

# Third Party Punishment of Takers and Givers in the Dictator Game

An honors thesis for the Department of Economics

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Tufts University, May 2011

## **Abstract**

This paper investigates whether an altered design to the dictator and third party punishment games would reveal that norm enforcement is a preferable explanatory theory to other popular theories, including fairness motives and inequity aversion. The experimental design creates conditions where the responses should differ if participants are enforcing norms, but should not differ if they are responding to fairness motives or inequity aversion. We find that participants respond differently to the two conditions, but in a very specific way. This paper identifies a clear need for expanded experimental designs within simple allocation games to allow for specific comparisons between theories.

## **Acknowledgements**

I would like to thank my committee chair, David Garman, for not only introducing me to the field of behavioral economics, but more importantly for the time and care he gave towards mentoring me and helping me at every stage of this project. Thank you to Phil Holcomb for the useful advice at many important junctures of the project as well as taking the time every Friday afternoon to support the thesis writers. Thank you to my friends and family for their love, support, and interest in my project. I am also grateful to the Dean of Undergraduate Education at Tufts University whose grant made this project possible.

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## 1. Introduction

When Adam Smith and his contemporaries first theorized about microeconomics in the eighteenth century, the discipline had strong ties to, and closely resembled, the field of psychology. These classical economists aimed to identify the individual psychological mechanisms which underlie economic systems (Smith 1759). In the twentieth century, this approach changed quite dramatically, as neoclassical economists aimed to legitimize and formalize the economics discipline by making certain assumptions about economic agents. The most influential was the concept of Homo economicus which assumed that humans act rationally and make self-interested decisions. Specifically, decision makers were ascribed complete and transitive preferences. To take a simple example, for any two types of fruit, a person knows which one she prefers, and if she prefers apples to bananas and bananas to oranges, then she necessarily prefers apples to oranges. More specifically, rational choice theory assumes that economic agents have “self-regarding preferences,” which entails, among other characteristics, the maximization of expected utility.

While these assumptions have served the field of economics well, they have come under a significant amount of scrutiny in the last few decades. Experimental evidence has produced consistent and replicable results which indicate that “self-regarding preferences” may not always describe actual decision-making. In fact, these assumptions have lead economists to construct well-accepted and mathematically sound microeconomic models that are not highly descriptive or predictive of real world data.

As the field of cognitive psychology expanded, researchers began to relate their cognitive findings to economic models. The utility of this approach quickly became clear, and in order to take advantage of this new perspective, the field of experimental economics began constructing a

common set of experimental games. Subsequently, these games have elegantly demonstrated decision-making that deviates from the rationality assumption (Camerer 2003). In fact, participants in these economics experiments have clearly demonstrated unselfish behavior which directly contradicts these assumptions (Andreoni & Miller 2002). By allowing researchers to isolate very specific economic decisions, these games have allowed economists a more fine-tuned view of human decision-making.

A particularly widely used and influential experimental game is the dictator game. Classically, this game involves two participants. One participant is given an endowment of ten dollars and another participant is given an endowment of zero dollars. The participant with ten dollars can give any amount of their endowment, from zero to ten dollars, to the other participant. This is the only decision that is made, and the receiving participant must accept whatever the dictator allocates to her. She makes no decisions herself. Obviously, rationality assumptions would predict that the dictator would never give any money away. After all, people do not generally give away money to random people in daily life. However, the results of the dictator game have shown that participants commonly give away significant portions of their endowments, and the mean of most dictator experiments is well above zero. Therefore, the dictator game has very simply and convincingly shown that, in this particular scenario, participants do not generally act in their payoff-maximizing self-interest. Again, this is despite the rationality prediction that people will overwhelmingly make the choice that maximizes their payout, regardless of the effect of their decision on others.

After theorizing about the clear and consistent dictator game results, experimenters have expanded the dictator game to many different circumstances in order to more deeply understand the reasons that people act in these 'irrational' ways. Most significantly, researchers added a

third participant to the dictator game who observes a dictator experiment between two other participants and can subsequently ‘punish’ the actions of the dictator. This is done by giving the third participant an endowment of five dollars and the option of returning between zero and five dollars of their endowment back to the experimenter. For each amount that the third party participant returns, an amount of money is transferred from the dictator to the other participant at some fixed ratio. Again, rationality assumptions would predict that no one would give away money to affect the payouts of two random strangers. However, the experimental results indicate otherwise – third party participants commonly return substantial portions of their endowments. This so-called third-party punishment game has allowed for more insight into the reasoning behind the decisions we observe in the dictator game. However, despite the many interpretations of the results of these games, a consensus explanation for the observed behavior has not emerged.

The most popular and long-standing interpretation of the dictator game is that participants are revealing an altruistic motive (Fehr & Fischbacher 2003). In other words, people demonstrate a concern for making others better off, even at the expense of their own welfare. Altruism can be characterized in several different ways. In fact, Andreoni and Miller (2002) were able to convincingly demonstrate that altruistic decisions can be accurately captured with a concave individual utility function. They did this in an attempt to show that altruism could indeed fit into a rational choice framework. However, this approach, while interesting, does not closely follow the rest of the altruism literature. In general, others have simply argued that altruism is found in homogenous populations where direct interaction occurs and that this behavior exists as a central part of organized and cooperative societies (Fehr & Fischbacher 2003).

Fairness motives is another popular argument that is closely related to the altruism argument. There is a strong history of fairness arguments, which were originally popularized in the 1980s by Kahneman, Knetsch and Thaler. They noticed that the concept of fairness, which is broadly defined as an equal allocation of goods, was absent in economic theory despite its prominence in other social sciences (Kahneman, Knetsch & Thaler 1986a, 1986b). Their observations of social interaction indicated that the concept of fairness was important to decision making. Participants in their ultimatum experiments were willing to forgo their payout if it meant that they could reduce the payout of someone who they believed was acting unfairly. They argued that this was due to an innate desire to have equality. This explanatory mechanism has obvious applications to the behavior of third party punishers, since they are making an essentially identical choice to the ultimatum participants.

Similarly, Fehr and Schmidt (1999) popularized the idea that altruism could be explained by inequity aversion. While they were not directly interested in dictator or third-party punishment games, they aimed to show that if people cared about equality then altruistic results in bargaining games and free-riding opportunities could be resolved. These results have obvious applications to dictator and third party punishment results. If participants in the dictator game are adverse to inequality, then giving away part of their endowment to achieve a more equal allocation would resolve this aversion. Likewise, in the third party punishment game, participants would return money to achieve greater equality between the other two players.

A final strategy for explaining the violations of rationality, which is unlike the previously discussed theories, is to assume that participants view the experimental set-up as a game and play it as such. This idea has concerned experimenters for nearly a century. In the famous Hawthorne experiments, Roethlisberger and Dickson (1939) demonstrated that the behavior of

workers at an assembly plant changed when they knew that they were participating in an experiment, even when they were unaware of the experiment's purpose. A common interpretation of this result is that participants see themselves as involved in the research, rather than just the subject of the research. Therefore, they often aim to help the experimenters by behaving how they think the experimenters would like them to (Carpenter, Liati, & Vickery 2010). In addition to this, participants have been shown to consistently misinterpret one-period games as multi-period games (Cox, Sadiraj, & Sadiraj 2002). The possibility of positive or negative reciprocity in the future can weigh heavily on a participant's decision, whether or not that possibility actually exists. Carpenter and Matthews (2010) find that these misinterpretations are especially prevalent in simple allocation games such as the dictator game and the third party punishment game and can alter their results. Despite these arguments, researchers generally agree that results from dictator and third party punishment games demonstrate something more than just these effects.

