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Abstract

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Social Position and Distributive Justice: Experimental Evidence

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Using a simple, double-blind dictator experiment, we examine the extent to which subjects' choices of distributive shares are influenced by unearned social position. We measure social position by the initial distributive shares (resources) and the subjects' ability to determine the final distributive shares (power). We find that subjects' decisions are consistent with Rawls' (1971) hypothesis that individuals expect a greater share when in a position with more power and initial resources. Finally, we test if subjects' choices under a laboratory veil of ignorance are consistent with Rawls' concept of distributive justice. "Veiled" individuals exhibit preferences that are less risk-averse and have greater variance than Rawls hypothesized.

JEL Classification: C91, D31

1. Introduction

In *A Theory of Justice* (1971) John Rawls states that men are born into various social positions that yield "different expectations of life" but "cannot possibly be justified by an appeal to the notions of merit or desert" (p. 7). Rawls further hypothesizes that if men could choose behind a "veil of ignorance" with regard to social position, they would unanimously agree to social institutions that allocate social benefits to maximize the income of the lowest income group, and they would reject institutions or principles (such as utilitarianism) that lead to gains to some members of society if such gains were to come at the expense of the least advantaged members.

It is not possible to directly test the Rawlsian hypothesis in the field. However, the hypothesis has been tested in laboratory economics and political science experiments (e.g., Frohlich, Oppenheimer, and Eavey 1987; Frohlich and Oppenheimer 1990, 1992; Bond and Park 1991; Lissowski, Tyszka, and Okrasa 1991; Jackson and Hill 1995; de la Cruz-Dona and Martina 2000; Oleson 2001; Herne and Suojanen 2004). The conclusion to be drawn from these studies is that subjects' choices do not conform strictly to the Rawlsian principle of distributive justice but rather to a mixture of Rawlsian and utilitarian principles.

While related to previous studies, in that we test if subjects' choices under a laboratory veil of ignorance are consistent with the Rawlsian hypothesis, our experiments extend the analysis

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by determining the extent to which subjects' expectations of distributive shares are influenced by unearned social position. Broadly speaking, social position refers to the resources, power, education, prestige, or occupation that significantly impacts one's current and future well-being. We use a simple two-player dictator experiment and measure social position by the initial distributive shares (resources) and the subjects' ability to determine the final distributive shares (power). Our hypothesis is that increasing a subject's power and resources will result in an income distribution choice to that subject's greater favor. Thus, while we contribute to the literature on Rawlsian justice, our primary focus is on the importance of differences in unearned social position with regard to expectations, as opposed to the absence of differences. In this way we gain insight into how the removal of such differences may impact choices in the field. Our experiment also contributes to the understanding of behavior in dictator experiments. In particular, ours complements related experiments on social distance and entitlement effects.

The remainder of the paper proceeds as follows. Section 2 briefly describes the experimental design, subjects, and setting and compares our experiment to other laboratory dictator and Rawlsian experiments. Section 3 provides a discussion of the results, followed by concluding remarks in section 4.

2. The Experiment

In a dictator experiment (Kahneman, Knetsch, and Thaler 1986), one subject determines how a fixed sum of money is to be divided between her and one or more other players. We conducted a simple, double-blind (Hoffman et al. 1994; Hoffman, McCabe, and Smith 1996), one-shot, two-person $20 dictator experiment with no show-up fee.[1] We implemented five protocols in which we systematically changed language and procedures to vary the decision maker's social position in the experiment. We obtained approximately 30 observations for each of the five protocols, using 211 subjects. We conducted sessions with approximately 15 subjects in each of two rooms for all treatments. Participants were students at the U.S. Naval Academy in various years of study and various majors. Students were invited to participate *via* E-mail solicitation. All decisions were recorded privately by an experimenter who had no contact with the subjects.

Protocol Giving Dictator (GD) is a standard dictator experiment. Player 1 is given $20 (an envelope with 20 one-dollar bills and 20 slips of paper) and the option of sending any portion of this endowment to an anonymous second person with whom she has been randomly matched. In Protocol Probabilistic Dictator (PD), both players allocate $20 between two envelopes. One player's choice is chosen randomly and implemented with that player retaining the Player 1 envelope. In Protocol Taking Dictator (TD), Player 2 receives the $20 envelope and Player 1 is instructed to indicate how much of the money she wants to

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take. Player 2 is instructed to place this amount in a second envelope to be transferred. In Protocol Veiled Dictator (VD), only one player (not both players, as in the PD protocol) divides the money between envelopes marked Player 1 and Player 2, knowing that there is a 50% chance she will be either Player 1 or Player 2. The subjects are then randomly assigned their role (Player 1 or Player 2). In addition to these four protocols, we asked the recipient (Player 2) in Protocol GD "What allocation would you choose if you were Player 1?" and "What allocation do you predict Player 1 will make?" Protocol Hypothetical Dictator (HD) refers to these hypothetical choices.

