Evaluation of the Questionnaires

Lecture: Behavioral Economics

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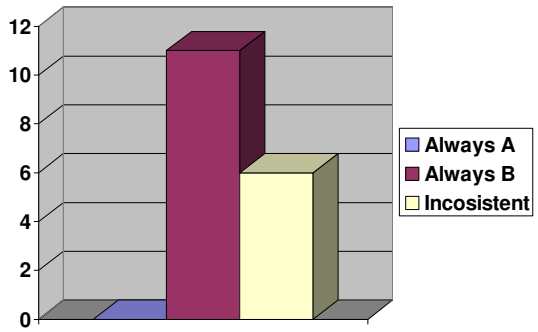
The questionnaire was answered by 17 students of the "Behavioral Economics" course. There were two different tratments, TI and TII. In Treatment I there were 9 students and in Treatment II there were 8 students. Not all students have answered all questions.

Allais Paradox: The questions Q1 and Q6 together are the well-known Allais problem. The problem was designed by Maurice Allais to show an inconsistency of actually obsered choices with the predictions of expected utility theory (violation of the independence axiom). For an expected utility maximizer the following equivalence should hold: $L_{1A} \succ L_{1B} \iff L_{6A} \succ L_{6B}$.[1] The results of the class experiment are shown in the following diagram.



The preferences of 6 students out of 17 do at least not always satisfy the axioms of expected utility theory.[2]

Salience (Q3): The salience of any particular fact depends on the way it is presented. Psychologists and behavioral economists have found that people are more likely to consider a fact when its presentation is more attention-grabbing. As a result, two different presentations of the same information can lead to different choices.

In Treatment I the students answered the following policy question:
"*Imagine that the German government is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to*

[1] A nice proof of this statement can be found in Wikipedia, http://en.wikipedia.org/wiki/Allais_paradox

[2] Cf.: Allais, M. (1953)," Le comportement de l'homme rationnel devant le risque: critique des postulats et axiomes de l'école Américaine," Econometrica 21, 503-546.

combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

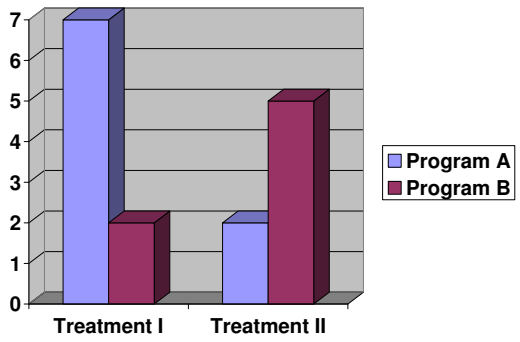
- *If program A is adopted, 200 people will be saved.*
- *If program B is adopted, there is a 1/3 probability that 600 people will be saved, and a 2/3 probability that no people will be saved.*

Which one of the programs would you favor?"

In Treatment II the question was the same with the following alternative programs:

- *"If programm A is adopted 400 people will die.*
- *If program B is adopted, there is a 1/3 probability that no one will die, and a 2/3 probability that 600 people will die."*

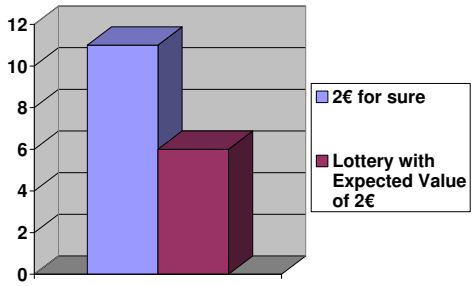
Objectively, the two programs A are identical and the two programs B are identical. Yet, the students in Treatment I favor program A whereas the students in Treatment II favor program B. The results are presented below.



This experiment was first conducted by Tversky and Kahneman (1981).[3] In their study, 72% of the first group said they preferred A to B, while 78% of the second group said they preferred B to A.

Risk Loving (Q8): People definitely show an aversion to risk in gambles involving moderate odds. When gambles offer very high payoffs with very low probabilities, however, subjects appear to be risk loving. If students are risk averse, they should pick option A in Q8.

[3]CF.: Tversky, A. and D.Kahneman (1981), "The Framing of Decisions and the Psychology of Choice," Science 211, 453-458.

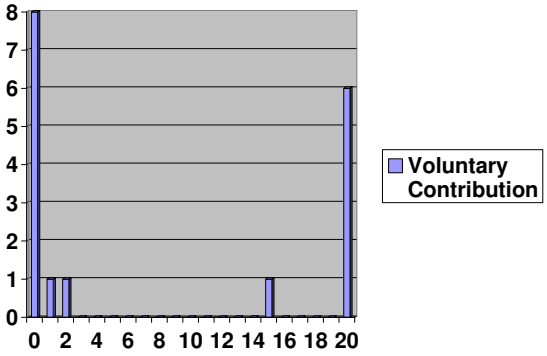


The results of the class experiment show that at least some people seem to be risk loving. In one experiment conducted by Kahneman and Tversky (1979), 72% of the subjects said they would choose the lottery.[4] This observation isn't confined to the laboratory. Every year, millions of people spend billions of euros on lottery tickets.

