Does Anonymity Affect the Willingness To Accept and Willingness To Pay Gap? A Generalization of Plott and Zeiler.[*]

Alexander L. Brown[**]
Department of Economics
Texas A&M University

Gregory Cohen
Honors Undergraduate Research Fellow
Department of Economics
Texas A&M University

January 27, 2014

Abstract

Conventional value-elicitation experiments often find subjects provide higher valuations for items they posses than for identical items they may acquire. Plott and Zeiler (2005) replicate this willingness-to-pay/willingness-to-accept "gap" with conventional experimental procedures, but find no gap after implementing procedures that provide for subject anonymity and familiarity with the second-price mechanism. This paper investigates whether anonymity is necessary for their result. We employ both types of procedures with and without anonymity. Contrary to predictions of one theory—which suggest social pressures may cause differences in subject valuations—we find, regardless of anonymity, conventional procedures generate gaps and Plott and Zeiler's does not. These findings strongly suggest subject familiarity with elicitation mechanisms, not anonymity, is responsible for the variability in results across value-elicitation experiments. As an application to experimental design methodology, there appears to be little need to impose anonymity when using second-price mechanisms in standard consumer good experiments.

[*]This research is an extension of Cohen's undergraduate honors thesis at Texas A&M University. Financial support was provided by the Texas A&M Humanities and Social Science Enhancement of Research Capacity Program. We thank Catherine C. Eckel and Charles R. Plott for helpful comments. We thank José Gabriel Castillo, Carl Green, Haley Harwell, Daniel Stephenson, Ajalavat Viriyavipart, Xiaoyuan Wang, and J. Forrest Williams for help running experiments.

[**]Corresponding author. Please contact at abrown@econmail.tamu.edu.

I. Introduction

There is a great deal of controversy whether owning an item causes an individual to value it more than he would otherwise. This "endowment effect" debate appears in the experimental literature as an argument about the existence of a gap between subjects' willingness to pay (WTP) for an item versus their willingness to accept (WTA) dispossession of the same item. In their seminal work, Kahneman, Knetsch, and Thaler (1990) find the existence of this gap to be robust to a variety of experimental conditions, and note it is consistent with a manifestation of loss aversion and reference dependence. Plott and Zeiler (2005) argue that a true test of such preferences requires control for all other conceivable explanations. They find that when they add controls designed to foster subject understanding of an incentive compatible elicitation device, as well as anonymity, these gaps disappear. Assuming their differing results are due to their differing procedures, then two possible types of changes may be responsible for the observed WTA-WTP gap observed in experiments. Either the gaps vary with subject familiarity with an incentive compatible elicitation device, or with perceived subject anonymity within experiments.

These two changes imply two very different explanations for their results. In one case, unfamiliarity or misconceptions about how reported valuations map into payouts is altering subjects' responses, but buyers and sellers value the good similarly. In the other, subjects could be correctly responding to the stimulus, but social pressures concerning how others perceive them might dictate different responses in buyers and sellers. Fremling and Posner (1999) propose this latter explanation. Since "talented negotiators" are known for obtaining items for low prices and selling them for high prices, subjects may wish to signal to others or the experimenter that they are talented. These social pressures cause their actions to diverge from their true individual valuation of items, causing the WTA-WTP gap. While there is no direct experimental evidence

suggesting subjects will sacrifice their own earnings to be perceived as talented, several studies on anonymity in dictator games (e.g., Burnham, 2003; Charness and Gneezy, 2008; Eckel and Grossman, 1996; Hoffman, McCabe, and Smith, 1996) suggest subjects will sacrifice earnings to be perceived as unselfish by others.

With the aim of providing further clarity in this area, this paper examines whether anonymity has any effect on subject responses in preference elicitation procedures in mug experiments. While it is generally believed that familiarity with the second-price mechanism[1] and not anonymity is responsible for the differences between the results of Plott and Zeiler and Kahneman, Knetsch, and Thaler,[2] whether anonymity is responsible for any of the difference has not been tested. To this end, we replicate the general designs of both studies with and without anonymity. If we find that gaps vary with anonymity, then this is consistent with the explanation of anonymity being responsible for the WTA-WTP gap found in experiments. Experimenters will then need to decide when using the second-price mechanism whether or not it is appropriate to use anonymity, depending on the purposes of their design. If instead we find differences between the two procedures regardless of anonymity, then varying degrees of familiarity with the second-price mechanism—not the lack of anonymity—is the likely cause of differing elicitations among subjects. It will be up to future experimenters to decide what level of familiarity with the second-price mechanism is appropriate for their studies, but they likely need not worry about instituting anonymous protocols.