Of all the protocols, in GD, the decision maker is in the greatest position of resources and power. She is given the endowment, full authority to implement the distribution of her choice, and there is no uncertainty that her choice will be implemented. She realizes that she is determining not only her own payoff, but also the payoff of a powerless person with whom she is matched.

PD levels the playing field between matched participants. There is no difference in resources because neither player is initially allocated the endowment. Furthermore, both participants have an equal probability of being assigned to the position of power. Therefore, the participants may perceive themselves to have identical social position relative to each other.

While TD is equivalent to GD in that it grants, with certainty, full power to the decision maker, she is in a weaker position relative to GD with regard to resources. In this protocol, the decision maker is not allocated the endowment and is required to "take" money from the other player to increase her own payoff. Inaction, in this situation, will leave the entire payoff to the other player.

VD most closely reproduces Rawls' veil of ignorance in the laboratory. Should the income distribution choice be unequal, the decision maker does not know on which end of the income distribution she will ultimately fall. Therefore, she cannot use this information to promote her self-interest.

HD is the hypothetical response of the powerless player, Player 2, when asked what she would choose to do if in a position of power. Therefore, HD is the opposite of GD in that the decision maker is in the weakest position of resources and power.

A standard game-theoretic prediction based on strict self-interest is that decision makers in all protocols will seek to maximize their own monetary payoff. This implies that decision makers in protocols GD, PD, TD, and HD (assuming an honest response) will all choose a payoff of $20 to themselves, leaving $0 to the other player. In VD, any distribution choice yields the same expected payoff. As implied by the Rawlsian hypothesis, risk-averse subjects should choose equal splits, while risk-seeking subjects should choose unequal splits. Models of pure altruism (as in Levine 1998) or inequity aversion (Fehr and Schmidt 1999; Bolton and Ockenfels 2000) would predict no difference in the distribution choice in protocols GD, PD, TD, and HD, though the choice may involve a positive payoff to the other player.

The simple variations in our experimental instructions and procedures are intended to generate perceived differences in unearned social position in the laboratory. The primary objectives are (i) to test Rawls' general assumption that "expectations" of distributive shares are influenced by "social position" and (ii) to quantify the extent of such effects. Our simple hypothesis is that protocols PD, TD, VD, and HD will result in lower Player 1 payoffs (that is, more egalitarian payoffs) than the benchmark protocol GD, because decision makers are in

a lower social position in terms of power and/or resources.[2] Strictly interpreting the Rawlsian hypothesis, all subjects should implement the equal share outcome in VD, the "veiled" protocol.

While the simple dictator experiment does not allow the Rawlsian hypothesis to be evaluated in a richer way,[3] other laboratory experiments have been used to explicitly test Rawls' predictions. In the majority of these studies, participants complete a questionnaire in which they make choices over explicit income distributions with or without veil-of-ignorance conditions. These studies have consistently rejected the strict Rawlsian hypothesis. For example, Frohlich, Oppenheimer, and Eavey (1987); Frohlich and Oppenheimer (1990); and Herne and Suojanen (2004) all find that a majority of veiled individuals, given the opportunity for group discussion, do not prefer a Rawlsian income distribution, but rather choose a distribution that maximizes the average income subject to a floor constraint. Unlike these experiments, our experiment does not focus on the social contract chosen by groups of individuals under veil-like conditions. Rather, we are interested in the extent to which deviations from the veil condition impact individual choices of an income distribution in a dictator experiment. Using a trust game, Vyrastekova and Onderstal (2005) find that subjects do not behave differently when they play both roles behind a "veil" versus when they play the standard trust game.