However, the possibility that the experimental set-up has a large effect on a participant's decision has recently been more seriously studied. Bardsley (2008) was interested in demonstrating that participants in simple allocation games were acting based on what they thought was expected of them and that these expectations were formed based on the participant's available choice set. He did this by introducing a 'taking option' to the available choices in the standard dictator game where 'giving options' were traditionally the only available choices. Instead of only asking how much of her endowment the dictator would like to give to the other participant, he also asked how much of the other player's endowment the dictator would like to take. Although in this specific experiment the 'taking options' were not always feasible, he demonstrated that the presence of these options interfered with the willingness of the participants

to give. He argues that this implies that participants are acting on perceived suggestions in the experimental set up. Specifically, if participants are asked how much they would like to give, then they will take this as a suggestion to give and therefore experimental results from simple economic games are context specific.

List (2007), who followed Bardsley but was formally published earlier, also allowed for both giving and taking in his dictator experiment. Again, his aim was to show that the situational set-up of the experiment was an important factor in the outcomes of the dictator game. He found that when a taking option was presented along with a giving option, participants were much less willing to give. Similarly to Bardsley, List concludes that participants are reacting to the experimental set up and are not necessarily revealing preferences.

## **2. Norm Enforcement in the Dictator and Third Party Punishment Games**

Another equally influential explanation for the results from the dictator game and third-party punishment game argues that social norms influence decisions. Although social norms are still considered to be one of the unsolved problems in behavioral sciences, recent research suggests that people take into account how their decisions will impact the overall social welfare (Fehr & Fischbacher 2004; Carpenter & Matthews 2010; Charness & Rabin 2002). Specifically, Charness and Rabin (2002) explain non-payoff maximizing behavior with “social welfare preferences.” Their model shows that people are not only concerned with maximizing their own payout, but they are also concerned with maximizing the entire social payout. Therefore, they may make decisions which maximize the social welfare, even at a cost to themselves.

This reasoning is similar to the norm enforcement literature which was started by Bendor and Mookherjee (1990) and popularized by Fehr and Fischbacher (2004). They argue that there are very specific social cooperative norms which people abide by every day. These norms aid in

the smooth functioning of societies. These norms include behaviors ranging from holding the door open for someone to contributing to a national savings plans such as social security.

Economic researchers are interested in investigating the norms in situations such as the third party punishment game. The theory of norm enforcement argues that in this particular experimental setup, the social norm dictates that the dictator should allocate some of her endowment to the other player. When a dictator violates this social norm, then the third party participant enforces the norm by forgoing some of their endowment to create a more equal allocation. Whereas some social norms can be enforced by law (such as social security contributions), other less formal social norms must be self enforced by the population if these beneficial social norms are going to be followed. In other words, individuals must be willing to lower their individual welfare in order to punish those who do not abide by the societies norms. In the aggregate, these punishments will allow the beneficial social norm to continue to exist, which in turn raises the overall welfare of the society. The specific economic benefits of norm enforcement are abundant. Societies in which people punish violations of social norms seem to cooperate, provide public goods, complete contracts in information-poor contexts, and extract from common resources better and more conscientiously than societies that do not punish violators of social norms (Carpenter & Matthews 2010). In sum, if a society is more willing to identify and punish antisocial behavior – at a personal expense – then this society will function better economically. Carpenter and Matthews (2009) solidified this reasoning by demonstrating that punishment only showed up in situations where antisocial behavior has a negative effect on a society's overall welfare. Therefore, they argue that punishment of antisocial behavior developed specifically as an enforcement mechanism and that third parties have evolutionary and societal reasons behind their punishment behavior.

In fact, researchers have also solidified this point by showing that second party or in-group punishment is often not sufficient for the enforcement of social norms (Bendor & Swistak 2001; Carpenter & Matthews 2010). Third parties, or members of the society who are not directly affected by the original antisocial behavior, must be the ones to punish in order for the punishment to be effective on a social scale. People who punish those who are not in their in-group are what Carpenter and Matthews call ‘social reciprocators’ and as long as there is a punishment mechanism through which they can punish, they will take advantage of it and enforce social norms (Carpenter & Matthews 2010).

Bendor and Swistak (2001) provided logic for how and why third party punishment might evolve within groups where repeated interactions occur. They also described how this punishment was self-reinforcing. However, dictator games and third party punishment games are one period games so their logic does not apply to this particular domain. Despite this, Carpenter and Matthews (2010) argue that relaxing the assumption of repeated interactions does not necessarily negatively affect Bendor and Swistak’s theory. One reason is that neural studies have shown that altruistic behavior activates pleasure pathways in the brain (de Quervain, et al. 2004; Singer, et al. 2006). In other words, improving the welfare of others actually produces happiness. This not only supports Bendor and Swistak’s evidence for the evolution of social norm enforcement, but since people literally derive pleasure from being altruistic to enforce social norms, they also do not necessarily need to be part of a multi-period interaction to have the desire to enforce social norms. In addition, this neural research also provides a clear personal logic behind third party punishment. As we have seen, the logic behind norm enforcement on a societal level is clear, but this neural research also identifies how norm enforcement is perpetuated on an individual scale.

While the norm enforcement literature has made significant progress towards developing theories which explain non-payoff maximizing decisions, the literature still calls for experiments which can verify or reject these theories. This study aims to verify the norm enforcement interpretation as the most robust explanatory mechanism of the dictator and third party punishment games. It also aims to show that many other theoretical interpretations of these games will fail to be descriptive under the novel experimental design presented in this paper. The new experimental design combines the line of research that Bardsley and List have started with recent research in norm enforcement.

The taking option that was used by both Bardsley and List is being employed in this experiment. Whereas Bardsley and List presented both taking and giving options simultaneously, instead of increasing the choice set of the participants to include both giving and taking options, our design adds the taking option as an additional and separate condition so that it can be compared to the original giving condition. In other words, our experiment will present only one of these two options to each participant. Then, the responses to the two conditions can be compared to understand the similarities and differences between them. In the original dictator game, the dictator is given the endowment as well as the allocation decision. We will call this version of the game the giving dictator game because the dictator, or the person who makes the allocation decision, is giving away from their endowment. The taking dictator game differs in a very simple way. The initial setup is the same, where there are two participants and one is given an endowment. The difference is that in the taking game, the participant with no endowment is the dictator, or the one who makes the allocation decision. In other words the dictator is now deciding how much to take from the other participant's endowment instead of giving away from their endowment.

This design is compelling because it is inherently balanced. In each game, there is an equal amount to be allocated between two participants, and one of the participants makes the allocation decision and the other participant merely observes and accepts the allocation decision. In the simplest terms, the only difference in the two games is which participant the endowment is placed in front of before the allocation decision is made. We can see that rationality assumptions would predict identical outcomes for the giving dictator game and the taking dictator game. Specifically, it would predict that the participants with the allocation decision will allocate the entire amount to themselves in order to maximize their payout.

The aim of this approach is to verify the norm enforcement literature by demonstrating a difference in third party punishment between the giving and taking conditions. It is important to point out that altruistic and fairness theories would also predict identical outcomes between these two conditions, so if the patterns of punishment do indeed differ, then an altruism argument or an inequity aversion argument would fail to have predictive power in this simple alteration of the experimental design.

