5-5-2021

# Giving in Dictator Games: Factors of Generosity

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A thesis submitted in partial satisfaction

of the requirements of the University Honors Program

of Loyola Marymount University

by

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**May 5th, 2021**

**Abstract**

Because perceptions of luck, hard work, and the idea of a "me vs. you" mindset often influence people's ideas of fairness, it is important to understand these perceptions and how they can affect giving and support for redistributive policies. To better understand the factors that influence people to give or not give to others, I created two modified dictator games to answer the research questions, "How does the generation of initial allocation in a dictator game affect perceptions of deservingness?" and "How does competitive and cooperative priming affect dictator allocation choices between efficiency and inefficiency?" By varying the way the initial budget is generated (based on chance, effort-based earnings, or a combination) and analyzing participants' dictator allocations and survey responses regarding redistributive preferences and fairness views, I find that the Combination treatment creates a significant increase in giving percentage, a stronger belief in luck affecting poverty and failure, a stronger belief that taxing high-income families is efficient, and support for redistribution and fairness. The Effort treatment surprisingly does not affect the amount given, but produces an increase in the likelihood of giving a nonzero sum and an increased score in the survey efficiency index. By varying a competitive, cooperative, or neutral priming stage before the second dictator game, I find that no effect of these treatments on basic giving and mixed results of these treatments on prioritizing self-interest versus efficiency. The results of this research will provide illumination into the factors affecting how we think about generosity to others, perhaps lending insight into how we may more effectively think about welfare and redistribution programs, but also highlight the factors that need further research and investigation.

# Initial Allocation in a Dictator Game: Factors of Generosity

## Introduction

Economics has long focused on homo economicus, how rational agents will be driven by self-interest to maximize their personal utility. However, as seen in charity and redistribution programs, individuals often are generous to others, acting in ways contrary to pure self-interest. Because perceptions of luck, hard work, and the idea of a "me vs. you" mindset often influence people's ideas of fairness, it is important to understand these perceptions and how they can affect generosity.

When studying generosity, a commonly used tool in experimental economics is the dictator game, because it is a simplistic game that can be easily manipulated to study a variety of social interaction factors. The traditional dictator game consists of two anonymous participants, labeled A and B. Participant A (playing the role of the "dictator") is given a $10 pot, and is asked how they would like to allocate the $10 between A and B, with no restrictions on their allocation decisions (Forsythe et al., 1994). Although self-interest would theoretically predict that individuals would keep all $10 for themselves, and give B $0, there is vast experimental evidence that shows Participant A often gives non-zero amounts, allocating 28.35% of the initial pot to B on average (Engel 2011). Although economics often relies on the idea that self-interest is the main motivator for all individuals, dictator games, along with ultimatum games, power-to-take games, gift-exchange games, and many others have proved to be simplistic, experimental games that challenge the self-interest hypothesis.

Over the last several decades, by experimenting with different variations of each game, it has been found that agents behave very differently depending on the context in these

experimental games. Behavior is influenced by factors like how much money the dictator starts with compared to the recipient, whether or not the other participant reciprocates in kind in following games, whether or not the initial pot is randomly given or earned, and the instructional framing of the game (whether the action is phrased as giving, sharing, or taking money) (Fehr and Schmidt, 2006, Levitt and List, 2007, List 2007). Within the dictator game specifically, it has been shown that an earned starting income generally results in smaller allocations to the other person than an unearned, randomly assigned starting income (Cherry et al, 2002). Relative status comparative to others also affects the amount allocated, sometimes resulting in inefficient allocations if it allows the dictator to relatively remain better off (Charness and Rabin, 2002, Andreoni and Miller, 2002).

Because of the significant variation in behavior occurring from small manipulations in the experimental dictator game, these results invite further investigation into how situational setup and framing can affect a dictator's allocation choices. If certain situational factors are able to explain why an individual chooses to give or not give, this may have significant implications for government redistribution and welfare policies, particularly regarding perceptions of recipient deservingness and choices between inefficient allocations and efficient ones. Intuitively, it makes sense that whether an individual believes that luck determines one's outcome in life, or whether an individual believes hard work determines one's outcomes in life could have an effect on whether the individual believes welfare and distribution programs are fair. Perhaps believing that luck determines one's outcome in life would result in higher support for these programs and higher generosity in a dictator game, while believing hard work determines one's outcomes in life would result in lower support and less generosity. Similarly, it

seems intuitive that if an individual believes that giving more money to welfare and redistribution programs means that there will be fewer benefits for them (a sort of competitive or "me vs. you" mindset), and this will detract from their own personal well-being, they could be less likely to support welfare programs, and if an individual believes that giving money to these programs is beneficial to everyone in society (a mutually beneficial, cooperative mindset), they might be more likely to be in favor of such programs.

I explored these factors and their implications by conducting a two-part experimental lab, answering the following two research questions:

1. How does the generation of initial allocation (luck-generated income, earned income, combination-generated income) in a dictator game affect perceptions of deservingness?
2. How does competitive and cooperative priming affect dictator allocation choices that posit a tradeoff between self-interest and efficiency?

**Research Question 1:**

How does the generation of initial allocation (luck-generated income, earned income, combination-generated income) in a dictator game affect perceptions of deservingness?

**Background**

A large chunk of the literature consistently shows that support for redistribution and giving depends largely on perceptions of recipient "worthiness". Drenik and Perez-Truglia (2018) find survey evidence that individuals are more generous towards the poor who are perceived as diligent workers compared to non-diligent workers, and also tend to prefer social assistance programs with work requirements over unconditional welfare programs. Using a

lab-in-the-field experiment, Candelo et al. (2019) also finds that people are more willing to give higher charitable amounts towards recipients viewed as more "worthy", such as those with disabilities, children, or female heads of households .[1] Furthermore, a general pattern in survey data seems to suggest that one of the greatest predictors of support for redistribution programs is whether or not people perceive effort or luck as playing a more important role in explaining an individual's outcomes (Bowles and Gintis 2000, Fong 2007). If one believes that effort plays a more important role than luck in determining one's outcomes in life, it may result in less support for redistributive programs if it is perceived that the poor are simply poor because of laziness. On the other hand, people may support more redistribution to the poor if poverty is viewed as being caused by bad luck and circumstances the poor cannot control (Fong 2001).

Part of the literature based on redistribution and giving has focused on this aspect, how giving is affected by perceptions of luck and purposeful effort. In typical dictator games, the initial budget to allocate is randomly given by the experimenter. Experimenters have found that when the initial budget is earned by the dictator rather than randomly given, allocations to the recipient decrease significantly, showing an entitlement effect from the earning stage (Cherry et al 2002, Engel 2011, Demiral and Mollerstrom 2020).[2] In studies that involve third party dictators, it has been shown that although luck may play a factor in determining the payoffs of the participants involved, if participants have the option to guard themselves against bad luck (to a certain extent), some third party spectators find it fair to only equalize earnings in favor of

[1] Eckel and Grossman (1996) also find a significant increase in donations in a dictator game when the dictators are told that the recipient is a reputable charity (the American Red Cross), rather than another student in the laboratory.

[2] There is also an "earned property rights" effect documented. Subjects tend to give more to those in a dictator game who have increased aggregate income through their efforts (Fahr and Irlenbusch 2000, Jakiela 2015).

participants who took the agency to guard against bad luck, suggesting that the spectators viewed fair outcomes as dependent on purposeful choices made by the agent. (Cappelen et al 2013, Mollerstrom et al 2015).

To further explore the effects these views of agency (whether or not outcomes are viewed as caused by luck or effort) can have, and whether exposure to either luck or effort induces changes in perceptions of deservingness, I created an experimental design close to that of Jakiela (2015), but while introducing a new intermediate level of agency. In Jakiela's design, participants are assigned to either a Luck or Effort treatment, to determine the initial budget in a dictator game. Under the Luck treatment, subjects roll a die to determine the initial budget. Under the Effort treatment, subjects play a real-effort task and their performance will earn the money in the initial budget. Based on this initial budget, a randomly chosen dictator decides how to allocate the budget with a recipient. I contribute to this literature on giving and redistributive preferences by introducing a third, new treatment, composed of a half-luck, half-effort budget generation, and by studying the effects of these three treatments not only on allocation amounts in the dictator game but also on survey responses regarding redistributive preferences and fairness views. My design, which includes the new half-luck, half-effort treatment and the addition of the survey, is an important contribution because it is unrealistic to assume that outcomes in life are either determined by pure luck or pure effort. Thus, the combination of both as a treatment allows for a more realistic reflection of outcomes in life . The addition of the survey at the end also allows me to study subjects' stated redistributive preferences and fairness views after they have been exposed to the luck, effort, or combination experience in their treatment group, letting me study whether or not exposure to these effects

changes their perceptions of "deservingness" as measured by their support for these preferences, but also expanding my research to be not just limited to allocations made an experimental lab, but to be more applicable and representative of real-life support for redistributive policies.

