ENDOGENOUS SELECTION INTO DISTRIBUTION GAMES AND EFFECTS ON GIVING BEHAVIOR

A Master's Thesis

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The Graduate School of Economics and Social Sciences
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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Economics.

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ABSTRACT

ENDOGENOUS SELECTION INTO DISTRIBUTION GAMES AND EFFECTS ON GIVING BEHAVIOR

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In this thesis, we investigate effects of taking possibility in the dictator game and choice of passive players between the dictator game and the taking game on distribution decisions of active players where the dictator game setting in which the dictator can take from the initial endowment of the passive player is referred as the taking game. We use a between-subjects design with three treatments, of which first two serve as control treatments: (i) exogenously assigned dictator game (EX-D), (ii) exogenously assigned taking game (EX-T), and (iii) endogenous treatment where passive subjects choose to play either dictator game (EN-D) or taking game (EN-T). Our findings, in conformity with our hypotheses, suggest that (i) giving is less in EX-T (EN-T) than in EX-D (EN-D), (ii) passive players choose EN-D more frequently than they choose EN-T, (iii) the mere fact that EN-D is played due to the choice of passive player makes them accountable which leads to less

giving by dictators in EN-D than in EX-D, finally (iv) giving in EN-T and EX-T are same. We also conduct an online survey to gain further insights about our experimental results. Survey participants can predict most of the observed behavior in the experiment and explain factors that might have driven predicted behavior using a reasoning similar to ours. To our knowledge, this is the first work to study endogenous game selection and its impacts on giving behavior in a dictator game setting by allowing passive players to choose the game they want to play.

Keywords: Accountability, Dictator Game, Endogenous Game Choice, Experimental Economics, Taking Behavior.

ÖZET

DAĞITIM OYUNLARINDA ENDOJEN SEÇİM VE VERME DAVRANIŞINA ETKİLERİ

TOSUN, Elif

Yüksek Lisans., İktisat Bölümü

Tez Yöneticisi: Doç. Dr. Emin Karagözoğlu

Eylül 2020

Bu tezde, diktatör oyununda pasif oyuncudan para alma imkanının ve pasif oyuncunun diktator oyunu ile alma oyunu arasındaki seçiminin diktatörlerin bölüşüm kararları üzerindeki etkilerini araştırıyoruz. Diktatör rolundeki oyuncunun eşleştiği pasif oyuncuya verilen paradan da alma imkanına sahip olduğu diktatör oyunu ortamını alma oyunu olarak adlandırıyoruz. Araştırmamızı her bir gönüllünün yalnızca bir tretmana katıldığı bir tasarım ile üç farklı tretman kullanarak yürüttük: (i) eksojen olarak atanan diktatör oyunu (EX-D), (ii) eksojen olarak atanan alma oyunu (EX-T) ve (iii) pasif deneklerin diktatör oyunu (EN-D) veya alma oyunu (EN-T) oynamayı seçtiği endojen tretman. Bu üç tretmanın ilk ikisi kontrol tretmanı görevi görürken sonuncusu deneysel tretmanımızdır. Elde ettiğimiz bulgular hipotezlerimizi doğrular niteliktedir ve şu şekilde özetlenebilir: (i) diktatörler EX-T'de EX-D'den daha az ve EN-T'de EN-D'den daha az verme davranışı

sergiliyorlar, (ii) endojen tretmandaki pasif oyuncular diktatör oyununu alma oyununa kıyasla daha sık seçmekte, (iii) pasif oyuncunun seçimi nedeniyle EN-D'nin oynanması gerçeği EN-D'de diktatörlerin EX-D'den daha az vermesine neden oluyor ve son olarak (iv) diktatörlerin EN-T ve EX-T tretmanlarındaki verme davranışları aynı. Bu laboratuvar deneyine ek olarak, deneyde gözlemlenen davranışın sebepleriyle ilgili daha fazla bilgi edinmek amacıyla internet üzerinden bir anket de yaptık. Anket katılımcıları, deneyde gözlemlenen davranışların çoğunu tahmin etti ve bizimkine benzer bir muhakeme kullanarak tahmin edilen davranışı yönlendirmiş olabilecek faktörleri açıkladı. Bu çalışma, bildiğimiz kadarıyla, pasif oyuncunun oynamak istediği oyunda söz sahibi olmasına izin vererek, endojen oyun seçimini ve bunun diktatör oyunu ortamındaki verme davranışı üzerindeki etkilerini inceleyen ilk çalışmadır.

Anahtar Kelimeler: Alma Davranışı, Deneysel İktisat, Diktatör Oyunu, Endojen Oyun Seçimi, Sorumluluk.

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CHAPTER 1

INTRODUCTION

The dictator game is a very simple yet powerful tool, which has been used in the experimental literature to answer multiple questions on social norms, framing effects, gender differences etc. Since the first dictator game experiment of Kahneman et al. (1986), positive transfers made by the dictators are considered as a clue for the unselfish behavior of agents. Early works in this literature (Kahneman et al., 1986; Forsythe et al., 1994; Camerer, 2003) seem to falsify the dominant homo economicus model with purely self-interested, rational and utility-maximizing agents. The observed other-regarding behavior is justified by the experimenters via models of reciprocity (Rabin, 1993), inequality aversion (Bolton and Ockenfels, 1998; Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000), altruism (Levine, 1998; Andreoni and Miller, 2002), etc.

However studying the dictator game under different frameworks shed light on possibly more realistic explanations, consistent with self-regarding behavior, behind the observed positive transfers. Playing over earned money instead of a windfall endowment (Arkes et al., 1994; Hoffman et al., 1994; Cappelen et al., 2007; Cherry, 2001; Cherry et al., 2002; List and Cherry, 2008; Oxoby and Spraggon, 2008), earned entitlements (Hoffman et al., 1994), higher stakes (List and Cherry, 2008), increased anonymity (Eckel and Grossman, 1996; Dana et al., 2007), larger social distance between players (Hoffman et al., 1996;

Bohnet and Frey, 1999; Rankin, 2006; Charness and Gneezy, 2008), poorer recipients (Branas-Garza, 2006; Aguiar et al., 2008; Cappelen et al., 2008), higher social status of the recipient (Ball and Eckel, 1998; Harbaugh, 1998) all lead to less money transfer to the recipient.

Moreover, conducting the original dictator game experiment with the same subjects repetitively also causes a decrease in pro-social behavior over time as the participants get used the environment and the game itself. For example, in the experiments of Brosig et al. (2007), the behavior of participants become closer to the expected behavior in the conventional economic theory towards the final sessions.

We observe less giving in all of these differently framed dictator game settings but in the resulting data mean giving by dictators is still positive, which can again be interpreted as other-regarding behavior. This lead the behavioral economists to question whether we can observe zero giving as the theory suggests or even negative transfers as well, if the dictators are allowed to take money from their game partners and, indeed, the answer turns out to be "yes". Cox et al. (2002) are the first to introduce the possibility of taking option in the dictator game yet their study named "Trust, fear, reciprocity, and altruism" is mainly on reciprocity under different framings of multiple games.[1]

List (2007) and Bardsley (2008) are the very first ones to formally run experiments of

[1] Indeed, Eichenberger and Oberholzer-Gee (1998) test the taste for fairness much earlier by comparing the standard dictator game with their "gangster game" where the player can take money from an anonymous student. However, in this game the player has no chance of giving any money so overall it is a different game and not a dictator game with taking option. Nevertheless, this experiment produces some striking results where the property rights are clearly assigned via a pre-experimental test yet the gangsters take more than three quarters of the earned endowment of the better graded students, pointing why the game is named as such.

dictator taking to see if the positive transfers are driven by other-regarding concerns or solely by the design of the game itself.[2] Their work somewhat initiate a new chapter in the dictator game literature by expanding the choice set of dictator to negative transfers as well. Now, we know that dictators are less willing to make positive transfers to the receiver when the possibility of taking money is included in their choice set.

Moreover, according to the results of Cappelen et al. (2013) we know that this negative effect on the transfers is not derived from a signal about entitlements provided by the choice set in an environment where entitlements initially might be unclear from the perspective of the participants. Instead, their results support that the dictators give either to show that they are not utterly selfish (Andreoni and Bernheim, 2009) or to follow a social norm which is effected from the choice-set as pointed out by List (2007). Thus, "the choice-set effect captures a fundamental dimension of individual behavior in the dictator game" (Cappelen et al., 2013). If choice-set is such an important tool in the dictator game, why don't we extend the choices of the players for the ex-ante, or ex-post, game as well as the interim game?

In this work, we give the passive player in dictator game setting a choice on which game to be played before the start of experiment. Throughout the empirical literature, in most of the experiments, the game to be played is exogenously assigned but this is rarely the case in real life situations where agents at least have a say on the procedure to be employed in the strategic interaction. There are few studies on endogenous selection into games in

[2] Brosig et al. (2007) use taking games as a part of their experiments as well but it is not their focus in the paper. Thus, or since it is only a working paper, their work seems to fail to take as much attention as List (2007) and Bardsley (2008) in the literature.

the experimental literature and those usually have some striking results. For example, in their working paper, Lambert and Tisserand (2016) show that individuals who are forced to bargain are significantly more aggressive than those who initially choose to bargain which implies that agents behave differently under enforcement of the procedure and this affects the process as well as the outcome. Moreover, in a recent study by Smith and Wilson (2018), agents behave very differently in voluntary ultimatum games compared to exogenously assigned ultimatum games. When responders are offered the opportunity to opt out instead of being forced to play the ultimatum game, authors observe far higher rates of equilibrium play, including highly unequal splits, compared to binary choice versions of the ultimatum game.

Similarly, in this study, we run an experiment where the, otherwise passive players have say in the type of the protocol they are involved in. Namely, in our experimental treatment, they make a choice between the original dictator game and the taking game of List (2007). Although the passive players have a simple task in this modification, we show that their decision have the power to affect the actions of dictators in a rather unexpected manner. With this study, we aim to broaden our understanding of giving behavior by working with a setting which is closer to real life situations where both parties have a say in the game.

The remainder of this thesis is organized as follows. In the next chapter, we review the literature with a specific focus on endogenous selection into the dictator game. In chapter 3, we present the design of our experiment. In chapter 4, we develop our research hypotheses. In chapter 5, we report the findings of our study and finally, chapter 6 offers concluding comments. In the appendix, we present our instructions as well as some additional checks on our results.

CHAPTER 2

LITERATURE REVIEW

There are some studies in the dictator game literature in which participants are given a choice on which game they want to play or whether they want to play the game or opt for an outside option. For example, Oberholzer-Gee & Eichenberger (2008) offered dictators a choice to play an unattractive lottery instead of playing the dictator game. This option led to much smaller transfers with a median transfer of zero. In another study by Heinrich et al. (2009), dictator game is modified by varying the productivity of taking and giving where subjects choose the payoff-relevant game. Their results show that dictators are more generous when the receiver has the right to choose. Finally, a recent study by Korenok et al. (2018) question the existence of taking aversion by giving the dictator a choice between a give-only game versus a take-only game and found out that "moral cost of taking exceeds the moral cost of not giving".

In most of these mentioned studies, only the dictators' choice set is expanded but there were no choice or decision power is given to the receiver. The receiver stays as a passive actor of the dictator game in the literature with the exception of the setting in Heinrich et al. (2009). Heinrich and colleagues modify the game such that "the relative price of the payoff to others in terms of the payoff to self is varied" so there were different payoff distributions where a low price indicates high productivity and vice a versa. In their setting

the passive players choose between multiple games in order to determine the payoff distribution and even after their decision, it is not certain if this choice will be relevant in the game or not due to a random factor.

Whereas, in our study receivers make a much simpler decision. We give a choice to the passive players on which game they want to play in the beginning of the session and they simply play the chosen game thus there is no uncertainty after the choice is made. Receivers make a selection between two games: the original dictator game and the taking game where the choice-set of dictators includes taking money from the receiver as well as the possibility to give money.

Our study makes several important contributions on the existing literature. First, our experiment provides a robustness check for the results of List (2007) and Bardsley (2008) using endogenous assignment of games and a group of participants recruited in Turkey. Second, we support the observation that transfers fall significantly when agents have the opportunity to create situational excuses for self-serving behavior and, in doing so, we use a modified version of the dictator game which is new to the existing literature. Third and foremost, to our knowledge, our study is the first to give passive players a choice on the game they want to play in the dictator game setting. The passive players in our setting make a simple yet definitive choice before the game is played and we explore the effects of this decision made by receivers on the transfers made by dictators, which is not studied in the literature so far. Our novel treatment allows us to gain new insights about the interpretation of giving behavior in distributive settings and the effects of endogenous selection into strategic interactions.

CHAPTER 3

EXPERIMENTAL DESIGN

In order to understand the effects of taking possibility in the dictator game and the choice of passive players between dictator game and taking game on the distribution decisions of active players, we conducted an experiment at Bilkent University with subjects being the university students who were recruited on a voluntary basis. Student subjects were at least 18 years old and native Turkish speakers where the instructions were in Turkish. The experimental sessions ran from December 2019 to March 2020 with 268 subjects in total.

Throughout the experiment, we intended to use similar procedures and instructions to the ones used in List (2007) for comparability purposes. Thus, we conducted the experiment on a paper-and-pencil basis. To preserve confidentiality, we utilized two different rooms for sessions to take place as in the setting of List (2007), one for dictators and one for passive players. Therefore, it was necessary to carry the decision of each player to its partner in other room, which was done by utilizing sealed envelopes with a pair number on them. Although it required more work compared to computer-based experiments, this setting ensured the participants that each of them has a partner in the other room.