Three studies were run in order to test this experimental design – one dictator game and two third party punishment games. The dictator game experiment in this paper, which was run in the spring of 2010, is interested in comparing outcomes from a taking dictator game to a giving dictator game in order to reveal that social norms are the underlying factor in deviations from the rationality model. We are interested in comparing the results from a dictator game where only giving options are presented to a dictator game where only taking options are presented. Since it is clear that rationality theory predicts one equilibrium for both of these games – namely that the dictator will maximize his or her own payout – we are interested in whether the differences in the phrasing of the game will evoke different responses. We hypothesize that dictators with giving

options will display different punishment patterns as compared to dictators with taking options. We claim that this difference reveals that participants are responding to the separate social norm surrounding giving and taking. Dana, Weber, and Kuang (2007) have shown that participants want to seem fair so that they can avoid being targets of norm enforcement. With a simple experimental design change, they demonstrated that the willingness to give was merely an attempt to seem fair, which they argued served two functions; avoiding cognitive dissonance by proving to themselves that they are generous, and avoiding the social repercussions that come from being ungenerous. Therefore, since the giving game and the taking game are theoretically equivalent, we argue that social norm effects must explain differences in the two conditions.

The first third-party punishment game experiment in this paper, which was also run in the spring of 2010, is interested in revealing the same effects of social norms. We run an experiment where third party punishers are either asked to indicate how much they would punish a dictator who took, or they are asked to indicate how much they would punish a dictator who gave. We hypothesize that the patterns of punishment will differ between the two conditions despite the rationality theory equilibrium of zero punishment in both conditions. Again, we claim that a difference in punishment rules out both inequity aversion and altruism as explanatory theories for the dictator and third party games. Further, we claim that this difference must be a result of differences in the social norms surrounding taking versus those surrounding giving. We aim to verify and extend the work of Fehr and Fischbacher (2004) and Carpenter and Matthews (2008, 2009, 2010) in their work on social norm enforcement in third party games.

The second third-party punishment game experiment in this paper, which was run in the spring of 2011, is interested in verifying the results of the first third-party punishment game experiment. This second third party game is modified to improve the experimental design and

was run as a paid experiment as opposed to study one and study two, which were run as *research practica* experiments.

The rest of the paper is organized as follows. In the next three sections, we describe the methods and results of the dictator game and both of the third-party punishment games. We also report and compare the results in giving scenarios and taking scenarios for all three experiments. In Section 6, we fully discuss the implications of the results, present several theories which apply to this new experimental design, and discuss a public policy example where findings from this study could apply. The final section concludes with questions that are raised by this work and the next steps for this line of research.

### **3. Experiment 1 – A dictator game with giving and taking**

#### **3.1. Participants**

The twenty-one participants were a sample of undergraduate college students who were enrolled in an undergraduate statistics course offered by the Department of Economics at Tufts University. This sample was selected due to convenience, so it should be noted that undergraduate economics students might not be representative of the general population (Carpenter, Connolly, & Myers 2008). There were seven female participants and fourteen male participants. They were asked to participate in the study at the beginning of their recitation section for the statistics course. Race, gender, class standing, or any other characteristic was not considered when recruiting participants. The participants received candy as compensation.

#### **3.2. Design**

This study was a variation of a standard dictator game with a mixed-model design. The design consisted of one factor with two levels. The difference in the wording of the dictator game was the only manipulation. In one condition, the participants were given a choice of how

much to transfer from their partner to themselves (taking condition) and in the other condition the participants were given a choice of how much to transfer from themselves to their partner (giving condition). The between-subjects variable is condition, and the within-subject variable is choice.

### **3.3. Procedure**

This experiment was run during recitation sections for an undergraduate statistics course at Tufts University. The instructors of these classes were kind enough to allow roughly ten minutes at the beginning of four recitation sections for the experiment to be administered. All four of the sections took place in an instructional computer lab in an academic building on campus. The author was the only person involved in administering the experiment.

After each student formally consented to participate and had the opportunity to ask questions, they received a sheet that described the dictator game (see Appendix 1 for an example). It was also made clear to the students that they were not obligated to participate and that there would not be any repercussions for choosing not to participate. Since the participants were each presented with the entire choice set, the choices were arranged in an increasing order for some participants and a decreasing order for others in order to control for ordering effects. Each choice explicitly stated how much each player would receive for that given choice, so that there was no uncertainty on the outcomes. The participants were informed that their decisions would be completely anonymous. The instructions also made it clear that the decision was hypothetical and would have no effect on the payout; no matter the choice, all participants would receive a candy reward.

The instructions asked each participant to circle one of the eleven possible choices. Each choice corresponded to a whole dollar value, between \$0 and \$10 that would hypothetically be

transferred between the players. The major difference between the taking condition and the giving condition was that in the giving condition, the dictator was hypothetically given the \$10 endowment, whereas in the taking condition, the other player was hypothetically given the \$10 endowment. Otherwise, the only difference between the taking condition and the giving condition was the wording in the instructions and the wording in the choices. In each of the experiments, the participant with the allocation decision will be referred to as the dictator, and the other participant will be referred to as player A.

After marking their singular choice, each participant received a post experimental survey (see Appendix 5 for an example), which asked them to respond to ten questions. The participants were asked to indicate the reasoning behind their decision by either circling one or more of the given reasons or by providing their own. Then the participants were asked to indicate whether they understood how the game worked and if they understood the payoff structure. The participants were also asked to indicate if they had played a similar game previously, and if so, whether it affected their decision. In order to check for a field-of-study effect between economics students and non-economics students that have been found in previous studies, the participants were asked for their major and the number of economics courses they have taken (Khaneman et al., 1986a, 1986b). Finally, the participants were asked to indicate their attitude towards their own decision. They were asked how comfortable they were with their decision and how fair they felt their decision was by indicating on a Likert scale that ranged from 1 (Very Uncomfortable/Very Unfair) to 7 (Very Comfortable/Very Fair), with 4 indicating a neutral attitude.

It should be noted that this study was run simultaneously to the second study discussed in this paper. Some participants received a sheet for Experiment 1 and others received a sheet for

Experiment 2. The sheets were randomly shuffled before being handed out. Afterwards, the participants responded to the appropriate survey, then were debriefed and compensated with candy.

### **3.4. Results**

No difference between the giving game and taking game was found:  $t(19) = 0.6545$ ,  $p = 0.5207$ , which is potentially an artifact of the small sample size. The mean for the giving condition ( $M = 5.80$ ) and taking condition ( $M = 6.73$ ) are similar to, but slightly lower than, typical findings in dictator games (Levitt & List 2007). The summary statistics are presented in Table 1. These results are potentially in contrast to previous experiments comparing the giving condition and taking condition. For example, Bardsley (2008) and List (2007) found a significant difference in outcomes in scenarios where participants were given the option of taking as well as giving. However, our design differs because only taking or giving was presented as an option to each participant, and not both.

Our post experimental survey indicates that every participant in this sample has taken at least two economics courses. There is conflicting evidence in previous work with dictator games on whether a background in economics has a significant effect on outcomes. As mentioned earlier, the experimental results of Khaneman, Knetsch, & Thaler (1986a, 1986b) indicate that there is a difference, whereas the experimental results of Kagel, Kim and Moser (1996) indicates that no difference exists. Our data shows that number of economics courses taken has no effect on the dictator's behavior:  $t(19) = 0.4870$ ,  $p = 0.6318$ .