The motivation behind this work lies in understanding how perceptions of fairness affect people's actions and beliefs. Since fairness views are often context dependent, it is important to understand under what contexts people consider redistribution to be fair, especially for applications in redistributive politics. People's support for welfare and charity programs are motivated strongly by perceptions of deservingness, and to help optimize a better welfare system, it is important to determine policies that will be effective, but also that will be supported by the general public. While Jakiela seeks to find whether or not these luck or effort treatments reflect a respect for one's own and others' property rights in a Kenyan village, I seek to interpret if the 3 variations in luck and effort changes whether each individual views the recipient as "deserving", measured by the amount given in the dictator game and redistributional and fairness preferences in the survey. Based on the pattern seen in previous literature, I expect the effort treatment to result in less giving in the dictator game and a lower support for redistribution than shown in the luck treatment. Based on personal hypothesis, I expect the combination treatment to result in more giving and a higher support for redistribution than the effort or luck treatments. I predict that earnings based on pure effort would likely not create sympathy for those in poverty, and earnings from pure luck seem too simplistic to reflect the real world, but earning through effort and potentially losing half your earnings due to a coin flip may incite the subject to think of outcomes in the world as more circumstantial than just effort, hence generating more sympathy for those in poverty and a higher willingness to give and support redistribution.

**Research Question 2:**

How does competitive and cooperative priming affect dictator allocation choices between efficiency and inefficiency?

**Background**

Relative comparison to others is common and can make individuals less generous, especially when it makes individuals frame things in a competitive sense, as in "whatever I give comes at a loss to myself or my status". Bottan and Ricardo Perez-Truglia (2020) find, for example, that medical students show a preference for living in areas where they are relatively better off compared to the neighborhood, showing that these individuals care about their relative income status. Candelo et al. (2019), conducted an experiment in a low-income minority neighborhood, asking participants to make hypothetical allocations in a dictator game with each of 4 "worthy" recipients. Although subjects stated that they would give "worthier" recipients higher amounts in the hypothetical dictator games, when asked to choose one recipient to actually pay money to, participants consistently choose the least-expensive recipient, so as to maximize their own payoffs. Another paper found that in a multiplayer dictator game, where participants initially earn their starting incomes, ranking affects how much each participant is willing to give, where subjects who rank highest are much less likely to be generous with their allocations than those who placed second (Erkal et al 2011). These papers seem to suggest that relative comparison to others, which is often framed in a competitive sense (a me vs. you mindset), can have a significant effect on the resulting allocation choices and decisions people

make. Intuitively, this makes sense; people want to help others, but only if they can still preserve their relative rank.

On the other hand, cooperation may have an opposite effect on an individual's generosity. It has been found that subjects tend to allocate more to the other person if it is known that the other increased the overall shared budget through their efforts (Farh and Irlenbusch 2000). Bowles and Gintis (2000) suggest that people often act in accordance with concepts of reciprocity, where individuals show "a propensity to cooperate and share with others similarly disposed, even at personal cost".

What is further interesting, however, is not simply that social contexts may affect the amounts allocated, but also specifically affect whether or not an efficient choice is made. Jakiela and Ozier (2015) find that women feel a social pressure to share their income with kin, and so are willing to reduce their payoffs (and potential valuable investment opportunities) to hide their income from others. Another paper finds that dictators, between choosing to play a $10 dictator game with a recipient, or quietly exiting the experiment with $9 (so the recipient received $0 and never found out that a dictator game would have been played), a significant portion (40%) chose to quietly exit, even though a more efficient choice would have been to either keep or split the $10 between the two of them (Dana et al 2006).

This reveals the main motivations behind my experiment. I am interested in finding whether or not priming people to think competitively or cooperatively firstly has an effect on their dictator game allocations. To my knowledge, this is an experiment that has not been done before. However, I am also interested in finding the efficiency implications of these competitive and cooperative mindsets (whether people are more willing to choose a self-interest option over

an efficient option if they are competitively primed, and vice versa if they are cooperatively primed). This has significant implications for redistributive policies, if individuals consistently favor inefficient policies because they continually prioritize self-interest from competitive thinking. In Kuziemko et al (2013), the authors survey participants and find that last-place aversion is a significant factor in people's policy support. They find, incredibly, that support for a minimum wage increase is *lowest* among people who are just above the minimum wage line, and hypothesize that this is because those individuals realize that if the minimum wage is increased, they will be then be considered the lowest earning tier of society, while if the minimum wage is kept the same, they will be a tier above the lowest earning tier of society. Support for policies such as these could lead to great inefficiency if people are more concerned with their relative ranking than the overall health of society.

Since literature shows that relative comparison and working together with a shared earned budget can affect generosity, I hypothesize that priming participants to think competitively would decrease the amounts they are willing to share in a following dictator game and priming participants to think cooperatively would increase the amounts they are willing to share. Because studies also show evidence of last-place aversion, I hypothesize that competitive priming will further reinforce this last-place aversion, making subjects more likely to choose an inefficient but self-interested outcome in a limited choice dictator game (compared to the neutral treatment), and cooperative priming will reduce this last-place aversion, making subjects more likely to choose efficiency in a limited choice dictator game, even at the cost of their self-interest (compared to the neutral treatment).

**Methodology**

To answer both research questions, I carried out an online laboratory experiment. The subject pool consisted of 108 undergraduate and graduate students from Loyola Marymount University. Subjects were recruited via email through the LMU Economics Department's student emailing list and registered for experimental sessions on ORSEE. Students received a $10 show-up fee, and were paid additionally according to the decisions made in the experiment. Sessions were run over Zoom, where subjects logged on, were told to turn off their camera and hide their name for privacy purposes, and were read instructions by the experimenters. After reading instructions, subjects were provided with a Qualtrics link, which they used to submit their responses for the experiment. Subjects were paid between $10 and $35 for an hour of their time. There were 4 stages of the experiment. Subjects were paid for their performance in a word-fill task stage, and subjects were paid for the decisions made in one additional randomly selected stage.

To answer whether effort, luck, or a combination affected "perceptions of deservingness" (Research Question #1), subjects were told that they had been paired with an anonymous partner from that session. Subjects were randomly assigned to a luck, effort, or combination treatment. In the Luck treatment, subjects were told that they would roll a virtual 20-sided die, and the number they rolled would be their starting dollar amount (for example, rolling an 8 means the starting budget would be $8). In the Effort treatment, subjects were asked to play a counting-zeros task, and were told that they would earn $1 for every problem they solved correctly.[3] In the Combination treatment, subjects were asked to play a counting-zeros task,

[3] In the counting zeros task, subjects are presented with grids of 0s and 1s and need to count the number of 0s in as many grids as possible. (Abeler et al., 2011).

where they earned $1 for each problem solved correctly. However, they were then told to flip a virtual coin. If the coin landed on heads, the subject's initial budget was how much they had earned in the counting-zeros task. If the coin landed on tails, the subject's budget would be half of what they had earned in the counting-zeros task[4]. Potential budgets for all three treatments ranged from $1 to $20. In order to ensure comprehension, subject understanding is measured by asking subjects to answer 5 comprehension questions after reading their respective treatment instructions. If subjects do not correctly answer a comprehension question, the screen displays the correct answer to them before they move on. On average, subjects answered 4 or more of these questions correctly, indicating a reasonable comprehension level.