The call for participants was made through an invitation e-mail sent to all students of Bilkent University. When participants joined voluntarily from an online link, they were

randomly assigned to one of three treatments. Later, they were anonymously and randomly paired in the lab and assigned to their roles. Dictators and receivers who were placed in different rooms had no contact before, during or after the session. In each room, the corresponding instructions (for either the dictators or passive players) were read aloud to make the rules of the game common knowledge. Subjects could only talk to the administrators and they could participate only once in the experiment in one of three treatments so we have a between-subjects design. After the game is played, subjects also answered some post-experimental questionnaires which included (a short version of) big five personality test, as well as some demographic questions on gender, age, major, monthly disposable income and number of siblings. Finally, the subjects were paid their earnings by an assistant. An experimental session lasted about twenty to thirty minutes. For the full instructions of each treatment in the experiment, please see Appendix A.

In a setting where agents could take money from their partners, which is a rather socially undesirable action, confidentiality played a crucial role. To preserve anonymity, we made sure that nobody knows who they are paired with, we used separators so that participants can make their choices in private and decisions are carried inside sealed envelopes. As the payments of agents were not done by the experimenters but by an assistant who had no relation with the project, our design had subject-experimenter anonymity. However, this was not a fully double-blind procedure like the one in Bardsley (2008) since we had to use receipts for the payments we made to each participant.

In the experiment, we made use of three treatments namely; (i) exogenously assigned dictator game (EX-D), (ii) exogenously assigned taking game (EX-T), and (iii) endogenous treatment where passive subjects chose to play either the dictator game (EN-

D) or the taking game (EN-T). First two of these were our control treatments, which were replications of the baseline and take ($5) treatments of List (2007) whereas the last one was our experimental treatment. In EX-D treatment, we had the original dictator game where both players were allocated 10TL while dictator was endowed with an additional 10TL. Dictators were able to allocate from 0TL to 10TL, in 1TL increments, of this additional 10TL to the person they were paired with in the other room and their decision determined the final allocation. EX-T treatment was identical to the EX-D treatment except that the choice set of dictators consisted of allocating an amount from -10TL to 10TL so, effectively, dictators were allowed to take up to 10TL from their partners.

Finally, in endogenous treatment we provided receivers with necessary information on both of the above game settings and allowed them to choose whichever they want to play.[3] When receivers made their decision, dictators were informed about the choices that their partners had made as well as the other alternative. Thus, dictators knew which game they could play and which game they could not due to the selection of receiver. This setting allowed us to study effects of this endogenous selection on the transfers made by dictators.

In addition to this experiment, we also ran a survey between 30th of June and 3rd of July 2020 with a total of 296 student subjects. The aim of this survey was to see the predictability of our hypotheses and to make a sanity check for our interpretations of the experimental results. In the survey, we explained the procedures of experiment in detail and asked for the guesses of respondents for our results and the reason why they made such guesses. We provide further details for this survey at the end of Chapter 5.

[3] Throughout the thesis, the dictator and taking games played as a result of the endogenous selection of the receiver are referred as EN-D and EN-T, respectively.

CHAPTER 4

RESEARCH HYPOTHESES

To begin with, we first hypothesize, in conformity with the literature on the taking game, that giving is less when the dictator is allowed to take money from the pocket of the passive player. As we study the effects endogenous selection into distribution games, our second hypothesis is on the choice of the passive players between the two distribution games. Next, according to their choice, we examine the influence of their action on the decisions of dictators in the dictator and taking games separately.

Firstly, based on the results of results of List (2007) and Bardsley (2008) we hypothesize that the dictator giving falls when the dictator is allowed to take from the passive player, regardless of whether the game to be played is decided exogenously or endogenously.

Hypothesis 1: Dictators give less in the taking game than in the dictator game, that is, giving is less in EX-T than EX-D and less in EN-T than EN-D.

Secondly, from the definition of these two games, one would expect almost all of the passive players in the endogenous treatment to choose the dictator game rather than the taking game as it is the dominant strategy to do so. Thus, our second hypothesis is as follows:

Hypothesis 2: Passive players choose the dictator game (EN-D) more frequently than they choose the taking game (EN-T) in the endogenous treatment.

Thirdly, we predict that the giving behavior of dictators deteriorate, compared to the giving in exogenously assigned dictator game, as a result of passive players' choice. Our reasoning behind this behavior is that the receivers are indeed restraining the choice set of dictators by selecting the dictator game instead of the taking game. We think that dictators take this as a self-serving excuse to give less by the dictators, even if they, as any other rational agent, would do the same if they were to be assigned to the receiver role by chance.

Experimental literature about the effects of self-serving biases on giving behavior in distribution games find that giving rate falls when agents are provided with situational excuses for selfish behavior (see, for instance, Dana et al., 2007; Rodriguez-Lara and Moreno-Garrido, 2012; Regner, 2018) and that accountability has an important role in characterizing fairness perceptions which, accordingly, effect the allocation decisions of agents (Konow, 2000). Similar to these previous studies, dictators in our setting who play EN-D have an excuse which can be used to rationalize the behavior of giving less since receivers are responsible in the play of dictator game which is undesirable from the perspective of dictators. Therefore, the results of previous studies together with our experimental setting support the following hypothesis:

Hypothesis 3: As a result of the passive players' choice of playing EN-D, the dictators give less in EN-D than in EX-D.

Finally, among the pairs who are playing the taking game in the endogenous treatment, which is expected to be a small portion of our sample according to hypothesis 1, we do not expect to see a significant difference in giving behavior compared to the giving in exogenously assigned taking game. Since the choice of taking game do not restrict the strategy space of dictators, we do not expect them to use this action in a self-serving manner. This reasoning implies our final hypothesis:

Hypothesis 4: Giving in EN-T and EX-T are same.

CHAPTER 5

RESULTS

In this chapter, first we look at the background information of our subjects, such as their gender, age, major, monthly disposable income and number of siblings. Next, to support our main experimental results, we use Wilcoxon rank-sum (Mann-Whitney) test and the standard t-test as well as the OLS and probit regressions. Before utilizing t-test, we check for the equality of variances of samples coming from different treatments via variance comparison test. For our directional hypotheses, we report the one sided test results whereas for non-directional hypothesis, for hypothesis 4, we use two sided t-test. Moreover, we also provide our results from the survey and some other findings which complement our main experimental results.

5.1 Subjects' Background Information

Our study was conducted with undergraduate and graduate students of Bilkent University. In total, 268 subjects anonymously and voluntarily participated in our study. Our sample consisted of students from almost all of the departments but the majority of them are from economics department (12.41%).

50.56 percent of our sample was female whereas 48.69 percent was male and two subjects

decided not to report their gender. The age of students ranged from 19 to 31 with a mean of 21.9. Students were also asked report the number of siblings and monthly disposable income by selecting from four income categories. Majority of students had one sibling (58.8%) and were in the third income category (46.21%) with one to two thousand TL disposable income per month. Subjects also completed a short version of the Big Five personality test (Gosling et al., 2003) which assigns scores of extraversion, agreeableness, conscientiousness, emotional stability, and openness to experiences to each participant which we also use as additional controls in the main experimental results.

5.2 Main Experimental Results

Before examining our hypotheses one by one in detail, first we report a general summary of our results. Out of 268 subjects (the data of 134 pairs) we omit one pair since the subject in the dictator role did not understand the instructions.[4] As a result, we are left with 133 pairs which is distributed among different treatment groups as follows.

Table 1 – Descriptive Statistics

Treatment	N	Mean	Standard Deviation	Median	Min	Max
EX-D	41	3.756	2.835	5	0	10
EX-T	42	-1.167	6.484	0	-10	10
EN-D	37	2.729	2.341	3	0	5
EN-T	13	-2.231	7.270	-5	-10	8

Note: Table presents the data of the dictator decision for different treatment groups.

Firstly, we can see from Table 1 that our sample is more generous compared to the sample of List (2007). Mean dictator decision for EX-D and EX-T are 41% and 76% higher,

[4] The subject was a dictator in the EX-T treatment but he did not understand what to do in the experiment even after we answered all of his questions about the instructions. When we were collecting the envelopes, his decision form was not ready and we had to explain what he has to do one more time.

respectively, than the baseline ($1.33 out of $5) and take $5 (-$2.48 out of a set from -$5 to $5) treatments of List (2007). We also see that mean dictator giving falls when the game played is determined endogenously compared to exogenous assignment of games. However, we do not know whether these differences in means are significant for both games, yet. Note that, we do not have any control over the distribution of pairs between EN-D and EN-T since the decision to play those games is made by the passive players endogenously. That is why the number of pairs is lower in EN-T than in EN-D which also provides support for our second hypothesis.

On top of the differences between exogenous and endogenous assignments, we also look at the differences within these two assignments. In conformity with the literature on taking games, we see that on average dictators give less in taking game than in dictator game within both exogenous and endogenous treatments, which takes us to our first result.

Result 1: As expected, given the literature so far, dictators give less in the taking game than in the dictator game. That is, giving is less in EX-T than EX-D. Moreover, giving is less in EN-T than EN-D, which is novel to the literature.

In order to provide formal support for this result, we use non-parametric tests since the variances of dictator and taking game samples are quite different from each other according to the variance comparison tests ($p < 0.0001$). P-value of the two-sample Wilcoxon rank-sum (Mann-Whitney) test for the null hypothesis that dictator giving in EX-D and EX-T are same is 0.0012. However, since our hypothesis is that giving is less in EX-T than EX-D, our p-value for the directional null hypothesis turns out to be 0.0006.

So we can reject the null hypothesis at 1% significance level. Similarly, we conclude that giving is less in EN-T than EN-D at 5% significance level with a p-value of 0.0425.

Our second result is supported by the pair numbers given in Table 1 and formally testing the difference between those numbers also suggests that passive players choose to play the dictator game more frequently than they choose the taking game ($p < 0.0002$). Therefore, we can state result 2 as follows:

Result 2: As hypothesized, passive players choose the dictator game (EN-D) more frequently than they choose the taking game (EN-T) in the endogenous treatment.

We hypothesize in the previous chapter that the dictators in EN-D give less than the dictators in EX-D because of the game choice of passive players. To test this claim, we first check the variance of giving data in EN-D and EX-D, which turns out to be statistically no different from each other. Thus, using two-sample t-test with equal variances we can conclude that mean of dictator giving in EX-D is more than that of EN-D at 5% significance level with a p-value of 0.0436. This leads us to our third result:

Result 3: In line with our hypothesis 3, as a result of the passive players' choice of playing EN-D, the dictators give less in EN-D than in EX-D.

In order to further support this result, we also run some OLS regressions with and without covariates. First, we regress the decision of the dictator in the exogenous and endogenous dictator games on the treatment dummy, tr_dummy variable which takes value of one if the game played is chosen endogenously (EN-D) and zero otherwise (EX-D), as well as

the gender dummy which equals one if the dictator is male. The result of this regression is given in the first column of the Table 2.[5] Next, in column 2, we add the dictators' birth year (byear), number of siblings, level of disposable income and scores of extraversion, agreeableness, conscientiousness, emotional stability, and openness to experiences as well as two more dummy variables. One of these dummies indicate whether the student is from economics department, which is the department represented the most in our sample. The last dummy variable equals to one if the day of the conducted experimental session is Monday, in order to control for any negative effects this might have on the subjects.

Table 2 – OLS Results for Dictator Games

	Dependent Variable: Dictator Decision			
	(1)	(2)	(3)	(4)
tr_dummy	-1.137*	-1.520**	-2.595***	-3.212***
gender	-0.635	-0.370	-1.780**	-1.670*
byear		0.219		0.201
sibling		0.993**		0.840**
income		0.443		0.291
extravert		-0.0474		-0.0560
agree		-0.162		-0.226
consc		0.141		0.116
stable		-0.0167		-0.0572
open		0.0181		0.0363
econ		-0.362		-0.0208
monday		-1.661*		-1.775*
tr_dummy x gender			2.352*	2.556**
constant	4.174***	-434.4	4.929***	-396.9
N	77	77	77	77
R^2	0.056	0.240	0.102	0.286
adj. R^2	0.030	0.097	0.065	0.139
p-value	0.1188	0.0919	0.0476	0.0415

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

[5] Note that the number of observations is not 78 due to the missing values in the gender variable as explained earlier.

As we can see from Table 2, our treatment dummy becomes significant at 5% level with a negative coefficient after adding these covariates. Moreover, in the third and fourth columns we repeat the same analysis by adding an interaction term of the treatment and gender dummies. Addition of the interaction term further decreases the coefficient of treatment dummy and increases its significance. Note that this interaction term is significant at 5% level when we include covariates. This evidence strongly supports the third result. From Table 2, we can also see that dictator giving rises with the number of siblings and falls when session takes place on Monday. Finally, men in dictator role give less compared to women.

Note that, gender plays an important role in our analysis both in the baseline regression and, later, in the interaction term. The main reason why we are interested in this variable is the well-established gender effect in distributional settings. Engel (2011), in his meta study on dictator games, points out that women give significantly more compared to men in the dictator game. Moreover, in their recent paper Chowdhury, Jeon, and Saha (2017) study the gender effect on giving behavior using both of the exogenously assigned games in our experimental setup. Similar to our setting, they run "between-subject dictator games with exogenously specified "give" or "take" frames involving a balanced pool of male and female dictators and constant payoff possibilities" and find that in the taking frame females are more generous compared to males.

Although, there is no study on gender differences in endogenously assigned distribution games since the literature on endogenous selection into distribution games is quite limited, the experimental literature so far shows that gender plays an important role in determining the giving behavior in the dictator game and its variants. That is why it plays an important

role in our analysis so far and we keep using the interaction term in our analysis throughout this chapter.[6] However, before going over other findings, we present our last main result.

Result 4: In line with hypothesis 4, giving in EN-T and EX-T are same.

Similar to the support of previous result, we first check the variance of giving data in EN-T and EX-T. As the variances are statistically no different from each other, we again use two-sample t-test with equal variances. However, this time we cannot reject the null hypothesis that mean of dictator decision in EN-T and EX-T are same ($p = 0.6173$). Moreover, running the same regressions as above for taking games never leads to a statistically significant coefficient for the treatment dummy as seen in the table below. Further analysis that also supports this result can be found in Appendix B.

