PRINCIPLES OF BEHAVIORAL ECONOMICS

Prof. Sujata Kar

Department of Management Studies
IIT Roorkee

Week 58

Lecture 58

Hello everyone, this is Lecture 58 of the course on Principles of Behavioral Economics. We continue in this module with our discussion on ultimatum and dictator games. We discussed the ultimatum game in the previous module. We introduced it. Now we are going to talk about different versions, or perhaps one very important version, of the ultimatum game, which we call the dictator game.

Behavioral games include several other games that measure aspects of social preference. Dictator games are ultimatum games with the responder's ability to reject the offer removed. As the name suggests, there is one dictator. who dictates the terms and conditions of the game. Basically, they decide the split, and that split is final. The responder has no right to either reject or accept the offer.

Dictator games determine whether proposers in ultimatum games make generous offers because they fear rejection or because they are purely altruistic. The answer is mostly fear and a little altruism. In the last module, you observed that empirically, most offers made by the proposer are around 40% or between 40 to 50%. The question is: why does the proposer make such a substantial offer? Is it because they genuinely care for others, are influenced by social preferences, or are driven by other factors?

value they value the sense of fairness or it is simply the fear of rejection that if I make a lower offer then the other individual is going to reject it so with that kind of a purpose dictator games were introduced how people are going to make offers when there is no fear of rejection. So if the fear of rejection is removed, we can find out whether the offers made are altruistic in nature or simply due to the fear of rejection. What you observe is that the answer is mostly fear, with a little bit of altruism also.

So this is how a dictator game would again look like. Pretty similar to the ultimatum game. The only thing is that there is no player 2. These are the alternative offers that player 1 can make. So keeping all 10 for himself or giving all 10 to the other individual.

These are the possible splits. And again, as I mentioned previously, we can have further divisions within individual splits. There is only one Nash equilibrium and therefore only one subgame perfect Nash equilibrium. The case in which player one offers nothing to the responder and keeps all the money for himself. Why?

Player 1 should offer something to the responder. The responder cannot do anything. If he is given 0, he has to accept 0. In a one-shot situation, the dictator game does not even involve strategic thinking, since the proposer does not have to consider the reaction of the responder. Any positive offer by a proposer is altruistic rather than strategic, that is, not caused by the fear of rejection.

By strategic, we mean It is basically the fear of rejection. The first comprehensive comparison of ultimatum and dictator games indicated that dictators offered on average about 20%, much lower than proposers in ultimatum games. So proposers on average were making an offer of roughly 40%. When it comes to dictator games, it reduced to 20%, but still there is something.

So there is some level of altruism involved as well. Early studies also indicated that average offers are close to the offer that maximizes expected payoff, given the actual pattern of rejections in ultimatum games, suggesting strategic behavior. But later, more sophisticated analysis showed that offers were more generous than payoff-maximizing offers. even allowing for risk aversion. The fact that dictator offers are much lower than proposer offers in ultimatum games but positive shows that proposers are being both strategic—

That is offering more to avoid rejection and altruism. However, these results have also been called into question on the basis that the wealth of the dictators was not earned. Cherry, Frykblom, and Shogren in 2002 controlled for this factor in an experiment involving three treatments. One is a baseline treatment, which is basically unearned wealth. If people are coming for the experiment, they are given some amount of money or they are assumed to have a certain amount of money.

They are asked to assume that they have a certain amount of money, and then that should be split. The second is earned wealth. So, for example, there are some tasks. If you complete those tasks, then you earn some money. Then you are asked to split it.

And the third one is double-blind with earned wealth. Now, double-blind is basically a situation where there would be complete anonymity of the dictator, the responder, or even the experimenter. So in those situations, the dictator or the proposer is asked to put the split

in an envelope, a sealed envelope, and then put it in a box. So nobody knows which proposer made a particular offer or what the proposal inside is.