Subjects in all treatments first indicated how much they would like to allocate the budget between them and their partner for all potential whole dollar budget sizes from $1 to $20. Subjects then proceeded to their respective budget generation methods (rolling a die, counting zeros, or counting zeros and flipping a coin) to establish the actual budget size. One subject from each pair of partners was selected for potential payment (only this selected subject's budget and allocation choice would matter for payouts if this experimental stage was randomly selected for payment). Following the budget generation, subjects were asked to complete a questionnaire that collected demographic information and their responses regarding redistributional preferences and fairness views.[5] These questions were consolidated into 5 indexes which were

[4] The Combination Treatment is intended to reflect the reality that it is often a combination of luck and effort that affects the amount real-life earnings one receives (similar to the luck design in Erkal et al 2011).

[5] Examples include Likert scale questions like:

- "There is plenty of opportunity in America today. Anyone who works hard can go as far as he or she wants." (Strongly disagree… Strongly agree)
- "Welfare makes people work less than they would if there wasn't a welfare system." (Strongly disagree… Strongly agree)
- "If children from poor and rich backgrounds have unequal opportunities in life, do you think this is: " (Not a problem at all...A very serious problem)

treated as the dependent variables in my analysis: a belief in the causes of poverty and failure index, a support for redistribution index, a fairness index, an efficiency index, and a government trust index.[6] There was one unrelated attention check question embedded in the survey to make sure subjects were carefully reading the instructions and thoughtfully answering the survey questions; all but one subject correctly answered the attention check question.

To answer whether competitive, neutral, or cooperative priming affected dictator allocations and the choices made between self-interest and efficiency (Research Question #2), subjects were first primed, following a similar procedure to that of Mago & Pate (2021). In this priming stage, subjects were randomly assigned to a competitive, cooperative, or neutral treatment (seperate from the treatment assignment of Research Question #1). Subjects in the competitive and cooperative treatments were told they had been randomly and anonymously assigned a partner from the same session. All subjects were asked to perform a series of unscrambling problems where they were asked to unscramble 5 words, dropping one word, to make a coherent sentence with the remaining 4 words.[7] In the Competitive treatment, subjects were told that the person who unscrambled the most problems out of them and their partner would be paid $15 if this stage was selected for payment, and the other would receive $0. In the Cooperative treatment, subjects were told that if both unscrambled at least 7 problems correctly, both people in the pair would receive $15 if this stage was selected for payment, and $0 each if this was not achieved. In the Neutral treatment, subjects were told that they would be paid $1.50 for each problem they unscrambled correctly if this stage was selected for payment.

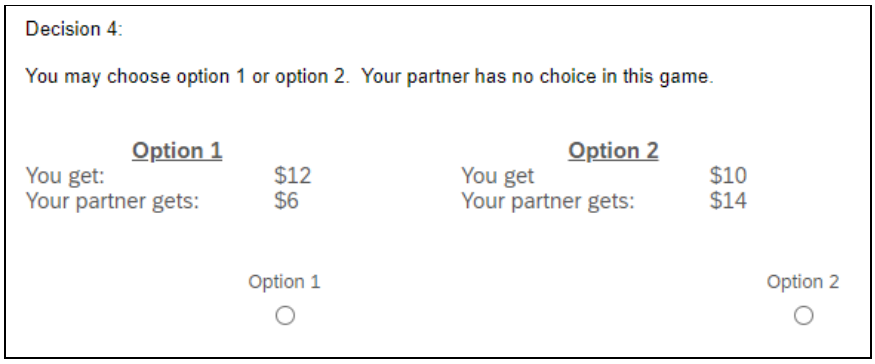
[6] See the construction and definition of each index in the appendix
[7] For example, the words “job need food I the” can be unscrambled to read “I need the job” (removing the word “food”)

Additionally, the sentences subjects were asked to unscramble varied by treatment. For example, competitive subjects unscrambled sentences like “Survival of the fittest” and “First place wins gold”. Cooperative subjects unscrambled sentences like “Pursue the common good”, while neutral subjects unscrambled sentences like “The sky is blue”.

I checked whether subjects had been adequately primed by having all subjects complete the same word-fill task. Subjects were asked to complete 10 words shown like “l e a _ ”, which could be filled in as “lead”, or “lean”, or “lead”, which I coded as competitive, cooperative, and neutral answers respectively.

Following the word-fill task, subjects proceeded to the dictator game and were given a new anonymous partner. All subjects were asked to allocate $15 between them and their partner as their first allocation decision. All subjects then indicated their choices in 8 more limited choice dictator game decisions. These following 8 dictator games builds off of the efficiency vs self-interest treatment design in Charness and Rabin (2002), but I simplify the analysis to indicate whether the subject made a decision that was primarily efficient, self-interested, or motivated by wanting to earn more relative to their partner. These 8 dictator games gave only two allocation options, with each question juxtaposing different pairings of these three qualities. Here I define efficiency to mean that the sum of the payoffs for the pair is maximized. Self-interest is defined as maximizing one’s own absolute earnings, regardless of their partner’s earnings. Being concerned with relative payoffs means that subjects prioritize the option that allows them to earn more than their partner, even if this means their absolute earnings are decreased compared to the other option. Subjects were told that if this stage was selected for payment, one person from each partner pairing would be selected, and then one of their 9

decisions would be randomly selected and implemented for payment. An example of one of the limited-choice dictator games is as follows:




One dominated-choice attention check decision was embedded in the questions, where subjects were asked to choose between $16 for them and $16 for their partner, or $8 for them and $8 for their partner. All subjects answered the expected ($16,$16) option, confirming subjects were paying attention and understood that these decisions could affect their potential payouts. At the end of each experimental session, subjects were informed which additional stage was selected for payment, were informed of their earnings, and were paid through Venmo within 24 hours of the conclusion of the experiment.

## Results

### Research Question 1 (effect of luck/effort/combination on giving and on survey responses):

To first observe the data, I plotted a bar chart of the average percentage given by each decision amount and treatment. Looking qualitatively at the bar charts in Fig.1, the only noticeable difference is a slight downwards trend in giving as the budget amount increases in the Luck treatment, compared to the Combination and Effort treatments.