**Table 1** Summary Statistics for Experiment 1

	Taking Condition	Giving Condition
Mean	6.73	5.80
Standard Deviation	2.76	3.71
Transfer Frequency	50%	29%
N	11	10

#### **4. Experiment 2 – A third party punishment game with giving and taking**

##### **4.1. Participants**

The twenty participants were a sample of undergraduate college students who were enrolled in an undergraduate statistics course offered by the Department of Economics at Tufts University. Again, it should be noted that undergraduate economics students might not be representative of the general population (Carpenter, Connolly, & Myers 2008). There were nine female participants and eleven male participants. They were asked to participate in the study at the beginning of their recitation section for the statistics course. Race, gender, class standing, or any other characteristic was not considered when recruiting participants. The participants received candy as compensation.

##### **4.2. Design**

This study was a variation of a third party punishment game with a mixed-model design. The design consisted of one factor with two levels. The difference in the wording of the punishment game was the only manipulation. In one condition, the participants were given all possible choices that a hypothetical participant in a dictator game could have transferred from their partner to themselves (taking condition) and in the other condition the participants given all possible choices that a hypothetical participant in a dictator game could have transferred from themselves to their partner (giving condition). The participants were asked to indicate, for each

possibility, how much they would return of their endowment in order to punish the dictator. The between-subjects variable is condition, and the within-subject variable is choice.

### **4.3. Procedure**

After each student formally consented to participate and had the opportunity to ask questions, they received a sheet that described the third-party punishment game (see Appendix 2 for an example). Since each participant was presented with the entire choice set, the possible choices that the dictator could have made were arranged in an increasing order for some participants and a decreasing order for others to control for ordering effects. Each choice explicitly stated how much each player in the dictator game would have received for that given choice, so that there was no uncertainty on the effect of the dictator's choice.

The instructions asked each participant to indicate how much they would hypothetically punish the dictator for each of the eleven possible choices that the dictator could have made. Each choice corresponded to a whole dollar value, between \$0 and \$5 that the participant would return of their initial \$5 endowment. For each dollar returned, two dollars would hypothetically be transferred from the dictator to player A. To ensure that the participants understood the payout structure and explicitly considered it when making their choice, they were also asked to indicate what the hypothetical payout would be for all three participants for each choice. The only difference between the taking condition and the giving condition was the wording in the instructions and the wording in the choices. In the taking condition, it was made clear the dictator chose how much to take from the other player who had an initial endowment of \$10 and in the giving condition, it was made clear that the dictator was given an initial endowment of \$10 and chose how much to give to the other player.

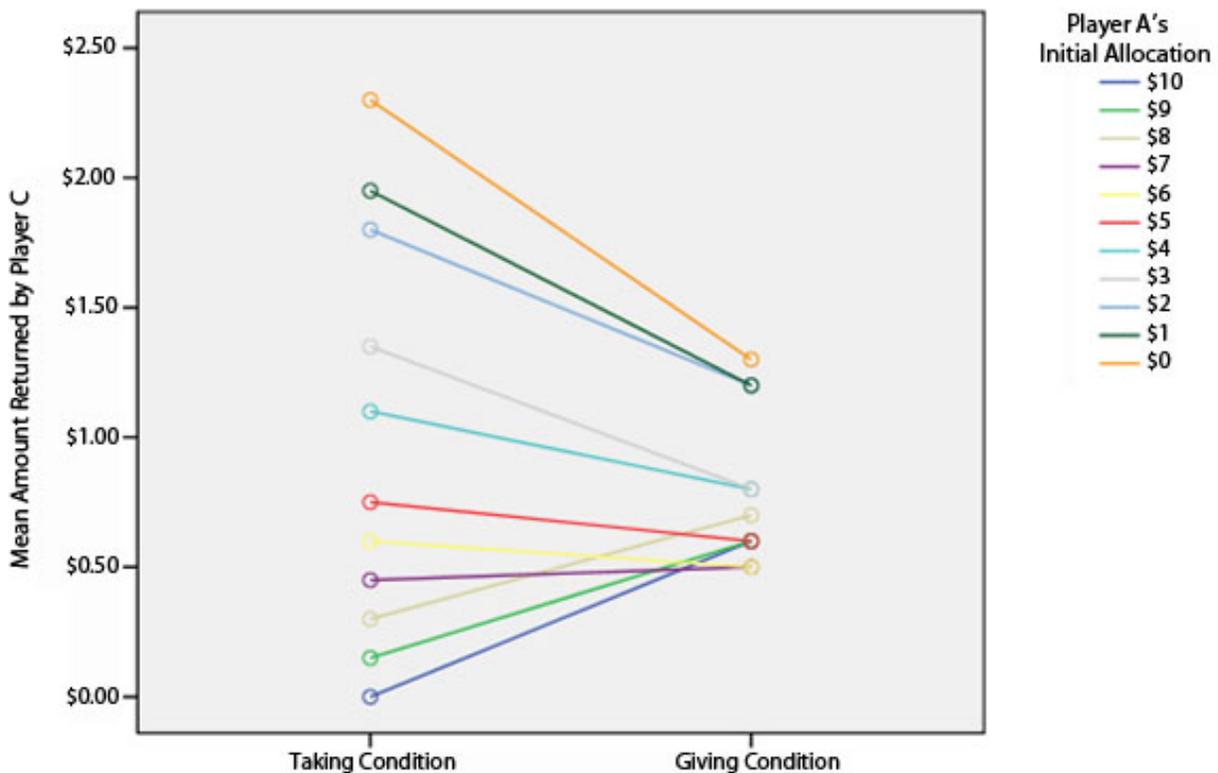
After indicating their responses for all eleven scenarios, each participant received a post

experimental survey (see Appendix 5 for an example), which asked them to respond to ten questions, which were extremely similar to the questions described in the survey from the previously discussed experiment.

#### **4.4. Results**

Our results indicate that there is no difference in aggregate punishment between the taking condition and the giving condition:  $t(18) = 1.4381, p = 0.1667$ . The summary statistics are presented in Table 2. In other words, the third party punishers did not give back different amounts on average between those who were responding to the taking game and those who were responding to the giving game. We also did not find a difference in the frequency of punishment between the taking condition and the giving condition:  $t(18) = 1.3635, p = 0.1895$ .

However, when we look at differences in punishers of takers versus punishers of givers for each specific scenario, we find that there is an interesting interaction effect at the 5% significance level:  $\chi^2 = 5.489, p = 0.019$ . In other words, there was a significant difference in the amount that the participants returned for each scenario (i.e. dictator's payout is \$10 and other player's payout is \$0, then dictator's payout is \$9, other player's payout is \$1, etc.) in the giving condition versus the taking condition, despite no difference in the overall means in these two conditions. This result is elegantly presented in Figure 1. We find that punishers in the taking condition would punish less harshly those who took less and would punish more harshly those who took more. Specifically, dictators who were left with no payout were punished nothing, and dictators who were left with the entire payout were punished the most severely, and there was a linearly correlation for the conditions in between. In the giving condition, punishment was relatively much more consistent in each condition as compared to the taking condition. In other words, punishment in the giving condition did not depend as much on how much was given.