Table 3 – OLS Results for Taking Games

	Dependent Variable: Dictator Decision			
	(1)	(2)	(3)	(4)
tr_dummy	-1.141	-3.058	0.200	-1.610
gender	-0.795	-0.540	0.0824	0.400
byear		-0.502		-0.536
sibling		0.118		0.123
income		2.846**		2.672*
extravert		0.338		0.331
agree		0.282		0.221
consc		-0.0321		0.0122
stable		0.279		0.301
open		-0.315		-0.346
econ		-2.596		-2.743
monday		-0.685		-0.434
tr_dummy x gender			-4.082	-3.713
constant	-0.845	991.8	-1.200	1059.3
N	55	54	55	54
R^2	0.008	0.250	0.023	0.261
adj. R^2	-0.030	0.030	-0.034	0.021
p-value	0.8077	0.3583	0.7475	0.3969

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

[6] We provide further support for our use of interaction term at the end of the following subsection, Other Findings from the Experiment, where we examine gender differences both within and between treatments.

5.3 Other Findings from the Experiment

In order to further study the differences in behavior of dictators between exogenous and endogenous treatments we also look at the distribution of dictator decisions in detail. The figures below are the histograms of the transfer decisions in dictator and taking games respectively. Among each figure, first graph is drawn for the exogenous treatment (tr_dummy=0) and second is drawn for the endogenous treatment (tr_dummy=1).

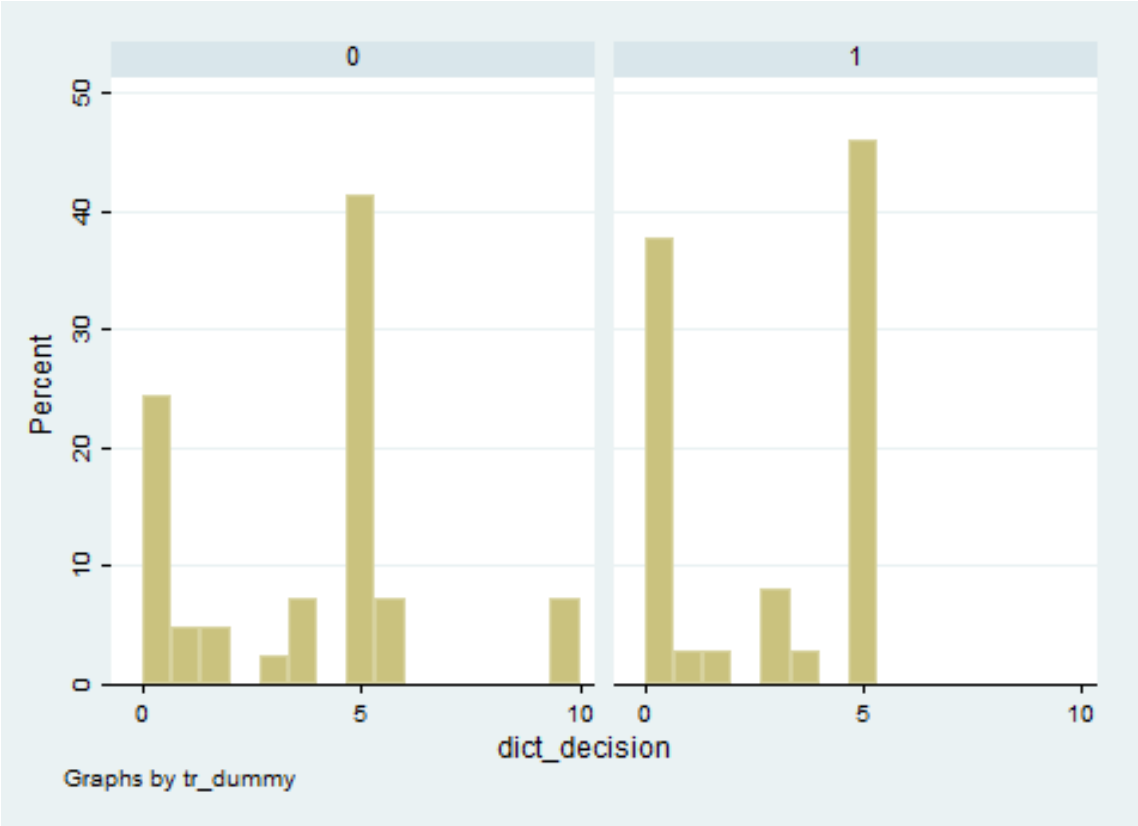


Figure 1. Giving Behavior in the Exogenous and Endogenous Dictator Games

We can see from Figure 1 that frequency of giving 0 and giving 5 increases when the game played is chosen endogenously compared to exogenous assignment. Similarly, from Figure 2 we can see that dictators give -10 more frequently in EN-T than in EX-T. Thus,

we also define new dummy variables as zerogiving, fivegiving and minustengiving to be used in probit regressions. We regress these dummies over treatment dummy, gender and other covariates in order to understand whether probability of giving -10, 0 or 5 are actually affected from our experimental treatment.

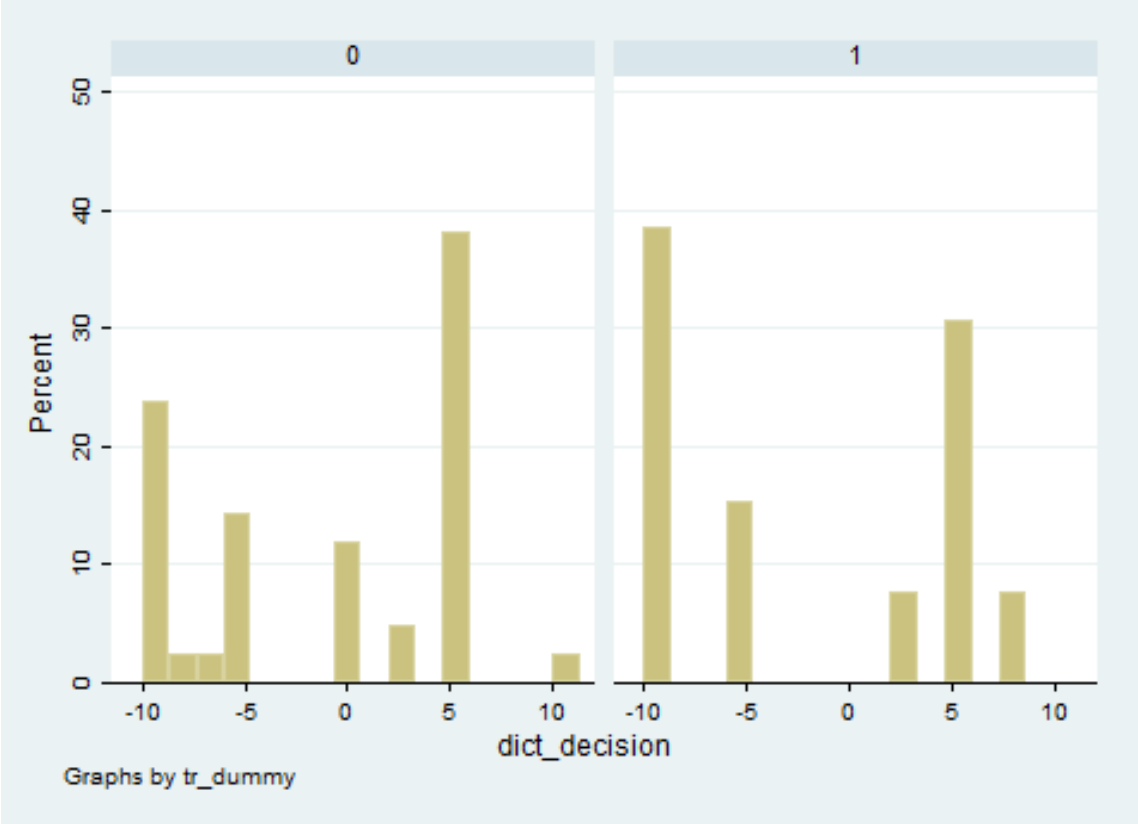


Figure 2. Giving Behavior in the Exogenous and Endogenous Taking Games

From Table 4 below, we can see that endogenous selection of the game played increases the probability of dictator to give zero when the game played is dictator game. This result is significant at 5% level but our results for fivegiving are not statistically significant. Running the same regressions for the taking games (EX-T and EN-T) does not yield any significant result either, even with minustengiving dependent variable.

Table 4 – Probit Regression Results for Dictator Games

	Dependent Variable: zerogiving		Dependent Variable: fivegiving	
	(1)	(2)	(3)	(4)
tr_dummy	1.382**	1.929**	0.113	0.0124
gender	1.035*	1.321**	0.226	0.0911
tr_dummy x gender	-1.382*	-1.822**	-0.0328	0.124
byear		-0.124		0.0265
sibling		-0.296		0.265
income		-0.0960		0.00698
extravert		0.0921		-0.109*
agree		0.0829		-0.0507
consc		-0.0805		0.0535
stable		0.0558		-0.0311
open		-0.0637		0.163*
econ		-0.108		0.143
monday		0.439		0.0331
constant	-1.465***	247.0	-0.366	-54.44
N	77	77	77	77
pseudo R^2	0.068	0.166	0.005	0.077
p-value	0.0892	0.2584	0.9038	0.8378

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 5 – Probit Regression Results for Taking Games

	Dependent Variable: zerogiving		Dependent Variable: fivegiving		Dependent Variable: minustengiving	
	(1)	(2)	(3)	(4)	(5)	(6)
tr_dummy	(omitted)	(omitted)	-0.381	-0.994	-0.0584	0.915
gender	0.476	6.272	-0.671	-0.912*	-0.0152	0.473
tr_dummy x gender	(omitted)	(omitted)	0.428	0.574	0.780	0.143
byear		-0.633		-0.191*		0.101
sibling		-1.946		0.161		0.125
income		0.502		0.816**		-1.086***
extravert		-0.647		0.0809		0.0221
agree		-1.268		0.0435		-0.0290
consc		0.0165		-0.0769		0.0209
stable		-0.247		-0.0474		0.0327
open		-0.881		-0.0347		0.0208
econ		(omitted)		-0.560		0.425
monday		(omitted)		0.416		0.124
constant	-1.405***	1284.2	-0.0502	379.9*	-0.706**	-202.0
N	42	27	55	54	55	54
pseudo R^2	0.029	0.452	0.041	0.269	0.019	0.218
p-value	0.3483	0.2303	0.3948	0.1181	0.7492	0.4111

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

On top of these, we also wonder why any passive player actually chooses taking game rather than the dictator game in the endogenous treatment. Therefore, we define a passive player dummy, which takes the value one when the receiver chooses to play the taking game and zero otherwise. By regressing this dummy over gender and other covariates, we aim to gain insights on possible reasons behind this behavior. Note that we cannot use treatment dummy in these regressions as this analysis only considers endogenous treatment.

Table 6 – Probit Regression Results for Endogenous Treatment

	Dependent Variable: passive dummy	
	(1)	(2)
gender	-0.0107	-0.0286
byear		0.117
sibling		0.117
income		0.0320
extravert		0.0189
agree		0.0551
consc		0.00177
stable		-0.0800
open		0.216*
econ		0.109
monday		(omitted)
constant	-0.623**	-237.7
N	49	47
pseudo R^2	0.000	0.133
p-value	0.6873	0.6873

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Above, in Table 6, the probit analysis where the dependent variable is passive dummy (equals to one if passive player have chosen EN-T) shows us that none of our variables are able to explain the behavior of choosing the taking game in the endogenous treatment. As it can be seen from the instructions in Appendix A, we made the rules of this simple

game obvious to the players. Thus, it is hard to attribute this behavior to any issues about (mis)understanding either. In the last part of this chapter, we present our results from the content analysis of the open-ended survey questions providing other behavioral patterns that might have shaped this behavior.

Note that, the probit regression results are compatible with our Result 3 and Result 4. Recall that in Table 2, the coefficient estimate for the gender dummy is negative whereas the coefficient estimate for the interaction term is positive; and both statistically significant. In Table 4, we observe the same pattern for the probability of giving zero. This implies that women give more in EX-D but less in EN-D compared to men, as dictators, so the treatment effect is stronger for women than for men. The following evidence on gender differences also provides results that support this finding.

Table 7 presents differences in the transfer decisions of men and women, in dictator role, within EX-D and EN-D. The last column shows the p-value of the non-parametric test for these gender differences. We can see that women give substantially more in EX-D compared to men with a mean giving close to the median and this difference is statistically significant. On the other hand, women give less than men in EN-D, although this difference is not statistically significant.

Table 7 – Gender Differences in Dictator Games

Treatment	Gender	N	Mean	Standard Deviation	Median	*p-value*
EX-D	0	14	4.928	2.731	5	0.0769
	1	27	3.148	2.741	5	
EN-D	0	15	2.333	2.469	1	0.5093
	1	21	2.904	2.278	3	

Note: Table presents the data of the dictator decision for exogenous and endogenous dictator games. Last column presents the p-value of two-sample Wilcoxon rank-sum (Mann-Whitney) test between genders.

Constructing the same table for EX-T and EN-T as below shows that there is no significant gender difference in giving behavior for the taking games.

Table 8 – Gender Differences in Taking Games

Treatment	Gender	N	Mean	Standard Deviation	Median	*p-value*
EX-T	0	25	-1.2	6.621	0	0.8107
	1	17	-1.117	6.480	0	
EN-T	0	9	-1	7.416	2	0.3402
	1	4	-5	7.071	-7.5	

Note: Table presents the data of the dictator decision for exogenous and endogenous taking games. Last column presents the p-value of two-sample Wilcoxon rank-sum (Mann-Whitney) test between genders.

Moreover, men and women do not differ in terms of the frequency of choosing EN-T compared to EN-D according to the Fisher's exact test results. Thus, we cannot explain the receivers' behavior of choosing the taking game by gender differences either.

This analysis of gender differences both within and between treatments is not our focus. Nevertheless, it provides the interesting finding that the treatment effect is more pronounced for women than men (mean difference of 2.595 vs. 0.244).