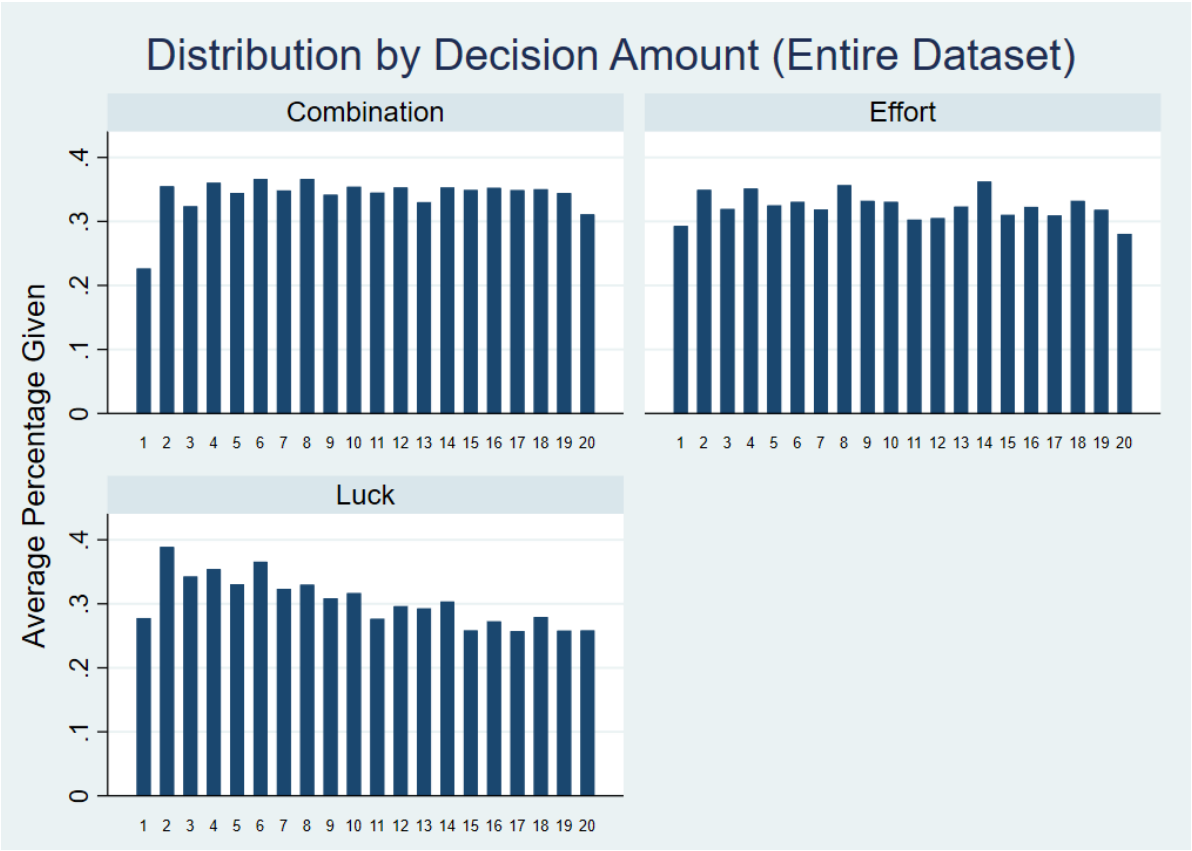



Fig. 1

Noticing also that several subjects mentioned that the dollar amount of the budget mattered for their allocation decisions in their text explanations for their decisions, I coded a binary variable, cutoff, that equals 0 if the subject did not mention any cutoff and equals 1 if the subject mentioned that their decision-making for allocating changed in some way as the amount of money in the budget changed (since subjects were asked to make decisions for all potential budget sizes from $1 to $20). There were 23 subjects in total that mentioned this "cutoff" as a factor in their decision-making. I plotted the same bar charts again, but only with this subset of data where cutoff equaled 1, shown below.

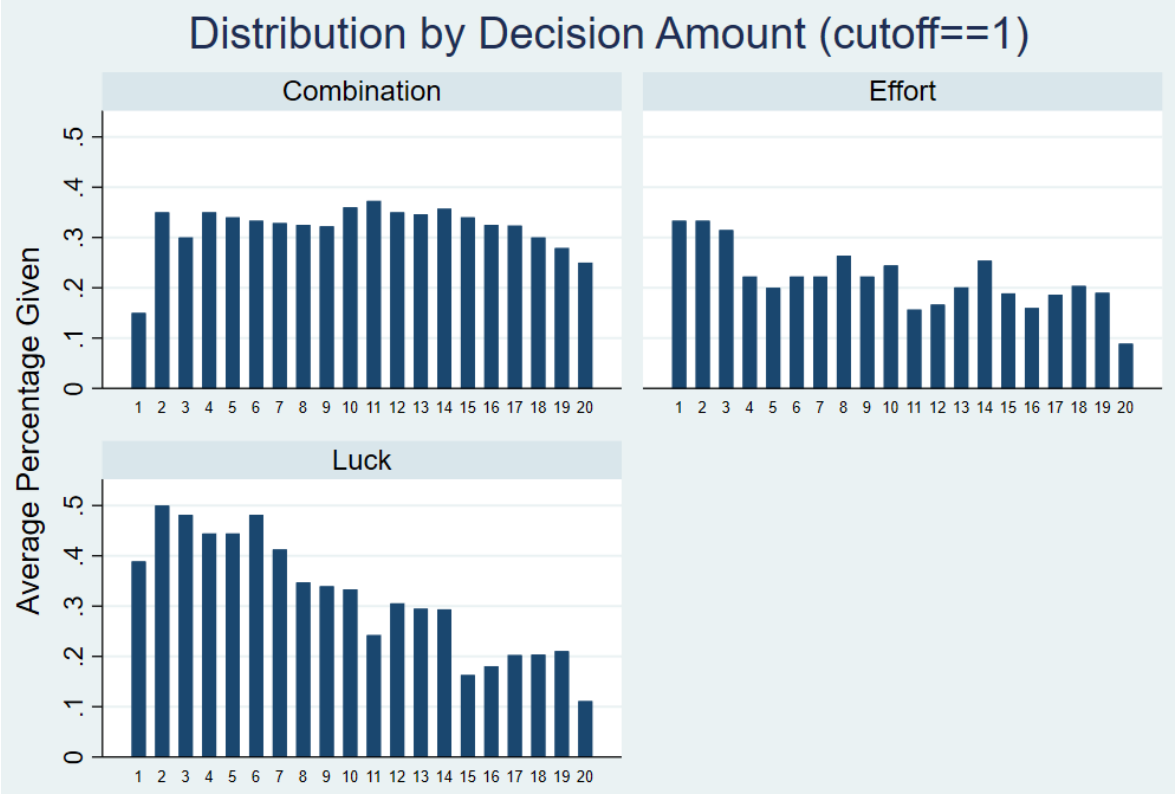



Fig. 2

Interestingly, while all treatments indicate a decrease in giving towards the highest budget amounts, the trend is much more pronounced in the Effort and Luck treatments than in the Combination treatments, which I explore in a later regression.

I first perform a simple linear regression of percentage of budget given on treatment, adding controls for the size of the budget (Decision Amount controls) and controls for gender and race. I included all regressions with controls in Table 1 for completeness, but will focus on regression (2) due to my low estimating power when including additional controls for gender and race. In (2), we can see that although the Effort treatment has no statistically or economically significant effect on giving, the Combination treatment significantly increases giving at the 1%

significance level. The size of this effect is 14.8% of the mean giving for the Luck treatment, which is an economically significant effect.

Table 1

| VARIABLES | (1) % Given | (2) % Given | (3) % Given | (4) % Given | (5) % Given |
|---|---|---|---|---|---|
| Combination | 0.0366*** | 0.0366*** | 0.0276** | 0.0231** | 0.0171 |
| | (0.0117) | (0.0116) | (0.0118) | (0.0114) | (0.0117) |
| Effort | 0.0191 | 0.0191 | 0.0206* | 0.0123 | 0.0157 |
| | (0.0121) | (0.0121) | (0.0120) | (0.0118) | (0.0119) |
| Constant | 0.305*** | 0.247*** | 0.307*** | 0.276*** | 0.324*** |
| | (0.00894) | (0.0281) | (0.0285) | (0.0282) | (0.0286) |
| Observations | 2,160 | 2,160 | 2,160 | 2,160 | 2,160 |
| R-squared | 0.005 | 0.016 | 0.118 | 0.033 | 0.129 |
| Controls for Decision Amount | | YES | YES | YES | YES |
| Gender | | | | YES | YES |
| Race | | | YES | | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The result regarding the Effort treatment contradicts my earlier prediction, given that effort-based budgets did not decrease amounts given in the dictator game, and seems to have no significant difference from the Luck treatment. This is surprising given previous literature that has found significant decreases in giving when comparing Effort to Luck treatments. However, the Combination treatment aligns with my earlier hypothesis, resulting in significantly more giving than the Luck treatment.

I then perform the same regressions, but using my survey indices as my dependent variables. My 5 survey indices can be interpreted as follows:

1. Belief in causes of poverty/failure index:
    a. 0 indicates a belief that luck is the biggest cause of poverty/failure, 1 indicates a belief that lack of effort is the biggest cause of poverty/failure
2. Support for redistribution index:
    a. 0 indicates subject does not support redistribution, 1 indicates strong support for redistribution
3. Fairness index:

   a. 0 indicates subject views income and/or effort inequalities among society as acceptable, 1 indicates that subject views these inequalities as unacceptable
4. Efficiency index:
   a. 0 indicates a belief that increasing taxes on high income individuals would not be efficient for society, 1 indicates a belief that this would be efficient for society
5. GovTrust index:
   a. 0 indicates a lack of trust in the government to do "what is right", indicates a strong level of trust in the government to do "what is right"

Similarly, I focus on my regressions without race and gender controls due to low estimating power, but these expanded tables are included in the appendix.

