Taking, Giving, and Impure Altruism in Dictator Games

Oleg Korenok, Edward L. Millner*, and Laura Razzolini

Department of Economics
Virginia Commonwealth University
301 West Main Street
Richmond, VA 23284-4000

Acknowledgements
The authors gratefully acknowledge research support provided by NSF grant SES-0904695 to Razzolini, by NSF grant SES-1024357 to Korenok, and the VCU Presidential Research Incentive Fund to Millner. Any remaining errors are our own.

*Corresponding Author; Phone: 1.804.828.1718; Fax: 1.804.828.9103

Abstract

We show that, if giving is equivalent to not taking, impure altruism could account for List's (2007) finding that the payoff to recipients in a dictator game decreases when the dictator has the option to take. We examine behavior in dictator games with different taking options but equivalent final payoff possibilities. We find that the recipients tend to earn more as the amount the dictator must take to achieve a given final payoff increases, a result consistent with the hypothesis that the cold prickle of taking is stronger than the warm glow of giving. We conclude that not taking is not equivalent to giving and agree with List (2007) that the current social preference models fail to rationalize the observed data.

Keywords: Dictator Game; Impure Altruism; Taking

JEL Classifications: C91, D01, D64, H30, H41

1. Introduction

Is giving equivalent to not taking? Consider a dictator with a $10 endowment who can take some, all or none from the recipient's $5 endowment. If the dictator takes $3, we cannot say that the dictator is selfish. A selfish dictator would maximize her own final payoff by taking $5 and leaving the recipient with nothing. By not taking $2 the dictator has reduced her payoff from $15 to $13 and increased the recipient's payoff from $0 to $2. But can we say that by not taking $2 the dictator feels the same as if she gave $2. In other words, is not taking the same as giving?

To answer this question we examine behavior in a parallel game in which the dictator can achieve the same final payoffs by giving instead of not taking. Consider a standard dictator game in which the dictator receives a $15 endowment, the recipient receives $0, and the dictator may give some, all or none of her endowment to the recipient. If the dictator gives $2 in this game, the payoffs achieved, $13 and $2, are identical to those observed above when the dictator did not take $2. In these two games, if the dictator feels the same about not taking as about giving, the final payoffs should be the same.

Finding that not taking is equivalent to giving would provide an alternative explanation to results observed in taking games reported by Bardsley (2008) and List (2007).[1] Both Bardsley and List compare the results of a standard dictator game with the results of a dictator game in which the payoff possibilities are extended by allowing the dictator to take some of the recipient's endowment. Both Bardsley and List find that the payoffs to the recipients tend to decrease when the taking option is available. Bardsley states that "The reversing of generosity between treatments is inconsistent with any … orthodox social preference account" and "One explanation of the present results is that dictator game giving is … an artifact of behavioural experimentation" (Bardsley 2008, p. 128). List concludes that "the data suggest that current interpretations of dictator game data likely need revision. Rather than representing social preferences as currently modeled in the oft-cited literature, the data are consistent with the power of changing the giver and recipient expectations" (2007, p. 490).

In this paper, we begin by showing that Bardsley's and List's findings are consistent with impure altruism if giving is equivalent to not taking. Korenok et al. (2013) show that the impurely altruistic utility function rationalizes giving in the presence of reallocation of

---

[1] Also, see Cappelen et al. (2013) for field evidence.

endowments. Therefore, if not taking is equivalent to giving, the impurely altruistic utility also rationalizes Bardsley and List's results.

We then report the results of an experiment in which the dictator makes decisions in nine scenarios with different taking options and constant payoff possibilities. We compare the outcomes in the nine decisions and find that the final payoffs are not the same; the recipients tend to earn more as the amount the dictator must take to achieve a given final payoff increases. Therefore, we conclude that not taking is not equivalent to giving and agree with List that the current social preference models fail to rationalize the observed data.

2. Not Taking, Giving, and Impure Altruism

To show that the impurely altruistic utility function rationalizes List's results if not taking is equivalent to giving, we first describe List's experiments and illustrate how they violate "social preferences as currently modeled in the oft-cited literature" We then show how Bolton and Katok (1998) report similar violations in a different context. Next, we illustrate how impure altruism as introduced by Andreoni (1989, 1990) resolves the violations reported by Bolton and Katok. Finally, we describe how to modify impure altruism when not taking is equivalent to giving and illustrate how this modification resolves List's violations.

List's experiments extend the payoff possibilities available to the dictator by introducing the option to take. In List's baseline game the dictator's endowment is $10 and the dictator can give up to half of it to the recipient, whose endowment is $5. In List's Take 5 setting the dictator has the additional option of taking some or all of the recipient's endowment[2]. In both games, the sum of final payoffs must equal $15 and the maximum payoff to the recipient is $10. However, the minimum payoff to the recipient decreases from $5 in the baseline game to $0 in the Take 5 setting.