Public Good Game (Q4): One important line of experimental research concerns behavior in public good games, sometimes called voluntary contribution games. In such a game, each member of a group receives a fixed number of tokens. Players are invited to contribute some or all of their tokens to a central pool. The following formula determines each player's payoff:

$$\text{Payoff}(€) = \text{Player's remaining tokens} + M \times \text{Tokens in common pool}\ ,$$

where $0 < M < 1$. Clearly, the dominant strategy for each player is to contribute nothing. The social optimal solution (M not to small), however, is that each player contributes all tokens. The results of the class experiment with 17 players and $M = 1/3$ are as follows:



The average payoff was 49,33€. Many students focus on their individual economic incentives and give nothing. Many others focus on the collective interest and give

[4]CF.: Kahneman, D. and A.Tversky (1979), "Prospect Theory: An Analysis of Decisions under Risk," Econometrica 47, 263-291.

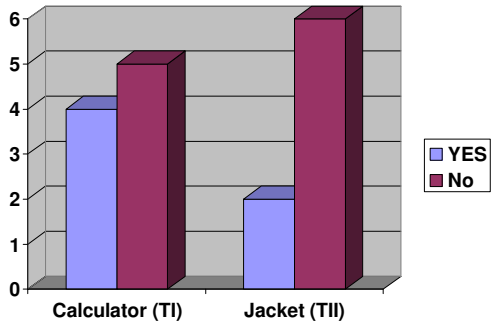
all of their tokens. Relatively few give something in between. These observations are highly in line with many experimental findings.[5]

Narrow Framing (Q7): To some extent, all the decisions we make are interrelated. Whenever we spend money or time on something, less remains to spend on everything else. Most of us don't think about these interrelationships, however. Instead, we simplify the process of decision-making by compartmentalizing. Narrow framing is the psychological tendency to group related items into categories, and, in making a choice, to consider other items in the same category while ignoring items in different categories. Narrow framing can also influence how we evaluate the factors we do consider in making our decision. In the questionnaire the following questions were posed:

TI Imagine that you are about to purchase a jacket for €125, and a calculator for €15. The calculator salesman informs you that the calculator you wish to buy is on sale for €10 at the other branch of the store, located 20 minutes drive away. Would you make the trip to the other store?

TII Imagine that you are about to purchase a jacket for €125, and a calculator for €15. The jacket salesman informs you that the jacket you wish to buy is on sale for €120 at the other branch of the store, located 20 minutes drive away. Would you make the trip to the other store?

Objectively, these two scenarios are identical. You plan to spend €140, and can save €5 by making a 20-minute trip to another store. In the experiment by Tversky and Kahneman (1981) far more people say they would make the trip in the first scenario than in the second (68% vs. 29%).[6] The results in the class experiment are less in favor of the narrow framing hypothesis.



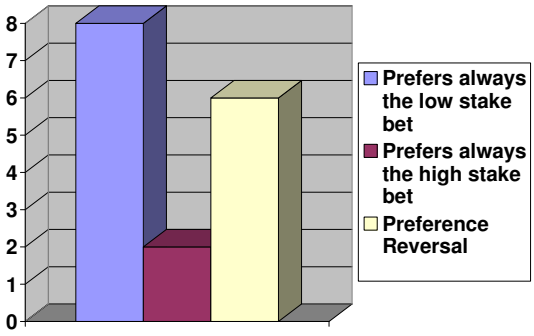
[5]CF.: Fehr, E. and S.Gächter (2000), "Cooperation and Punishment in Public Goods Experiments," American Economic Review 90, 980-994.

[6]CF.: Tversky, A. and D.Kahneman (1981), "The Framing of Decisions and the Psychology of Choice," Science 211, 453-458.

Maybe, €5 does not create enough incentives to make the trip at all.

Choice Reversals: The transitivity axiom of standard utility theory seems to be very plausible, i.e. $x \succ y \wedge y \succ z \Longrightarrow x \succ z$. Choices that violate this axiom do not reflect sensible preferences. Yet people consistently display this type of incoherent behavior when confronted with certain types of choices.

In Q2 and Q5 participants where asked to state a euro amount that was just as good – no better or worse – than a specific bet. The bets in Q2 and Q5 are $L_{9A} = \{4; 97\%\,;\ -1; 3\%\}$ (low stake) and $L_{9B} = \{16; 30\%\,;\ -1.5; 70\%\}$ (high stake), respectively. In Q9 the students were asked whether they prefer bet L_{9A} or bet L_{9B}. Clearly, with stable transitive preferences a decision maker should prefer the lottery for which she has the higher willingness to pay. Many people in the class experiment revealed preferences that are inconsistent in the light of standard utility theory.[7]



[7]This phenomenon was first reported by Lichtenstein S. and P.Slovic (1971), "Reversals of Preferences Between Bids and Choices in Gambling Decisions," Journal of Experimental Psychology 89, 46-55. For an experiment published in an economic journal see Grether, D.M. and C.R.Plott (1979),"Economic Theory of Choice and the Preference Reversal Phenomenon," American Economic Review 69, 623-638.