So this is a double-blind process with earned wealth. Subjects who were undergraduate students earned wealth by answering a sample of GMAT questions correctly. So this is one possibility of giving some earned wealth to those who come for the experiments, the participants of the experiments. In the double-blind situation, the dictators acted in complete anonymity from both the other transactor and the experimenter, as I have already explained. So these are the three treatments as mentioned.

Baseline, that is unearned wealth; earned wealth; and double-blind with earned wealth. And what are the percentages of zero offers? In the case of the baseline, the percentage of zero offers was pretty low at 17%. But when it comes to earned wealth, that is when the money has not been given but people have put some effort to get the money, then the zero offer went up to 80 percent. And when it is double-blind with earned wealth, then this is as high as 96 percent, close to 100 percent. The authors therefore concluded that

strategic concerns were the motivation for other-regarding behavior and not fairness, so basically strategic concerns were driving them to share some amount of money. When this is double-blind, you know, there is complete anonymity; nobody knows what kind of proposal you're going to make, what kind of offer you're going to make, then you—most people, 96% of the dictators—are found to offer zero to the responder. Now we just sum up the basic results of ultimatum and dictator games. In a typical ultimatum experiment, subjects are paired with anonymous others, and the proposer makes an offer that the responder

Then accepts or rejects. That is the basic format. Two common variants on this baseline design either repeat the game or ask the responder to state a minimum acceptable offer rather than simply decide whether to accept a specific offer. Now, I'm going to talk a little bit about the minimum acceptable offer as well. The MAO method has the huge advantage of measuring likely reactions to all possible offers, which is important if the most interesting offers are rare.

The MAO is the offer at which the pleasure of getting the money is equal to the satisfaction the person would get from refusing the offer and getting no money, but being able to punish the proposer for violating the social norm of 50-50. Now, suppose you are the responder and your minimum acceptable offer is $35. That is, if the total pie is $100, then your minimum acceptable offer is $35. Now, what does the minimum acceptable offer imply?

If the proposer offers you $36, you might not like the proposer much, but you would still accept the offer because it is above your minimum acceptable offer. And so, you would still accept the offer instead of punishing the proposer by rejecting it. If you rejected the offer, you would go home with satisfaction worth $35 and no money when you could have had $36 in cash. Suppose $100 is to be split, and there is a fairness norm of 50-50. So, the fairness norm of 50-50 means that you expect the split to be 50-50.

That is considered to be a fair distribution. When the proposal is $50 or above—that is, when the offer is $50 or above—the responder feels positively disposed toward the proposal and would naturally accept it. Rejecting it would hurt both herself and the proposer, whom she appreciates because they conformed to or were even more generous than the social norm. But if the offer is below $50, then she feels that the 50-50 norm is not being respected. Basically, the responder feels that the 50-50 norm is not being respected, and she may want to punish the proposer for this breach.

If she does reject the offer, this will come at a cost to her because rejection means that both receive nothing. The only thing that the responder is going to get by rejecting the offer is some satisfaction. From punishing the proposer, right? So, she actually needs to weigh the satisfaction that she would get from punishing the proposer and the satisfaction that she would get from the money if she accepts the offer. So, she needs to weigh and then decide which one is more and accordingly take a call.

Suppose the responder's anger at the breach of the social norm depends on the size of the breach. If the proposer offers nothing, she will be furious, but she is more likely to be puzzled than angry at an offer of $49.5 rather than the $50 offer she might have expected based on the social norm. So, basically, if nothing is offered, then nothing can be done. Of course, the responder in an ultimatum game can always reject it, and both are punished.

That's fine. But she will be puzzled in the sense of what to do if $49.5 is offered. This breaches the $50 fairness norm. But at the same time, this is so close to the fairness norm, then that rejecting it is actually punishing oneself by losing that amount of money so how much satisfaction should derive from punishing a proposer's low offer depends on two things.

Her private reciprocity motive that is the satisfaction that one would get by punishing the proposer we are denoting it by R and the gain from accepting the offer which we are denoting by Y. R is a number that indicates the strength of the responders private reciprocity motive if R is large number then she cares a lot about whether the proposer is

acting generously and fairly or not. But if R is equals to 0, then which means she does not care about the proposer's motives at all. R0 implies there is no reciprocity motive.