List finds that extending the set of payoff possibilities under the control of the dictator by adding the option to take significantly decreases the payoff to the recipient.[3] The recipient's average payoff decreases from $6.33 in the baseline game to $2.52 in the Take 5 setting and the decrease is not driven by dictators who give $0 in the baseline and take in the Take-5 setting.

[2] We focus on List's comparison of the baseline and the Take 5 settings. List also compares the baseline with a Take 1 setting and Bardsley compares three different pairs of settings. In all cases, the final results are similar.

[3] The payoff to the recipient also decreases as the option to take increases. The recipient's payoff tends to be lower in the Take 5 than in the Take 1 setting.

List notes that this reduction contradicts altruistic social preference theories. Such theories posit that utility is of the form $U(\pi_D, \pi_R)$, where π_D and π_R are the payoffs to the dictator and recipient, respectively. To illustrate the contradiction, suppose that a dictator reduces the amount given from $2 in the baseline to $1 in the Take 5 setting. The final payoffs to the dictator and the recipient are ($8, $7) and ($9, $6), respectively. Choosing ($8, $7) when ($9, $6) is available in the baseline contradicts choosing ($9, $6) when ($8, $7) is available in the Take 5 treatment.[4]

Bolton and Katok (1998) report violations of altruistic preferences that resemble those reported by List and Bardsley, even though the settings differ. Bolton and Katok extend the payoff possibilities available to the dictator by reallocating endowment from the recipient to the dictator. They compare the recipients' payoff in two different settings: the 15-5 setting, in which the dictator starts with an endowment of $15 and the recipient's initial endowment is $5 and the 18-2 setting, in which $3 are transferred from the recipient's endowment to the dictator's, so that the dictator's endowment is $18 and the recipient's endowment is $2. In both settings the sum of final payoffs must equal $20 and the maximum payoff to the recipient is $20. However, the 18-2 setting extends the payoff possibilities by reducing the minimum possible payoff to the recipient from $5 to $2.

Bolton and Katok find that extending the set of payoff possibilities under the control of the dictator by reallocating endowments significantly decreases the payoff to the recipient. The average payoff to the recipient decreases from $7.62 in the 15-5 setting to $5.48 in the 18-2 setting. This reduction again contradicts altruistic preferences. To illustrate the contradiction, suppose that a dictator passes $2 in the 15-5 setting and passes $4 in the 18-2 setting. The final payoffs to the dictator and the recipient are ($13, $7) and ($14, $6), respectively. Choosing ($13, $7) when ($14, $6) is available in the 15-5 treatment contradicts choosing ($14, $6) when ($13, $7) is available in the 18-2 treatment.

Andeoni (1989, 1990) introduces the impurely altruistic utility function, $U(\pi_D, \pi_R, G)$ by adding the amount given, *G*, as a third argument in the utility function to account for the warm glow derived from giving.[5] To illustrate how impure altruism resolves the contradiction

---

[4] See Bardsley, p. 125 for a formal proof.

[5] A substantial number of results from both the laboratory and the field are consistent with the effect of warm glow giving. See Bolton and Katok (1998), Eckel, Grossman, and Johnston (2005), and Grossman and Eckel (2012) for examples of direct evidence from the laboratory on warm glow preferences and Landry et al. (2010) for evidence from a field experiment.

noted by Bolton and Katok, suppose again that a dictator passes $2 in the 15-5 setting and $4 in the 18-2 setting. The final payoffs and the amount passed are ($13, $7, $2) and ($14, $6, $4), respectively. Choosing ($13, $7, $2) does not contradict choosing ($14, $6, $4) because the latter is not a feasible option in the 15-5 treatment. Similarly, the choice ($13, $7, $2) is not feasible in the 18-2 treatment (($13, $7, $5) is feasible). Korenok et al. (2013) show that the impurely altruistic utility function rationalizes the choices of dictators in giving games as the experimenter transfers endowments across subjects.

Impure altruism also resolves the contradictions observed by List and Bardsley if the amount given, *G*, and the amount not taken, *N*, are equivalent sources of warm glow. With this equivalence the dictator's utility function is $U(\pi_D, \pi_R, S)$, where $S = G + N$.[6] To illustrate that the modified impurely altruistic preferences resolve the contradictions, suppose again that a dictator passes $2 in List's baseline and passes $1 in the Take 5 setting. Since the dictator passes $1 in the Take 5 setting, she does not take $5, therefore S=$6. The final payoffs and the sum of passing and not taking are ($13, $7, $2) and ($14, $6, $6), respectively. Choosing ($13, $7, $2) does not contradict choosing ($14, $6, $6) because the latter is not a feasible option in the baseline treatment. Similarly, the choice ($13, $7, $2) is not feasible in the Take 5 setting (($13, $7, $7) is feasible). [7]

Impure altruism cannot resolve all of the results that List reports. He also observes significantly less giving when the dictator earns the endowment instead of having the experimenter bestow it. Cherry et al. (2002) report a similar result while Luccasen and Grossman "find that warm glow giving persists when the endowment is earned" (2013, p, 16). The standard theory of impure altruism does not address the effect of the source of the endowment and an exploration of it is beyond the scope of the present paper.

