Loss and Other-Regarding Preferences: Mutually Exclusive or Exclusively Mutual?
Evidence from Loss-Framed Dictator Games

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Abstract

The paper tackles an understudied phenomenon: social preferences of the decision maker in Dictator Games (DG from here onwards) in the domain of losses.

Three questions are under investigation. Firstly, how will the dictator divide the pie in a DG, where he suffers simultaneous loss of equal amount along with an anonymous recipient before the allocation decision? Secondly, how will the knowledge of the wealth level of the recipient affect the preferences of the dictator in the framework of the first question? Thirdly, what are the internal motivations driving the behavior of the dictator in the preceding two scenarios?

Four treatments-"Standard", "Standard & Loss", "Poverty" and "Poverty & Loss"- are conducted using Amazon M-Turk. The data provides contradictory evidence to the concept of loss aversion, as in none of the loss-framed scenarios dictators become self-centered individuals, willing to hoard money. Particularly, in "Standard & Loss", bi-directional loss preserves average other-regarding preferences of the dictators on the same level as in "Standard". Nonetheless, bi-directional loss makes the average dictator even more other-regarding in "Poverty & Loss" than he is in "Poverty".

The analysis of verbal responses, designed to uncover the internal perspective of the dictators, reveals that concerns of fairness prevail in "Standard" and "Standard & Loss", while concerns of altruism dominate in "Poverty" and "Poverty & Loss".

Keywords: Dictator Games, Loss Frame, Other-Regarding Preferences, Fairness, Altruism

JEL Classifications: C90, D63, D64, I30

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1. Introduction

In recent years neoclassical assumption of self-interested preferences, based on rational choice, is gradually losing ground. Psychologists and experimental economists provide ample evidence that people are consistently guided by other-regarding preferences, being concerned with altruism, fairness and reciprocity (Fehr and Schmidt, 2006). Nevertheless, despite this paradigmatic shift, there is no sufficient testimony, whether other-regarding preferences are still preserved in the domain of losses. This phenomenon is particularly understudied in the context of strategic (Zhou and Wu, 2011) and Dictator Games.

Based on Ultimatum Bargaining Games (UBG from here onwards), existing literature argues that altruism of allocators increases in the domain of losses, albeit due to egoistically driven strategic concerns. Buchan *et al* (2005) claim, that it is the fear of rejection and of a loss of escalated degree, that makes the offers of allocators higher and more "other-regarding" when losses should be shared rather than gains. Such a conjecture is not exempt of reality, as Zhou and Wu (2011) illustrate that rejection rates to unfair offers are higher in a negative UBG than in a standard one, due to different perceptions of fairness in the two games.

However, in a negative UBG the recipient has the power to face the allocator with the whole responsibility of bearing losses. One can intuitively presume that if there were no pressure on the allocator from the side of the recipient in the loss domain, the allocator might well elicit self-interested preferences. Such a formulation of the game evokes the framework of DG.

DG is unique in the sense that it allows to depict the manifestation of "pure altruism" of the allocator, as the recipient is effectively helpless. In contrary to Nash equilibrium, which predicts the dictator to split the pie in a completely egoistic manner, empirical data demonstrates that the dictator persistently transfers roughly 20% of his wealth to the recipient (Camerer, 2003). However, despite the fact that many versions of this game have been played[2], to my knowledge, so far there is no evidence about the behavior of the dictator in the domain of losses. In order to investigate the latter issue, I pose three questions.

Firstly, how will the dictator divide the pie when both he and an anonymous recipient suffer simultaneous loss of equal amount before the allocation decision? Secondly, how will the knowledge about the poverty level of the recipient affect the preferences of the dictator in the context of the first question? Thirdly, what are the internal motivations driving the behavior of the dictator in the preceding two scenarios?

For my purposes I adopt survey-experimental approach, conducting a hypothetical experiment consisting of 4 treatments with a within subject design, in order to control for subject-specific heterogeneity[3]. However, in order to get rid of "rank-order" effect, I present different order of treatments to 4 different groups.

In the baseline treatment, called "Standard", I ask the dictator to play an ordinary DG, splitting his endowment of 15€ with an anonymous recipient. In the second treatment, called "Standard & Loss", I preserve the anonymity condition of the recipient, albeit I introduce a bi-directional loss of 10€ before the allocation decision, leaving the dictator with a residual amount of 5€ to share. In the

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[2] The scholars strived to understand the influence of the name of the recipient (Charness and Gneezy, 2008), visual and oral impression (Burnham, 2003, Rosenblat, 2008), pre-play identification of participants and face-to-face communication (Bohnet and Frey, 1999a, 1999b), social distance (Jons and Rachlin, 2006, Leider et al, 2009,Goeree et al, 2010), wealth level of the recipient (poverty- Grossman and Eckel, 1996,Branas-Garza, 2006) on the allocation decision of the dictator

[3] In the earlier versions of the paper I have also implemented similar experiment with a between subject design, and the results are roughly the same. The data is available upon request

third treatment, named "Poverty", I follow the design of Branas-Garza (2006), framing the recipient as a poor representative of a third world country, with an income of 99 cents per day and no savings at all. In the last treatment, labeled "Poverty & Loss", I maintain the poverty condition of the recipient, but I again import a bi-directional loss of 10€. For the dictator the loss is similar to that of "Standard & Loss". As the recipient has nothing to lose, I frame him to be indebted to the community in the amount of 10€, which was lent to him to re-construct his 10€ hut destroyed by a recent fire, and which has to be paid back in 6 months.