Our results show no effect of anonymity on subjects' willingness to accept and

[1] One may also refer to this mechanism as a Becker-DeGroot-Marschak (BDM) mechanism (Becker et al. 1964).
[2] In a later work, Plott and Zeiler (2011) state, "Our results demonstrate that the gap for commodities can be turned on and off by implementing procedures designed to control for subject misconceptions about the value elicitation procedures. (p. 1012)" Several field studies also suggest that experienced professionals do not exhibit the WTA-WTP gaps (List 2003; Engelmann and Hollard, 2010), but these studies do not use the second-price mechanism so it is debatable whether familiarity with the second price mechanism and professional experience in the field are the same attribute.

willingness to pay for mugs. Further, consistent with Plott and Zeiler we find a significant WTA-WTP gap using procedures taken from Kahneman, Knetsch, and Thaler, but not when using the Plott and Zeiler procedures. Hereafter, we refer to our version of these procedures as KKT-BC and PZ-BC, respectively.

As an added check, we run single-shot dictator games in each anonymity condition in each procedure. While our initial study (see our working paper, Brown and Cohen, 2012) using identical anonymous procedures finds significant differences in giving (consistent with Hoffman, McCabe, and Smith 1996), we do not find it in either our KKT-BC or PZ-BC procedures. Thus, it is possible that subjects in our study are unresponsive to, or unaware of, the differences in levels of anonymity. Nonetheless, the differences in WTA-WTP gaps between our PZ-BC and KKT-BC conditions allow us to conclude that variations in subject familiarity with the second-price mechanism are sufficient to cause the observed differences in WTA-WTP gaps, a generalization of Plott and Zeiler's main result.

We conclude that subject training on the second-price mechanism and not anonymity is likely responsible for differences in the WTA-WTP gap between Kahneman, Knetsch and Thaler, Plott and Zeiler, and other elicitation experiments that use the second-price mechanism. We do not claim we have educated subjects correctly to reveal their preferences in the second-price mechanism. Future research is needed to determine the appropriate way to use such mechanisms. Nonetheless, the result should aide experimenters who wish to use the second-price procedure as they can focus on the proper amount of subject training and not enforcing anonymity procedures in the lab.

This paper proceeds as follows: the remainder of this section discusses related literature. Section II outlines our general design; section III provides results and section IV concludes.

a. Related Literature

There is a rich history of experimental economics results involving the WTA-WTP gap. Kahneman, Knetsch, and Thaler (1990) find some of the most well-known and significant evidence in favor of the existence of the gap. They attribute this difference to loss aversion and reference dependence. In a typical experiment, subjects are randomly divided into two equal groups of "buyers" and "sellers." Each seller is given an item (usually a mug) and told they may trade that item with buyers. Unlike standard economic theory—which predicts about half the sellers should trade their mugs and seller willingness to pay should not differ from buyer willingness to accept—a majority of sellers do not trade their mugs and seller WTA is about 1.5 to 2 times higher than buyer WTP. In other experiments within the same paper, they find these general results are robust to a variety of experimental changes including clearly defining the market value of the item, removing money, only trading items, and using the second-price mechanism to obtain incentive compatible estimates of WTA and WTP. This WTA-WTP gap is not found, however, when tokens with clear, transferable, monetary value are used instead of a durable item.

Plott and Zeiler (2005) show that varying subject familiarity and training with the second-price mechanism and anonymity causes variations in the observed WTA-WTP gaps across experiments. They begin by replicating the experiment of Kahneman, Knetsch, and Thaler that used the second-price mechanism. They then implement a new design with a different elicitation mechanism, extensive instruction and training with that mechanism, and anonymity. They find no significant difference between WTP and WTA for mugs among buyers and sellers. They conclude that observed WTA-WTP gaps in the lab cannot be evidence of loss-aversion and reference dependent preferences because the gaps disappear when controls for anonymity and

subject misconception are present. We will use these two experimental designs as the KKT-BC and PZ-BC procedures in our experiments.