5.4 Survey Results

As noted in Chapter 3, we also conducted an online survey between 30th of June and 3rd of July 2020 with 296 subjects in total to gain further insights about the predictability and interpretation of our experimental results. We explained the procedures of our experiment in detail to the survey participants and asked them to predict the behavior observed in the experiment (in relation to Hypotheses 1-4). In addition to these (binary) prediction questions, we also asked open-ended questions regarding the factors that might have driven the predicted behavior. Survey also included some control questions to test the participants' understanding of experimental design and some demographic questions. For

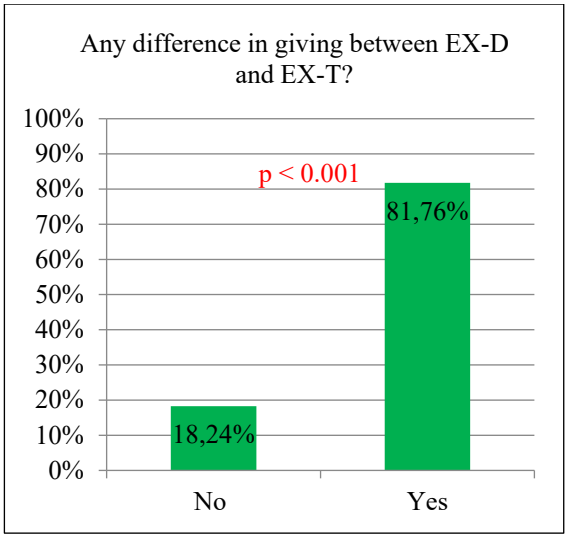
the full survey, please see Appendix A.

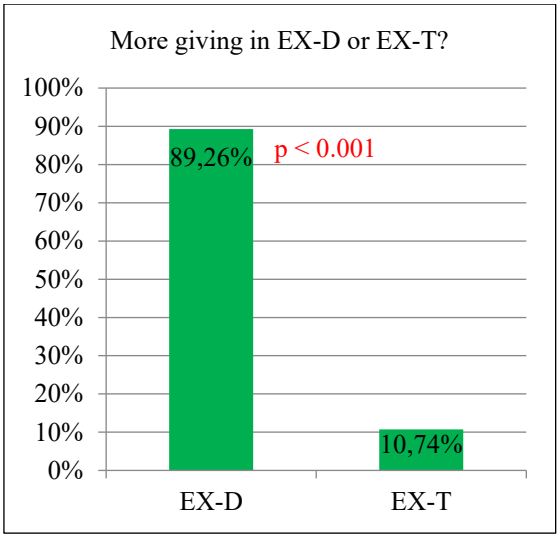
Survey took around twenty minutes to complete and one randomly chosen participant, among the ones who correctly predicted all the four results we had, was paid 200 TL as an incentive to correctly predict the results of the experiment. 55.74 percent of our survey participants were female whereas 44.26 percent were male and the mean age was 20.9. The majority of our participants did not participate in any session of our experiment (85.47%) and did not took any classes related to game theory (93.92%).

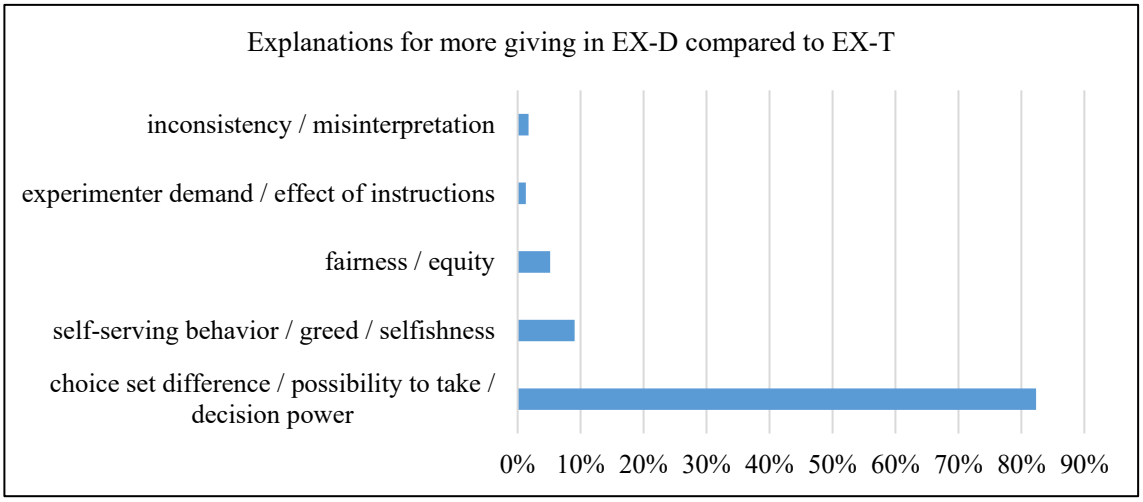
Firstly, the statistical analysis of the predictions using one-sample t-test shows that majority of our survey participants predicted all of our results except the fourth one. Figures below provide the answers to each survey question in percentages with the corresponding p-value for the test of difference between the answers. We can see that all them, except the ones depicted in Figure 6, match with our results.

Secondly, we asked the participants why they made such predictions to understand what reasoning lies behind these answers. Classifications of these explanations for each answer are also given in the figures, which show that participants' explanations for the predicted behavior are mostly in line with ours.

For the content analysis of the open-ended questions, we followed the usual procedure of having two research assistants (RA) to classify the texts. We provided RA's the necessary information on experiment and survey together with which concepts to look for in the explanations. They first individually analyzed the texts and then they came together for the mismatches in their categorization to have a chance to reconcile, if possible. In figures below, we only provide the results that both RA's could agree upon.







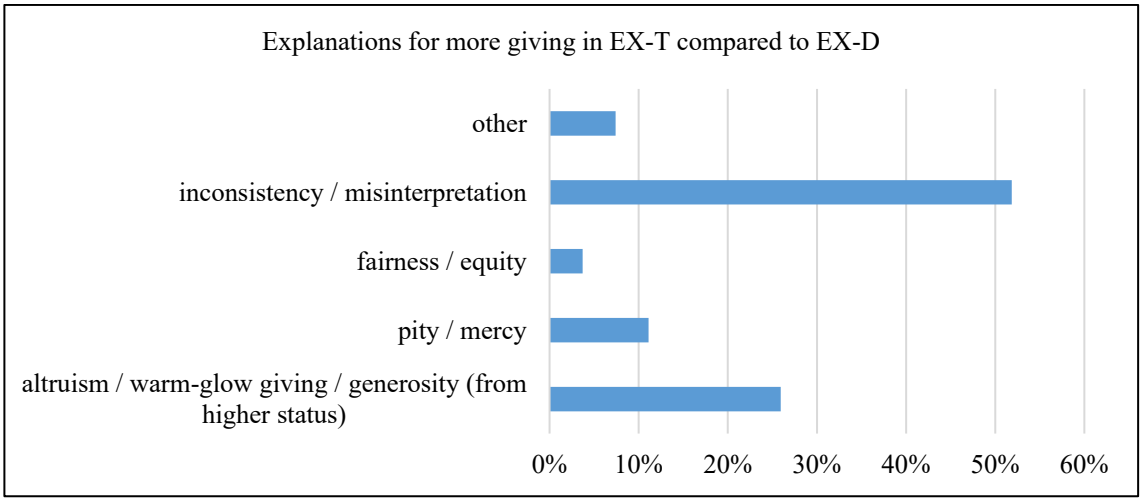
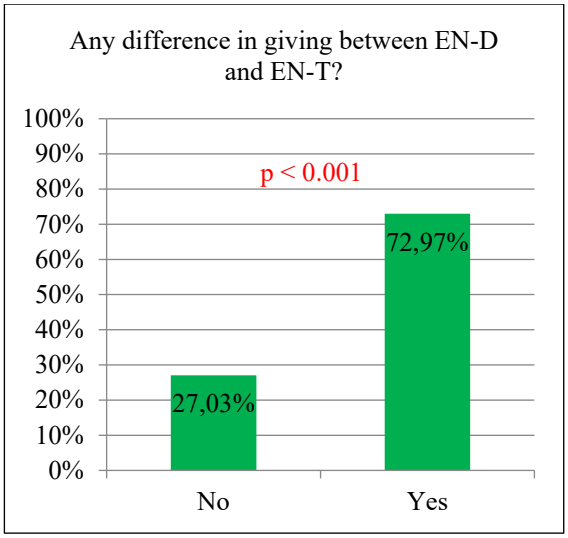
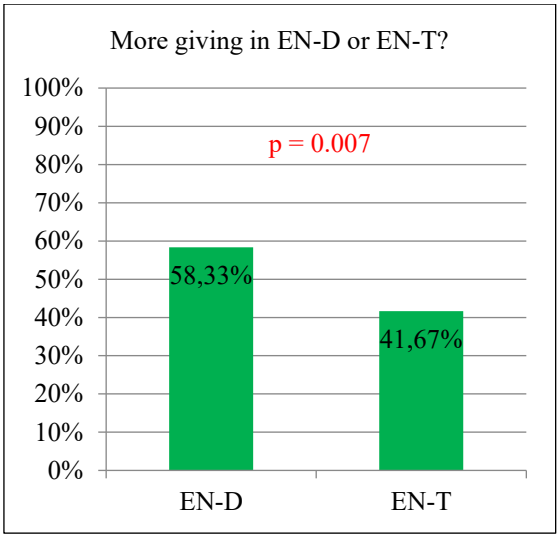
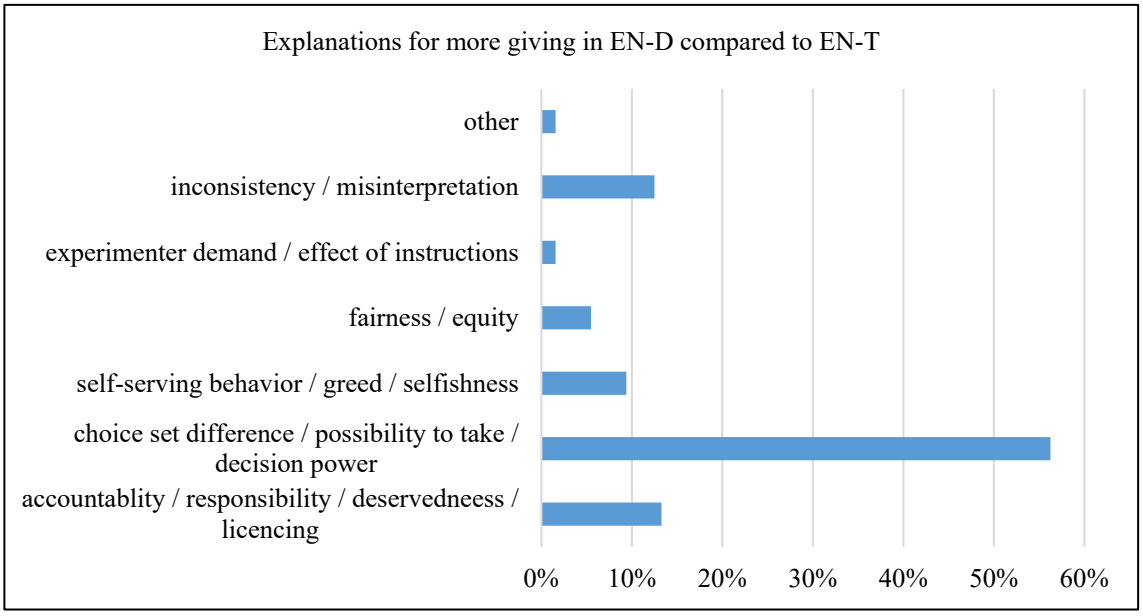