Table 2

| VARIABLES | (1) Beliefs score | (2) Redistribution score | (3) Fairness score | (4) Efficiency score | (5) Gov. Trust score |
|---|---|---|---|---|---|
| Combination | -0.114*** | 0.0741* | 0.102*** | 0.264*** | -0.0648 |
| | (0.0370) | (0.0409) | (0.0385) | (0.0933) | (0.0402) |
| Effort | -0.0595 | 0.0301 | 0.0486 | 0.208** | -0.0185 |
| | (0.0383) | (0.0436) | (0.0392) | (0.100) | (0.0395) |
| Constant | 0.378*** | 0.738*** | 0.720*** | 0.556*** | 0.361*** |
| | (0.0278) | (0.0274) | (0.0294) | (0.0712) | (0.0308) |
| Observations | 108 | 108 | 108 | 108 | 108 |
| R-squared | 0.083 | 0.027 | 0.064 | 0.075 | 0.028 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Looking at Table 2, we can see that the Effort treatment does not have a statistically significant effect on any survey indices except efficiency, where effort increases the likelihood of subjects to view taxes on high income individuals as efficient for society, with an effect size of 37% of the Luck treatment efficiency score mean. The Combination treatment seems to have a significant effect on nearly all survey indices in the intuitive directions. For example, the Combination treatment reflects more belief that luck can be a cause of poverty and failure than the Luck treatment, at the 1% significance level, which is an effect size measuring 30% decrease of the

Luck treatment beliefs score mean. Similarly, Combination subjects are marginally more likely to support redistribution, significantly more likely to think income and effort inequalities are unacceptable, and significantly more likely to think that taxing high-income individuals would be efficient for society, compared to Luck subjects. The increased efficiency score for Effort subjects was unexpected, given that I would have expected an entitlement effect for wanting to keep effort-based earnings and given that most of the subject's demographics reported that subjects were from families with above average incomes (which I would have assumed would lead to an aversion to taxing high-income families). However, the effect of Combination on the survey indices was as predicted (with the caveat that increased support for redistribution being only marginally significant rather than very significant).

After examining these results, I additionally regressed each survey index on the percentage given in the dictator game. Since my survey was added to the experimental design to provide more concrete applicability to the real world (by investigating whether subjects reflected more support for certain redistributive policies), this was an intriguing question to establish whether the allocations made in the dictator game matched the stated views in the survey (i.e. if allocations made in an experimental lab were predictive of how subjects' generosity, views of deservingness, or support for policies in the real world).

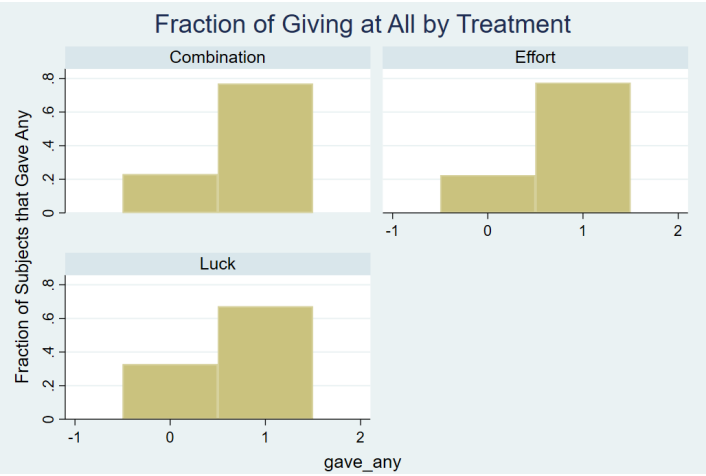
Table 3

| VARIABLES | (1) Beliefs score | (2) Redistribution score | (3) Fairness score | (4) Efficiency score | (5) Gov. Trust score |
|---|---|---|---|---|---|
| Average % given | -0.216** | 0.314*** | 0.254*** | 0.509** | 0.0291 |
| | (0.0862) | (0.0996) | (0.0855) | (0.237) | (0.102) |
| Constant | 0.390*** | 0.672*** | 0.688*** | 0.549*** | 0.324*** |
| | (0.0328) | (0.0407) | (0.0327) | (0.0920) | (0.0397) |
| Observations | 108 | 108 | 108 | 108 | 108 |
| R-squared | 0.062 | 0.102 | 0.084 | 0.053 | 0.001 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Table 3, we find that the average percentage given in a dictator game does indeed predict responses to most survey indices at a significant level. A higher average percentage given predicts more belief that luck causes poverty and failure, more support for redistribution, a stronger view that inequalities are unacceptable, and a stronger belief that taxing high-income individuals is efficient for society. These results are also large economic effects, with the smallest effect size (the increase in fairness score) being a 36.9% of the mean score of subjects who gave 0% on average. As dictator games are a commonly used tool in economics to study generosity in the lab, this is an important finding to reinforce the external validity of dictator games. Although there are many differences between a tightly controlled laboratory experiment and the real world, dictator game decisions are at least predictive of subjects' stated responses regarding support for potential real-world policies.

Another analysis seeks to investigate whether treatment increases the likelihood that a dictator gives at all, rather than by increasing the amount given. I created a binary variable called "gave_any", coded as 1 for a dictator who gave more than 0%, and coded as 0 for a dictator who gave 0%. Visualizing first the fraction of subjects that gave any nonzero amount by treatment, we get the following histogram.



There appears to be more subjects who give a nonzero amount in the Combination and Effort treatments compared to the Luck treatment. Regressing my binary variable give_any on treatment, I find the following.

Table 4

| VARIABLES | (1) Gave any | (2) Gave any | (3) Gave any | (4) Gave any | (5) Gave any |
|---|---|---|---|---|---|
| Combination | 0.0972*** | 0.0972*** | 0.0717*** | 0.0567** | 0.0376 |
| | (0.0235) | (0.0235) | (0.0238) | (0.0226) | (0.0232) |
| Effort | 0.103*** | 0.103*** | 0.109*** | 0.0825*** | 0.0934*** |
| | (0.0234) | (0.0234) | (0.0234) | (0.0225) | (0.0227) |
| Constant | 0.672*** | 0.452*** | 0.566*** | 0.538*** | 0.620*** |
| | (0.0175) | (0.0504) | (0.0517) | (0.0505) | (0.0521) |
| Observations | 2,160 | 2,160 | 2,160 | 2,160 | 2,160 |
| R-squared | 0.012 | 0.027 | 0.123 | 0.065 | 0.152 |
| Controls for Decision Amount | | YES | YES | YES | YES |
| Gender | | | | YES | YES |
| Race | | | YES | | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Again, highlighting regression (2) (without controls for race and gender), it appears as though the Effort treatment makes subjects 10.3% more likely to give a nonzero amount (a 22.8% effect size compared to the Luck mean), and the Combination treatment makes subjects 9.7% more likely to give a nonzero amount (a 21.5% effect size compared to the Luck mean), than the Luck treatments. These are both significant effects at the 1% significance level, and ones I would judge as economically significant, since both effect sizes are above 20%. Here, the Combination treatment simply reflects consistency with our earlier results (that Combination makes dictators either give more or are more likely to give a nonzero amount), but surprisingly, Effort actually makes subjects *more* likely to give a nonzero amount than Luck, which is the opposite of the expected direction, since Effort did not significantly increase the percentage of giving in my

earlier regression and since previous literature predicts that effort-based budgets make dictators less generous than luck-based budgets.

A last analysis seeks to explain the trend shown in Fig. 2, where Luck and Effort both have a downward trend compared to Combination, in average percentage given as the decision amounts increase (with Luck having the most pronounced downward trend). Running an interaction regression, where decision amount interacts with the treatment category, I find the following results shown in Table 5.