Our initial study (Brown and Cohen, 2012) provides the groundwork for this paper. We run a similar experiment to Kahneman, Knetsch, and Thaler (1990), but replace their hypothetical practice rounds with paid practice rounds and provide feedback to subjects on how to properly bid under their elicitation mechanism. With and without conditions designed to assure anonymity, we find no evidence of the WTA-WTP gap. Going further, this study uses Kahneman, Knetsch, and Thaler and Plott and Zeiler's original designs both with and without anonymity to examine the relevance of anonymity to Plott and Zeiler's main result.

Other literature examines whether experimenter language is responsible for the effect (Franciosi et al. 1996), whether results can be explained by a different loss aversion factor (Brown 2005), whether repeated markets cause the WTA-WTP gap to disappear (Loomes, Starmer, and Sugden 2003), whether varying the method in which the mug was given alters the effect (Loewenstein and Issacharoff 1994), and whether imprecise preferences cause the disparity (Dubourg, Jones-Lee, and Loomes 1994). Others still test the hypotheses set forth by Plott and Zeiler (2005), such as Isoni, Loomes, and Sugden (2011) and Plott and Zeiler (2007).

II. Experimental Design

These experiments took place in the Economic Research Lab (ERL) in the Texas A&M University Department of Economics during April and May 2013. Subjects were randomly recruited using ORSEE (Greiner, 2004). The experiment can be thought of as a 2x2 design, as subjects could either be part of our Plott-Zeiler (PZ-BC) or Kahneman, Knetsch and Thaler (KKT-BC) procedures and either anonymous or non-anonymous protocols. Sixty-six (30 with anonymity, 36 without) and 44 (22 with and without anonymity) subjects participated under the

KKT-BC and PZ-BC procedures, respectively. As this was a between-subjects design, no subject participated in more than one cell. Average subject earnings were $7.94 for a 45-minute session under the KKT-BC procedures and $38.84 for a 90-minute session under the PZ-BC procedures. All experiments were done using pen and paper.

a. Procedure type

1. Kahneman, Knetsch and Thaler (KKT-BC) procedures

The KKT-BC procedures consisted of four rounds. Subjects were evenly divided into buyers and sellers—the sellers receiving mugs—and received separate instruction packets.[3] For the first three rounds, sellers (buyers) were asked to complete a price sheet with their decisions to sell (buy) their (a) item at twenty different prices (listed from $0.00 to $9.50, in increments of $0.50). One randomly chosen subject rolled a twenty-sided die to determine the transaction price for each round. Rounds 1-2 involved subjects bidding for imaginary tokens and were not counted toward subject earnings. Round 3 involved bidding with real stakes and a mug. Round 4 was a real stakes dictator game. Half the subjects were randomly selected as dictators (independent of being a buyer or seller) and chose how much of $10 in $1 increments to keep for themselves.

Consistent with Kahneman, Knetsch and Thaler and Plott and Zeiler's replication of their procedures, no show-up payment was given to subjects for these procedures. Subjects had the possibility to make negative earnings if they chose to buy the mug, and each brought $10 to the lab to cover this possibility. No subject made negative earnings, but 16 (24%) left the experiment with no earnings. Buyers were required to place their $10 face-up on their booth during the mug round and it was collected with their responses. The amount was returned in addition to their earnings at the end of the experiment.

[3] See our supplemental materials for these packets.

2. Plott and Zeiler (PZ-BC) procedures

The PZ-BC procedures began with extensive subject instruction designed to mirror Plott and Zeiler. Subjects received record sheets and verbatim instructions copied from the appendix of that paper (excluding footnotes and any reference to their payment procedures). The instructions (including the aforementioned footnotes, where relevant) were read aloud. The experimenter used slides to show the random distribution of numbers, a worked buyer example and a worked seller example.[4] The experimenter informed subjects that they were welcome to ask questions about any of the procedures at any time.