**Figure 1** Differences in Marginal Means of Punishment between Taking and Giving Conditions in the Punishment Game

## 5. Experiment 3 – A revised third party punishment game with giving and taking

### 5.1. Participants

This experiment was conducted with undergraduate and graduate students at Tufts University. There were thirteen experimental sessions of almost five participants on average, for a total of 60 subjects. Again, since this study was also run with students, it should be noted that undergraduates might not be representative of the general population, particularly regarding allocation decisions (Carpenter, Connolly, & Myers 2008). The 35 female participants and 25 male participants were recruited through advertisements on an often visited website for Tufts

University students. When recruiting participants, race, gender, class standing, or any other characteristic was not considered. The participants received a \$3 show-up fee as well as additional compensation which was determined by the decisions that they made during the experiment. This additional compensation ranged between \$0 and \$5, with the average additional compensation being \$4.30, leading to an average overall payout of \$7.30 per participant.

## **5.2. Design**

This study was a modified version of Experiment 2. We used a similar mixed-model design. The design consisted of one factor with two levels. The only manipulation was whether the participants were responding to a taking scenario or a giving scenario. In the taking condition, the participants were presented with five possible allocation decisions that a participant could have made during a taking dictator game. In the giving condition, the participants were presented with five possible allocation decisions that a participant could have made during a giving dictator game. For each of these five possibilities, the participants were asked to indicate how much they would return of their endowment in order to ‘punish’ the dictator. The between-subjects variable is condition, and the within-subject variable is the scenarios.

## **5.3. Procedure**

This experiment was run in quiet rooms in the Mayer Campus Center at Tufts University. The principle investigator was the only person involved in administering the experiment. Each participant was given a consent form and was told that they should ask for clarification if they had any questions. It was also made clear to the participants that they were not obligated to participate and that they would receive their show up fee regardless of their choice to participate.

The participants were informed that their decisions would be completely anonymous.

After consenting, the each participant received two sheets. One contained preliminary instructions and briefly described the set up of the experiment (see Appendix 3 for an example). The second sheet explained the task in more detail and asked the participants to indicate their responses (see Appendix 4 for an example). Some participants received instructions for the taking game and some participants received instructions for the giving game. Both conditions were run simultaneously. The sheets were randomly shuffled before being handed out.

Each participant had five different, randomly selected samples from the population of eleven possible outcomes. This was done to remove any ordering effects that may have occurred if the participants were presented with every choice in order. It also added to the illusion that the participants were responding to actual dictator games, instead of hypothetical ones. These measures were taken to ensure that the allocation decision was taken as seriously as possible.

Each choice explicitly stated how much each player in the dictator game would have received for that given choice, so that there was no uncertainty on the effect of the dictator's choice. The instructions also made it clear that the decision was not hypothetical and would have an effect on their payout. However, since the participant would be making five different allocation decisions, they were informed that one of their choices would be randomly selected to determine their payout.

The instructions asked each participant to indicate how much they would 'punish' the dictator for each of the five possible choices that the dictator could have made. The instructions indicated that the participants were responding to five actual dictator outcomes, and that their choices would also have an effect on the payouts of other individuals. Unfortunately, funding for this experiment constrained the ability to actually run all three participants in the three-player

game, so although their allocation decisions would not actual effect other's payouts, this deception was required to fully motivate the participants. The participants were asked to indicate their choice, corresponded to a whole dollar value between \$0 and \$5. For each dollar returned, one dollar would be transferred from the dictator to player A. A one to one ratio was used so that the possibility of returning the entire endowment to create an equal allocation between the dictator and player A existed. To ensure that the participants understood the payout structure and explicitly considered it when making their choice, they were also asked to indicate what the hypothetical payout would be for all three participants for each choice. The only difference between the taking condition and the giving condition was the wording in the instructions and the wording in the choices. In the taking condition, it was made clear the dictator chose how much to take from the other player who had an initial endowment of \$10 and in the giving condition, it was made clear that the dictator was given an initial endowment of \$10 and chose how much to give to the other player.

After indicating their responses for all eleven scenarios, each participant received a post experimental survey (see Appendix 5 for an example), which asked them to respond to ten questions, which were extremely similar to the questions described in the survey from the previously discussed experiment. After the participants responded to the appropriate survey, they were then given a debriefing form. A number was selected using a random number generator, and the participants were compensated for the choice that was randomly selected. Funding for the experiment was provided by the Dean of Undergraduate Education at Tufts University.

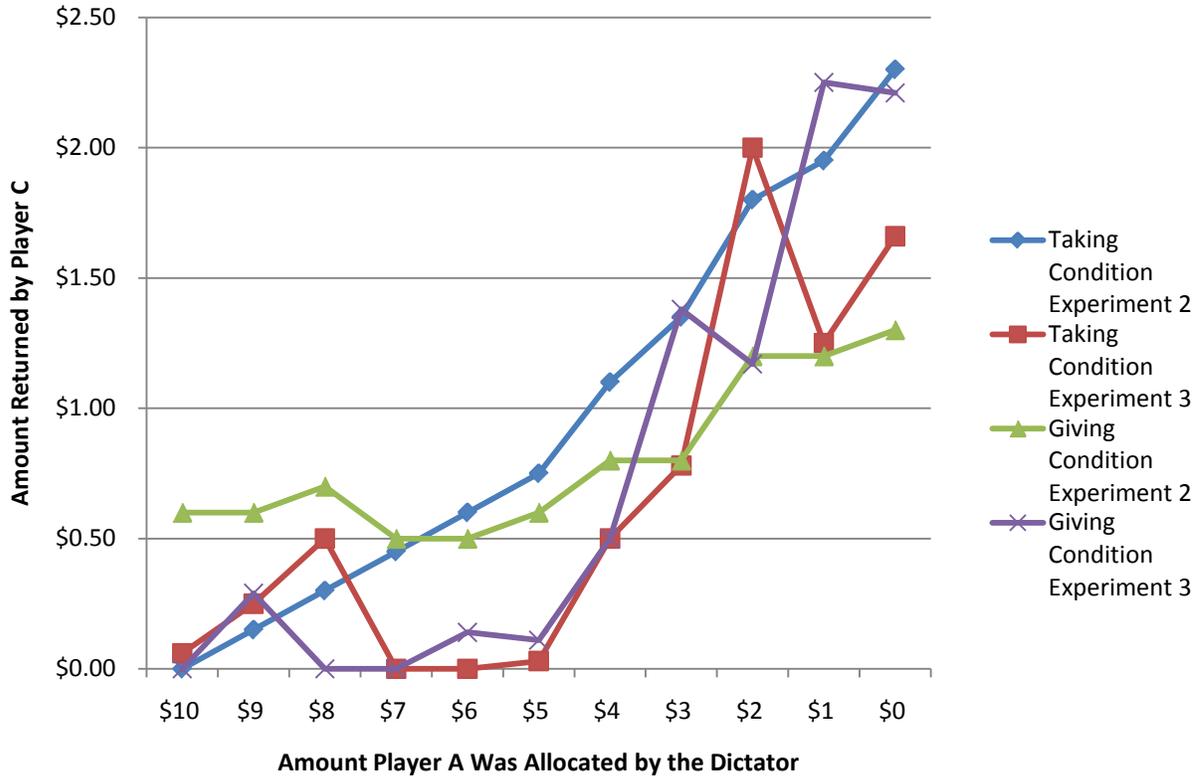
## 5.4. Results

As Carpenter and Matthews (2009) pointed out, there is a clear distinction between the two decisions of whether to punish and how much to punish. Our results indicate two things; that the participants are willing to punish, and that the decision of how much to punish may be dependent upon the degree of social norm violation perceived.

However, our results indicate that there is no difference in aggregate punishment between the taking condition and the giving condition:  $t(298) = 1.1145$ ,  $p = 0.2660$ . The summary statistics are presented in Table 2. The same data are depicted in Figure 2. In other words, the third party punishers did not give back different amounts on average between those who were responding to the taking game and those who were responding to the giving game. We also did not find a difference in the frequency of punishment between the taking condition and the giving condition:  $t(298) = -0.3500$ ,  $p = 0.7280$ .