---

[6] This modification does not affect the analysis of the impurely altruistic model in games where taking is not an option because N = 0 and S = G.

[7] Luccasen and Grossman (2013) also use the warm glow of not taking as a potential explanation of List's finding and speculate that the warm glow is conditioned by the dictator's reference point. They find that "the option to take makes people more comfortable giving less. Expanding the action set from giving only, to giving or taking alters the reference point. (Grossman and Eckel, 2012). When subjects can only give, then donating money to charity is the action that contributes to warm glow. When subjects can take money from charity, the act of not taking may be the action that contributes to warm glow, and thus dampens observed giving" (pp. 16-17).

3. Experimental Design and Procedures

The equivalence of giving and not taking as a source of warm glow means that the experimenter can create isomorphically equivalent games by simultaneously transferring endowment from the recipient to the dictator while reducing by a similar magnitude the option to take. The payoffs and utility to the dictator are the same when S is constant in each of the three following settings.

1. The endowments to dictator and recipient are $15 and $0, respectively, and the dictator does not have the option to take.
2. The endowments to dictator and recipient are $10 and $5, respectively, and the dictator has the option to take up to $5
3. The endowments to dictator and recipient are $0 and $15, respectively, and the dictator has the option to take up to $15.

In all three settings the dictator's utility is *U*($13, $2, $2) when S = $2, for example. Notice that List's Take 5 game, captured in the second setting, is isomorphically equivalent to the non-taking game in the first setting.

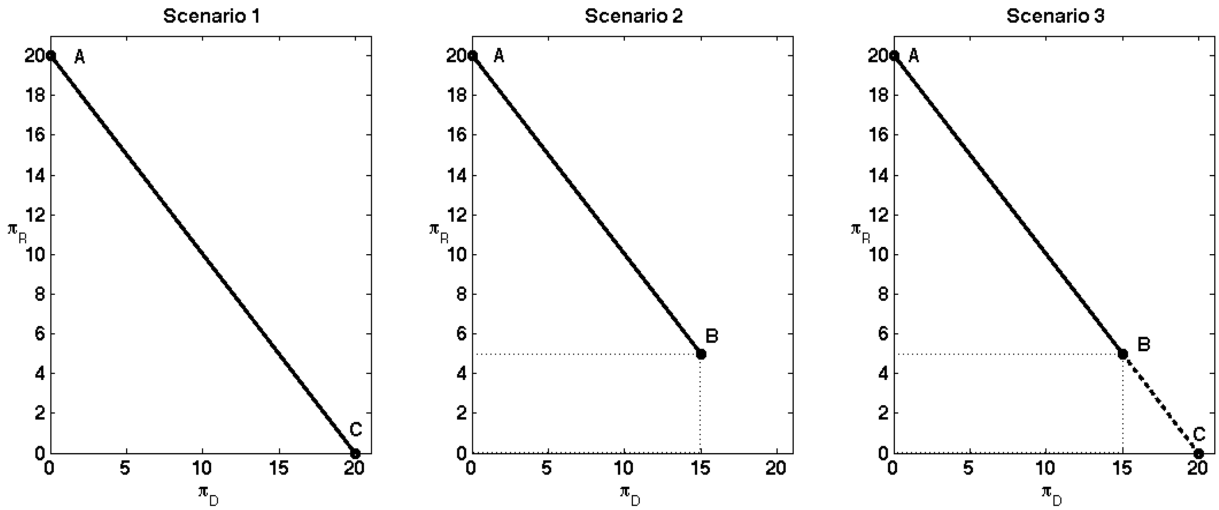
To test whether giving is equivalent to not taking, we compare the final amount earned by the recipient in scenarios that are isomorphic in the (π_D, π_R, S) space. Since the games are isomorphic, the optimal choices for the impurely altruistic dictator are identical if giving is equivalent to not taking. We use a within-subject design; subjects choose how much to give or to take in a menu of scenarios characterized by different endowments and maximum amounts that can be taken. We vary endowments as in Korenok et al. (2012). We extend their design by also varying the amount of the recipient's endowment that the dictator may take. Table 1 describes the nine scenarios. In all scenarios the sum of final payoffs is $20. The minimum payoff to the recipient is $0 in five scenarios, $5 in three scenarios, and $10 in one scenario.