By comparing the first two treatments, I intend to capture the pure effect of bi-directional loss on other-regarding preferences in the absence of any context, while similar procedure with the last two treatments will allow me to reveal the same effect in the context of poverty.

Following Paolacci *et al* (2010), I use a relatively novel device for data collection, recruiting experimental subjects via Amazon Mechanical Turk. The advantage of this tool is that it allows the researcher to get detached from traditional student samples and to capture demographically diverse subject pools than in standard internet surveys (Buhrmester *et al,* 2011) with minimum expenses and in the shortest amount of time.

The rest of the paper is structured as follows. Section 2 consists of literature review and subsequent hypotheses. Section 3 describes experimental design. Section 4 includes the results and a follow up discussion. Section 5 concludes the paper.

2. Hypotheses

Prospect theory suggests that losses loom twice as much as gains: the decrease of expected utility from some monetary loss is twice as much as the increase from the same amount of gain (Kahnemann and Tversky, 1979, 1984), implying that subjects strive to minimize losses whenever affronting them. In line with the latter statement, literature provides empirical evidence that individuals with a loss frame are more own outcome-oriented (De Dreu *et al.*, 1994, De Dreu, 1996), more individualistic (Poppe and Valkenberg, 2003) and less concerned with inequality than individuals with a gain frame.

This perspective would suggest that the loss-averse dictator, who bears monetary loss, must avoid more losses in face of donations irrespective of any information about the recipient, become egoistic and hoard money, taking into consideration that there is no pressure on him from the side of the recipient, unlike in negative UBG (Buchan *et al*, 2005, Zhou and Wu, 2011).

Thus, a general hypothesis can be formed, which applies to all questions posed in the previous section, and on average neglects expression of other-regarding preferences in DG in the domain of losses;

Hypothesis 1: The dictator, who suffers monetary loss before the allocation decision, on average acts as loss minimizing selfish individual and does not display other-regarding preferences, irrespective of any information about the recipient.

Nevertheless, in DG all power resides in the dictator. In social exchange theory, the power of agent A over B is a function measuring dependence of B on A for scarce and valuable resources (Emerson, 1962, 1972a, 1972b)[4]. Previous contributions testify that power imbalance may give birth to feelings of social responsibility, and the more powerful may act in a socially responsible manner, by sacrificing their own incomes in order to help powerless (Greenberg, 1978). In the framework of an anonymous DG, powerlessness of the recipient induces fairness motivation, and the dictator feels inappropriate to take advantage of the dependent position of the recipient and treat the latter unfairly (van Dijk and Vermunt, 2000).

If fairness, driven by power imbalance between the agents, is the main trigger motivating the actions of the dictator in an ordinary DG, then one can presume that the latter shouldn't change his other-regarding behavior towards the recipient in an ordinary DG with a bi-directional loss, as the power imbalance between the counterparts is preserved[5].

The discussion gives birth to a second hypothesis, confronting to the one stated above;

Hypothesis 2: In an ordinary DG, where both the dictator and the recipient suffer equal amount of monetary loss before the allocation decision,

  a) **Other-regarding motives of the dictator, on average, are not offset by loss**
  b) **Fairness is the main trigger of other-regarding preferences of the dictator, as in an identical scenario without bi-directional loss**

How will the knowledge of the poverty level of the recipient affect other-regarding preferences of the dictator, when a bi-directional loss of equal amount is imported?

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[4] Power of agent A over B is equal to the dependence of agent B on A: Pab=Dba (Emerson, 1962) In the text I use the notions interchangeably

[5] For the sake of illustration imagine a dictator with an endowment of 15 Euros and an anonymous recipient. The power imbalance between the counterparts equals to 15-x Euros, as the wealth level of the recipient is unknown. In case of a bi-directional loss of 10 Euros, the same power imbalance is preserved: (15-10)-(x-10)=15-x

Taking into consideration that the same negative phenomenon is much more pronounced for the poor than for the rich (Bertrand *et al*, 2004), one can deduce that equal amount of loss makes the poor recipient much less powerless and much more dependent on the dictator in the context of poverty and loss than he is in poverty. Put it differently, in the context of poverty, the recipient has no economic slack in contrast to the dictator, where economic slack is "the ease with which one can cut back consumption to satisfy an unexpected need" (Mullainatthan and Shafir, 2009). When faced with an equal amount of loss, the recipient cuts back on the minimum daily consumption abstaining him from starvation, in order to return the debt to the community, while the dictator still has a buffer and an opportunity to ration his wants, rather than needs.

To conclude, while bi-directional loss of equal amount preserves the difference between the nominal wealth levels of the recipient and the dictator, it makes the value of each additional euro relatively more valuable for the recipient than for the dictator, creating a stronger dependence relationship between the two agents than in the case of poverty alone. Previous research on organ donations shows that people are more motivated to help others the more dependent these others are (see van Dijk and Vermunt, 2000, p. 6 for a discussion and the references therein; Berkowitz 1972, Berkowitz and Daniels, 1963, Enzle and Harvey, 1979, Schwartz, 1977, Schwartz and Howard, 1982).

Hence,

Hypothesis 3a: In a DG where the poverty level of the recipient is explicitly emphasized and where both the dictator and the recipient suffer bi-directional loss of equal amount before the allocation decision, other-regarding motives of the dictator are more sound than in an identical DG without loss.

What type of social preferences drives the contributions of the dictators in this scenario?

The information that the recipient is a poor representative of a third world country should prime feelings of social responsibility and direct the contributions of the dictators towards helping the recipients to enhance their well-being. In other words, whenever poverty label is attached to the recipient, altruistic motives should prevail.