**Table 2** Summary Statistics for Experiments 2 and 3

Dictator's Payoff	Taking Condition		Giving Condition	
	Experiment 2	Experiment 3	Experiment 2	Experiment 3
\$0	\$0.00	\$0.06	\$0.60	\$0.00
\$1	\$0.15	\$0.25	\$0.60	\$0.29
\$2	\$0.30	\$0.50	\$0.70	\$0.00
\$3	\$0.45	\$0.00	\$0.50	\$0.00
\$4	\$0.60	\$0.00	\$0.50	\$0.14
\$5	\$0.75	\$0.03	\$0.60	\$0.11
\$6	\$1.10	\$0.50	\$0.80	\$0.50
\$7	\$1.35	\$0.78	\$0.80	\$1.38
\$8	\$1.80	\$2.00	\$1.20	\$1.17
\$9	\$1.95	\$1.25	\$1.20	\$2.25
\$10	\$2.30	\$1.66	\$1.30	\$2.21



**Figure 2** Comparison of Means Across Experiment 2 and Experiment 3

The coefficient on the dummy variable for the conditions for which the allocation to player A is between six and ten dollars (called D6to10) is equal to zero:  $F(1,294) = 13.54$ ,  $p = .0003$ . The same is true for the dummy variable interacted with the variables ‘Take’ and ‘Player A’s Allocation.’ The coefficients on these three dummy variables are jointly equal to zero:  $F(3,292) = 16.33$ ,  $p = 0.0000$ . Therefore, we cannot impose linearity over the entire range of third party conditions. Instead, there is a significant ‘kink’ being shown since the slope and intercepts differ over the region where D6to10 equals one. This is as we would expect, because in the conditions where player A’s allocation is between zero and four, the dictator has allocated less than an even split. These are the conditions for which the dictator has potentially violated a norm and would be a candidate for norm enforcement by a third party. In the other conditions,

the dictator has either given at least an even split, or for the conditions where player A's allocation is from six to ten, the dictator has given a more than even allocation to player A. There is no norm enforcement expected for these conditions. Our model describes this 'kink' in the data by including the dummy variable for the group of conditions where the dictator has not perpetrated a punishable offense. Therefore, our basic econometric framework is as follows, and the regression results from this model are presented in Table 3.

$$(1) \quad creturn = \alpha_0 + \beta_0 take + \beta_1 inita + \beta_2 female + \beta_3 numecon + \beta_4 D6to10 + \beta_5 (take * D6to10) + \beta_6 (inita * D6to10) + u_i$$

**Table 3** OLS Regressions on Third Party Punishment

	<i>Dependent variable is amount returned by third party participant</i>	
	<i>(0)</i>	<i>(1)</i>
Take	-0.135 (0.116)	-0.275** (0.139)
Player A's allocation	-0.192*** (0.016)	-0.373*** (0.032)
Female	0.078 (0.121)	0.093 (0.113)
Number of econ courses	-0.057** (0.027)	-0.057** (0.025)
D6to10	-	-2.100*** (0.542)
Take * D6to10	-	0.370* (0.220)
Player A's allocation * D6to10	-	0.372*** (0.067)
Constant	1.739*** (0.145)	2.169*** (0.152)
Observations	300	300
R <sup>2</sup>	0.341	0.436

*Notes:* Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

For the reasons described above, the results that we are particularly interested in comparing are the third party punishment results for the conditions where player A's initial allocation is between zero and five. The significance of the Take variable as well as the Take\*D6to10 variable verifies the findings of Experiment 2. The pattern of punishment for the giving condition and the taking condition differ both in intercept and slope.

Our second model uses similar structure to Fehr and Fischbacher's (2004) results where they modeled what they referred to as "deviations from egalitarian transfers." We find a significant response to the amount of inequality between the dictator and player A for the conditions where player A's initial allocation is between zero and five. In other words, the more inequality that existed between the dictator and player A, the more the third party participant returned. Carpenter and Matthews (2009) show that when participants are deciding on punishment for people outside of their group as in this set-up, they consider the violations of relative norms instead of absolute norms. Clearly, the participants judge their utility based on the takeaway from the experiment and not their actual overall wealth. In the experimental context, one dollar is costly, as it represents a significant percentage of their wealth in the experiment. Therefore the price of punishment actually increases dramatically for each dollar. As such, we should expect the effect of the inequality measure to be highly significant. Our second econometric framework is as follows, and the regression results from this model are presented in Table 4.

$$(2) \quad creturn = \alpha_0 + \beta_0 take + \beta_1 ineq0 + \beta_2 ineq1 + \beta_3 ineq2 + \beta_4 ineq3 + \beta_5 ineq4 + \beta_6 ineq5 + u_i$$

**Table 4** Model of Inequality

	<i>Dependent variable is the amount returned by the third party participant</i>
	(2)
Take	-0.150 (0.109)
Inequality of 0	-0.025 (0.149)
Inequality of 1	0.414 (0.266)
Inequality of 2	0.967*** (0.244)
Inequality of 3	1.524*** (0.275)
Inequality of 4	1.653*** (0.251)
Inequality of 5	1.825*** (0.149)
Constant	0.171* (0.104)
Observations	300
R-squared	0.423

*Notes:* Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The qualitative responses from the post experimental surveys shed more light on the self-reported decision making process. The results from Equation 1 in Table 3 show that there is no difference in punishment between males and females. However, the results do indicate that the number of economics courses a participant took does have an effect on their punishment at the five percent significance level. This is in contrast to the findings of Experiment 2, where we found no difference. As mentioned earlier, the experimental results of Khaneman, Knetsch, & Thaler (1986a, 1986b) indicate that there is a difference in punishment patterns between economics majors and other students, whereas the experimental results of Kagel, Kim and Moser (1996) indicates that no difference exists.

The participants were also given the opportunity to indicate their motivations for their decisions. Several intriguing motivations were described by the participants. The most common indication was that they had a desire to create more equality between the dictator game participants, but only at a small cost to themselves. This seemed to create a point where the participants were comfortable creating equality between the dictator participants if it did not require them to forgo their entire endowment. For punishment game, we must keep in mind Carpenter, Liati, and Vickery's (2010) point that keeping all of the money is tied to doing nothing. In these experimental setups, the participant will often report that they feel as though they are supposed to do something. The participants seem to include this consideration in their decision of whether or not to punish, but not how much to punish.

Several other participants indicated that they were interested in maximizing the overall extraction from the experimenter. If they were considering the two other participants to be members of their in-group, but not the experimenter, then this logic makes sense. In many ways, this is equivalent to the indications of other participants who indicated that they were concerned about their relative payout to the other two participants. The only way to achieve a maximized relative payout is to not return any endowment. This guarantees that the experimenter pays out a total of eighteen dollars to the three participants. This agrees with Bolton and Ockenfels' (2000) argument that social reference points are useful in modeling altruism. They used the dictator game and the ultimatum game to show that individuals were concerned with maximizing their payout in comparison to their peer's payouts. Under the rationality assumption, the third party participant should achieve equal utility for the same payout, regardless of the other participant's payout, but evidence has clearly shown that utility is determined in a relative way.