Our experiment also contributes to the understanding of behavior in dictator experiments in general. While the extent of giving in dictator experiments varies considerably across studies, several consistent behavioral effects have been demonstrated. Self-interested behavior increases with anonymity or social distance (Hoffman et al. 1994; Hoffman, McCabe, and Smith 1996) and when dictators bargain over earned wealth (Hoffman et al. 1994; Ruffle 1998; Cherry 2001; Cherry, Frykblom, and Shogren 2002). While we maintain anonymity, we demonstrate the importance of changes in endowments (and power) that are unearned. Unlike Hoffman et al. (1994), who used the language "provisionally allocated to each pair" to avoid perceptions of property rights, we explicitly allocate the right to be the decision maker and an unearned endowment to one party or the other to reinforce and investigate this effect. We are unaware of other studies that explicitly examine the behavior of "giving" dictators to that of "taking" dictators.

3. Results

Table 1 presents the experimental results.[4] We compare subjects' choices (as represented by the mean payoff to Player 1) using one-tailed Mann-Whitney tests; we compare the frequency of equal splits and $20/$0 splits using a one-tailed proportions test.

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[2] Alternatively, as Harrison and McCabe (1996, p. 312) briefly speculate (but do not find) for an ultimatum bargaining game with a similar design to our PD protocol, participants in PD may view it as acceptable to keep *more* than they would in the case of GD, since the other person has an equal opportunity to do the same. Nature can be held partially responsible for the other person's low payoff. Note that, unlike in our dictator game, the recipient in their ultimatum game still has an opportunity to reject the proposed split, in which case both subjects get $0.

[3] For example, one cannot evaluate the "fairness" of unequal outcomes where some gain and some lose (where the gains are larger than the losses) or where everyone gains relative to the equal shares outcome but some individuals gain considerably more than others.

[4] An odd number of volunteers reported for the PD session. Because of the lack of a show-up fee, we allowed all individuals in this session to make a decision and then randomly left one individual unmatched. The decision of this individual is included in the analysis.

Table 1. Results

	Mean (Player 1 Payoff)	Standard Deviation (Player 1 Payoff)	Frequency of Equal ($10) Splits (%)	Frequency of $20/$0 Splits[a] (%)	N
Protocol GD: Giving Dictator	$16.17	$4.32	24	41	29
Protocol PD: Probabilistic Dictator	$15.30	$4.80	29	45	31
Protocol TD: Taking Dictator	$14.03**	$4.00	39	16**	31
Protocol VD: Veiled Dictator	$9.80***	$5.90	43*	23*	30
Protocol HD[b]: Hypothetical Dictator	$11.93*** ($15.38)	$4.88 ($4.88)	52*** (10)	7*** (34)	29

[a] All $20/$0 splits that occurred were $20 for Player 1 and $0 for Player 2.
[b] Number in parentheses indicates Player 2's belief about what Player 1 will choose.
  * Significantly different (in the direction hypothesized) than GD Player 1 payoff or frequency of split at $\alpha < 0.10$.
 ** Significantly different (in the direction hypothesized) than GD Player 1 payoff or frequency of split at $\alpha < 0.05$.
*** Significantly different (in the direction hypothesized) than GD Player 1 payoff or frequency of split at $\alpha < 0.01$.

The results are generally consistent with the hypothesis that subjects' perceptions of distributive justice are influenced by unearned social position. Decision makers (Player 1) in GD were in the strongest position of power and resources. These subjects chose an income distribution that yielded the greatest monetary benefit (mean = $16.17) to themselves, with the lowest rate of equal splits (24%) and the second highest number of $20/$0 splits. However, compared to other similar experiments, subjects in GD made positive offers more frequently (59% of the time compared to around 40% in DB2 in Hoffman, McCabe, and Smith 1996). This difference may be partially explained by the lack of a show-up fee. If dictator subjects in our GD treatment made $0 offers, the recipient truly left the experiment with $0 rather than a $5 or $10 show-up fee. Subjects may factor show-up fees into their choices, which would impact their perceptions of relative earnings.

Decisions in PD (mean = $15.30, with 29% equal splits and 45% $20/$0 splits) were statistically no different than in GD. We conclude that because players knew their decision would only be relevant if they were chosen to be the decision maker, they made their decisions as if they were in the position of full power and resources.