Table 1. Experimental Design

Scenario	(1) Dictator's Endowment ($)	(2) Recipient's Endowment ($)	(3) Maximum Take ($)	(4) Minimum Payoff to Recipient ($)
1	20	0	0	0
2	15	5	0	5
3	15	5	5	0
4	10	10	0	10
5	10	10	5	5
6	10	10	10	0
7	5	15	10	5
8	5	15	15	0
9	0	20	20	0

Figure 1 depicts the payoff possibilities for the first three scenarios. Scenario 1 corresponds to the standard dictator game. The dictator chooses any point along line segment AC and moves away from the starting point C by increasing the amount given. In Scenario 2 the dictator chooses any point on the line segment AB and moves away from the starting point B toward point A by increasing the amount given. The set of payoff possibilities in Scenario 1 is extended relative to Scenario 2, as $5 from the recipient's endowment are transferred to the dictator. In Scenario 3, the dictator again chooses any point on the line segment AC. Now the dictator moves away from the starting point B towards point A by increasing the amount given and from point B towards point C by increasing the amount taken. Alternatively, one can say that the dictator chooses a point on AC and moves away from point C by increasing *S*, the sum of the amount given and the amount not taken.

Figure 1. Payoff Possibilities for Scenario 1, 2, and 3



The three scenarios depicted in Figure 1 allow four different types of comparisons. First, we compare observed behavior of subjects in Scenario 1 to the standard dictator games' results reported in the literature. Second, we compare behavior in Scenarios 1 and 2 to measure the impact on the recipient's final payoff of transferring endowment from the dictator to the recipient, as in Bolton and Katok (1998). Third, we compare Scenarios 2 and 3 to measure the impact of adding the taking option, as in Bardsley (2008) and List (2007). Finally, we compare Scenarios 1 and 3 to determine whether not taking is equivalent to giving as both scenarios are isomorphic in the (π_D, π_R, S) space.

The experiment was run in 5 sessions conducted in the Experimental Laboratory for Economics and Business Research at Virginia Commonwealth University. A total of 106 subjects recruited from introductory economics and business classes participated in the experiment. As in Andreoni and Miller's (2002) design, each subject was at the same time a dictator and a recipient. Korenok et al. (2013) show that having each subject play both roles does not have a significant impact on behavior as compared with a design in which each subject plays either dictator or recipient. Having each subject play both roles doubles the number of observations per session and reduces the boredom recipients face while waiting for dictators to make their choices.

Upon arrival, subjects were randomly seated at computer terminals and given a set of instructions (included in the Appendix), which were later read aloud by the experimenter. The instructions concluded with a quiz designed to help the participants become familiar with the type of choices involved in the dictator game. The monitor checked the answers to the quiz to make sure that all subjects clearly understood the nature of the choices. Throughout the session, no communication between subjects was permitted and all information and choices were transmitted through computer terminals, using the software program z-Tree (Fischbacher, 2007). The computer presented to each subject the nine scenarios specified in Table 1 in random order and each subject made simultaneously all nine decisions. The computer randomly divided the participants into two groups, randomly paired one person in the first group with a player in the second group, and randomly implemented one of decisions made by the person in the first group. Next, the computer randomly paired one person in the second group with a player from the first group and randomly implemented one of decisions made by the person in the second group. The computer then transmitted both decisions implemented to the players. After the participants recorded both decisions and their payoffs on their own personal record sheets, they proceeded to be paid privately by an assistant not involved with the experiment. At this time, the subjects also received a $5 participation fee.

4. Results

We begin by establishing that our results are consistent with earlier studies. First, our results are consistent with the results obtained in the standard dictator game. Second, our results are consistent with the results from the Bolton and Katok's (2008) study of the effect of transferring endowment. Third, our results are consistent with List's (2007) study of the effect of adding the option to take. Having established a claim to external validity, we will then examine whether not taking is equivalent to giving.

Average data from the experimental sessions are reported in Table 2. For each of the nine scenarios, the table shows the average amount passed, the recipient's average final payoffs, the number of dictators with positive amount given, and the number of selfish dictators. We define behavior in a scenario as selfish if the dictator reduces the recipient's payoff to the minimum amount possible. For example, a dictator is selfish in Scenarios 1, 2, and 4 if the amount given is $0 and is selfish in Scenarios 3 and 5 if the amount taken is $5. Out of 106 subjects, 26 are selfish in all nine scenarios, 18 are never selfish and 30 are selfish only once.