## 6. Discussion

This study is interested in revealing that fairness motives and altruistic motives are not actually descriptive of third party punishment results by using a novel experimental design. Previous literature has already argued that fairness is not sufficient to explain the generosity of participants (Forsythe et al. 1994). This paper argues that results from the new experimental design shows that norm enforcement better explains non-payoff maximizing decisions in simple allocation games. In the discussion we will raise other theories that should be considered more thoroughly by experimenters who are designing future dictator and third party punishment games. We will also discuss a real world scenario which could shed more light on the implications of these results for policy making.

In contrast to our hypothesis that taking dictators would have different payouts than giving dictators, we found that there was no significant difference in payout between those who were asked to give and those who were asked to take. A hypothetical explanation for this finding is that participants in the taking condition felt that a norm had been violated by the experimenter since they started with no endowment while their partners started with a significant endowment. Consistent with Bolton and Ockenfels' (2000) findings, this evoked a desire to have a higher relative payout compared to that peer and therefore lead to equivalent results, regardless of norm differences. Despite this comparison of means, we must assume that the differences were not statistically significant and therefore can only use the explanation above as a possible counter effect to the altruistic model, leaving us with no difference between conditions.

In agreement with our hypothesis, the findings of this study indicate that norm enforcement may explain deviations from standard rationality theory in third party punishment games. In the third-party punishment game, we again did not find a difference in the overall

means between the taking condition and the giving condition. We also did not find a difference in the frequency of punishment between the two conditions. However, we did find an important second order effect in the data from Experiment 2 and Experiment 3. We find that there were significant differences in the means within each hypothetical dictator's payout. The punishments for the taking condition had a much larger variance and were dependant on the amount that was taken. This was not true for the giving condition. In other words, punishers in the taking condition would punish less harshly those who took less and would punish more harshly those who took more. In the giving condition, punishment did not depend nearly as much on how much was given. Instead, punishment was fairly consistent between all hypothetical amounts that the dictators could have given. Although this effect was not entailed in our hypothesis, we propose that this result supports the norm enforcement hypothesis.

In Experiment 3, when we controlled for the natural 'kink' in the data, we found that the results from the taking condition were indeed different than the results from the giving condition. Therefore, we propose that social norms should still be considered the driving force behind punishment decisions. The hypothesis that social norms dictate that giving is socially different than taking is central to this new theory. In order to understand why, it is important to consider a nuance of our experiment that is not present in previous experiments. In the giving condition in the dictator game, the dictator started with an endowment of ten dollars and the other player started with no endowment. In the taking condition, the dictator started with no endowment and the other player started with an endowment of ten dollars. We consider this difference to be important in understanding the social norms that would drive the punishment behavior in the third party punishment game. There seems to be a difference in perception of the allocation decision based on whether a participant is the one controlling the loss of their endowment, or

whether they have no control over the loss of their endowment. The social norms surrounding these differences seem to evoke similar overall punishment by a third party, but they also seem to evoke different patterns of punishment.

Due to this finding, a few other influential theories that have potential applications to the new experimental design presented in this paper should be thoroughly considered when designing and running dictator and third party punishment games. An example is Prospect Theory, which is one of the defining theories of the behavioral economics field. Although it is aimed at describing scenarios where risk is part of the decision making process, we can use ideas from this theory to understand the results of our third party punishment experiment (Kahneman & Tversky 1979). Specifically, loss aversion could go a long way in helping us build a theory that shows that norm enforcement is driving the decisions in third party punishment games.

In the giving condition in the dictator game, neither participant was losing money involuntarily. Only the dictator could lose money and this could happen only at his discretion. The other participant only stood to gain but could not possibly lose. However, in the taking condition in the dictator game, the other participant would necessarily lose if the dictator decided to take. Furthermore, the more the dictator took, the more the other player lost. Since punishment was heavily dependent on the amount taken in the dictator game in Experiment 2, we can see that this punishment is strongly positively correlated with the loss observed in the dictator game. In other words, the punishers were strongly averse to the loss that occurred in a game that was unrelated to their own payout, and were therefore willing to lose some of their own endowment to enforce the norm which was violated when this loss occurred. In contrast, players in the giving condition were punished similar amounts despite how much they gave, which we would expect since the loss did not occur in the same way and should not have evoked

the same conditional norm enforcement. This indicates that who started with the endowment may have had an effect on our results, but only because this difference dictated who stood to gain, and who stood to lose. Whereas in the giving condition in the third party punishment game, punishers could only punish those who lost, the punishment was not highly dependent on the amount. However, in the taking condition, punishers could punish those who caused a loss, and return money to those who lost. These byproducts of the experimental design potentially cause a conditional reaction that is based loss aversion, in an enlightening application of Prospect Theory.

Another theory to explain the differences in punishment is raised by Aguiar, Branas-Garza, and Miller (2008). They found that ‘moral distance’ was responsible for payouts of dictator games. They found that conceptualizing the dictator game as a moral decision has a large effect on the payouts. For example, if dictators are told that the other participant is a needy person from a developing country, they are inclined to give significantly more. This concept can be applied to our findings and the norm enforcement literature. It may be considered a norm violation that the non-dictator started with the endowment and the punishers could be sympathetic to this. In other words, it could be considered morally justifiable to take some of this endowment, but not a lot of it. If third party participants frame this decision as a moral question, it becomes less justifiable as more is taken. However, in the other condition, all scenarios are morally justifiable. The moral question of whether a dictator should give any of their endowment always can be evoked for each dollar amount. In other words, all of the giving outcomes are morally justifiable, and therefore punishment is not nearly as dependant on the dictator’s payout as it is in the taking condition. In light of these theories and their applications to our findings and the norm enforcement literature, it is clear that our results may be explained

by the extent of the norm violation of the dictator, which supports the literature and the theoretical basis for norm enforcement (Carpenter & Matthews 2009).

There are also potential policy implications to this work as well. One particularly relevant example comes from the recent movement to reduce plastic bag usage at grocery stores. Two distinct models of disincentivising the use of plastic bags have emerged. In most of Europe, plastic bag usage is discouraged by charging shoppers €0.05 for each plastic bag that they need to use. The grocery stores are simply selling the plastic bags to the customers. In American grocery stores, the model is slightly different. A shopper's bill is reduced, usually by \$0.05, for each reusable bag that they bring to the store. In other words, American shoppers are given a discount for each plastic bag that they do not use.

While plastic bag usage has seen a precipitous decline in Europe, shoppers in America continue to use plastic bags. This is potentially due to the differences in social norms that surround giving and taking. Whereas in the European model, shoppers must move some endowment from themselves to the store, in the American model, shoppers see a movement of funds from the store to themselves (or, a reduction in the movement of funds from themselves to the store). The difference in the perception of these two conditions may explain why one has been effective at reducing plastic bag usage and the other has not. However, this effect can also be explained by the societal differences between the two sides of the Atlantic. In fact, Heinrich et al. (2006) and Herrmann et al. (2008) have both shown that punishment norms differ across societies. This shows that either the norms differ across societies, or third party punishment differs across societies. In the plastic bag example, we are likely seeing both.

## 7. Conclusion

Future work on this topic could clarify some of the remaining questions that were raised in the discussion. For example, are the results highly dependent on our experimental design, as Bardsley (2008) and List (2007) showed in their taking experiments? A successful replication of these findings with higher internal validity would be important in investigating the new hypotheses we have presented in the discussion. Researchers who have the funds to run the three participants with monetary payoffs in the third party game simultaneously would likely illicit more honest allocation decisions from the participants. More robust results would also enable an attempt to build a sound mathematical or econometric model to structurally represent these findings.