Thus,

Hypothesis 3b: In a DG where the poverty level of the recipient is explicitly emphasized and where both the dictator and the recipient suffer equal amount of monetary loss before the allocation decision, altruism is the main trigger of other-regarding preferences of the dictators, as in an identical scenario without loss

3. The Experiment

In line with Paolacci *et al* (2010)*,* who testify Amazon M-Turk (AMT) as "a viable alternative for data collection", I use M-Turk to recruit subjects for the hypothetical survey-experiment, consisting of 4 treatments, with a within subject design. However, in order to eliminate "rank-order effect", I follow Branas-Garza (2006), presenting different order of treatments to different groups. In summary I make 4 various combinations of treatments, distributing them to 4 distinct groups. Table 1 in the appendix illustrates the order in which the treatments were presented.

<Table 1 somewhere here>

In the baseline treatment, called "Standard", I ask the dictator to play an ordinary DG, where he has to divide 15€ between him and an anonymous recipient according to his preferences. This treatment is used as a control for "Standard & Loss" and "Poverty" treatments discussed further in the text.

In the second treatment, named "Standard & Loss", I preserve the anonymity condition of the recipient, albeit I import a bi-directional loss of 10€ before the allocation decision, requesting the dictator to split the residual pie of 5€.

In the third treatment, labeled as "Poverty", I ask the dictator to divide his endowment of 15€ with a poor representative of a third world country who has an income of 99 cents per day and no savings at all. This treatment is by-and-large similar to that of Branas-Garza (2006), albeit diverges in several directions. Firstly, the resources are allocated among 2 agents (a dictator and a recipient) rather than 4 (a dictator and 3 identical recipients) stemming from my intention to study the behavior of the dictator vis-à-vis a single recipient rather than the egalitarian outcome across different agent-receivers. Secondly, I don't constrain the donations of subjects assigning 5€ bills, which might artificially increase allocations (Branas-Garza, 2006). Moreover, taking into consideration that I will deal with situations containing loss, dictators' primed loss aversion for big payments might offset the sense of generosity, resulting in biased non-transfer allocations. Thirdly, the recipient is a single person in a poor community, rather than a poor community as a whole. I use the current treatment as a control for the last one, called "Poverty & Loss", in order to disentangle the pure effect of loss on other-regarding behavior of the dictators in the context of poverty.

In "*Poverty & Loss"*, I again introduce a bi-directional loss of 10€. For the dictator the loss is similar to that of "Standard & Loss", however as the poor recipient, who is identical to that of "Poverty", has nothing to lose, I frame him to be indebted to the community in the amount of 10€, which was lent to him to re-construct his 10€ hut destroyed by a recent fire, and which had to be paid back in 6 months. The dictator has again to decide how to divide the residual amount of 5€.

Apart from asking to make a decision of monetary split, I also include an additional control, requiring the subjects to give an illustrative description of the motives underlying their choice. The reasons are two-fold.

Firstly, I intend to uncover the internal perspective of the dictators. For this purpose, the explanations are coded into different categories of social preferences. Whenever it is not possible to figure out which category the answer belongs to, I label it as "Unrevealed". If two motives are simultaneously present in the justification, then a special category (e.g. "Fairness and Altruism") compiling both is introduced.

Secondly, as AMT is a novel tool for experimental studies, the quality of the data obtained from there is still under question by scholars. The introduction of an additional open question will impose extra cognitive load on the participants, inducing them to think more deliberately before making a final decision, as qualitative and quantitative responses should match.

4. Results

Initially I recruited 40 different subjects per group- 160 participants. If I discarded answers, then I re-assigned the task to corresponding amount of new participants, following this iterative procedure until there were at least 30 approved answers in each group. Subjects got paid 20 cents for participation.

Overall 274 subjects took part in the experiment[6], with 152 answers having been rejected (55.5%). The majority of the approved[7] sample (68%) is coming from Asian countries and is male (64%). Table 2 in the appendix provides statistics on the demographic composition of the samples by country and by gender. The Chi-Square test for independence cannot find significant differences across groups neither for the nationality of the subjects (χ^2=2.371, p-value=0.499, df=3), nor for gender (χ^2=5.586, p-value=0.134, df=3). Homogeneity in both variables is quite important in order to treat all groups "in the same dimension", as other-regarding preferences may be heavily influenced both by cultural (Camerer, 2003) and gender (Eckel and Grossman, 2008) backgrounds of the decision maker.

I used non-parametric tests in order to check whether the data of each treatment, obtained from different groups, was coming from the same population, which would allow me to pool the samples and make general inference for the treatments as a whole. Kruskal-Wallis test was not able to reject the null hypothesis that the samples were coming from the same population. The results of follow-up Bootstrap Kolmogorov-Smirnov and Mann-Whitney U tests were in line with that of Kruskal-Wallis[8]. Hence, below I will provide discussion on the pooled sample directly.

Tables 3-5 in the appendix illustrate the results of the non-parametric tests, while tables 6-9 provide general summary of the treatments by separate groups and by the merged sample[9].

4.1. "Standard" treatment

The purpose of the current treatment is two-fold.

Firstly, it will serve as a control for "Standard & Loss" and "Poverty" treatments. By comparing it with "Standard & Loss", I will be able to capture the pure effect of loss on other-regarding behavior of the dictator in the absence of any context. By comparing it with "Poverty", I will deduce the effect of poverty frame on the donations of the dictators.