Table 2. A Summary of Experimental Results

	Scenarios								
	1	2	3	4	5	6	7	8	9
Dictator's Endowment	20	15	15	10	10	10	5	5	0
Recipient's Endowment	0	5	5	10	10	10	15	15	20
Max Take possible	0	0	5	0	5	10	10	15	20
Average *G*	4.05	2.72	0.01	1.44	-2.23	-4.39	-6.05	-8.41	-13.69
Average π_R	4.05	7.72	5.01	11.44	7.77	5.61	8.95	6.59	6.31
# Dictators with G > 0	68	65	49	44	18	16	13	14	na
# of Selfish Dictators	38	41	42	62	52	60	41	37	42

Finding 1*: Our results are consistent with the results reported for the standard dictator game.*

Scenario 1 corresponds to the standard dictator game; the recipient's endowment is $0 and the dictator is not allowed to take. The results in Scenario 1 are consistent with the results generally reported in the literature for this game. Many experimental studies find that, on average, 70% of the dictators give at least a portion of their endowment and that the average amount given is approximately 25% of the endowment.[8] As Table 2 shows, in Scenario 1, 68 of the 106 dictators (64%) give a positive amount and the average amount given is $4.05, about 20% of the endowment.

Finding 2*: Extending the payoff possibilities by reallocating endowments reduces the payoff to the recipient.*

Comparisons across Scenarios 1, 2, and 4 measure the extent to which extending the set of payoff possibilities under the control of the dictator by reallocating endowments reduces the payoff to the recipient. Figure 1 illustrates how Scenario 1 extends the set of payoff possibilities to AC compared to the payoff possibilities AB in Scenario 2. In all three scenarios 1, 2, and 4 the sum of the payoffs is $20. However, the minimum possible payoff to the recipient falls from $10, to $5, to $0 as the dictator moves from Scenario 4, to 2, to 1. We exclude in any comparison the dictators who are selfish in the scenario where the set of payoff possibilities are truncated. For

[8] See the excellent survey by Camerer (2003) for a discussion.

example, when comparing Scenarios 1 and 2, we exclude the 41 dictators who are selfish in Scenario 2 and consider only the decisions of the 65 dictators who give a positive amount. When comparing Scenarios 1 and 4 we exclude the 62 dictators who are selfish in Scenario 4 and consider only the decisions of the 44 who give. This allows us to avoid complications associated with constrained choices. For this reason, the number and identity of the dictators included in the analysis may change from one comparison to another. Similarly, the average payoff to the recipients in each particular scenario may also change.

On average, the payoff to the recipient decreases significantly as the experimenter transfers endowment from the recipient to the dictator. Table 3 shows the results from the three paired-difference tests. For example, column (1) shows that the recipient's payoff falls by an average of $3.30, from $9.44 in Scenario 2 to $6.14 in Scenario 1, and that this difference is significant.[9]

Table 3. Extending the Set of Payoff Possibilities by Transferring Endowment

	(1) 1 v. 2	(2) 1 v. 4	(3) 2 v. 4
Scenario with the truncated set of payoff possibilities	2	4	4
Scenario with the extended set of payoff possibilities	1	1	2
Mean paired difference ($)	-3.30[a]	-8.31[a]	-4.15[a]
Mean payoff to the recipient in the truncated scenario ($)	9.44	13.48	13.48
Mean payoff to recipient in the extended scenario ($)	6.14	5.17	9.33
Number of observations	65	44	44

[a] Significantly different from zero at the 1% level.

Finding 3: *Extending the payoff possibilities by introducing or increasing the option to take reduces the payoff to the recipient.*

Comparisons across Scenarios 2 and 3, Scenarios 4, 5, and 6, and Scenarios 7 and 8 measure the extent to which the addition of or increase in the taking option affects the recipient's final payoffs. Figure 1 illustrates how Scenario 3 extends the set of payoff possibilities to AC compared to the payoff possibilities AB in Scenario 2. Table 4 reports five paired differences and

[9] All three median paired differences are also significantly different from $0 at the 1% level.

shows how the payoff to the recipient on average decreases significantly as the experimenter extends the set of payoff possibilities. Again, to avoid complications associated with constrained choices, we include in each comparison only the dictators who are not selfish in the scenario in which the payoff set is truncated. For example, when comparing Scenarios 2 and 3 we exclude the 41 dictators who are selfish in Scenario 2 and consider only the 65 dictators who give a positive amount. When comparing Scenarios 5 and 6 we exclude the 52 dictators who are selfish in Scenario 5 and consider only the 54 dictators who either take less than $5 or give a positive amount. Column (1) in Table 4 compares the outcomes in Scenarios 2 and 3 and shows that payoff to the recipient decreases by an average of $1.88, from $9.44 in Scenario 2 to $7.56 in Scenario 3, and that this difference is significant.[10]