Figure 3a. Survey Results for Hypothesis 1







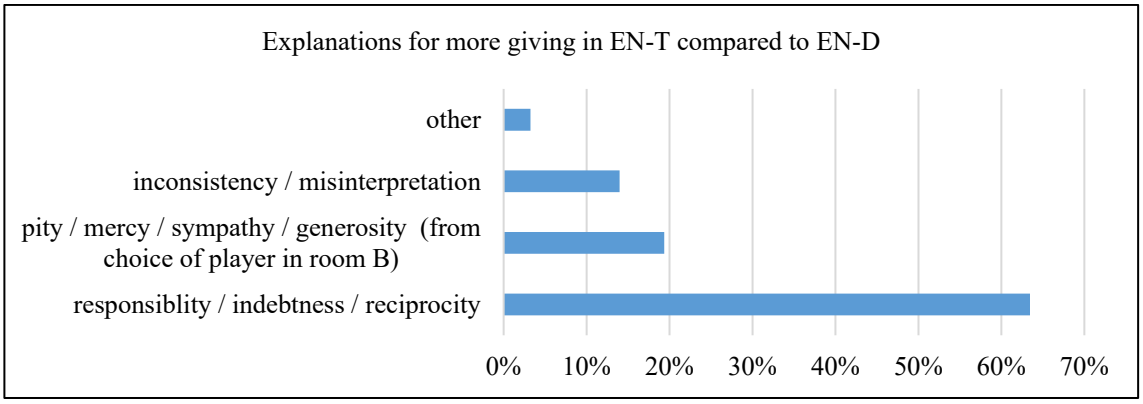
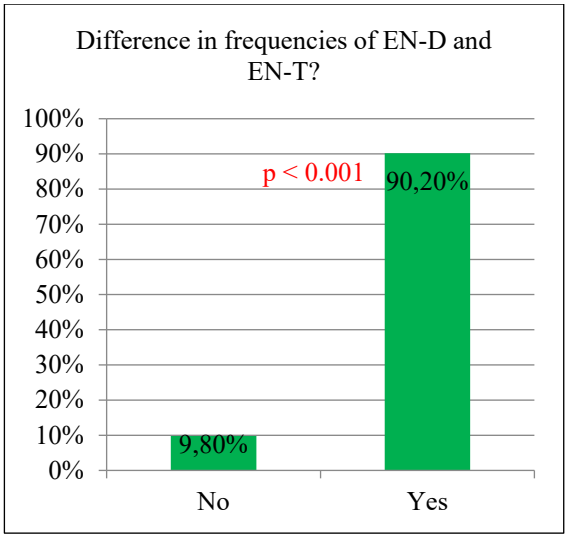
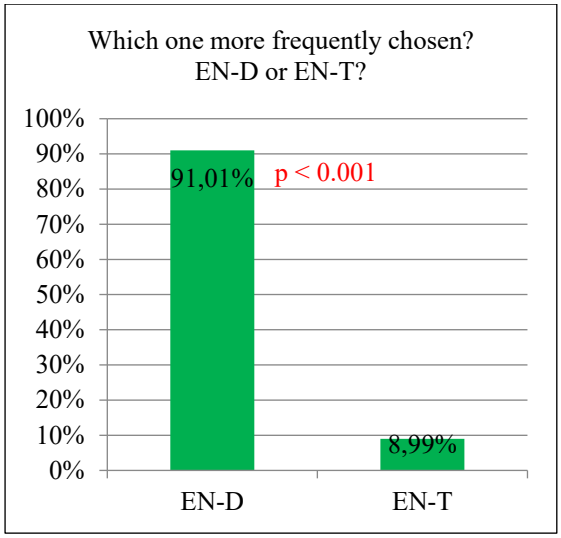
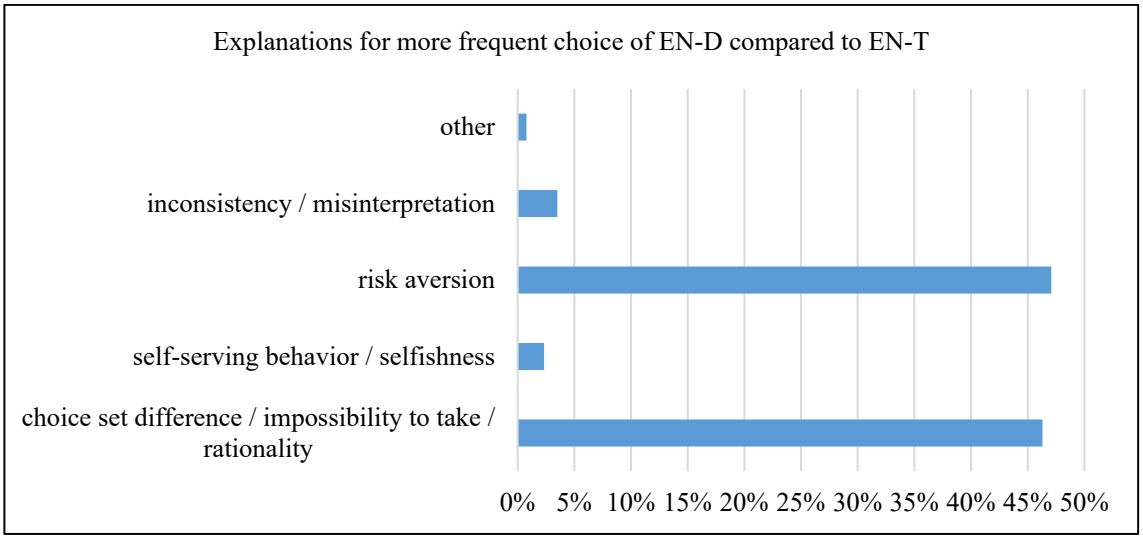


Figure 3b. Survey Results for Hypothesis 1







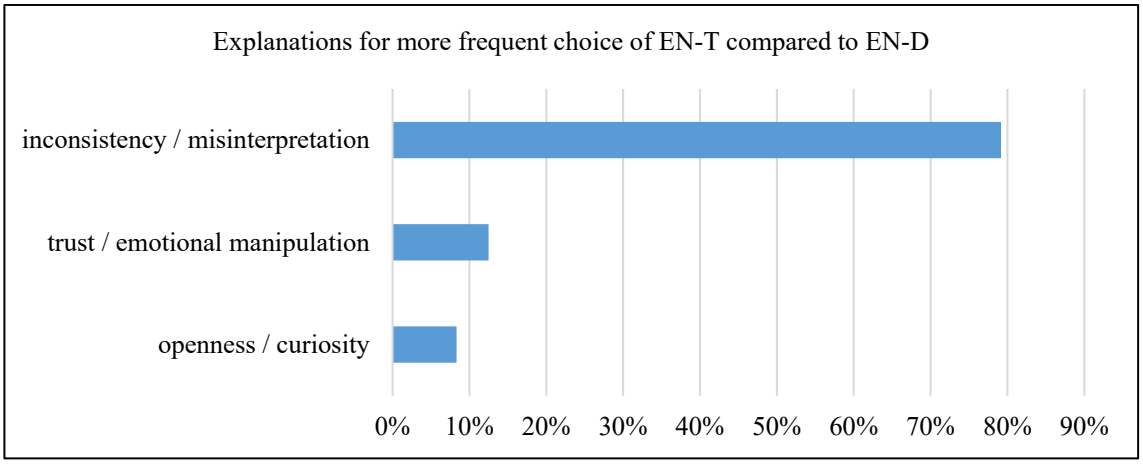
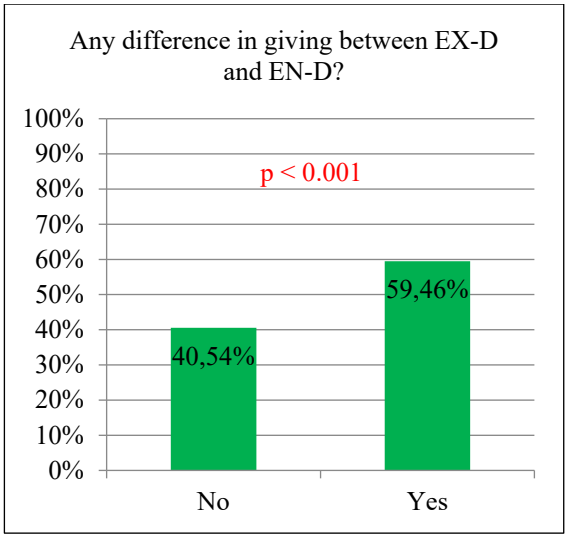
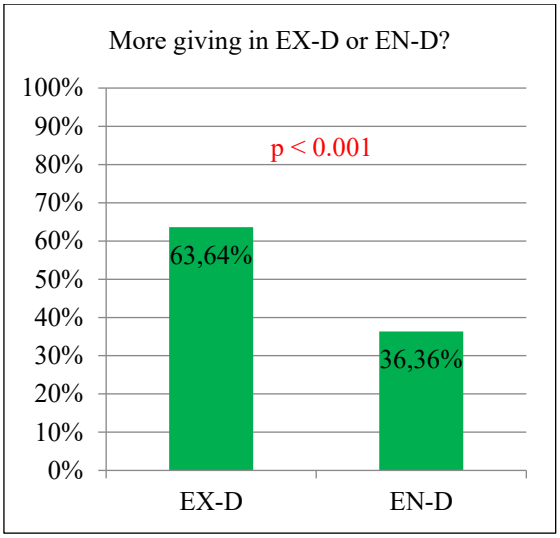
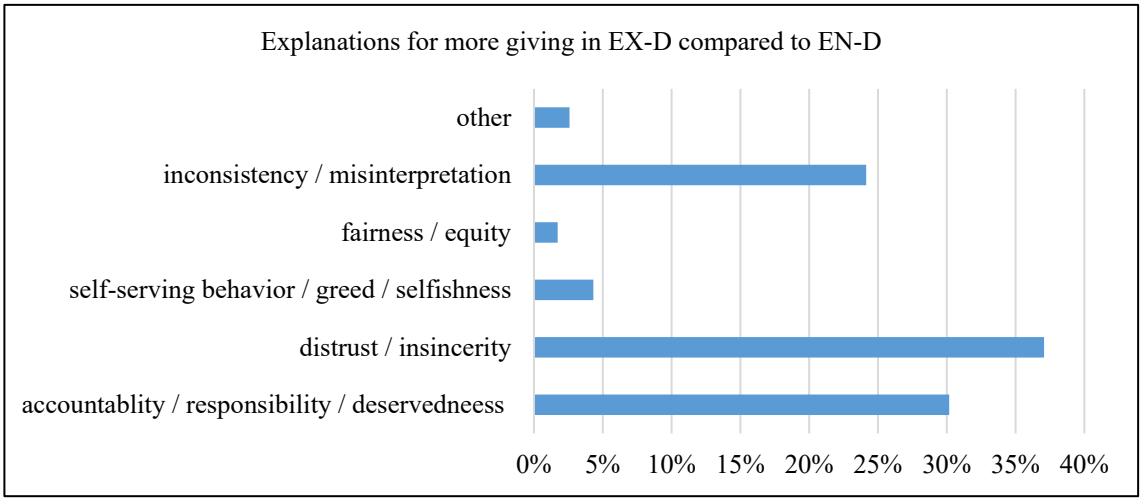


Figure 4. Survey Results for Hypothesis 2







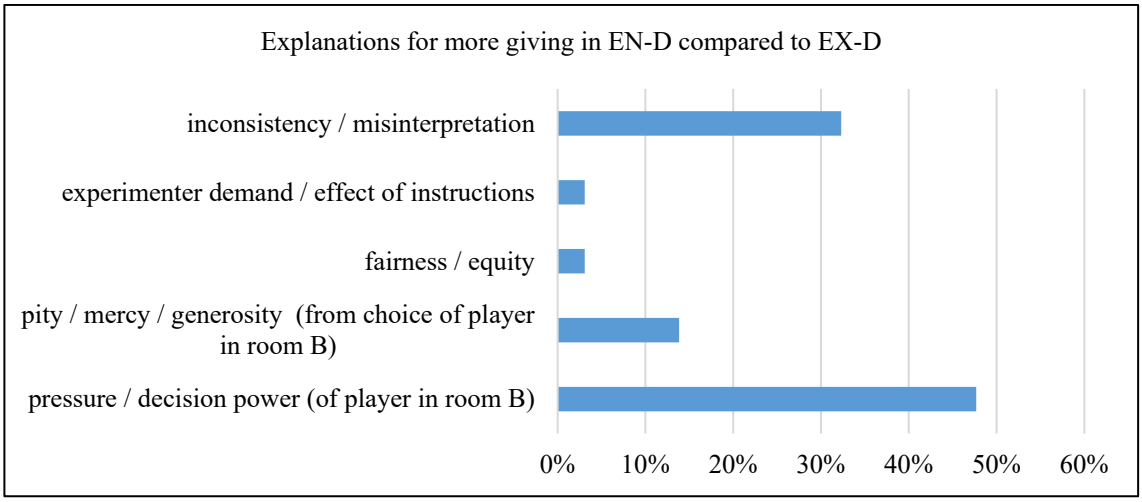
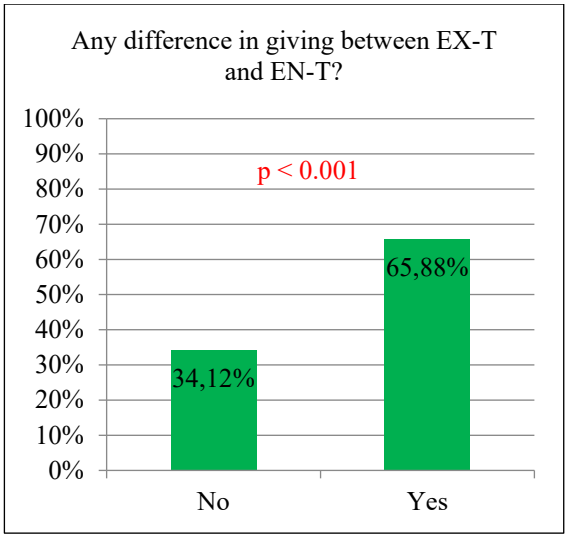
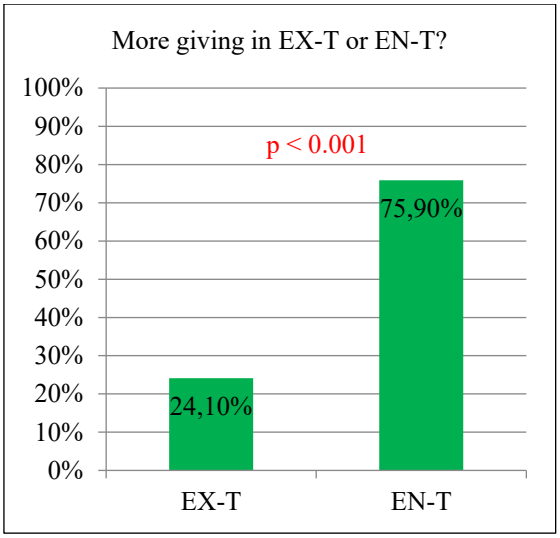
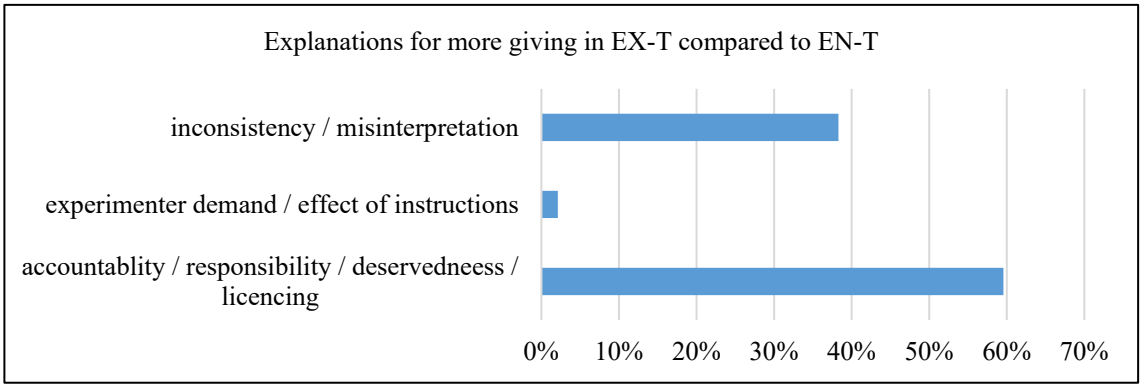