Secondly, as discussed before, I use a comparatively novel tool for data collection, which still provokes concerns in the literature. By confronting the results of the current treatment to the

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[6] Group1-63 subjects, Group2-47, Group3-86, Group4-78

[7] Group1- 31 answers approved, Group2-31, Group3-30, Group4-30

[8] In one case only (Group 1 *vs* Group 4, "Standard & Loss" Treatment) Mann-Whitney U test rejects the Null hypothesis of the same distribution on 10% significance level (p-value=0.084). However, this test cannot compute exact p-values when statistical ties are present in contrast to Bootstrap Kolmogorov-Smirnov, which cannot reject the Null Hypothesis of the same distribution (p-value= 0.202). Hence, following the latter, the Null hypothesis is not rejected

[9] Roughly 20% of the pooled sample (24 subjects) indicated that they had taken part in similar studies. However, taking into consideration that the participants might not know Dictator or Ultimatum Games in technical terms, the questions did not specify the exact type of the game. I performed the same analysis on the pooled sample both with and without these 24 responses. As the results are similar (available upon request), I maintain these answers in the pooled sample. Please note, that I can't rule out these subjects before merging the groups, as the statistical tests checking for distributions will not be powerful enough

experimental evidence obtained from the lab, I will be able to gain external validity for the generated data.

<Table 6 somewhere here>

The mean value of the pooled sample is 5.07€ (33.8%), which is roughly 14% higher than usually testified in an ordinary DG. This phenomenon can be either due to the hypothetical nature of the survey, or due to the demographic characteristics of the respondents, as 68% of the subjects are of Asian, mainly of Indian, origin. However, I do believe that cultural values are the main determinants of such a difference, as Dasgupta (2011) reports similar behavior by Indian subjects, using monetary incentives. In the baseline treatment of the seminal paper (Inheritance treatment), the mean donation by undergraduate students in Jadavpur University (India) is 34.4% of the total endowment (Figure 2, p.9)[10]. This result seems to evoke the hypothesis of Ben-Ner *et al* (2008) that "experimental dictators are neither more nor less selfish when asked to transfer part of a real, rather than hypothetical endowment to another powerless subject".

The analysis of verbal responses reveals that fairness is the main driver of contributions in the current treatment. 40 justifications out of 104[11] (38.5%) are classified as "fair", while only 12 responses are labeled as "altruistic", which is the second-best, if one despises the 38 (36.5%) answers from where it is impossible to derive any motive[12]. The result resembles the hypothesis of van Dijk and Vermunt (2000), that power imbalance between the dictator and the recipient induces fairness motivation, provoking dictators to avoid hoarding money.

4.2. "Standard & Loss" treatment

Taking into consideration that individuals do not like losses, one might presume that the reduction of the endowment by 2/3 would make the dictator a self-centered individual, willing to hoard the residual money, independent of any information about the recipient. However, surprisingly, the survey-experimental data don't support the idea.

<Table7 somewhere here>

Instead of being clustered around 0, the mean donation in this treatment is around 38.8% (1.94€) of the total endowment (5€), which is even 5% higher than the same value in "Standard".

Indeed, the number of dictators, who moved in line with loss aversion hypothesis and donated nothing to the recipient significantly increased compared to standard. 30 subjects out of 122

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[10] In the experimental design of Dasgupta, the subjects knew that the recipient is of the opposite gender. In the design of the current paper the gender of the recipient was not mentioned

[11] The number of participants who contributed positive amount

[12] How do I make the classification? The answer is labeled as "fair" if it contains the seminal word or its synonyms (equity, equality, justice, right, rightfulness, righteousness, propriety, legitimacy -www.thesaurus.com) b) if its content evokes the seminal word or its synonyms mentioned in point a). For instance the answer "I'm not entirely sure if I have any entitlement to the endowment, so I gave the majority to the recipient, but kept some for myself as well", resembles concerns of legitimacy, rightfulness, propriety, justice from the perspective of the decision maker, hence it is labeled as "fair".

The label of "altruism" is used a) when the response contains the seminal word or its synonyms (charity, benevolence, humanity- www.thesaurus.com) b) the content of the answer resembles concerns for the welfare of others. For instance the response- "The recipient needs this money more than I do" - is labeled as "altruistic", because it elicits concerns for the wealth condition of the recipient.

Similar explanations of contributions-"Because I do not know who is the other person and I need the 10 Euros for myself"- are classified as unrevealed. The mere fact of giving illustrates that the participant is indeed inequity averse (Fehr and Schmidt, 1999), albeit the answer cannot be attributed to any category of social preferences (e.g. fairness, altruism, reciprocity, warm-glow and etc)

hoarded money in the current treatment in contrast to 18 in "Standard" (McNemar test, p-value=0.0005).

However, another salient phenomenon took place in the upper tail of the distribution: the number of pure altruists increased nearly 5.7 times in comparison with "Standard", accounting 17 subjects, which is statistically significant (McNemar test, p-value= 0.0001). This anomaly may be due to decreasing marginal sensitivity to loss, meaning that "marginal effects in perceived well-being are greater for changes close to one's reference level than for changes further away" (Rabin, 1998). Put it differently, the slope of the value function over wealth becomes flatter, when the incurred loss moves the wealth far away from the reference point. In simpler words, having lost 10 Euros, the dictator may be indifferent in losing another 5 Euros, which may partially exacerbate other-regarding motives towards the recipient.