Table 4. Effect of Increasing the Amount the Dictator Can Take

	(1) 2 v. 3	(2) 4 v. 5	(3) 4 v. 6	(4) 5 v. 6	(5) 7 v. 8
Scenario with the truncated set of payoff possibilities	2	4	4	5	7
Scenario with the extended set of payoff possibilities	3	5	6	6	8
Mean paired difference ($)	-1.88[a]	-4.47[a]	-5.89[a]	-1.34[b]	-1.89[a]
Mean payoff to recipient in the truncated scenario ($)	9.44	13.48	13.48	10.45	11.44
Mean payoff to recipient in the extended scenario ($)	7.56	9.01	7.59	9.10	9.55
Number of observations	65	44	44	54	65

[a] Significantly different from zero at the 1% level
[b] Significantly different from zero at the 10% level

The results so far reported are consistent with previous work across three dimensions: the standard dictator game, the effect of transferring endowment, and the effect of increasing the taking option. Having established this consistency, we now proceed to the main question: Is giving equivalent to not taking when the payoff possibilities are equal?

Finding 4: *Giving is not equivalent to not taking in isomorphically equivalent scenarios in the (π_D, π_R, S) space. On average, the payoff to recipients increases with the introduction of the taking option.*

[10] All three median paired differences are also significantly different from $0 at 1% level.

To determine whether giving is equivalent to not taking, we compare the payoffs to the recipients in Scenario 1 to isomorphically equivalent Scenarios 3, 6, 8, and 9 and Scenario 2 to isomorphically equivalent Scenarios 5 and 7. Figure 1 illustrates the isomorphic equivalence of payoff possibilities in Scenario 1 to the payoff possibilities in Scenario 3, both represented by the AC segment. The minimum payoff for the recipient is $0 in Scenarios 1, 3, 6, 8, and 9. The amount the dictator must take to achieve this minimum increases from $0 to $20 in $5 increments across the five scenarios. The minimum payoff to the recipient is $5 in Scenarios 2, 5, and 7. The amount the dictator must take to achieve this minimum increases from $0 to $10 in $5 increments across the three scenarios. We include in all comparisons only the 80 dictators who were not selfish in at least one scenario. We exclude all those dictators who were consistently selfish and maximized their own payoff in all nine scenarios, because their behavior demonstrates that they value neither giving nor not taking.

Table 5 contains the results of the six paired difference tests. Five paired differences show that the payoff to the recipient is significantly higher when the taking option exists; the mean paired difference for Scenarios 2 and 5 is positive but not significant. Column (1) in Table 5, for instance, shows that the payoff to the recipient increases by an average of $1.27, from $5.37 in Scenario 1 to $6.64 in Scenario 3.

Table 5. Giving and Not Taking

	(1) 1 v. 3	(2) 1 v. 6	(3) 1 v. 8	(4) 1 v. 9	(5) 2 v. 5	(6) 2 v. 7
Min. possible payoff to recipient ($)	0	0	0	0	5	5
Scenario with the smaller taking option	1	1	1	1	2	2
Scenario with the larger taking option	3	6	8	9	5	7
Mean paired difference ($)	1.27[b]	2.06[a]	3.37[a]	3.00[a]	0.07	1.62[a]
Mean payoff to recipient when the taking option is smaller ($)	5.37	5.37	5.37	5.37	8.61	8.61
Mean payoff to recipient when the taking option is larger ($)	6.64	7.43	8.73	8.36	8.68	10.23

[a] Significantly different from zero at the 1% level.
[b] Significantly different from zero at the 5% level.

A closer examination of the outcomes in Scenarios 1 and 9 illustrates the differences between giving and not taking.[11] In Scenario 1, the payoff to the recipient is the amount given because only the dictator has an endowment and taking is not an option. Scenario 9 is the reverse; the payoff to the recipient is the amount not taken because only the recipient has an endowment and the dictator can only take. Thus, a dictator who gives a positive amount in Scenario 1 could attain the same payoffs in Scenario 9 by not taking that same amount. However, the amount not taken in Scenario 9 is higher than the amount given in Scenario 1 for 49% of the dictators, while the amount not taken is lower for only 21% of the dictators. The propensity to be selfish increases slightly when not taking is the option. Otherwise, dictators tend to not take more than they give.

This result confirms that "an asymmetry between positive and negative externalities is generalizable to" (Andreoni, 1995, p. 13) dictator games. Andreoni compares the results of two versions of a public good experiment with isomorphic payoff possibilities - a positive frame in which contributions create positive externalities and a negative frame in which purchases of a private good create negative externalities. He finds that cooperation is significantly greater in the positive frame and concludes that, "there must be some asymmetry about the way people feel personally about doing good for others versus not doing bad: the warm glow must be stronger than the cold-prickle" (p. 13). Since not taking in a dictator game is not doing bad, Andreoni's results suggest that giving should be greater than not taking in isomorphically equivalent dictator games. We, however, find the opposite; giving tends to exceed not taking. That is, the cold prickle of taking from the recipient exceeds that warm glow of giving.