Figure 5. Survey Results for Hypothesis 3







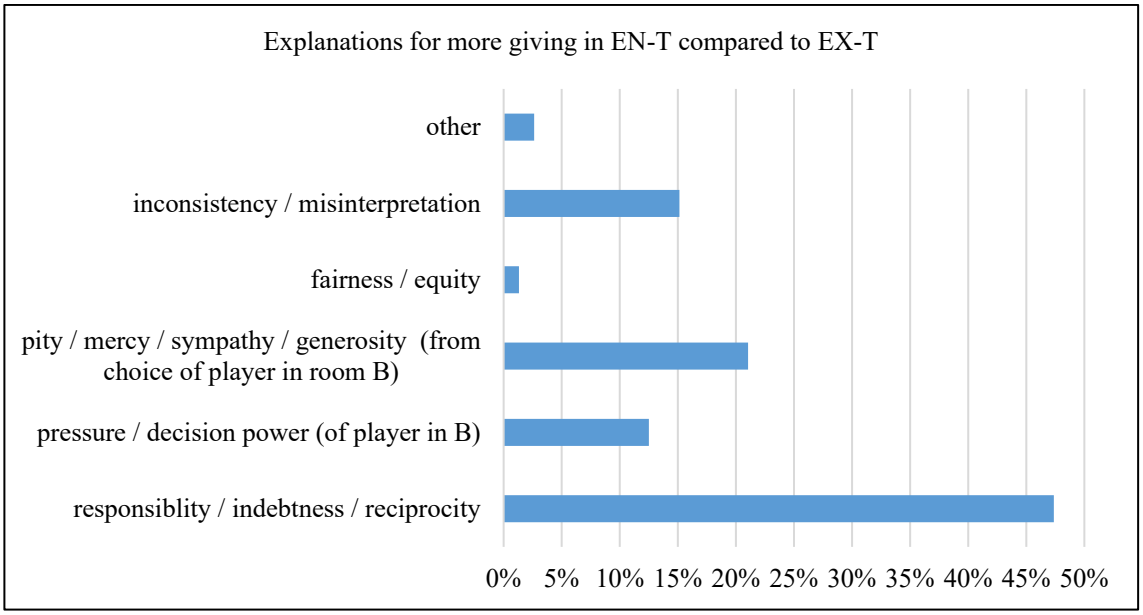


Figure 6. Survey Results for Hypothesis 4

When we look at the survey results in detail, from Figure 3a and 3b, we see that participants' predictions not only match with our first hypothesis but also their reasoning for the fall of giving rate when the possibility of taking is introduced specifically focusses on the differences in the choice set. Moreover, explanations for more giving in EX-T compared to EX-D are mostly inconsistent with the given answer or there is a misinterpretation of the situation. However, explanations for more giving in EN-T compared to EN-D are meaningful but a bit too optimistic in terms of expecting a reciprocal behavior from the dictators when taking game is chosen by the receiver rather than the dictator game in the endogenous treatment. As explained in Result 1, this optimistic scenario does not match with what happened in our experiment.

The questions regarding our second hypothesis have the highest correct prediction rates and participants of survey meaningfully attribute the behavior of choosing EN-D rather than EN-T to the rationality of receivers (due to impossibility of taking in EN-D) or risk aversion. Once again, explanations for the incorrect prediction are either inconsistent or misinterpreted.

In relation to our main hypothesis, 59.46% of participants predict that there is a difference between mean giving in EN-D and EX-D. 63.64% of them expect the giving rate to be higher in EX-D than in EN-D. The explanations for this prediction mainly focus on the accountability/responsibility of receivers in the restriction of the choice set of dictator or the distrust/insincerity resulting from selecting dictator game in the endogenous treatment. While explaining the reason behind less giving, survey participants hold receivers responsible for such a natural (and rational) action, which is also in line with our reasoning. Survey participants themselves explain in the previous question that EN-D

should be more frequently chosen due to the choice set differences between the taking and dictator games or simply due to risk aversion of agents but in this question, some of these same participants oddly find this behavior insincere.

Finally, 65.88% of the participants predict that there is also a difference in mean giving of EN-T and EX-T. 75.9% of them expect a higher giving rate in EN-T in a reciprocal manner. However, this is not the case in our experiment. Indeed, on the opposite, mean giving falls in EN-T compared to EX-T as seen in Table 1 although this difference is not statistically significant.

CHAPTER 6

CONCLUSION

In this thesis, we empirically examine the behavior of agents in some variations of the celebrated dictator game where an exogenously given monetary resource is shared between two agents, an active player in the dictator role and hence dictating a division of the resource between the two and a passive player who has no say in that division. Specifically, we investigate the effects of taking possibility in the dictator game and the choice of passive players between dictator game and taking game on the distribution decisions of active players where taking game is the dictator game setting in which dictator can take the initial endowment of passive player as well. In doing so, we make use of a between-subject design with three treatments: (i) exogenously assigned dictator game (EX-D), (ii) exogenously assigned taking game (EX-T), and (iii) endogenous treatment where passive subjects choose to play either the dictator game (EN-D) or the taking game (EN-T). This setting allows us to study the difference between dictator and taking games as well as the difference between exogenously and endogenously assigned games within dictator or taking game setups. This work, to the best of our knowledge, is the first one to study endogenous game selection and its impacts on giving behavior in a dictator game setting by allowing passive players to have a say in the game they want to play.

We obtain to four main conclusions which support the literature so far on taking games and provide new insights about the interpretation of giving behavior in distributive settings by highlighting the importance of endogenous selection into games. First, in conformity with the results of List (2007) and Bardsley (2008), we find that dictators give less in the taking game than in the dictator game. That is, giving is less in EX-T than EX-D. Moreover, we also find that among the endogenously played games, giving is less in EN-T than EN-D, which is novel to the literature. This observation provides a robustness check for the earlier results in the literature of taking games using endogenous assignment of games and a group of participants recruited in Turkey.

Second, as expected, we find that passive players choose the dictator game more frequently than they choose the taking game in the endogenous treatment. However, the fact that, still, a considerable number of subjects chose the taking game is worth to contemplate on. We do not think that this results from the inattentiveness of the players as they decide to participate voluntarily and as there is an incentive to pay attention since their choice is directly affecting the cash they receive in the end. In fact, as seen in Figure 2, some of the subject who decide to play the take game receive nothing in the end since their partner selects the transfer of -10. There are also no gender differences in the frequency of choosing the taking game in the endogenous treatment so gender cannot explain this behavior either. According to the conventional economic theory, all agents should have been chosen the dictator game so only thing we can say at this point is that agents may not necessarily act perfectly rational in real life instances.

Third, as a result of the passive players' choice of playing the dictator game rather than the taking game, the dictators give less in EN-D than in EX-D. As List (2007) argued, "If behavior in the baseline treatment is due to social preferences as per these models, then simply manipulating the choice set should have no influence on outcomes" but it has an effect both in the literature and in our results. Similarly, even though agents play the same dictator game both in EX-D and in EN-D, the choice of receiver has an impact on the behavior of dictators as our results show. Thus, endogenous selection in dictator game makes a significant difference in the decisions of dictators. We find that dictators give significantly less when receiver has a say on the game to be played. Our survey results support the interpretation that dictators hold the receiver responsible for playing dictator game instead of taking game, thus, leading to a fall in giving behavior. Basically, dictators use this choice of receivers as a justification for giving less, even if choosing dictator game is the dominant action that anyone would do.

Accountability of receivers on playing dictator game in EN-D effects dictators' transfers negatively as this choice is undesirable for their self-interest. This result supports the observation that transfers fall significantly when agents have the opportunity to create situational excuses for their self-serving behavior, but by using a setting novel to the existing literature. On the other hand, note that, this result is at the same time in contrast with the findings of Heinrich et al. (2009) which has the setting closest to our design in the sense that passive players of dictator game have a say in the procedure. According to their findings, dictators are more generous when the receivers are not passive in the game anymore but we reach to the opposite result!

Finally, we also find that giving in EN-T and EX-T are not statistically different from each other. Thus, dictators give significantly less in EN-D compared to EX-D but this is not the case for taking games. The main reason behind this, we think, is the restriction of choice set in EN-D game. When a passive player chooses dictator game instead of taking game in the endogenous treatment, that player restricts the set of transfers from which dictator of that pair can choose. However, this is not the case if the taking game is chosen in the endogenous treatment. Therefore, we attribute the dictator behavior of giving less in EN-D compared to EX-D to limitation of the choices to the non-negative integers, which results from the endogenous selection of passive players.

Dictators use endogenous selection as a justification for their self-serving behavior which is giving less. Thus, importance of endogenous selection into games should be taken into account in future experimental work. Moreover, one might wonder what might have happened if this experiment was conducted with a fully double-blind procedure or what will be the results of a field experiment where subjects were not in a lab but in a real life situation. Would the agents take everything they can from their partners in that case? These will be subjects of future research. With more work in this subject, we may indeed figure out that the behavior of agents in real world and our mainstream model of human behavior are more easily reconcilable than we thought.

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APPENDIX A

EXPERIMENT INSTRUCTIONS AND SURVEY

In this section, we provide full instructions used in our experiment and the survey (all the questions as well as the explanation in the beginning), both translated from Turkish. Within exogenous and endogenous treatments, the instructions are quite similar for the dictator and taking games. Therefore, we present them together where different parts are specified inside square brackets with the related game name noted before.

Experiment Instructions: Exogenous Treatments (EX-D and EX-T)

Passive:

In this experiment each participant in this room (room B) are paired with a different participant who is in another room (room A). You will not be told who you are matched with during or after the experiment, and he or she will not be told who you are either during or after the experiment.

You will notice that there are other people in the same room with you who are also participating in the experiment. You are not paired with any of these people. The decisions that they make will have absolutely no effect on you nor will any of your decisions affect them. Most importantly, your decisions will be strictly anonymous and cannot be linked to you in any way in the data collected from this experiment.

The experiment will be conducted as follows:

- You and the person you are paired with each have been allocated 10TL.
- Additionally, the person you are paired with have been provisionally allocated an additional 10TL. You have not been allocated this additional 10TL.

- EX-D: [The person you are paired with will decide what portion, if any, of this 10TL to transfer to you. Choice of that person can be anywhere from 0TL to 10TL, in 1TL increments.]
  EX-T: [The person you are paired with will decide what portion, if any, of this 10TL to transfer to you. That person can also transfer a negative amount: i.e., can take up to 10TL from you. Thus, choice of that person can be anywhere from -10TL to 10TL, in 1TL increments.]
- As a result, your take-home earnings from this experiment will be the summation of your initial 10TL allocation and the amount person you are paired with decided to transfer you in this exercise. Likewise, the earnings of that person will be their initial 10TL allocation added to the amount left to them from this choice exercise.

As the decisions made in the experiment are transferred via sealed envelopes, they cannot be observed by the experimenters. Moreover, at the end of the experiment, your payments will be done by an assistant who is not related with this experiment and the receipts will be collected by the assistant in order to be given to the financial affairs of the university.

You will see the decision of the person you are paired with in a moment. When you see the decision, you can fill the questionnaire that will be distributed. Please do not talk to the other people in this room until your session is completed and everybody left.

If you have any questions please raise your hand and wait until an administrator comes.

Dictator:

In this experiment each participant in this room (room A) are paired with a different participant who is in another room (room B). You will not be told who you are matched with during or after the experiment, and he or she will not be told who you are either during or after the experiment.

You will notice that there are other people in the same room with you who are also participating in the experiment. You are not paired with any of these people. The decisions that they make will have absolutely no effect on you nor will any of your decisions affect them. Most importantly, your decisions will be strictly anonymous and cannot be linked to you in any way in the data collected from this experiment.

The experiment will be conducted as follows:

- You and the person you are paired with each have been allocated 10TL.
- Additionally, you have been provisionally allocated an additional 10TL. The person you are paired with has not been allocated this additional 10TL.

- EX-D: [The only thing you need to do is to decide what portion, if any, of this 10TL to transfer to the person you are paired with. Your choice can be anywhere from 0TL to 10TL, in 1TL increments.]
  EX-T: [The only thing you need to do is to decide what portion, if any, of this 10TL to transfer to the person you are paired with. You can also transfer a negative amount, i.e., you can take up to 10TL from the person you are paired with. Thus, your transfer choice can be anywhere from -10TL to 10TL, in 1TL increments.]
- As a result, your take-home earnings from this experiment will be the summation of your initial 10TL allocation and the amount left to you from this choice exercise. Likewise, the earnings of the person you are paired with will be their initial 10TL allocation added to the amount you decided to transfer them in this exercise.

When you come to a decision about your choice, you can mark the form in front of you with the pen on the table. When you mark the form, the other form beneath it will be marked as well due to the copy paper in between those. You need to keep one of these copies for your payment and put the other copy in envelope to be given to the person you are paired with. It does not matter which copy you keep and which one you put in envelope.

Please seal the envelope once you put one of the copies inside. As the decisions made in the experiment are transferred via sealed envelopes, they cannot be observed by the experimenters. Moreover, at the end of the experiment, your payments will be done by an assistant who is not related with this experiment and the receipts will be collected by the assistant in order to be given to the financial affairs of the university.

You will have five minutes to come to a decision about your choice. When you come up with your choice, you can fill the questionnaire that will be distributed. Please do not talk to the other people in this room until your session is completed and everybody left. Do not be concerned if other people make their decisions before you, we will not collect envelopes until after five minutes.

If you have any questions please raise your hand and wait until an administrator comes.