Table 5

| VARIABLES | (1) % Given | (2) % Given | (3) % Given | (4) % Given |
|---|---|---|---|---|
| Combination | -0.198*** | -0.211*** | -0.165*** | -0.150** |
| | (0.0587) | (0.0560) | (0.0624) | (0.0608) |
| Effort | -0.213*** | -0.196*** | -0.197*** | -0.169*** |
| | (0.0612) | (0.0607) | (0.0597) | (0.0574) |
| Decision Amount | -0.0185*** | -0.0185*** | -0.0185*** | -0.0185*** |
| | (0.00310) | (0.00281) | (0.00311) | (0.00286) |
| Combination x Decision Amount | 0.0190*** | 0.0190*** | 0.0190*** | 0.0190*** |
| | (0.00463) | (0.00400) | (0.00475) | (0.00421) |
| Effort x Decision Amount | 0.0107** | 0.0107** | 0.0107** | 0.0107** |
| | (0.00454) | (0.00430) | (0.00448) | (0.00415) |
| Constant | 0.513*** | 0.496*** | 0.465*** | 0.377*** |
| | (0.0406) | (0.0508) | (0.0409) | (0.0535) |
| Observations | 460 | 460 | 460 | 460 |
| R-squared | 0.135 | 0.282 | 0.155 | 0.328 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Focusing on regression (1), I find that the different treatments firstly have significantly different intercepts, with the average percentage given for a $1 budget in the Luck treatment being 51.3%, but 31.5% in the Combination treatment and 30% in the Effort treatment. Additionally, the effect on percentage given as decision amount increases is different by treatment. For the Luck treatment, as decision amounts increase by $1, the percentage given decreases by 1.85

percentage points. This effect is significant at the 1% significance level. However for the Combination treatment and Effort treatments, there is an additional effect of increasing the percentage given by 0.05%, and decreasing the percentage given by 0.78%, respectively. Running a t-test to see if these overall slopes are significantly different from zero, I find that the effect of decision amount on percentage given for the Effort treatment is significant at the 5% significance level, but is not significant for the Combination treatment.

```
.         test g1decision_amount+comboInteraction =0

 ( 1)  g1decision_amount + comboInteraction = 0

       F(  1,    454) =    0.02
            Prob > F =    0.8877

.         test g1decision_amount+effortInteraction =0

 ( 1)  g1decision_amount + effortInteraction = 0

       F(  1,    454) =    5.44
            Prob > F =    0.0201
```

**Research Question 2 (effect of competitive/cooperative priming on dictator game choices between self-interest and efficiency):**

To first ensure my priming was sufficient for each treatment, I coded a competitive and cooperative score for each subject based on their responses to the word-fill task (filling in the word blanks with “competitive” words increased their competitive score by 1, and “cooperative” responses increased the cooperative score). I then regressed each score on treatment (which were neutral, competitive, or cooperative for this research question). My results are displayed in Table 6. I find that the Competitive treatment significantly increases the competitive score at the and decreases the cooperative score at the 1% level, indicating that competitive subjects were properly primed. However, the Cooperative treatment fails to cause any significant changes in

the competitive and cooperative scores, leaving pause as to whether these subjects were adequately primed.

Table 6 – Priming Check

| VARIABLES | (1) Competitive score | (2) Cooperative score |
|---|---|---|
| Competitive | 0.656*** | -1.180*** |
| | (0.226) | (0.295) |
| Cooperative | -0.0216 | -0.134 |
| | (0.247) | (0.355) |
| Constant (Neutral Treatment) | 1.400*** | 3.486*** |
| | (0.170) | (0.218) |
| Observations | 108 | 108 |
| R-squared | 0.092 | 0.124 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

I begin my regression analysis of the results by first regressing the basic dictator game question on treatment (given $15, how percentage did subjects choose to allocate to their partner?), to see if competitive or cooperative treatments had any effect on basic generosity levels. I find no significant effect of either the Competitive or Cooperative treatment on the percentage given by the dictator.

Table 7 – Basic Giving

| VARIABLES | (1) % Given | (2) % Given | (3) % Given | (4) % Given |
|---|---|---|---|---|
| Competitive | -0.0615 | -0.0716 | -0.0698 | -0.0799 |
| | (0.0496) | (0.0528) | (0.0463) | (0.0506) |
| Cooperative | -0.00533 | -0.00575 | -0.0213 | -0.0190 |
| | (0.0467) | (0.0493) | (0.0457) | (0.0486) |
| Constant | 0.349*** | 0.430*** | 0.401*** | 0.462*** |
| | (0.0328) | (0.0446) | (0.0318) | (0.0485) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.018 | 0.145 | 0.098 | 0.206 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

.

My main research question revolved around analyzing whether Competitive vs Cooperative treatments make subjects more likely to choose dictator game options that were primarily efficient, self-interested, or motivated by wanting to earn more relative to their partner, when faced with limited choice dictator games that juxtapose different pairings of these three priorities. Utilizing the simple social preferences model and theory put forth in Charness and Rabin (2002), I coded each response to indicate its alignment with efficient preferences, self-interested preferences, or relative payoff motivations as predicted by their model. Note that efficiency is defined as maximizing the sum of the payoffs for the pair. Self-interest is defined as maximizing one's own absolute earnings, regardless of their partner's earnings. Being concerned with relative payoffs (which I term as the variable "More than partner") means that subjects prioritize the option that allows them to earn more than their partner, even if this means their absolute earnings are decreased compared to the other option.[8]

[8] For example, let Option 1 indicate $4 for yourself and $16 for your partner and Option 2 indicate $0 for each of you. Choosing Option 1 would prioritize your self-interest and the group's efficiency, since you choose to maximize your absolute earnings regardless of your partner's earnings and you chose the option that maximized the pair's payoffs. However, choosing Option 2 would prioritize your relative standing, since you would receive an equal payoff to your partner, compared to Option 1 where you would receive a payoff that was smaller than your partner's.

After coding each decision and flagging each subject's decisions as indicating efficiency, self-interest, or relative-payoff motivations for each of the 8 limited choice dictator games, I ran 3 regressions analyzing how treatment affected which of these 3 priorities subjects were likely to focus on when making decisions . I analyzed treatment's effect on priorities in pairs, since the limited choice dictator games only offered 2 choices, and so only presented two conflicting priorities at a time. For my first regression, I focused on whether treatment made subjects more likely to make efficient choices or self-interested choices. I created a binary variable called typeEorS, which was coded as a 0 for subjects that more often chose efficient choices, and coded as a 1 for subjects that more often chose self-interested choices. I regressed this typeEorS binary variable on treatment, and reported my results in Table 8. For my second regression, I focused on whether treatment made subjects more likely to make efficient choices or relative-payoff-motivated choices. I created a binary variable called typeEorM, which was coded as a 0 for subjects that more often chose efficient choices, and coded as a 1 for subjects that more often chose choices that ensured earnings greater than or equal to that of their partner's. I regressed this typeEorM binary variable on treatment, and reported my results in Table 9. For my third regression, I focused on whether treatment made subjects more likely to make relative-payoff-motivated or self-interested choices. I created a binary variable called typeMorS, which was coded as a 0 for subjects that more often chose choices that ensured earnings greater than or equal to that of their partner's, and coded as a 1 for subjects that more often chose self-interested choices. I regressed this typeMorS binary variable on treatment, and reported my results in Table 10.

Table 8 – Efficient vs. Self-interested person
(0 = Efficient, 1 = Self-interest)

| VARIABLES | (1) E or S | (2) E or S | (3) E or S | (4) E or S |
|---|---|---|---|---|
| Competitive | -0.0302 | -0.0155 | -0.0328 | -0.0183 |
| | (0.0617) | (0.0687) | (0.0612) | (0.0679) |
| Cooperative | 0.185** | 0.214** | 0.179** | 0.209** |
| | (0.0882) | (0.0955) | (0.0895) | (0.0965) |
| Constant | 0.0857* | 0.127 | 0.103* | 0.138 |
| | (0.0480) | (0.110) | (0.0577) | (0.113) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.076 | 0.129 | 0.079 | 0.131 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9 – Efficient vs. More than Partner person
(0 = Efficient, 1 = More than Partner)

| VARIABLES | (1) E or M | (2) E or M | (3) E or M | (4) E or M |
|---|---|---|---|---|
| Competitive | -0.0857* | -0.0741 | -0.0854* | -0.0724 |
| | (0.0480) | (0.0530) | (0.0487) | (0.0532) |
| Cooperative | -0.0317 | -0.0185 | -0.0310 | -0.0159 |
| | (0.0610) | (0.0641) | (0.0631) | (0.0655) |
| Constant | 0.0857* | 0.0967 | 0.0836 | 0.0904 |
| | (0.0480) | (0.0863) | (0.0543) | (0.0904) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.028 | 0.113 | 0.028 | 0.115 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10 – More than Partner vs. Self-interest person
(0 = More than Partner, 1 = Self-interest)