However, shifting resources from Player 1 to Player 2 (giving the initial $20 to Player 2) caused an economically and statistically significant decrease (one-tailed significance = 0.02) in Player 1's monetary demand in TD ($14.03) compared to GD ($16.17). Subjects also chose equal splits more frequently (39% compared to 24%) and made statistically significantly fewer $20/$0 splits (16% compared to 41%; one-tailed significance = 0.016). Unlike in Cherry (2001) and Cherry, Frykblom, and Shogren (2002), the difference between these treatments was unearned. Cherry (2001) finds that only 24% of dictators made positive offers from "earned" endowments, whereas 74% made positive offers from "unearned" endowments. When Player 2 received the "unearned" endowment in TD, 86% of dictators effectively made positive "offers." Ruffle (1998) finds that dictators reward "deserving" recipients, those whose skill led to a larger pie size for the pair. The modal offer in that case was half of the pie, with 21% of offers actually being greater than half.

It must be noted that given our anonymity procedures, it is possible in TD for Player 2 subjects to transfer less than the requested amount, in which case the recording experimenter adjusted the contents of the envelope to match the requested amount. This provides an interesting experimental variable and occurred in 12 of the 31 cases. However, if Player 1 subjects expected that Player 2 subjects were less likely to comply with large demands, this may bias the demands downward. The fact that Player 2 returned $0 in four out of five cases when $20 was demanded indicates that this may be a real concern. In contrast, Player 2 subjects from whom $10 was requested transferred all $10 on 10 of 12 occasions. Further experimentation with added controls would be necessary to determine the significance of this effect on demands.

As expected, the Player 1 average payoff in VD was significantly lower than in GD ($9.80 vs. $16.17, one-tailed significance = 0.00). Subjects chose equal splits 43% of the time, which is significantly more than the 24% of equal splits that occurred in GD (one-tailed significance = 0.061). However, preferences were less risk-averse than hypothesized by Rawls. The standard deviation of Player 1 payoffs was greater in VD than in all of the other protocols. Furthermore, nearly one in four subjects chose a $20/$0 split (despite the lack of a show-up fee), a number which, while significantly fewer than observed in GD (one-tailed significance = 0.069), is greater than in the TD and HD protocols. Clearly, some subjects were willing to gamble on being the one to get the higher payoff.

Finally, the decision makers in HD, who are in potentially the weakest positions of power and resources, indicated (hypothetically) that they would have chosen an income distribution that was even more egalitarian (an average payoff to themselves of $11.93, with equal splits 52% of the time) than any treatment other than VD. Only 7% of subjects indicated they would have taken the entire $20. Compared to the GD and TD protocols, the Player 1 (hypothetical) payoff decrease in HD is both economically and statistically significant (one-tailed significance = 0.00 and 0.04, respectively). Interestingly, the difference between what these subjects predicted the GD decision makers would choose ($15.38) and what the GD Player 1 subjects actually chose ($16.17) is not statistically significant, although they underestimated the propensity to choose equal splits (10% predicted vs. 24% actual). Similarly, Ruffle (1998) found that, when asked what offer they hypothetically would have made in their counterpart's position, the unskillful recipients (those whose effort on a general knowledge test led to the smaller of two pie sizes for the pair) would have offered substantially more than their counterparts actually did.

It is unclear, of course, how reliable any hypothetical response can be in this situation. One alternative explanation for the generous responses in HD is that some subjects prefer to maintain a good self-impression (e.g., Murnighan, Oesch, and Pillutla 2001) even if they cannot maintain a good social impression as a result of anonymity conditions. That is, being generous in a hypothetical response makes them feel good about themselves. If self-impression concerns are significant when real money is being transferred, we would expect an even stronger impact on hypothetical responses, because maintaining a good self-impression has no cost. Unfortunately, we have not been able to design an experiment in which participants who cannot influence the final distribution must make a decision other than a hypothetical one.

4. Conclusions

We used slight variations in language and procedures to generate differences in social position, as measured by resources and power, in a simple, double-blind dictator experiment.

These variations may also have changed the social distance between subjects, a variable that has been identified as an important explanatory variable for behavior (Hoffman, McCabe, and Smith 1996). While it is difficult to fully disentangle *social distance* from *social position* experimentally, our results are consistent with Rawls' (1971) assumption regarding distributive justice in that unearned differences in a subject's social position, as measured by power and resources, affect expectations regarding a just income distribution. While all individuals in such experiments must balance their self-interest with their personal views of justice and fairness, individuals appear to develop a sense of entitlement to a higher payoff when granted initial property rights or the power to influence the final distribution. As other experiments have demonstrated, making the social positions earned further strengthens the effect. This is particularly important given that unearned differences (such as the wealth of the family into which one is born) can subsequently lead to earned differences (such as obtaining a college degree) that are the result (at least partially) of the individual's own efforts.