Example Form:

Please circle the TL amount you want to transfer to the person you are paired with:

EX-D: [0 1 2 3 4 5 6 7 8 9 10]
EX-T: [-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10]

Experiment Instructions: Endogenous Treatments (EN-D and EN-T)

Passive:

In this experiment each participant in this room (room B) are paired with a different participant who is in another room (room A). You will not be told who you are matched with during or after the experiment, and he or she will not be told who you are either during or after the experiment.

You will notice that there are other people in the same room with you who are also participating in the experiment. You are not paired with any of these people. The decisions that they make will have absolutely no effect on you nor will any of your decisions affect them. Most importantly, your decisions will be strictly anonymous and cannot be linked to you in any way in the data collected from this experiment.

The experiment will be conducted as follows:

- You and the person you are paired with each have been allocated 10TL.
- Additionally, the person you are paired with have been provisionally allocated an additional 10TL. You have not been allocated this additional 10TL.

- **The only thing you need to do is to decide which of the following experiments you want to continue with:**

    - **Experiment 1:** In this experiment, the person you are paired with will decide what portion, if any, of this 10TL to transfer to you. Choice of that person can be anywhere from 0TL to 10TL, in 1TL increments.

    - **Experiment 2:** In this experiment, as well, the person you are paired with will decide what portion, if any, of this 10TL to transfer to you. <u>However, different from Experiment 1,</u> in this experiment that person can also transfer a negative amount, i.e., can take up to 10TL from you. Thus, choice of that person can be anywhere from -10TL to 10TL, in 1TL increments.

- **As a result, your take-home earnings from this experiment will be the summation of your initial 10TL allocation and the amount that person you are paired with decided to transfer you in this exercise.** Likewise, the earnings of that person will be their initial 10TL allocation added to the amount left to them from this choice exercise.
- In front of you, there are two envelopes with "Experiment 1" or "Experiment 2" written on. Inside these envelopes there are the related experiment instructions written to be given to the person you are paired with. You will have five minutes to come to a decision on which

experiment you want to continue with. After five minutes you need to give the envelope of the experiment you have chosen to the experimenter.

- **There will not be any other decision you need to take throughout the experiment. You do <u>not</u> need to mark anything with pen to make a choice, it is enough to hand in the envelope of chosen experiment.**

If you want take a look at the instructions and the decision forms of these two experiments, you can find examples of those in the next pages. After the experimenter hands in the envelope of the experiment you have chosen to the person you paired with, the transfer decision of that person will be brought to you again in another envelope after five minutes.

As the decisions made in the experiment are transferred via sealed envelopes, they cannot be observed by the experimenters. Moreover, at the end of the experiment, your payments will be done by an assistant who is not related with this experiment and the receipts will be collected by the assistant in order to be given to the financial affairs of the university.

When you see the decision of the person you are paired with, you can fill the questionnaire that will be distributed. Do not be concerned if other people make their choice between experiments before you, we will not collect envelopes until after five minutes. Please do not talk to the other people in this room until your session is completed and everybody left.

If you have any questions please raise your hand and wait until an administrator comes.

Dictator:

In this experiment each participant in this room (room A) are paired with a different participant who is in another room (room B). You will not be told who you are matched with during or after the experiment, and he or she will not be told who you are either during or after the experiment.

You will notice that there are other people in the same room with you who are also participating in the experiment. You are not paired with any of these people. The decisions that they make will have absolutely no effect on you nor will any of your decisions affect them. Most importantly, your decisions will be strictly anonymous and cannot be linked to you in any way in the data collected from this experiment.

The experiment will be conducted as follows:

- You and the person you are paired with each have been allocated 10TL.
- Additionally, you have been provisionally allocated an additional 10TL. The person you are paired with has not been allocated this additional 10TL.
- The person you are paired with is presented with two different experiments to choose from. In both of these experiments you are expected to decide what portion, if any, of this 10TL to transfer to the person you are paired with. In one of them (Experiment 1) your choice of transfer can be any integer from 0TL to 10TL. In the other one, however, you can also transfer a negative amount, i.e., you can take up to 10TL from the person you are paired with, so your choice of transfer can be any integer from -10TL to 10TL.
- **EN-D: [The person you are paired with have chosen the experiment without the possibility of negative transfers (Experiment 1). In this case, the only thing you need to do is to decide what portion, if any, of this 10TL to transfer to the person you are paired with. Thus, your choice can be any integer from 0TL to 10TL]**

  EN-T: [The person you are paired with have chosen the experiment with the possibility of negative transfers (Experiment 2). In this case, the only thing you need to do is to decide what portion, if any, of this 10TL to transfer to the person you are paired with. You can also transfer a negative amount, i.e., you can take up to 10TL from the person you are paired with. Thus, your choice can be any integer from-10TL to 10TL.]
- As a result, your take-home earnings from this experiment will be the summation of your initial 10TL allocation and the amount left to you from this choice exercise. Likewise, the earnings of the person you are paired with will be their initial 10TL allocation added to the amount you decided to transfer them in this exercise.

When you come to a decision about your choice, you can mark the form that came inside the envelope with the pen on the table. When you mark the form, the other form beneath it will be marked as well due to the copy paper in between those. You need to keep one of these copies for your payment and put the other copy in the envelope with "decision" written on it to be given to the person you are paired with. It does not matter which copy you keep and which one you put in envelope.

Please seal the envelope once you put one of the copies inside. As the decisions made in the experiment are transferred via sealed envelopes, they cannot be observed by the experimenters. Moreover, at the end of the experiment, your payments will be done by an assistant who is not related with this experiment and the receipts will be collected by the assistant in order to be given to the financial affairs of the university.

You will have five minutes to come to a decision about your choice. When you come up with your choice, you can fill the questionnaire that will be distributed. Please do not talk to the other people in this room until your session is completed and everybody left. Do not be concerned if other people make their decisions before you, we will not collect envelopes until after five minutes.

If you have any questions please raise your hand and wait until an administrator comes.

Example Form:

Please circle the TL amount you want to transfer to the person you are paired with:

EN-D: [0 1 2 3 4 5 6 7 8 9 10]
EN-T: [-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10]

Survey

Introduction:

Participation in this survey is completely voluntary, answering the survey questions does not carry any foreseeable risk, and the identity information of the participants (if provided by the participant) in the collected data will be anonymized and will not be used in the data analysis nor in the reporting of the results.

In this survey, you are asked some questions and expected to make predictions about the decisions participants made in the three treatments of our experiment which are described below. The experiment was carried out at Bilkent University between December 2019 - March 2020. It will take around 10-15 minutes for you to complete the survey. A person who will be selected randomly among the participants whose predictions are correct among those who complete the survey will earn 200 TL.

If you want to participate in this lottery and have the chance to win 200 TL or to be informed about the results of the study, write your e-mail address with the extension "bilkent.edu.tr" in the field below and click the "Confirm" button. Attention: Those who write an e-mail other than "bilkent.edu.tr" extension e-mail will not be included in the draw. If you do not want to participate in the draw, you can click the "I do not want to participate in the lottery" button and continue without entering an e-mail address.

Your e-mail address with bilkent.edu.tr extension: _____ CONFIRM

I DO NOT WANT TO PARTICIPATE IN THE LOTTERY

Explanation of the Experiment:

All of the treatments of the experiment were conducted in two separate rooms. Each participant in Room A was randomly matched with another participant in Room B. Before or after the experiment, the participants were not informed about who they matched with and all the decisions made by the participants were kept confidential.

In all three treatments, all participants in Room A and B were given 10 TL each. In addition, 10 TL was provisionally given to those in room A. This extra 10 TL was not given to those in room B.

TREATMENT 1

In this treatment, those in room A (if they wish) were asked how much of this extra 10 TL they would like to transfer to the person they matched with in room B. Therefore, the transfer choice of a person in Room A can be any integer from 0 to 10.

TREATMENT 2

In this treatment, those in room A (if they wish) were asked how much of this extra 10 TL they would like to transfer to the person they matched with in room B. However, unlike TREATMENT 1, in this treatment, a participant in room A can transfer a negative amount to the person he matched in room B, in other words, he can take up to 10 TL from him. Therefore, the transfer choice of a person in Room A can be any integer from -10 to 10.

TREATMENT 3

In this treatment, TREATMENT 1 and TREATMENT 2 were explained to each participant in room B and they were asked which treatment they would like to participate in. Both of the treatments were told to the people in Room A as well and the choice of the person they matched with in Room B between these two treatments was conveyed. According to the choice of the person in room B, each participant in Room A continued the relevant treatment and made a transfer choice in the relevant treatment.
Therefore, while the participants in TREATMENT 1 and TREATMENT 2 were assigned randomly by the researcher to a treatment, the participants TREATMENT 3 were assigned endogenously to one of the two treatments by the person they matched with in Room B.

In all treatments, the earnings of the individuals in room A is the sum of the initially given 10 TL and the amount left to them as a result of their transfer choice. Likewise, the earnings of the individuals in room B is the sum of the initially given 10 TL and the amount transferred to them from the extra 10 TL by the person they matched in Room A. Finally, each participant participated in only one of the above treatments.

Control Questions:

Within TREATMENT 3 (as a result of the selection of the person in room B), if TREATMENT 1 was chosen, it was called TREATMENT 3-1, if TREATMENT 2 was chosen, it was named TREATMENT 3-2.

We will first start with a few control questions that will test your understanding of the experimental design.

1. In TREATMENT 1, if the transfer choice of a person in room A is 0, what will be the earnings of this person and his matched person in room B from the experiment?

   The earnings of the decision maker in room A: ____TL
   The earnings of the person in room B whom the decision maker in room A matched with: ____TL

2. In TREATMENT 2, if the transfer choice of a person in room A is -10, what will be the earnings of this person and his matched person in room B from the experiment?

   The earnings of the decision maker in room A: ____TL
   The earnings of the person in room B whom the decision maker in room A matched with: ____TL

3. In TREATMENT 3, participation in TREATMENT 1 or TREATMENT 2 is determined by the participant in room B.

   Right ____
   False ____

4. In TREATMENT 1, a person in room A may choose to transfer an amount from 10 TL given to the person he matched in room B to himself.

   Right ____
   False ____

5. In what interval can the transfer choice of the person in room A be in TREATMENT 3-2?

   Any integer between ____TL and ____TL

6. Each participant participated in all three treatments.

   Right ____
   False ____

Survey Questions:

1. Our current question is about the decisions taken by the participants in room A who participated in TREATMENT 1 or TREATMENT 2. Do you think there is a difference between TREATMENT 1 and TREATMENT 2 in terms of the average amount that room A participants chose to transfer to the matched person in room B?

   No Difference ____
   There is a Difference ____

   a. If there is a difference, in which treatment do you think the participants in room A chose to transfer more money to the matched person in room B? In TREATMENT 1 or in TREATMENT 2?

      They chose to transfer more money in TREATMENT 1 ____
      They chose to transfer more money in TREATMENT 2 ____

   b. Can you briefly explain why you think that way?_____

2. Our current question is about the decisions taken by the participants in room A who participated in TREATMENT 3-1 or TREATMENT 3-2. Do you think there is a difference between TREATMENT 3-1 and TREATMENT 3-2 in terms of the average amount that room A participants chose to transfer to the matched person in room B?

   No Difference ____
   There is a Difference ____

   a. If there is a difference, in which treatment do you think the participants in room A chose to transfer more money to the matched person in room B? In TREATMENT 3-1 or in TREATMENT 3-2?

      They chose to transfer more money in TREATMENT 3-1 ____
      They chose to transfer more money in TREATMENT 3-2 ____

   b. Can you briefly explain why you think that way?_____

3. Our current question is about the decisions taken by the participants in room B who participated in TREATMENT 3. Do you think there is a difference between the frequency of choosing TREATMENT 3-1 and TREATMENT 3-2 in TREATMENT 3 (by the participants in room B)?

   No Difference ____
   There is a Difference ____

a. If there is a difference, do you think TREATMENT 3-1 or TREATMENT 3-2 was chosen more often?

   TREATMENT 3-1 was chosen more often ____
   TREATMENT 3-2 was chosen more often ____

b. Can you briefly explain why you think that way?_____

4. Our current question is about the decisions taken by the participants in room A who participated in TREATMENT 1 or TREATMENT 3. Do you think there is a difference between TREATMENT 1 and TREATMENT 3-1 in terms of the average amount that room A participants chose to transfer to the matched person in room B?

   No Difference ____
   There is a Difference ____

   a. If there is a difference, in which treatment do you think the participants in room A chose to transfer more money to the matched person in room B? In TREATMENT 1 or in TREATMENT 3-1?

      They chose to transfer more money in TREATMENT 1 ____
      They chose to transfer more money in TREATMENT 3-1 ____

   b. Can you briefly explain why you think that way?_____

5. Our current question is about the decisions taken by the participants in room A who participated in TREATMENT 2 or TREATMENT 3. Do you think there is a difference between TREATMENT 2 and TREATMENT 3-2 in terms of the average amount that room A participants chose to transfer to the matched person in room B?

   No Difference ____
   There is a Difference ____

   a. If there is a difference, in which treatment do you think the participants in room A chose to transfer more money to the matched person in room B? In TREATMENT 2 or in TREATMENT 3-2?

      They chose to transfer more money in TREATMENT 2 ___
      They chose to transfer more money in TREATMENT 3-2 ____

   b. Can you briefly explain why you think that way?_____

Finally, we have a few more short questions for you:

1. Gender: Male___ Female ___

2. Age: _____

3. Department: _____

4. Grade: _____

5. Have you taken a course on Game Theory, Experimental Economics, Behavioral Economics (E.g .: ECON 204, ECON439, ECON 444):

   Yes ____ No ____

6. Between December 2019 and March 2020, as mentioned in the survey, Res. See. Have you participated in one of the Decision Making Experiments conducted by Elif Tosun?

   Yes ____ No ____

Thank you for your participation.

Assoc. Dr. Emin Karagozoglu
Res. Asst. Elif Tosun

APPENDIX B

ADDITIONAL CHECKS

In this section, we present some robustness checks for our results. First, we provide the regression results with robust standard errors for the analysis we did in Chapter 5. Then, we provide some counterfactual results, namely what would happen to our results if we could collect more data with similar characteristics.