I perform Wilcoxon signed rank test, in order to check for the presence of treatment effects across "Standard" and "Standard & Loss". Nonetheless, one should be cautious when using this test in the current scenario. The test replaces the original measures with signed ranks in order to compute test statistics. However, in my case the values of the independent variable (i.e. contributions) are drawn from different intervals, where one is contained in the other. Under such circumstances, if the subject chooses equal proportions of the total endowment, he exhibits virtually the same behavior in both treatments (for example he contributes 7.5 Euros in "Standard" and 2.5 Euros in "Standard & Loss"), however the test will alert systematic differences. In order to circumvent this problem, I transform the contributions to percentage scale and perform the test on the latter rather than use the raw data. The results evidence that the contributing behavior of the participants significantly differs across treatments on 5% and 10% significance levels (p-value= 0.045). Hence, at this stage, one can surprisingly deduce that, bi-directional loss of equal amount before the allocation decision on average does not only preserve, but also slightly enhances other-regarding preferences of the dictators.

However, "talk is free, when real money is not involved" (Branas-Garza, 2006). Thus, for robustness check, I exclude the responses of all 17 subjects who decided to donate their full endowment in "Standard & Loss" from the pooled samples of both treatments and perform the same analysis again. In this case the mean value of "Standard & Loss" is only 2.1% less from that of "Standard" (1.44 (28.8%) *vs* 4.64 (30.9%)). However, Wilcoxon signed rank test does not find statistically significant differences in the donation behavior of the dictators across the two treatments (p-value=0.73).

Hence, stemming from the results above, a general conclusion for the treatment can be formed:

Result 1a: Bi-directional loss of equal amount on average preserves other-regarding preferences of the dictators.

How can this result be explained? In line with the discussion in Section 2, bi-directional loss of 10€ maintains power imbalance between the dictator and the anonymous recipient, which induces the dictator to act in a similar manner as in an ordinary DG. If such reasoning is true, then the same motivations guiding the behavior of the dictator should prevail across the two scenarios, which is roughly the case, following the analysis of the verbal responses. In the current treatment, as in the previous one, fairness is the main motivation behind the actions of the dictators. 52 allocation decisions out of 92[13] (56.5%) elicit concerns for fairness[14], while concerns for altruism are in the

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[13] The number of participants who contributed positive amount

[14] Justifications of allocation decisions, which only stem from the fact that loss was bi-directional, are labeled as "fair", as they full satisfy point b) of footnote 10. For instance, "I decide to divide the money with the recipient because that person also lost the amount of 10 Euros as the researchers took it".

second place, with 16 responses only, disregarding the 19 responses that were marked as "unrevealed".

Hence Hypothesis 2b is also confirmed;

Result 1b: Fairness is the main motivation behind the actions of the dictators both in an ordinary DG, and in a DG with a bi-directional loss of equal amount

4.3. "Poverty" treatment

This treatment is firstly conducted, to serve as a control for "Poverty & Loss" discussed in the next section. By direct comparison of the results of the two treatments, I will be able to disentangle the pure effect of bi-directional loss on dictator behavior in the context of poverty.

Secondly, stemming from the issues of external validity of the data, I confront the "Poverty" treatment of this paper to the homonym treatment of Branas-Garza (2006) as I did before for the case of "Standard". I do acknowledge that experimental design and the characteristics of the subject pool differ in fundamental ways and straightforward comparison may not be appropriate, however, the context in which the decision is made is by-and-large similar, which presumes that dictator contributions should move in the same direction at least.

<Table 8 somewhere here>

In this treatment, the mean donation of the merged sample primes to 10.22€ (67.4%). Moreover, 41 out of 122 dictators (33.6%) prefer to donate their full endowment to the poor representative of a third world country. 72.1% of the dictators favor the recipient, opting for allocation decisions where more than half of the pie goes to the latter. The results are in line with the "Poverty Condition" of Branas-Garza (2006, p. 315), where the dictators, on average, donated 2/3 of their endowment, with 40% of the whole sample eliciting purely altruistic motives and 66.3% donating more than 7.5€. One can refer to Branas-Garza (2006) and Aguiar *et al* (2008) for an excellent review of the results.

Wilcoxon signed rank test (p-value < 2.2e-16) evidences significant differences across "Poverty" and "Standard". Not only quantitative, but also qualitative results bear noticeable changes compared to "Standard". Manifestations of altruism account for the overwhelming majority of response justifications. 84 answers out of 120 (70%) are classified as acts of altruism, while acts of fairness are in the second place with 9 responses only.

4.4. "Poverty & Loss" treatment

How will the knowledge of the poverty level of the recipient affect other-regarding preferences of the dictator in case of a bi-directional loss of equal amount?

<Table 9 somewhere here>

Despite the ample loss, mean donation in this case primes to 3.88€ (77.6%), which on a percentage scale is 9.5% higher than the same value in "Poverty" and the highest among all treatments. Such an outcome is due to the overwhelming number of pure altruists, who account 54.91% of the sample (67 out of 122), nearly 1.6 times more than the same value in "Poverty". The result is highly statistically significant (McNemar test, p-value= 0.000003). 78.6% of the dictators (96 out of 122) decided to split the pie in favor of the recipient, which is not statistically significant in comparison with the same value in "Poverty" (72.1%, 88 out of 122) (McNemar test, p-value=0.169).

Loss does increase the egoistic motives of the dictators as well, however this effect is statistically insignificant; only 6 dictators hoarded money in this treatment in contrast to 2 in "Poverty" (McNemar test, p-value= 0.125).

Wilcoxon signed rank test (p-value= 6.331e-05) is performed with the same strategy as in Section 4.2 and evidences presence of treatment effect between "Poverty" and "Poverty & Loss".