| VARIABLES | (1) M or S | (2) M or S | (3) M or S | (4) M or S |
|---|---|---|---|---|
| Competitive | 0.115* | 0.0902 | 0.117* | 0.0882 |
| | (0.0661) | (0.0761) | (0.0662) | (0.0753) |
| Cooperative | 0.0347 | 0.0505 | 0.0384 | 0.0475 |
| | (0.0792) | (0.0716) | (0.0799) | (0.0720) |
| Constant | 0.857*** | 0.888*** | 0.845*** | 0.895*** |
| | (0.0600) | (0.0915) | (0.0657) | (0.0935) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.027 | 0.294 | 0.030 | 0.296 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As hypothesized earlier, I had expected to find that a Competitive treatment would make subjects more likely to be a self-interested person, rather than an efficient person. I predicted that a Cooperative treatment would make subjects more likely to be efficient. Focusing on regression (1) in Table 8, I find the Competitive treatment has no significant effect on making a person more likely to be primarily motivated by efficiency or self-interest. However, the direction of the coefficient is negative, implying that competitively primed subjects are more likely to be efficient, and although this coefficient is not statistically significant, this could be due to low estimating power, since this coefficient *is* an effect size equal to 35% of the control group mean. Interestingly, the Cooperative treatment makes subjects significantly more likely to be

self-interested, at the 5% significance level, at an enormous economic significance. Both of these estimates are very surprising, since both are in the opposite of the predicted directions. I had also predicted that Competitive treatments would cause subjects to focus more on relative standing, and Cooperative treatments would cause subjects to focus more on efficiency, and in Table 9, I find that Competitive treatments make subjects more likely to be efficient at a marginal significance level. I also find that Cooperative treatments, while not statistically significant, make subjects also more likely to be efficient, with an effect size of 37% of the control mean. Lastly, in Table 10, I find that Competitive treatments influence subjects to be more focused on their absolute take-home, rather than their relative standing, at a marginal significance level, but find no effect of Cooperative treatment on the focus between relative and absolute monetary maximization. Combined, these three tables provide mixed results. The Competitive treatment seems to consistently move subjects in the direction of efficiency, but are more focused on prioritizing self-interest (or maximizing absolute take-home) when compared to relative standing. The Cooperative treatment moves subjects towards different focuses, but shows a lack of focus on relative standing. These results encourage further investigation to better explain these surprising findings, but also provide a key insight: given the differing priorities shown from the different tables, the results show that subjects perceive and prioritize absolute payoffs differently than relative payoffs. Since there was a consistent lack of prioritization on relative payoffs, these results are contrary to the expectations I gathered from previous literature, where relative standing had influential effects on subjects' decision making.

## Discussion

Ultimately, the research conducted seeks to answer two questions: “How does the generation of initial allocation (luck-generated income, earned income, combination-generated income) in a dictator game affect perceptions of deservingness?” and “How does competitive and cooperative priming affect dictator allocation choices between efficiency and inefficiency?” By conducting an online laboratory experiment utilizing two modified dictator games and analyzing the following data, I have found that while the Effort treatment generally has little effect on giving amount and survey responses (in contradiction to predictions from previous literature), the Combination treatment significantly increases giving and shifts responses on most survey indices in the expected directions, suggesting that subjects are accommodating for luck playing a larger role in life outcomes than before experiencing the Combination treatment in their answers. Unexpectedly, although the Effort treatment does not have an effect on the percentage given in a dictator game, the Effort treatment shows a large and significant increase in the likelihood to give some nonzero sum.

I speculate that the Combination treatment significantly increases giving and support for fairness because the world is a place where your outcomes are determined by a combination of effort and circumstance, but sometimes this is easy to forget. Therefore, the Combination treatment, blatantly presenting the potential to lose half of your effort-based earnings through a coin-flip, reminds subjects of the fact that outcomes are partially determined by effort but partially by luck as well, making subjects more sympathetic to the idea of other subjects perhaps suffering an unlucky outcome and increasing overall generosity. On the other hand, I speculate that my results for the Effort treatment were not as expected (contrary to previous literature, my results showed no significant effect on percentage given, whereas previous literature showed

decreased generosity compared to the luck treatment) because subjects may have thought the real-effort counting-zeros task was very difficult. Some subjects mentioned in their qualitative explanations that the counting-zeros task was harder than they had anticipated. If I had unintentionally made the counting-zeros task more difficult than should be reasonably expected, then subjects in the Effort treatment might expect other subjects in the Effort treatment to not earn very much, leading Effort subjects to be much more likely to give some nonzero amount, in order to help out their partner if they had earned very little due to the difficulty of the counting-zeros task. However, effort-based earnings often also create an entitlement effect, and so effort subjects may be less likely to give a large percentage of their earnings. These two opposing effects may explain the results we see here, why Effort subjects may be more likely to give a nonzero amount (a slight positive effect on minimal generosity out of sympathy for the difficulty of the Effort task), but not a significantly different percentage of giving (due to the negative effect from the entitlement effect).

Importantly, I find that dictator game allocations *are* highly predictive of subjects' survey responses, suggesting that dictator game results are possibly more applicable to situations outside the laboratory than some criticisms suggest, since generosity in the dictator game here accurately reflected subject-reported survey views on redistribution and fairness. I lastly find that the decision amount has an impact on the percentage given (greater decision amounts result in less generosity) and that this effect differs by treatment, with the most significant effect occurring in the Luck treatment, followed by a significant effect in the Effort treatment. I speculate that this is likely because college-aged students (who typically have small incomes) become more influenced by greed as the monetary amounts rise, but find it easier to justify giving less when

the monetary amount is Luck based. Since it is "unlikely" they will roll a high amount of money, they can keep it for themselves if that fortuitous roll happens, whereas in the Effort and Combination treatments there is more control over the likelihood of receiving a high amount of money, and so subjects are less able to justify a lack of generosity).

For my second research question, I firstly find that although my Competitive prime seems effective, my Cooperative priming is questionable. Future research should investigate whether a stronger prime would produce similar or differing results. Although my Competitive and Cooperative treatments have no effect on basic giving in a dictator game, I find results of mixed significance and implications for the effects of treatment on self-interest, relative standing, and efficiency prioritizations. Competitive subjects seem to paradoxically be more focused on efficiency, and prioritize absolute payoffs compared to relative payoffs. However, since both Competitive and Cooperative treatments show a lack of prioritization on relative payoffs and since the results differ when analyzing self-interest and relative standing, this provides critical evidence implying that subjects view and respond to absolute payoffs differently than relative payoffs.

These results are meant to help to understand how specific contexts of thinking affect views of fairness and sharing, and lend suggestive light to how redistribution policies may be better designed and framed to garner support and maximize efficiency in our societies. Further investigation may be needed to further parse the effects of competitive and cooperative mindsets on generosity and generosity-related priorities. However, regarding my first research question, it is true that outcomes in the real world are often a result of a combination of luck and effort. This paper presents evidence that, when reminded of this fact, individuals become more generous and

are more strongly supportive of fairness. Perhaps there may be disjointness in how people think about redistribution and generosity in an ideal, abstract way, and how people react to related tax and redistribution policies in real life. If this is true, then reminding people of the fact that we live in a world determined both by luck and effort may result in a higher willingness to vote for and support such redistributive policies. Perhaps redistributive and welfare policies could be more effectively framed as helping those who are adversely affected by circumstance in this combination-based world, in order to garner support in developing better systems for those in need.