Part 1: Regression Results with Robust Standard Errors

Let us start with the OLS regression results. We can see from Table 9 that some of the coefficients which were significant at 5% level in Table 2 (bolded in the tables below) lose their significance when we use robust standard errors. However, the significance of our main variable of interest, treatment dummy, does not change at all. Similarly, there is not much change in Table 10.

The probit regression results with robust standard errors are given in Tables 11, 12 and 13. The coefficients that change in terms of significance are again bolded. None of these coefficients loses significance but the opposite, significance improves. We can see that there is not much of a change with the use of robust standard errors but, if any, our results get better. Thus, overall, we can say that reporting the results with robust standard errors does not change our analysis or conclusions we draw from these results.

Table 9 – OLS Results for Dictator Games with Robust SE

	Dependent Variable: Dictator Decision			
	(1)	(2)	(3)	(4)
tr_dummy	-1.137*	-1.520**	-2.595***	-3.212***
gender	-0.635	-0.370	**-1.780***	**-1.670**
byear		0.219		0.201
sibling		0.993**		**0.840***
income		0.443		0.291
extravert		-0.0474		-0.0560
agree		-0.162		-0.226
consc		0.141		0.116
stable		-0.0167		-0.0572
open		0.0181		0.0363
econ		-0.362		-0.0208
monday		**-1.661**		-1.775*
tr_dummy x gender			2.352*	2.556**
constant	4.174***	-434.4	4.929***	-396.9
N	77	77	77	77
R^2	0.056	0.240	0.102	0.286
adj. R^2	0.030	0.097	0.065	0.139
p-value	0.1089	0.0162	0.0548	0.0016

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 10 – OLS Results for Taking Games with Robust SE

	Dependent Variable: Dictator Decision			
	(1)	(2)	(3)	(4)
tr_dummy	-1.141	-3.058	0.200	-1.610
gender	-0.795	-0.540	0.0824	0.400
byear		-0.502		-0.536
sibling		0.118		0.123
income		2.846**		**2.672****
extravert		0.338		0.331
agree		0.282		0.221
consc		-0.0321		0.0122
stable		0.279		0.301
open		-0.315		-0.346
econ		-2.596		-2.743
monday		-0.685		-0.434
tr_dummy x gender			-4.082	-3.713
constant	-0.845	991.8	-1.200	1059.3
N	55	54	55	54
R^2	0.008	0.250	0.023	0.261
adj. R^2	-0.030	0.030	-0.034	0.021
p-value	0.8096	0.0025	0.7162	0.0008

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 11 – Probit Regression Results for Dictator Games with Robust SE

	Dependent Variable: zerogiving		Dependent Variable: fivegiving	
	(1)	(2)	(3)	(4)
tr_dummy	1.382**	**1.929*****	0.113	0.0124
gender	1.035*	1.321**	0.226	0.0911
tr_dummy x gender	-1.382*	-1.822**	-0.0328	0.124
byear		**-0.124***		0.0265
sibling		-0.296		0.265
income		-0.0960		0.00698
extravert		0.0921		-0.109*
agree		0.0829		-0.0507
consc		-0.0805		0.0535
stable		0.0558		-0.0311
open		-0.0637		0.163*
econ		-0.108		0.143
monday		0.439		0.0331
constant	-1.465***	247.0	-0.366	-54.44
N	77	77	77	77
pseudo R^2	0.068	0.166	0.005	0.077
p-value	0.1534	0.2506	0.9060	0.7785

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 12 – Probit Regression Results for Taking Games with Robust SE

	Dependent Variable: zerogiving		Dependent Variable: fivegiving		Dependent Variable: minustengiving	
	(1)	(2)	(3)	(4)	(5)	(6)
tr_dummy	(omitted)	(omitted)	-0.381	**-0.994***	-0.0584	0.915
gender	0.476	**6.272*****	-0.671	**-0.912**	-0.0152	0.473
tr_dummy x gender	(omitted)	(omitted)	0.428	0.574	0.780	0.143
byear		**-0.633****		-0.191*		0.101
sibling		**-1.946*****		0.161		0.125
income		0.502		0.816***		-1.086***
extravert		**-0.647*****		0.0809		0.0221
agree		**-1.268****		0.0435		-0.0290
consc		0.0165		-0.0769		0.0209
stable		-0.247		-0.0474		0.0327
open		**-0.881****		-0.0347		0.0208
econ		(omitted)		-0.560		0.425
monday		(omitted)		0.416		0.124
constant	-1.405***	1284.2**	-0.0502	379.9*	-0.706**	-202.0
N	42	27	55	54	55	54
pseudo R^2	0.029	0.452	0.041	0.269	0.019	0.218
p-value	0.3566	0.0040	0.4124	0.2420	0.7530	0.0748

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 13 – Probit Regression Results for Endogenous Treatment with Robust SE

	Dependent Variable: passive dummy	
	(1)	(2)
gender	-0.0107	-0.0286
byear		0.117
sibling		0.117
income		0.0320
extravert		0.0189
agree		0.0551
consc		0.00177
stable		-0.0800
open		**0.216****
econ		0.109
monday		0
constant	-0.623**	-237.7
N	49	47
pseudo R^2	0.000	0.133
p-value	0.9786	0.4360

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Part 2: Results with the Replicated Data

Another check we provide in this work is the use of a replicated data. As explained before we do not have any control over the distribution of pairs between EN-D and EN-T in this experimental setup since the decision to play those games is endogenously made by the passive players. As a result we obtained 13 pairs for EN-T treatment which does not dramatically affect most of our results but it may be the reason why we got our result 4 as such. Reader might wonder what if we could obtain more pairs by continuing the experiment and collecting more data points from endogenous treatment.

Keeping this question in mind, we replicate our endogenous treatment data and redo the same analysis. Replicating the data two times, that is the triple of our original data, provides us 39 data points in EN-T treatment, which is reasonably high to check whether

Result 4 is affected from this change. Recall that we have 41 and 37 pairs for EX-D and EN-D treatments respectively, which are enough to get a significant difference in mean dictator giving and statistically significant coefficients from the OLS regressions. With the same logic, we should be able to catch a significant difference in giving behavior moving from EX-T to EN-T, if any, using this replicated data.

To make what we are doing in this part more clear, below we provide the descriptive statistics of the replicated data. Here, the only thing we change is the number of observations in EN-D and EN-T treatments. Since this is a replication of the original data, other descriptive statistics do not change.

Table 14 – Replicated Descriptive Statistics

Treatment	N	Mean	Standard Deviation	Median	Min	Max
EX-D	41	3.756	2.835	5	0	10
EX-T	42	-1.167	6.484	0	-10	10
EN-D	111	2.729	2.341	3	0	5
EN-T	39	-2.231	7.270	-5	-10	8

Note: Table presents the data for dictator decisions for different treatment groups with the replicated data.

Firstly, our support for Result 1 strengthens with the use of this replicated data and we can conclude that giving is less in EN-T than EN-D at 1% level of significance ($p = 0.0013$) rather than at 5% level. Similarly, p-value of the t-test we used to support our Result 2 also falls even further. Moreover, for Result 3, we can support that mean giving in EX-D is more than mean giving in EN-D using t-test with a p-value of 0.0121 rather than 0.0436.

The OLS results obtained from the replicated data are also given below. We can see that the significance of many coefficients alters especially in the main specification where both the interaction term and all control variables are included in column 4. However, when we look at the t-test we have done for Result 4, we still cannot reject the null hypothesis

that giving in EX-T and EN-T are the same. Even if we use this replicated data with 39 pairs in EN-T, p-value is 0.4821 for two sided test and 0.2411 for the one sided t-test of whether mean giving in is more in EX-T than in EN-T.

Table 15 – Replicated OLS Results

	Dependent Variable: Dictator Decision			
	(1)	(2)	(3)	(4)
tr_dummy	-1.092**	-1.331***	-2.595***	-3.044***
gender	-0.0399	0.0796	-1.780**	-1.757**
byear		0.195**		0.185**
sibling		1.280***		1.143***
income		0.440*		0.316
extravert		-0.131*		-0.132*
agree		-0.200**		-0.250***
consc		0.201**		0.177**
stable		0.0231		-0.0105
open		0.170		0.178*
econ		0.354		0.686
monday		-1.375*		-1.529*
tr_dummy x gender			2.352**	2.529***
constant	3.782***	-389.3**	4.929***	-367.3**
N	149	149	149	149
R^2	0.038	0.278	0.078	0.318
adj. R^2	0.025	0.214	0.059	0.253
p-value	0.0597	0.0000	0.0079	0.0000

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Moreover, when we run the same OLS regressions for the taking games, treatment dummy only becomes significant at 5% in column two while this significance vanishes with the inclusion of interaction term in the main specification as seen in the replication of Table 3 given below. Thus, we can conclude that our last result would not change even if we could collect more data, with similar characteristics, by continuing the experiment.

Additionally, the probit regressions reproduced with the replicated data are also provided below and our conclusions are not affected from the use of this data, if anything, our results for probability of giving zero in EN-D treatment are strengthened.

Table 16 – Replicated OLS Results for Taking Games

	Dependent Variable: Dictator Decision			
	(1)	(2)	(3)	(4)
tr_dummy	-1.235	-3.843**	0.200	-2.178
gender	-1.758	-1.444	0.0824	0.391
byear		-0.636*		-0.686*
sibling		-0.357		-0.359
income		3.355***		3.083***
extravert		0.429		0.408
agree		0.295		0.197
consc		0.182		0.251
stable		0.248		0.265
open		-0.285		-0.313
econ		-2.866		-3.147
monday		-1.088		-0.559
tr_dummy x gender			-4.082	-3.872
constant	-0.455	1256.2*	-1.200	1355.5*
N	81	78	81	78
R^2	0.022	0.325	0.043	0.341
adj. R^2	-0.003	0.200	0.005	0.207
p-value	0.4220	0.0068	0.3363	0.0069

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 17 – Replicated Probit Regression Results for Dictator Games

	Dependent Variable: zerogiving		Dependent Variable: fivegiving	
	(1)	(2)	(3)	(4)
tr_dummy	1.382**	2.047***	0.113	0.0730
gender	1.035*	1.502**	0.226	0.0715
tr_dummy x gender	-1.382**	-1.988***	-0.0328	0.156
byear		-0.153**		0.0324
sibling		-0.609***		0.425**
income		-0.230		-0.0300
extravert		0.127**		-0.140***
agree		0.119*		-0.0740
consc		-0.145**		0.0811
stable		0.0227		-0.0206
open		-0.144*		0.230***
econ		-0.392		0.510
monday		0.452		0.128
constant	-1.465***	306.1**	-0.366	-67.05
N	149	149	149	149
pseudo R^2	0.046	0.229	0.005	0.145
p-value	0.0322	0.0000	0.7967	0.0052

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 18 – Replicated Probit Regression Results for Taking Games

	Dependent Variable: zerogiving		Dependent Variable: fivegiving		Dependent Variable: minustengiving	
	(1)	(2)	(3)	(4)	(5)	(6)
tr_dummy	(omitted)	(omitted)	-0.381	-1.472**	-0.0584	0.851
gender	0.476	6.272	-0.671	-1.101**	-0.0152	0.407
tr_dummy x gender	(omitted)	(omitted)	0.428	0.714	0.780	0.497
byear		-0.633		-0.289***		0.179
sibling		-1.946		0.0679		0.376
income		0.502		1.246***		-1.127***
extravert		-0.647		0.0638		-0.0125
agree		-1.268		0.0178		0.0350
consc		0.0165		-0.0744		-0.0158
stable		-0.247		-0.110		0.0227
open		-0.881		-0.0145		-0.00257
econ		(omitted)		-0.734		0.538
monday		(omitted)		0.497		0.135
constant	-1.405***	1284.2	-0.0502	575.0***	-0.706**	-357.4
N	42	27	81	78	81	78
pseudo R^2	0.029	0.452	0.033	0.398	0.036	0.289
p-value	0.3483	0.2303	0.3325	0.0001	0.3338	0.0132

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Table 19 – Replicated Probit Regression Results for Endogenous Treatment

	Dependent Variable: passive dummy	
	(1)	(2)
gender	-0.0107	-0.0286
byear		0.117*
sibling		0.117
income		0.0320
extravert		0.0189
agree		0.0551
consc		0.00177
stable		-0.0800
open		0.216***
econ		0.109
monday		0
constant	-0.623***	-237.7*
N	147	141
pseudo R^2	0.000	0.133
p-value	0.9625	0.0141

Note: ***, **, * shows statistical significance at 1%, 5% and 10% levels respectively.

Similarly, the results for the gender differences does not change much either as seen in the tables below.

Table 20 – Replicated Gender Differences in Dictator Games

Treatment	Gender	N	Mean	Standard Deviation	Median	*p-value*
EX-D	0	14	4.928	2.731	5	0.0769
	1	27	3.148	2.741	5	
EN-D	0	45	2.333	2.412	1	0.2485
	1	63	2.904	2.241	3	

Note: Table presents the data of the dictator decision for exogenous and endogenous dictator games. Last column presents the p-value of two-sample Wilcoxon rank-sum (Mann-Whitney) test between genders.

Table 21 – Replicated Gender Differences in Taking Games

Treatment	Gender	N	Mean	Standard Deviation	Median	*p-value*
EX-T	0	25	-1.2	6.621	0	0.8107
	1	17	-1.117	6.480	0	
EN-T	0	27	-1	7.125	2	0.0897
	1	12	-5	6.396	-7.5	

Note: Table presents the data of the dictator decision for exogenous and endogenous taking games. Last column presents the p-value of two-sample Wilcoxon rank-sum (Mann-Whitney) test between genders.

Moreover, running the Fisher's exact test again with the replicated data does not provide any significant gender difference in the frequency of choosing the taking game in the endogenous treatment by receivers.