Hence, in line with Hypothesis 3a;

> **Result 2a: Other-regarding motives of the dictators are more salient in the case of "Poverty & Loss" than "Poverty"**

Why? In line with discussion in Section 2, in "Poverty & Loss" the power distance between the two agents escalates to its critical point. Increased power imbalance between the counterparts enhances the feelings of social responsibility that the dictators elicit towards the powerless recipients. As a result, the majority of the dictators ignores own losses and opts for allocation decisions that improve the welfare of their counterparts.

The analysis of response justifications reveals that, as in the case of "Poverty", the motives of the dictators are inclined towards altruism. As a matter of fact, 71.5% of the answers (83 out of 116) can be classified as manifestations of altruism, eliciting concerns for the desperate position of the recipient and his well-being. Hence, hypothesis 3b is also confirmed. Nevertheless, increased donations, and the overwhelming number of dictators donating their full endowment in "Poverty & Loss" resembles that the contributions are considered as more important in this case than in the case of "Poverty". However, as in "Standard & Loss", the motives of the dictators may be partially exacerbated by diminishing sensitivity to loss. Unfortunately the design of the study does not allow me to tackle this issue explicitly.

5. Conclusion

The paper tackled an understudied phenomenon; the social preferences of the decision maker in the domain of losses in DG. Three research questions were under investigation. Firstly, how will the dictator divide the pie in a DG, where both he and the recipient suffer simultaneous loss of equal amount before the allocation decision? Secondly, how will the knowledge of the poverty level of the recipient affect the preferences of the dictator in the context of the first question? Thirdly, what are the internal motivations driving the behavior of the dictator in the preceding two scenarios?

The findings are quite surprising and counterintuitive. In contrary to loss aversion hypothesis (Kahnemann and Tversky, 1979), other-regarding preferences of the dictators were preserved in all the treatments with bi-directional loss- "Standard & Loss" and "Poverty & Loss". Moreover, interestingly, the highest degree of contributions across all treatments was evidenced exactly in "Poverty & Loss", where the dictators were given information that their counterpart was a poor representative of a third world country, who had his hut burnt by a recent fire and had been granted with a 6-month debt of 10€ to reconstruct it. In this case, despite a loss equal to 2/3 of the total endowment, more than half of the dictators were willing to contribute their full residual endowment.

The analysis of the response justification section, which was designed to uncover the internal perspective of the dictators, revealed that concerns of fairness prevailed in "Standard" and "Standard & Loss", while concerns of altruism dominated in "Poverty" and "Poverty & Loss".

Nevertheless, as all other studies, the research suffers from multiple limitations.

Firstly, and most importantly, imported loss was hypothetical. Having real monetary stakes under disposal may bias the decisions of the subjects and result in less other-regarding behavior than observed in the current paper because of endowment effect (Thaler, 1980) or *status quo bias* (Zeckhauser, 1988). Future research can try to replicate some parts of the study with real stakes.

Secondly, the majority of the recruited subjects were from Asian countries, particularly India. It may well happen that the testified responses were due to cultural differences (Camerer, 2003), implying that the behavior of western subjects in the domain of losses may differ in dramatic ways.

Thirdly, the experimental studies provide evidence that changing the origin of endowment to one of earning money versus playing over "windfall" money causes a number of dictators to abstain from transactions. List (2007) shows, that under such circumstances the vast amount of play occurs in the neutral point, neither taking nor giving. Aguiar *et al* (2008) also provide evidence that experimental subjects were not considering the money received as their own. Such a trend is observed in the verbal responses of the current paper as well. An initial guess can be, that earning own income before transactions can make the subjects more egoistic in a loss frame than playing with the money provided by the experimenter. This is another reasonable direction for further analysis.

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Appendix

Table 1: Treatment ordering

Group Number				
Group 1	Standard	Standard & Loss	Poverty	Poverty & Loss
Group 2	Poverty & Loss	Standard	Poverty	Standard & Loss
Group 3	Poverty	Standard	Poverty& Loss	Standard & Loss
Group 4	Standard	Poverty & Loss	Poverty	Standard & Loss

Table 2: Socio-Demographic composition of groups by nationality and gender

Groups	Nationality		Gender	
Group 1	Asia	18	Male	21
	Rest	13	Female	10
Group 2	Asia	23	Male	23
	Rest	8	Female	8
Group 3	Asia	22	Male	14
	Rest	8	Female	16
Group 4	Asia	20	Male	20
	Rest	10	Female	10
Chi-Square test	χ^2=2.371, p-value=0.499, df=3		χ^2=5.586, p-value=0.134, df=3	

Table 3: Kruskal-Wallis test

"Standard" Groups 1,2,3 & 4	"Standard & Loss" Groups 1,2,3 & 4	"Poverty" Groups 1,2,3 & 4	"Poverty & Loss" Groups 1,2,3 & 4
χ^2=2.75, df=3, p-value= 0.432	χ^2=3.28, df=3, p-value= 0.35	χ^2=0.807, df=3 p-value= 0.848	χ^2= 1.853, df=3, p-value=0.603

Table 4: Bootstrap Kolmogorov-Smirnov test[15]

"Standard" Treatment

Group	Group1	Group2	Group3	Group4
Group1		0.949	0.755	0.143
Group2			0.345	0.158
Group3				0.322
Group4				

"Standard & Loss" Treatment

	Group1	Group2	Group3	Group4
Group1		0.894	0.401	0.202
Group2			0.553	0.351
Group3				0.328
Group4				

"Poverty" Treatment

	Group1	Group2	Group3	Group4

---

[15] p-values are reported in the cells

Group	Group1	Group2	Group3	Group4
Group1		0.508	0.675	0.502
Group2			0.646	0.91
Group3				0.859
Group4				