So, the satisfaction at rejecting a low offer is R multiplied by 50 minus Y. 50 minus Y is basically the deviations from the fairness norm multiplied by reciprocity motive. The gain from accepting the offer is the offer itself or why? The decision to accept or reject just depends on which of these two quantities is larger.

So as I was trying to tell you one needs to weigh between the satisfaction that one would get by rejecting the offer which is basically punishing the proposer and the satisfaction one would get by accepting the amount of money. We can write this as reject an offer if Y is less than the reciprocity motive. So when punishing give you more satisfaction than the amount of money then of course you would reject the offer.

$$y < \frac{50R}{1+R}$$

If on the other hand Y is greater than R into 50 minus Y, this implies that you are getting more satisfaction by accepting the money than punishing the proposer and as a result of which you would accept the money. To calculate a minimum acceptable offer, we can rearrange this rejection equation to arrive at an expression like Y equals to Y less than 50 R divided by 1 plus R. This can actually be obtained from this expression itself straight away. R equals 1 means that the responder places equal importance on reciprocity and the social norm. When R equals 1, then Y is less than 25, and she will reject any offer less than $25.

Basically, by putting R equals 1 here, you would see that we have 50 divided by 2, which makes it 25. So, for any value of Y, greater than or less than 25, the responder would reject the offer if the value of R is equal to 1. The cut-off point of $25 is where her two motivations of monetary gain and punishing the proposer exactly balance out. If she rejects the offer of $25, she loses $25 but receives $25 worth of satisfaction from punishing the proposer, so her total payoff is zero.

The more the responder cares about reciprocity, the higher the proposer's offer has to be. For example, If R is equal to 0.5, that is, R is a small value, then the responder will reject offers below 16.67. So, basically here I have 50 multiplied by R divided by 1 plus R. So,

when R is equal to 0.5, then I have in the numerator 25 and in the denominator 1.5. This gives me a value of 16.67.

So, see, when R is smaller, the reciprocity motive is weaker. So, the responders are willing to accept a lower amount of offer. But if R is equal to 2, R is large, then the responder will reject any offer less than $33.33. Again, this value can be obtained by putting the value of R equal to 2 here. So, in the first dictator game experiment,

Kahneman, Knetsch, and Thaler gave subjects a choice between dictating an even split of $20 with another student or an uneven split favoring themselves. The result shows that three-quarters chose the equal split of $10. Reaction to the striking dictator results got the literature off on the wrong interpretive foot. Many people thought the main question about the ultimatum findings was whether offers were fair or were strategic, that is, merely to avoid rejection. But the tail that wags the proverbial dog is the rejection by responders, which forces proposers to make generous offers.

Forsyth and colleagues in 1994 conducted the first thorough comparison of dictator and ultimatum results where dictators could offer any amount they wanted. Rather than simply choosing one of two allocations. Their dictators showed less generosity than Kahneman reported, but the mean allocation was about 20%, indicating some pure altruism. So, basically, we are going back to the initial results that we discussed. The fact that dictator offers are much lower than proposer offers in ultimatum games, but positive, shows that proposers are both strategic and altruistic.

Early results showed that average offers are close to the offer that maximizes expected payoffs given the actual pattern of rejections, implying proposers are simply being strategic. More sophisticated analysis later showed that actual offers are more generous than payoff-maximizing offers, even after controlling for risk aversion. In a model allowing non-equilibrium beliefs and learning, Costa-Gomes and Zauner in 2001 found that proposers' beliefs were generally slightly too pessimistic. The many studies on ultimatum and dictator games have varied the conditions or the identity of subjects to explore a wide variety of issues. Variations in these games depended on changing variables falling into five categories.

