

Survey of *Ex Ante* Responses—with summaries

On the first day of class, the following survey was completed by thirteen students. After each question I have summarized the responses given, along with some comments from me.

Please write your answers to the following questions in the space below the questions and on the back of this sheet. These questions may seem strange to you, and it is not expected that you can answer these questions with depth and rigor (though maybe you can). The purpose of this survey is simply to elicit the answers to these questions that occur to you at the start of this course.

1. Suppose you have \$1,000 to invest and you have two options, each resulting in a payout of some amount or other at the end of one year. One option is to buy a CD paying 5 percent interest, resulting in a guaranteed payout to you, at the end of one year, of \$1,050. The other option is to buy a junk bond paying 50 percent interest. But the bond might be worthless at the end of the year—that's why they have to offer such high interest rates to get people to buy them. You estimate that the bond has a 80-percent chance of a payout of \$1,500 at the end of one year, and a 20-percent chance of a payout of \$0 (i.e., a 20-percent chance of being worthless). How would you compare these two investments, and which one would you end up choosing?

Summary of responses:

Most students focused on the relative levels of safety of the two investments; they (and a few additional students) chose the CD, which was favored by a total of eight students. Some other students mentioned that multiplying \$1,500 by 80 percent results in a value (\$1,200) that is greater than the payout of the CD; they (and a few additional students) chose the bond, which was favored by a total of five students. Both of these approaches involve core ideas that we will study in depth: on the one hand, expected monetary value, leading to the related and more important idea of expected utility; and, on the other hand, risk aversion, especially in regard to gambles involving money.

2. Suppose you own one of two discount furniture stores in a college town. You and the owner of the other store can each advertise a lot or advertise a little. If you each advertise the same amount (whether a lot or a little), then you will split the market approximately evenly. If one of you advertises a lot and the other advertises a little, then the one who advertises a lot will gain enough market share to more than offset the extra expense of advertising a lot, while the other will have virtually no revenue at all. So, your possible outcomes are as follows. The best outcome for you is that you advertise a lot, and your rival advertises a little. Then you have the whole market and make a lot of money. The second-best outcome for you is that you and your rival both advertise a little—if the two of you are going to split the market, you might as well not spend too much money on advertising. The third-best outcome for you is that you and your rival both advertise a lot—the two of you split the market, and pay a lot to do so. But this is still better (for you) than the worst outcome for you, in which you advertise a little and your rival advertises a lot—for then you have virtually no revenue at all. You know that your rival is in the same situation as you. Due to antitrust laws, the two of you must make your decisions independently of each other. How would you decide what to do, and which strategy (advertise a lot or advertise a little) would you end up choosing?

Summary of responses:

One student pointed out that altruism would counsel advertising a little; another suggested deciding what to do by imagining that the other store owner would decide in the same way as oneself, which would also lead to advertising a little. But several students focused on avoiding the worst possible outcome, which led them to favor advertising a lot, and several other students pointed out that the situation is essentially a prisoner's dilemma, with advertising a lot being rational because it will turn out better than advertising a little regardless

of what the other store owner does. (In all, nine students recommended advertising a lot.) The prisoner's dilemma is one of the essential constructs of game theory, and we will think about it quite a bit.

3. Suppose you are in charge of taking four children out for lunch one Saturday. You can take them to McDonald's, Wendy's, or Burger King, but unfortunately they do not all have the same preferences. Specifically, one prefers McDonald's, then Wendy's, then Burger King; the second prefers McDonald's, then Burger King, then Wendy's; the third prefers Wendy's, then Burger King, then McDonald's, and the fourth prefers Burger King, then McDonald's, then Wendy's. Assuming you want to take them where they collectively most want to go, how would you go about aggregating their preferences into one collective preference, and which option (McDonald's, Wendy's, or Burger King) would you end up regarding as the children's collectively most-preferred place to have lunch?

Summary of responses:

Almost every student either noted that McDonald's was the first choice of more children than any other option, or assigned points based on the children's rankings and added up the points (which also leads to McDonald's being chosen). This latter method, called the Borda count, is one of the basic elements of social choice theory.

4. Have you liked thinking about the foregoing questions, or has it been rather unpleasant?

Summary of responses:

Happily, almost every student said the questions had been enjoyable. (None said it had been unpleasant.) There were a few additional remarks, and I'd like to comment on some of them:

- "It is okay to an extent. I think it is hard to come up with the correct answer. Most of the questions are based on your own opinion."—Yes, this is a good point. This course will be about developing tools (ways of thinking) for addressing these questions, not presupposing any one perspective that always leads to one single, supposedly correct, answer.
- "Making these choices is like looking at a large landscape painting with a straw."—I can imagine it seeming that way! Hopefully this course will help you to become familiar with the large landscape, so that when you do look at something small and isolated, you'll be able to place it in that larger context.
- "Until I saw this I thought I had pretty good decision procedures."—Well, you may still have pretty good decision procedures. But hopefully you'll also find the decision procedures covered in this course to be useful ways of looking at situations like these.