"Poverty & Loss" Treatment

	Group1	Group2	Group3	Group4
Group1		0.874	0.625	0.37
Group2			0.418	0.241
Group3				0.59
Group4				

Table 5: Mann-Whitney U test[16]

"Standard" Treatment

Group	Group1	Group2	Group3	Group4
Group1		0.628	0.393	0.605
Group2			0.14	0.2
Group3				0.52
Group4				

"Standard & Loss" Treatment

	Group1	Group2	Group3	Group4
Group1		0.666	0.802	0.084*
Group2			0.918	0.202
Group3				0.218
Group4				

"Poverty" Treatment

	Group1	Group2	Group3	Group4
Group1		0.452	0.868	0.581
Group2			0.508	0.772
Group3				0.707
Group4				

"Poverty & Loss" Treatment

	Group1	Group2	Group3	Group4
Group1		0.946	0.4	0.39
Group2			0.336	0.263
Group3				0.967
Group4				

Table6: Descriptive Statistics of "Standard" Treatment

Group 1		Group 2		Group 3		Group 4	
Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency
0	5	0	3	0	6	0	4
1	3	1	3	1	5	1	1
1.5	1	2	2	2	1	2	2

---

[16] p-values are reported in the cells

Loss and Other-regarding Preferences: Mutually Exclusive or Exclusively Mutual? Evidence from Loss-Framed Dictator Games

	Group 1		Group 2		Group 3		Group 4	
	3	1	5	7	3	1	5	12
	5	8	7	3	5	7	7	5
	7	2	7.5	8	7	3	7.5	6
	7.5	4	8	2	7.5	2		
	8	2	10	1	8	1		
	9	1	14	1	10	3		
	10	3	15	1	15	1		
	15	1						
Total	31		31		30		30	
Mean	5.2 (34.67%)		5.74 (38.3%)		4.46 (29.7%)		4.83 (32.2%)	
Median	5		7		5		5	
Mode	5		7.5		5		5	
St. Dev.	3.79		3.7		3.9		2.6	
Pooled Sample								
Mean	5.07 (33.8%)							
Median	5							
Mode	5							
St. Dev.	3.52							

Table 7: Descriptive Statistics of "Standard & Loss" treatment

	Group 1		Group 2		Group 3		Group 4	
	Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency
	0	8	0	8	0	10	0	4
	1	5	1	4	1	6	1	6
	2	8	2	8	2	1	2	4
	2.5	7	2.5	5	2.5	5	2.5	8
	3	1	3	2	3	2	3	1
	4	1	4.5	1	5	6	5	7
	5	1	5	3				
Total	31		31		30		30	
Mean	1.6 (32.6%)		1.88 (37.6%)		1.86 (37.2%)		2.4 (48%)	
Median	2		2		1		2.5	
Mode	0		2		0		2.5	
St.Dev	1.27		1.5		1.91		1.69	
Pooled Sample								
Mean	1.94 (38.8%)							
Median	2							
Mode	0							
St.Dev.	1.62							

Table 8: Descriptive Statistics of "Poverty" treatment

Group 1		Group 2		Group 3		Group 4	
Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency
0	1	2	1	1	2	0	1
1	2	3	1	5	3	5	7
5	3	5	6	7	2	7	1
7.5	2	7.5	2	10	12	9	1
8	2	8	1	12	1	10	8
10	7	10	10	15	10	12	3
14	1	12	1			15	9
15	13	15	9				
Total	31		31		30		30
Mean	10.55 (70.33%)		9.84 (65.6%)		10.43 (69.5%)		10.07 (67.1%)
Median	10		10		10		10
Mode	15		10		10		15
St. Dev.	4.79		4.11		4.16		4.24

Pooled Sample

Mean	10.22 (68.1%)
Median	10
Mode	15
St. Dev.	4.29

Table 9: Descriptive Statistics of "Poverty & Loss" treatment

Group 1		Group 2		Group 3		Group 4	
Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency	Donation (Euro)	Frequency
0	3	1	3	0	2	0	1
1	2	1.05	1	1	1	2	1
2	2	2	2	2	3	2.5	2
2.5	1	2.5	2	3	2	3	3
3	3	3	5	3.5	1	4	6
4	4	4	3	4	2	5	17
5	16	5	15	5	19		
Total	31		31		30		30
Mean	3.66 (73.2%)		3.71 (74.2%)		4.04 (80.8%)		4.17 (83.4%)
Median	5		4		5		5
Mode	5		5		5		5
St. Dev.	1.75		1.48		1.54		1.23

Pooled Sample

Mean	3.88 (77.6%)

Median	5
Mode	5
St. Dev.	1.52

Experimental Instructions

Below I provide the Instructions used during the experiment. The survey was distributed to the subjects using "Qualtrics" software. The link appeared in the Amazon Mechanical Turk, in the HIT (Human Intelligence Task) created by me, which redirected the subjects to the survey. I used the instructions by Peer *et al*[17] in order to prevent duplicate responses from the same respondent.

Please note that the order of treatments provided here corresponds to the order in which the survey was distributed to the subjects of the first group. In the other 3 versions, I change the treatment order in the way indicated in Table 1 of the main paper.

\<Page 1>

Firstly we would like to thank you for your participation in this research project. Your answers will be of great help and importance, so please treat to the questionnaire as if you are making a real decision corresponding to your real preferences.

Please note, that there are no correct answers to the questions provided, so we would ask you to reveal your true preferences as if the questions were real, instead of trying to guess what a smart or correct answer could be.