Another pertinent question that deserves mention was raised by Ostrom (1992). How much would the third party participant's decision change if they knew that player A and the dictator observed them making their choice? In our experiment the third party participant was informed that they would remain anonymous to the other two participants. Further evidence for the norm enforcement theory could come from a study where the third party participant was not anonymous. Again, we would expect their decision pattern would change if they had social norm considerations, but would not change if they had equality or fairness considerations.

Coffman (2009) raised a similar point when he ran an experiment where there was an intermediary party between the third party punisher and those that she was punishing. He found that there was less punishment when this separation existed. Again, this indicates that a replication of this study with all three participants would lead to much more reliable results. Since there seems to be an effect on the distance the third party punisher feels from the dictator participants, our experimental design – which only runs the third party participant – may have

created an undue amount of separation between the participants. If these distance measurements are tied to social norms in any way, they also become a variable by which social norms can be varied by condition in new experimental designs.

Our findings raise important new questions surrounding the interpretation of the third party punishment game. When comparing punishment of takers and givers, we find a significant and intriguing difference that could give us some insight into the punishing behavior. We have considered some interpretations of the data, including a loss aversion interpretation and a morality interpretation. However, the interpretations raised in this paper could benefit from additional research on this topic.

## **Appendix 1 – Sample Instructions for Study 1**

### **Game Instructions:**

In this experiment you will determine how \$10 will be distributed between you and the person you are paired with. Initially, the person you are paired with will be given \$10 dollars and you will be given \$0. However, you can decide how many dollars you would like to take from that person. They will have to accept whatever allocation you decide upon. You will not know who that person is and they will not know your identity. Both of you will have complete anonymity. Please note that this is hypothetical and no participants will actually receive any money. However, please respond as if there were monetary payoffs.

**You can make one of eleven possible choices. Please circle your choice.**

You take \$0 and the other person is left with \$10

You take \$1 and the other person is left with \$9

You take \$2 and the other person is left with \$8

You take \$3 and the other person is left with \$7

You take \$4 and the other person is left with \$6

You take \$5 and the other person is left with \$5

You take \$6 and the other person is left with \$4

You take \$7 and the other person is left with \$3

You take \$8 and the other person is left with \$2

You take \$9 and the other person is left with \$1

You take \$10 and the other person is left with \$0

**Appendix 2 – Sample Instructions for Study 2**  
**Game Instructions:**

Here is an experiment that was run between two people: Initially, Person A was given \$0 dollars and the person they were paired with (Person B), was given \$10. Person B was told that they could give any amount of money from Person A. Below you will find a table that lists the possible amounts that Person B could have given and the amounts that Person B would have been left with.

In this scenario, you are Person C. You will be given \$5 and you can use your own money to transfer money from Person B back to Person A. For each \$1 that you give back, \$2 will be transferred from Person B to Person A. They will have to accept whatever allocation you decide upon. You will not know who these people are and they will not know your identity. You will all have complete anonymity.

For each scenario please indicate how many dollars you would like to give back in whole dollars. Please note that this is hypothetical and no participants will actually receive any money. However, please respond as if there were monetary payoffs.

Scenario	How many dollars would you be willing to give back (from \$0 to \$5)?	What would Player A's payout be?	What would Player B's payout be?	What would your payout be?
Player A was given \$0 and Player B is left with \$10.				
Player A was given \$1 and Player B is left with \$9.				
Player A was given \$2 and Player B is left with \$8.				
Player A was given \$3 and Player B is left with \$7.				
Player A was given \$4 and Player B is left with \$6.				
Player A was given \$5 and Player B is left with \$5.				
Player A was given \$6 and Player B is left with \$4.				
Player A was given \$7 and Player B is left with \$3.				
Player A was given \$8 and Player B is left with \$2.				
Player A was given \$9 and Player B is left with \$1.				
Player A was given \$10 and Player B is left with \$0.				

### **Appendix 3 – Sample Instructions for Study 3**

#### **Game Instructions:**

You will be presented with five scenarios and asked to provide a decision for each scenario. In these scenarios, you will be a player in a three-person game. You will be asked to respond to an interaction that has previously occurred between the other two players. Your decision will not only affect your own payout, but will affect the payouts of the other players.

Since your payout could potentially be different for each of your five responses, one of your five responses will be randomly chosen to determine your actual payout. You will be paid at the conclusion of the study, after you have filled out a short survey.

If you have any questions at this time, please ask the experimenter for clarification.

**Appendix 4 – Sample Instructions for Study 3 continued**

**Game Instructions:**

Here is an experiment that was run between two people: Initially, Person A was given \$0 and Person B was given \$10. Person B is the only person who makes a decision in this experiment and this decision determines the payouts of both Person A and Person B. Person B was told that they could give any amount of their ten dollars to Person A and Person B will keep the rest. Below you will find a table that lists some of the possible amounts that Person B could have given to Person A, and for each amount that could be given, how much Person B would have been left with.

In this scenario, you are Person C and you are responding to different possible outcomes of the experiment that has been played by Person A and Person B. You will be given \$5 and you can use this money to transfer money from Person B to Person A. You can do this by giving back some of the \$5 that you will be given. For each \$1 that you give back, \$1 will be transferred from Person B to Person A. They will have to accept whatever allocation you decide upon. You will not know who these people are and they will not know your identity. You will all have complete anonymity.

For each scenario please indicate how many dollars you would like to give back in whole dollars. Please note that your decisions will affect your payout, as one of your decisions will randomly be selected to determine your payout.

Scenario	How many dollars would you be willing to give back (from \$0 to \$5)?	What would Player A's payout be?	What would Player B's payout be?	What would your payout be?
Player A was given \$0 and Player B is left with \$10.				
Player A was given \$1 and Player B is left with \$9.				
Player A was given \$5 and Player B is left with \$5.				
Player A was given \$6 and Player B is left with \$4.				
Player A was given \$10 and Player B is left with \$0.				

**Appendix 5 – Post Experimental Survey**

**Dictator Game with Taking and Third-Party Participants Survey**

Please answer the following questions honestly and to the best of your ability.

**Questions about the game:**

1. Which of the following factors contributed to your decision? (Circle all that apply)

- Maximize my own payoff
- Maximize Player A's payoff
- Maximize Player B's payoff
- Have equal payoffs for Player A and Player B
- Punish Player B
- Other (please specify)\_\_\_\_\_

2. Did you understand how the game worked?

Yes / No

3. Did you understand the payoff structure?

Yes / No

4. Have you played or studied a similar game previously?

Yes / No

5. If yes, did your previous experience affect the decision you made in this game?

Yes / No

**Demographic Questions:**

6. Gender \_\_\_\_\_

7. Major(s) \_\_\_\_\_

8. Number of Economics courses taken (including current) \_\_\_\_\_

**Please answer the following statements to the best of your ability. Circle the number that most accurately describes your attitude.**

9. I feel comfortable with my choice.

1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7  
Very Uncomfortable                      Neutral                      Very Comfortable

10. My decision was fair.

1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7  
Very Unfair                      Neutral                      Very Fair

## **Appendix 6 – Advertisement**

### **Recruitment Material:**

*The following message was posted on Tuftslife.com:*

We are looking for individuals to participate in a very short (10-15 minute) decision making study.

The study pays a minimum of \$3 and a maximum of \$8 depending on the decisions that you make in the study.

If you are interested, please e-mail [Matthew.Small@tufts.edu](mailto:Matthew.Small@tufts.edu)

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