5. Concluding Comments

We test whether not taking in a dictator game is equivalent to giving. We conduct an experiment in which the dictator makes choices in nine different scenarios. We find that our

[11] Grossman and Eckel (2012) study giving and taking from a charity in three cases - Self$20, Split$20, and Charity$20 - that correspond, respectively, to our Scenarios 1, 6 and 9. The average earnings for the recipient are $3.56, $9.73 and $3.60 in their cases and $4.05, $5.61 and $6.31 in our scenarios. They find that the earnings for the recipient increase when comparing Self$20 and Split$20, just as we do. Surprisingly, however, they find no difference in the final amount received by the charity in the two extreme cases of Self$20 and Charity$20. Also, the earnings in Split#20 are much higher than those in Scenario 6. They suggest " the initial even split acts, on average, as a strong focal point for our subjects" (p.13).

results are consistent with the results obtained in the standard dictator game, with Bolton and Katok's (2008) study of the effect of transferring endowment, and with List's (2007) and Bardsley's (2008) studies of the effect of adding the option to take. We compare the outcomes in games in which different levels of taking are allowed, holding the range of payoff possibilities constant, to examine whether not taking is equivalent to giving. We find that the two are not equivalent: the payoff to recipients tends to increase as the amount the dictator must take to achieve a given payoff rises. Surprisingly our finding that the cold prickle of taking exceeds that warm glow of giving in dictator games is opposite to Andreoni's original finding in public good games.

We speculate that our results might apply in other settings. That individuals prefer not taking to giving might be an alternative explanation or a contributing motivation for observed differences in behavior previously attributed to framing effects or status quo bias. For example, organ donation rates are significantly lower in countries that require donors to opt in to donate instead of to opt out not to be a donor. Researchers usually attribute the difference to status quo bias and argue that policy makers in opt-in countries could increase donation rates by changing to an opt-out policy. Our results suggest another possible reason for the difference: donors prefer not taking to giving. Opting out could be viewed as taking; someone might lose the opportunity for a transplant if the decision maker opts out. Opting in could be viewed as giving: someone might obtain the opportunity for a transplant if the decision maker opts in. Other examples might include the decision to opt-out of contributing to a retirement or health insurance plan.

Finally, we note that our results also confirm List's conclusion that "the data suggest that current interpretations of dictator game data likely need revision." We show that not taking is not equivalent to giving. This means that the finding by Korenok et al. (2013) that impure altruism rationalizes choices in giving games does not apply to taking games. Our results suggest that adding the amount not taken as a fourth argument to the dictator's utility function might rationalize observed behavior. Of course, this addition would be a revision of current interpretations.

References

Andreoni, J. (1989). Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence. *Journal of Political Economy*, 97(6), 1447-58.

Andreoni, J. (1990). Impure altruism and donations to pubic goods: A theory of warm glow giving. *Economic Journal*, 100, 464-77.

Andreoni, J. (1995). Warm-glow versus cold-prickle: The effects of positive and negative framing on cooperation in experiments. Quarterly Journal of Economics 110 (1), 1-21

Andreoni, J., and Miller J. (2002). Giving according to GARP: an experimental test of the consistency of preferences for altruism. *Econometrica*, 70, 737–53.

Bardsley, N. (2008). Dictator game giving: altruism or artefact? *Experimental Economics*, 11: 122–133

Bolton, G.E., and Katok E. (1998). An experimental test of the crowding out hypothesis: The nature of beneficent behavior. *Journal of Economic Behavior and Organization*, 37(3), 315-31.

Cappelen, A.W., Nielsen, U.H., Sorensen, E.O.,Tungodden, B., and Tyran J. (2013). Give and take in dictator games. Economics Letters 118, 280-283.

Cherry, T. L., Frykblom, P., and Shogren, J. F. (2002). Hardnose the dictator. American Economic Review 92, 1218-1221.

Eckel, C.C., Grossman, P.J., and Johnston R.M. (2005).An experimental test of the crowding out hypothesis. Journal of Public Economics 89,1543-60.

Fischbacher, U. (2007). z-Tree: Zurich Toolbox for Ready-Made Economic Experiments. *Experimental Economics*, 10, 171-178.

Grossman, P. and Eckel, C. (2012). Giving versus Taking: A “Real Donation” Comparison of Warm Glow and Cold Prickle in a Context-Rich Environment. Monash Economics Working Papers 20-12, Monash University, Department of Economics.

Landry, C. E., Lange, A., List, J. A.,Price, M. K., and Rupp, N. G. (2010). Is a Donor in Hand Better Than Two in the Bush? Evidence from a Natural Field Experiment. American Economic Review 100 (3), 958-83.

