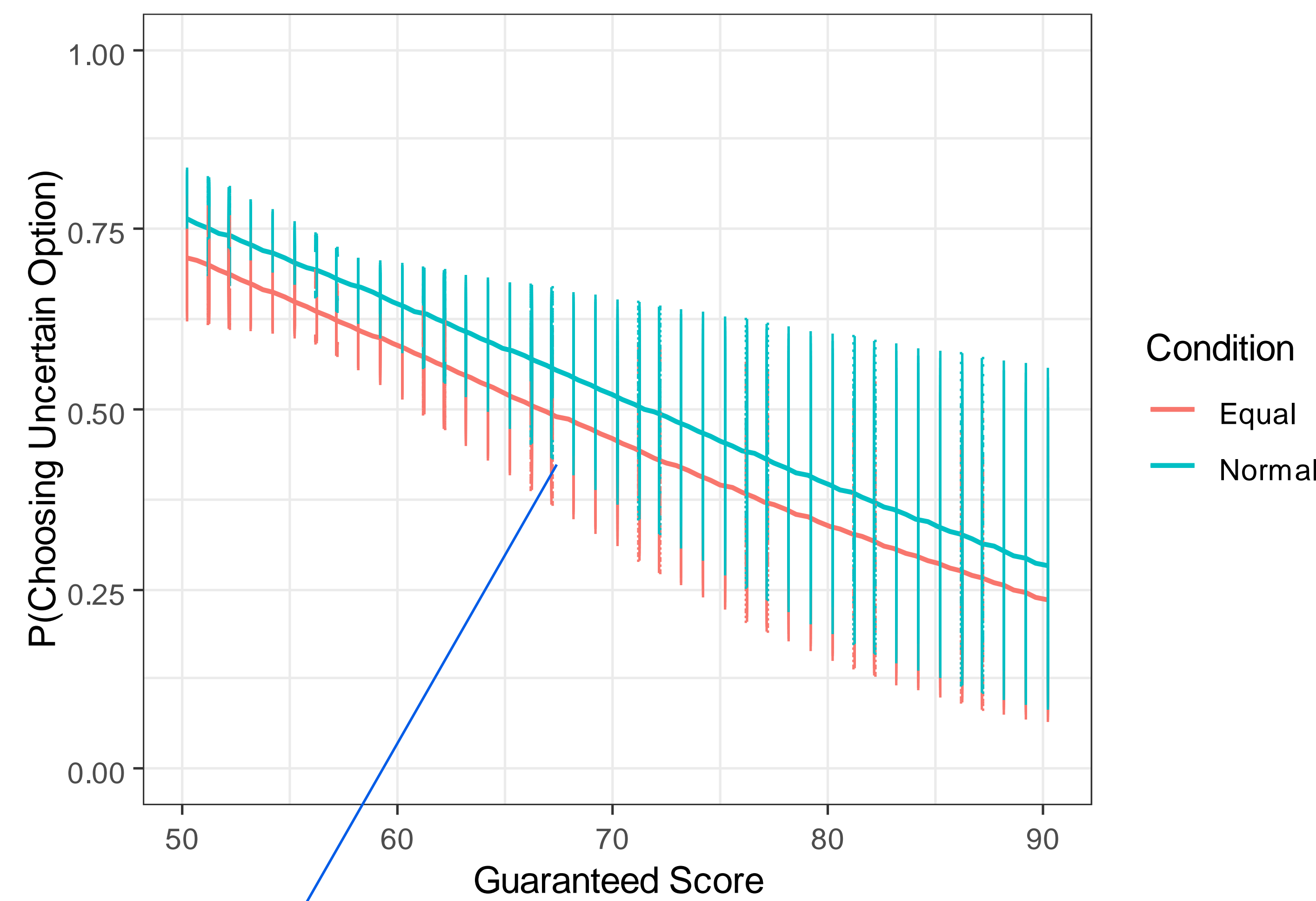
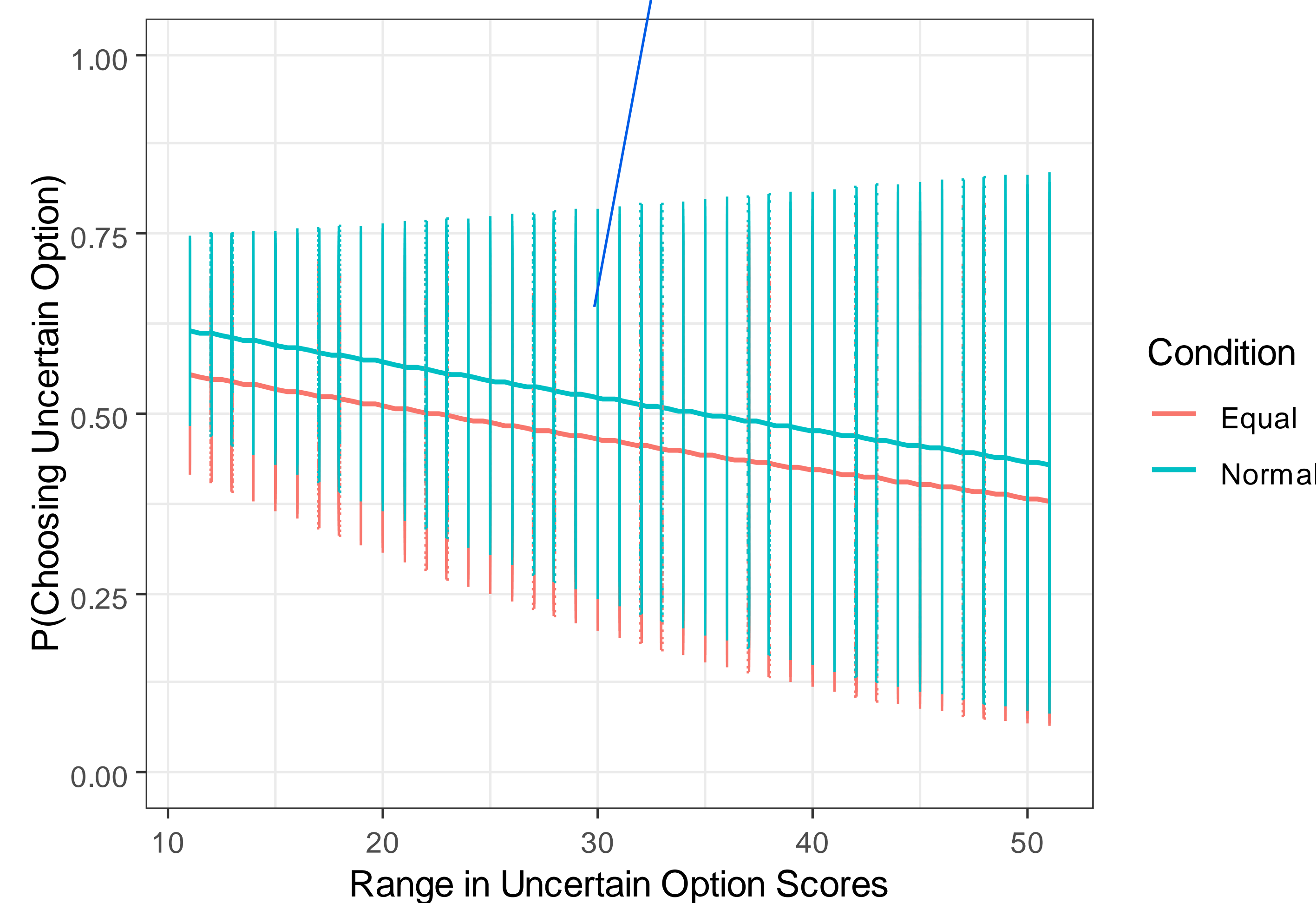


Figure 1. As the guaranteed score increases the riskier option is selected less often.

Figure 2. As the range/spread between the riskier option (50-50) increases it is selected less often.



Discussion

Contrary to Hypothesis 1, there were no differences in decision patterns between the two grade distribution conditions.

As hypothesized (*H2, H3*), participants were more likely to choose the guaranteed option as the expected value of the choices increased and as the difference between the higher risk 50-50 outcomes increased.

	Estimate	S.E.	p
Intercept	0.03	0.14	.820
Condition	0.26	0.18	.165
Guarantee	-0.04	0.004	< .001
Spread	-0.02	0.004	< .001
Guarantee * Spread	-0.002	0.0003	< .001

- This research can aid universities in determining how student behaviors are associated with various grade assignment schemes.
- Current findings illustrate that students are less willing to select the risky option as the value of a guaranteed score increases and also as the amount of risk (spread) increases.
- Future research can examine how different conditions may affect decision making, including traditional percentage of total course points grade assignment.

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