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# Appendix

Construction of Survey Indices:

1. Belief in the causes of poverty and failure index
    a. Index coded so that 0 corresponds to belief in luck and 1 corresponds to belief in effort causing one's outcomes in life → each response type is coded to have a point value, then the sum of the points for the 7 questions are divided by 28 (the highest number of possible points)
    b. 7 questions:
        i. There is plenty of opportunity in America today. Anyone who works hard can go as far as he or she wants. Scale between "disagree strongly" (coded as 0) to "agree strongly" (coded as 4)
        ii. Most people who don't succeed in life are just plain lazy. Scale between "disagree strongly" (coded as 0) to "agree strongly" (coded as 4)
        iii. People who fail at a job have usually not tried hard enough. Scale between "disagree strongly" (coded as 0) to "agree strongly" (coded as 4)
        iv. Welfare makes people work less than they would if there wasn't a welfare system. Scale between "disagree strongly" (coded as 0) to "agree strongly" (coded as 4)
        v. Welfare helps people get on their feet when facing difficult situations such as unemployment, a divorce or a death in the family. Scale between "disagree strongly" (coded as 4) to "agree strongly" (coded as 0)
        vi. Please choose a number on the on the scale indicating which of the following more often explains why a person is poor: Scale between "lack of effort on his/her part" (coded as 4) to "circumstances beyond his or her control" (coded as 0)
        vii. Please choose a number on the on the scale indicating which of the following more often explains why a person is rich: Scale between "strong effort on his/her part" (coded as 4) to "circumstances beyond his or her control" (coded as 0)

2. Support for redistribution index
    a. Index coded so that 0 indicates not supporting redistribution and 1 indicates support for redistribution → each response type is coded to have a point value,

then the sum of the points for the 5 questions are divided by 12 (the highest number of possible points)

b. 5 questions:
    i. To reduce income differences between rich and poor people, the government (at the local, state, or federal level) has the ability and the tools to do: Nothing at all (coded as 0); Not much (coded as 1); Some (coded as 2) ; A lot (coded as 3)
    ii. Some people think that the government (at the local, state, or federal level) should not care about income differences between rich and poor people. Others think that the government should do everything in its power to reduce income inequality. Rate on a scale of 1 to 7 on how you feel about this issue, with 1 being the government should not concern itself with income inequality and 7 being the government should do everything in its power to reduce income inequality. (1 was coded as 0 and 67 was coded as 6)
    iii. Do you think that the government should help poor people by giving them food? Yes (coded as 1); No (coded as 0)
    iv. Do you think that the government should help poor people by helping them to find a good job? Yes (coded as 1); No (coded as 0)
    v. Do you think that the government should help poor people by giving them money? Yes (coded as 1); No (coded as 0)

3. Fairness index
    a. Index coded so that 0 indicates inequalities in income and effort being acceptable and 1 indicates that these inequalities are unacceptable → each response type is coded to have a point value, then the sum of the points for the 6 questions are divided by 12 (the highest number of possible points)
    b. 6 questions:
        i. How big of an issue do you think income inequality is in America? Not an issue at all (coded as 0); A small issue (coded as 1); An issue (coded as 2); A serious issue (coded as 3); A very serious issue (coded as 4)
        ii. Which statement do you agree with most? (Please pick the one closest to your views, even if it does not match your view perfectly.)
            - High-income individuals are entitled to keep a very large share of their income and should not have to pay high taxes, even if that means less government revenues available to help low-income families make ends meet. (coded as 0)
            - It is important to ensure enough government revenues to fund programs that help low-income families make ends meet, even if

that means that high-income individuals will have to pay higher taxes on their high incomes. (coded as 1)

iii. Which statement most closely reflects your view?
- People with the same income should pay the same level of federal income taxes, regardless of how they earned their income and whether they worked hard for it. (coded as 1)
- People who have worked hard for their income should be taxed less than those who have not worked hard for it, even if that means that people with the same income will end up paying different taxes. (coded as 0)

iv. Which statement do you agree with most? (Please pick the one closest to your view, even if it does not match your view perfectly)
- Wealthy parents should be allowed to pass on all of their wealth to their children. As a result, some children will start their own life with much larger wealth just by virtue of being born in a richer family. (coded as 0)
- Children should not start their life with much larger wealth just by virtue of being born in a richer family. Part of the wealth passed on by parents to their children should therefore be taxed, even if that means that some parents who have worked hard will be taxed. (coded as 1)

v. Do you think the economic system in the United States is:
- Basically fair, since all Americans have an equal opportunity to succeed (coded as 0)
- Basically unfair, since all Americans do not have an equal opportunity to succeed (coded as 1)

vi. If children from poor and rich backgrounds have unequal opportunities in life, do you think this is:
- Not a problem at all (coded as 0)
- A small problem (coded as 1)
- A problem (coded as 2)
- A serious problem (coded as 3)
- A very serious problem (coded as 4)

4. Efficiency index
   a. Index coded so that 0 indicates increasing taxes on high income people is not efficient for society and 1 indicates this is efficient → each response type is coded to have a point value, then the point value is divided by 2 (the highest number of possible points)
   b. 1 question:

i. Do you think that increasing income taxes on high-income households would hurt economic activity, not have an effect on economic activity, or help economic activity in the U.S.?
   - Hurt economic activity in the US (coded as 0)
   - Not have an effect on economic activity in the US (coded as 1)
   - Help economic activity in the US (coded as 2)

5. Government trust index
   a. Index coded so that 0 indicates you cannot trust the government to do what is right and 1 indicates that you can trust the government to do what is right → each response type is coded to have a point value, then the point value is divided by 3 (the highest number of possible points)
   b. 1 question:
      i. How much of the time do you think you can trust our federal government to do what is right? Almost always (coded as 3); A lot of the time (coded as 2); Not very often (coded as 1); Almost never (coded as 0)

Additional Regression Tables:

Table A.1

| VARIABLES | (1) Beliefs score | (2) Beliefs score | (3) Beliefs score | (4) Beliefs score |
|---|---|---|---|---|
| Combination | -0.114*** | -0.0996** | -0.0957*** | -0.0813** |
| | (0.0370) | (0.0395) | (0.0350) | (0.0377) |
| Effort | -0.0595 | -0.0649 | -0.0503 | -0.0564 |
| | (0.0383) | (0.0404) | (0.0378) | (0.0393) |
| Constant | 0.378*** | 0.422*** | 0.339*** | 0.392*** |
| | (0.0278) | (0.0422) | (0.0290) | (0.0416) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.083 | 0.183 | 0.141 | 0.244 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2

| VARIABLES | (1) Redistribution score | (2) Redistribution score | (3) Redistribution score | (4) Redistribution score |
|---|---|---|---|---|
| Combination | 0.0741* | 0.0581 | 0.0739* | 0.0558 |
| | (0.0409) | (0.0440) | (0.0398) | (0.0423) |
| Effort | 0.0301 | 0.0471 | 0.0300 | 0.0460 |
| | (0.0436) | (0.0460) | (0.0432) | (0.0457) |
| Constant | 0.738*** | 0.735*** | 0.739*** | 0.739*** |
| | (0.0274) | (0.0514) | (0.0289) | (0.0526) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.027 | 0.127 | 0.027 | 0.128 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3

| VARIABLES | (1) Fairness score | (2) Fairness score | (3) Fairness score | (4) Fairness score |
|---|---|---|---|---|
| Combination | 0.102*** | 0.0980** | 0.0914** | 0.0846** |
| | (0.0385) | (0.0412) | (0.0388) | (0.0408) |
| Effort | 0.0486 | 0.0725* | 0.0434 | 0.0663* |
| | (0.0392) | (0.0401) | (0.0395) | (0.0397) |
| Constant | 0.720*** | 0.666*** | 0.742*** | 0.687*** |
| | (0.0294) | (0.0430) | (0.0328) | (0.0444) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.064 | 0.188 | 0.083 | 0.221 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.4

| VARIABLES | (1) Efficiency score | (2) Efficiency score | (3) Efficiency score | (4) Efficiency score |
|---|---|---|---|---|
| Combination | 0.264*** | 0.283*** | 0.243** | 0.259** |
| | (0.0933) | (0.0975) | (0.0949) | (0.0988) |
| Effort | 0.208** | 0.293*** | 0.198* | 0.282*** |
| | (0.100) | (0.103) | (0.101) | (0.104) |
| Constant | 0.556*** | 0.458*** | 0.600*** | 0.496*** |
| | (0.0712) | (0.112) | (0.0792) | (0.120) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.075 | 0.222 | 0.086 | 0.237 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.5

| VARIABLES | (1) Gov. Trust score | (2) Gov. Trust score | (3) Gov. Trust score | (4) Gov. Trust score |
|---|---|---|---|---|
| Combination | -0.0648 | -0.0549 | -0.0703* | -0.0586 |
| | (0.0402) | (0.0407) | (0.0411) | (0.0414) |
| Effort | -0.0185 | 0.000330 | -0.0213 | -0.00137 |
| | (0.0395) | (0.0415) | (0.0394) | (0.0417) |
| Constant | 0.361*** | 0.407*** | 0.373*** | 0.413*** |
| | (0.0308) | (0.0548) | (0.0351) | (0.0566) |
| Observations | 108 | 108 | 108 | 108 |
| R-squared | 0.028 | 0.164 | 0.033 | 0.166 |
| Race | | YES | | YES |
| Gender | | | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1