Now we will discuss these five broad categories, which encompass a large number of variables that were altered to observe how the results changed or to identify which variables are more effective in explaining the variations in ultimatum and dictator games. First,

methodological variables change how the experiment is conducted. These variables include stakes, anonymity, and repetition. The summary of the observations states that

Repetition makes little difference. There is a weak effect of stakes on the rejection of fixed percentage offers, although subjects reject larger dollar offers when stakes go up. And anonymity sometimes lowers dictator allocations but has little effect in ultimatums. Number two: variable is demographic variables. They measure how different groups of people behave.

The variables include gender, race, age, academic major, brains, biology, and beauty. Demographic variables generally have weak effects on ultimatum and dictator behavior, although they are often significant and always intriguing. There are mixed effects of race, very mixed effects of gender, and subject academic background. Men and economics majors are often more self-interested. So basically, converging more toward the results indicated by analytical game theory.

Further, mild effects of testosterone: high-T males reject more often but are also more generous. And beauty: many women give more than half to attractive guys, as observed. The effect of age is strong. Young children are more self-interested, then become fair-minded as they grow older. This is actually very commonly understood in psychology also.

And we would get to see around us that children are much more self-centered. When they demand something, they are hell-bent on getting it. You cannot explain too many things to them. So they are more driven by self-interest than anything else. They don't understand the environment.

They don't understand other people. So for them, it is more like being driven by self-interest. But when they grow up, of course, their understanding expands, and they may become more fair-minded. This developmental effect is crucial because it suggests fairness norms are not innate.

They change as children develop. The third variable, or group of variables, is culture. Culture seems to be important when sampled broadly. The variables are stakes, language, experimental effects, and confounds with culture. From the summary of observations, we observed that researchers found persistent cross-national differences in ultimatum offers.

Japan and Israel are the lowest. The key point is that countries have different sharing norms, and comparable rejection rates imply that those different norms are well accepted or rapidly learned in the lab in each country. A project on ultimatum and other games showed some

societies in which the self-interested game-theoretic prediction is accurate and others where there are many hyper-fair offers that can be interpreted as competitive gift-giving insults. Average offers are strongly correlated with the degree of market integration, which implies that either market experience creates norms of equal division

or the propensity to share evenly permits impersonal markets to flourish. The fourth variable is a descriptive variable. A group of variables are considered descriptive variables that change the description of the game, like labeling and context, but not its structure. Changing the way games are described can have modest effects. Calling it a seller-buyer exchange encourages self-interest.

So how you contextualize the game matters. When it is a seller-buyer exchange, then it is more driven by self-interest. Describing it as a claim from a shared resource pool encourages generosity. There is little doubt that describing games differently can affect behavior because that is what we learned from the framing effect. The key step is figuring out what general principles or theory of framing can be abstracted from labeling effects.

The fifth group of variable is structural variables. They change the game by adding moves broadly. Other variables include identity, communication, and entitlement. competitive pressure and outside options, information about the amount being divided, multi-persons games and intentions. Creating entitlement by letting a contest winner be the proposer lowers offers.

Knowing who you are allocating money to and hearing them talk raises average dictator allocations and many give much more than half. So basically here it says that when you know to whom you are allocating the amount and he or she is not someone stranger, then that increases dictator's allocation. When responders don't know how large the pie being divided is, they usually accept less because they are reluctant to reject low offers that might be fair offers from smaller pies. Multi-person games show that the social preferences are not based on judgments about another player's overall generosity.

but are based on judgments about another player's fairness toward oneself. When proposers and responders compete, there is no way for fair-minded players to earn money and enforce fairness, so outcomes consistent with self-interest results. This is something we discussed under the ultimatum game. That competition basically increases the acceptance rate and reduces the offers made by the proposers. So overall, methodological, demographic and descriptive variables have proved to have modest effects that are often not robust across studies.

But cultural and structural variables have bigger effects and are more helpful for building social preference theories. So with this, I conclude this module on the basic results of ultimatum and dictator games, along with a few concepts, including the important concept of minimum acceptable offer. And these are the references used. In the next module, we will continue discussing different types of behavioral games. Thank you.