It will take you not more than 15-20 minutes to complete the questionnaire. The aim of the research and what you are supposed to do are introduced in the next sections.

Please click NEXT to continue

\<Page 2>

The aim of the research

We are performing research in order to understand individual decision making in various contexts. The focus of our research project is the re-distributive behavior of individuals when they face losses.

In this context, by re-distributive behavior we mean the voluntary transfer of income, wealth or property from some individuals to the others.

We would like to understand how people behave in such situations, that's why we invite you to be a part of this investigation. Please note, that the answers provided by you will remain completely confidential.

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[17] http://experimentalturk.files.wordpress.com/2009/10/screening-amt-workers-on-qualtrics-peer-paolacci-chandler-mueller6.pdf

<Page 3>

What are you supposed to do?

We give you a hypothetical endowment of 15 Euros.

- You have to divide the money between you and a recipient. You are free to divide your endowment in any way you'd like to. If your preferences are to keep the whole amount for yourself than you can feel free to do so. We will also give you information about the recipient later on
- You are also supposed to answer to the question; "Why do you prefer to split the money in the given way?"Please give us a descriptive response. Such answers as **"Nice", "This is the Best", "I prefer this", "It's Good"** and etc will not be considered as answers and the respondent will not be paid
- We also need information about your age, education, nationality and gender

Please click the NEXT to proceed to the first question.

<Page 4>

"Standard" Treatment (the name of the treatments are not mentioned in the questionnaire)

You are given a hypothetical endowment of **15 Euros**. You are asked to divide the money between you and a recipient. You are completely free to divide the given 15 Euros in the way you'd like to.

Unfortunately we cannot provide you any information about the recipient

In the box below please write the monetary amount you are willing to contribute to the recipient

(Please note that the monetary contribution cannot exceed 15 Euros)

Why did you decide to divide your money in that way?

Please give a precise answer**.**

Such answers as "Nice", "This is the Best", "I prefer this", "It's Good" and etc will not be considered as answers and the respondent will not be paid.

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Notice

From here on we vary the information about the recipient in the remaining questions. Our aim is to understand whether you respond to the change of information, altering your behavior or you stick to your previous decisions. Please note, that there are no correct answers to these questions, hence we again ask you to reveal your true preferences as if the questions were real, instead of trying to guess what a smart or correct answer could be.

<Page 6>

"Standard & Loss" Treatment

You are given a hypothetical endowment of **15 Euros**. You are asked to divide the money between you and a recipient. However, before making the decision of division **you suffer a loss**, as the researcher takes 10 Euros from your endowment *for other unrevealed purposes*. Thus you end-up with **5 Euros**, which you are supposed to divide with the recipient.

However you come to know, that the recipient you are going to send the monetary amount to, **has also suffered a 10 Euro loss similar to yours.** Unfortunately we cannot provide you more information about the recipient.

In the box below write the monetary amount you are willing to contribute

(Please note that the monetary contribution cannot exceed 5 Euros)

Why did you decide to divide your money in that way?

Please give a precise answer**.**

Such answers as "Nice", "This is the Best", "I prefer this", "It's Good" and etc will not be considered as answers and the respondent will not be paid.

<Page 7>

"Poverty" Treatment

You are given a hypothetical endowment of 15 Euros. You are asked to divide the money between you and a recipient. You are completely free, to divide the given 15 Euros in the way you would like to.

You know the following information about the recipient:

The recipient is located in a poor community of a Central African Republic. According to the estimates of the United Nations, representatives of this community live with an income of 99 cents per day and no savings at all. Your monetary contribution will be of great help for these families.

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Had the donation been real, it would have been donated through a famous NGO, hence there would have been no issues connected with trust and corruption.

In the box below please write the monetary amount you are willing to contribute

(Please note that the monetary contribution cannot exceed 15 Euros)

Why did you decide to divide your money in that way?

Please give a precise answer**.**

Such answers as "Nice", "This is the Best", "I prefer this", "It's Good" and etc will not be considered as answers and the respondent will not be paid.

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"Poverty & Loss" Treatment

You are given a hypothetical endowment of **15 Euros**. You are asked to divide the money between you and a recipient. However, before making the decision of division **you suffer a loss**, as the researcher takes 10 Euros from your endowment for other unrevealed purposes. Thus you end-up with **5 Euros**, which you are supposed to divide with the recipient.

 You know the following information about the recipient:

The recipient is located in a poor community of a Central African Republic. According to the estimates of the UN, representatives of this community live with an income of 99 cents per day and no savings.

Moreover, there was a fire in this area, which burnt the huts of many families living in the community. The huts cost 10 Euros, and each person got a debt of **10 Euros** (provided by the community) in order to soften the consequences of the fire. The debt should be returned in 6 months.

Your monetary contribution will be of great help for **the indebted recipient** mentioned in the text.

Had the donation been real, it would have been delivered through a famous NGO, hence there would have been no issues connected with trust and corruption.

In the box below please write the monetary amount you are willing to contribute.
(Please note that the monetary contribution cannot exceed 5 Euros)

Why did you decide to divide your money in that way?

24

Please give a precise answer**.**

Such answers as "Nice", "This is the Best", "I prefer this", "It's Good" and etc will not be considered as answers and the respondent will not be paid.

<Page 9>

Please Indicate your Education

- HighSchool
- Undergraduate
- Graduate
- Post-Graduate

Please indicate your profession if any

Please indicate your age

Please indicate your gender

- Male
- Female

Please indicate your nationality

Have you ever taken part in similar experiments?

- Yes
- No