These results are in stark contrast to the predictions of standard game theory and theories of pure altruism or inequity aversion, which predict identical outcomes in each of our "unveiled" protocols. However, even in a "veiled" decision-making position, subjects in our dictator experiment failed to unanimously choose an equal income distribution, as a strict interpretation of the Rawlsian hypothesis would require. Their preferences were less risk-averse and had greater variance than Rawls hypothesized. Some subjects appeared willing to accept an outcome where some players had more and some had less, relative to the egalitarian outcome, as long as there was a fair chance of being the one at the desirable end of the distribution. Perhaps there is a testable lesson here that distributive justice is not necessarily a matter of the final wealth distribution, but rather of the probability of reaching a desirable position in the distribution.

References

Bolton, Gary, and Axel Ockenfels. 2000. ERC: A theory of equity, reciprocity, and competition. *American Economic Review* 90:166–93.

Bond, Doug, and Jong-Chul Park. 1991. An empirical test of Rawl's theory of justice: A second approach in Korea and in the United States. *Simulation & Gaming* 22:443–62.

Cherry, Todd. 2001. Mental accounting and other-regarding behavior: Evidence from the lab. *Journal of Economic Psychology* 22:605–15.

Cherry, Todd, Peter Frykblom, and Jason F. Shogren. 2002. Hardnose the dictator. *American Economic Review* 92(4):1218–21.

de la Cruz-Dona, Rena, and Alan Martina. 2000. Diverse groups agreeing on a system of justice in distribution: Evidence from the Philippines. *Journal of Interdisciplinary Economics* 11:35–76.

Fehr, Ernst, and Klaus Schmidt. 1999. A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics* 114(3):817–68.

Frohlich, Norman, and Joe Oppenheimer. 1990. Choosing justice in experimental democracies with production. *American Political Science Review* 84:461–77.

Frohlich, Norman, and Joe Oppenheimer. 1992. *Choosing justice*. Berkeley, CA: University of California Press.

Frohlich, Norman, Joe Oppenheimer, and Cheryl Eavey. 1987. Laboratory results on Rawl's distributive justice. *British Journal of Political Science* 17:1–21.

Harrison, Glenn, and Kevin McCabe. 1996. Expectations and fairness in a simple bargaining experiment. *International Journal of Game Theory* 25:303–27.

Herne, Kaisa, and Maria Suojanen. 2004. The role of information in choices over income distributions. *Journal of Conflict Resolution* 48(2):173–93.

Hoffman, Elizabeth, Kevin McCabe, Keith Shachat, and Vernon Smith. 1994. Preferences, property rights, and anonymity in bargaining games. *Games and Economic Behavior* 7:346–80.

Hoffman, Elizabeth, Kevin McCabe, and Vernon L. Smith. 1996. Social distance and other-regarding behavior in dictator games. *American Economic Review* 86:653–60.

Jackson, Michael, and Peter Hill. 1995. A fair share. *Journal of Theoretical Politics* 7:169–80.

Kahneman, Daniel, Jack Knetsch, and Richard H. Thaler. 1986. Fairness and the assumptions of economics. *Journal of Business* 76:798–841.

Levine, David. 1998. Modeling altruism and spitefulness in experiments. *Review of Economic Dynamics* 1:593–622.

Lissowski, Grzegorz, Tadeusz Tyszka, and Wlodzimierz Okrasa. 1991. Principles of distributive justice: Experiments in Poland and America. *Journal of Conflict Resolution* 35:98–119.

Murnighan, J. Keith, John Oesch, and Madan Pillutla. 2001. Player types and self-impression management in dictatorship games: Two experiments. *Games and Economic Behavior* 37:388–414.

Oleson, Paul. 2001. An experimental examination of alternative theories of distributive justice and economic fairness. Ph.D. dissertation, University of Arizona, Tucson, AZ.

Rawls, John. 1971. *A theory of justice*. Cambridge, MA: Harvard University Press.

Ruffle, Bradley. 1998. More is better, but fair is fair. *Games and Economic Behavior* 23:247–65.

Vyrastekova, Jana, and Sander Onderstal. 2005. The trust game behind the veil of ignorance: A note on gender differences. *CenteER Discussion Papers* 2005-96.