List, J. (2007). On the Interpretation of Giving in Dictator Games. *Journal of Political Economy*, 115 (3), 482-493

Luccasen, Andrew, Grossman, Phillip J. (2013). A robust test of warm glow giving and spiteful pleasure in a "real donation experiment with and without earned endowments. Monash Economics Working Papers 29-13, Monash University, Department of Economics.

Korenok, O., Millner,E., and Razzolini, L. (2012). Are Dictators Averse to Inequality? *Journal of Economic Behavior and Organization*, 82(2), 543-547.

Korenok, O., Millner, E., and Razzolini, L. (2013). Impure Altruism in Dictators’ Giving. *Journal of Public Economics*, 97, 1-8.

Appendix 1: INSTRUCTIONS

Please fill in the date, your social security or student ID number, your name, and your address on the top portion of the receipt while you wait for everyone to find a seat. Doing so will reduce the time spend processing payments at the end of the experiment. The University requires receipts for accounting purposes. The monitor in the room will not collect or see them. You will give them to an assistant sitting outside of the room when you leave to collect your payment for today's experiment.

You may read the following instructions silently after you complete the top portion of the receipt. The monitor will read them aloud after everyone is seated.

Welcome

The purpose of this experiment is to study decision-making related to economic situations. A research foundation has provided the funds for this experiment. We estimate that you will complete the experiment within one hour.

During the experiment you will make decisions related to economic situations at your computer terminals. You will receive a $5 show-up fee. You may also earn additional money depending on the decisions that you and the other participants will make.

Please raise your hand at any point if you have any questions about the instructions or if you wish to cease your participation. You may cease participation at any point; if you do you will receive the $5 show-up fee but will not receive any additional compensation.

Minimum age

Please visit the monitor if you are 17 years old or younger. Research protocols at VCU require participants to be at least 18 years old.

Anonymity

Any interaction with other participants will be anonymous—you will never find out the identity of the participants you interacted with nor will they find out your identity. No one, including the researchers, will be able to identify your decisions. At the end of the experiment you will be paid privately and in cash. In order to keep your decisions private, *please do not reveal your choices to any other participant.*

Risks, benefits, and cost

Participation in this experiment does not impose any risks in addition to those you encounter in your day-to-day activities. The primary benefit of the study will be to advance our understanding of decision-making in economic settings. You may gain some educational benefit. The only cost to you of participation is your time.

The experiment
In different scenarios you will decide what portion of your endowment to transfer to another participant in the room. We will refer to the person with whom you will be paired as OTHER. You and OTHER will be paired randomly and will not be told each other's identity.

Each scenario specifies how much money is in your endowment, how much money is in the OTHER endowment and the range of allowable transfers. In some scenarios you can also transfer a negative amount: i.e., you can take some of the OTHER endowment. The transfer decision determines the earnings for both players.

Let's consider a Hypothetical Scenario in which your endowment is $3, the OTHER endowment is $2, and you may transfer any amount between -$2 and $3. The display on your computer screen would be:

OTHER endowment $2. Your endowment $3. You may transfer between -$2 and $3.

The transfer can be any number between -$2 and $3 in $0.1 increments. The computer program will reject transfer amounts like -$4, $0.33, or $5.

The table below shows the earnings for you and OTHER as the amount transferred increases from -$2 to $3 in $0.5 increments in the Hypothetical Scenario.

OTHER endowment $2. Your endowment $3. You may transfer any amount between -$2 and $3.		
Transfer ($)	Your Earnings ($) = $3 - Transfer	Earnings for OTHER ($) = $2 + Transfer
-2	5	0
-1.5	4.5	0.5
-1	4	1
-0.5	3.5	1.5
0	3	2
0.5	2.5	2.5
1	2	3
1.5	1.5	3.5
2	1	4
2.5	0.5	4.5
3	0	5

Please spend a moment studying the table and raise your hand if you have any questions about how to calculate earnings.

Earnings
You will make a transfer decision for each scenario. After everyone makes the transfer decisions, the computer randomly chooses one of the decisions to implement.

The computer will randomly pick another person in the experiment to be OTHER and implement YOUR transfer decision. You will earn what is left of your endowment after the transfer, and the person with whom you are paired will earn his or her endowment plus your transfer.

You will also be OTHER in a second, different, random pairing. That is, the computer will implement someone else's transfer decision and you will earn your endowment plus the amount transferred. The person with whom you are paired will earn what is left of his or her endowment after the transfer.

Your total earnings are the sum of what you earn in the two pairings.

You will record your total earnings on the RECEIPT and take it to an assistant sitting outside the room for payment. To preserve your anonymity, the assistant does not know the nature of today's experiment. After the assistant pays you, you are free to leave.

Questions?
Please raise your hand if you have any questions about the instructions or if you wish to cease your participation. We will then proceed to the scenarios.