The elicitation rounds followed procedures nearly identical to Plott and Zeiler:[5] subjects participated in two hypothetical and 14 real-stakes, lottery rounds, and then one mug round.[6,7] In each round, subjects submitted bids against a randomly generated fixed offer. As in Plott and Zeiler, the random offer induces buyers (sellers) to reveal the maximum they are willing to pay (minimum they are willing to sell) as a dominant strategy. The fixed offer and lottery result (when applicable) was revealed after each round so that subjects were able to record both in their record sheets and keep track of earnings. In the final round, identical to round 4 of the KKT-BC, subjects played the dictator game. Once all rounds were completed, subjects received earnings equal to their totals for the non-hypothetical rounds, plus a show-up payment of $5.

b. Anonymity type

In this 2x2 design, each procedure type (KKT-BC or PZ-BC) featured either anonymous or non-anonymous protocols. Our initial study (see our working paper, Brown and Cohen 2012)

[4] See our supplemental materials for all items.
[5] We differ in one respect: Plott and Zeiler predetermined fixed offers, but ran lotteries live. To save time, we predetermined both our lotteries and fixed offers.
[6] In one of their sessions, Plott and Zeiler ran the mug round immediately after the unpaid practice rounds, and then 14 lottery rounds. They still achieved no WTA-WTP gap. We did not run this ordering in our design.
[7] Mugs were placed in front of all subjects immediately before the mug round.

finds these exact protocols led to significantly different amounts given in a $5 dictator game, consistent with previous literature on anonymity.

1. Non-anonymous condition

Once the earnings were calculated, subjects were distributed payment forms and entered their personal information (e.g., name, student ID, etc.) on those forms. They were called up in order of subject number (all subjects were told to bring their mugs if applicable) and paid in a corner of the experimental lab. This corner featured some degree of privacy (as subjects were paid one at a time), but lacked full confidentiality (as other subjects could still hear—or possibly see[8]—transactions). The experimenter, who calculated payments and distribution of mugs, saw the faces of subjects, knew their number, knew their name (from the payment sheet), and knew the results of all randomizations.

2. Anonymous condition

In the anonymous condition, no single experimenter would be able to connect the performance of a subject with either his face or name. Experimenter 1 checked subjects in, collected subject data necessary for payment processing, sealed it in an envelope in front of subjects and left the laboratory before the experiment began. Experimenters 2 and 3 conducted all interactions with subjects, instructing subjects each round and collecting subject written responses for that round without observing those responses. Experimenter 4 sat with his back to all subjects and experimenters, behind a divider. He would total earnings and know subject performance, but would not see any subject or learn their names.

At the end of the experiment, payments were placed in envelopes by experimenter 4 and distributed to subjects by experimenters 2 and 3. One envelope would contain a subject's

[8] Experimenters made no effort to block lines of sight or prevent subjects from entering those lines of sight (by moving away from their booth). Nonetheless, the lab is designed so that it is very difficult if not impossible for most subjects to view transactions.

payment. The other would contain information on whether they would receive a mug at the end of the experiment. Each subject left the laboratory one at a time, with a mug, if he had received one during the experiment. After exiting the laboratory, each subject would show a new experimenter, experimenter 5 (who was unaware of anything that transpired in the experiment) the envelope determining if they would leave the experiment with a mug or not. Experimenter 5 would distribute or collect mugs to match the conditions on the envelope. After the experiment was over, a separate party—unaware of any details of the experiment—copied subject payment information onto each payment sheet for institutional records. The details of this payment process were disclosed to subject on multiple occasions (see supplemental materials for instructions).

III. Results

Table 1 shows the lowest values sellers were willing to sell their mugs (their willingness to accept, WTA) and the highest value buyers were willing to pay to buy a mug (their willingness to pay, WTP) in Round 3 of our KKT-BC procedures. Consistent with that previous study, subjects' WTA values ($4.34 average) are slightly over twice their WTP values ($1.91 average), whether subjects were in a condition with anonymity or without. This difference is statistically significant (two-tailed p-value<0.05) using t-tests and two non-parametric tests, whether we examine the anonymous condition, non-anonymous condition or we measure across conditions. By any measure, we observe a WTA-WTP gap under the KKT-BC procedures.

Table 2 provides elicited values of the lowest sellers are willing to accept to give up a mug (WTA) and highest buyers are willing to pay for a mug (WTP) under our PZ-BC procedures. Sellers' WTA appear slightly higher than buyers' WTP in the anonymous condition and when the data are combined, but this result is not statistically significant (p-value>0.25 for

all three tests).[9] Hence, by finding a WTA-WTP gap under our KKT-BC procedures, but not under the PZ-BC procedures, we have reproduced Plott and Zeiler's (2005) general result.

Table 3 provides results of two ordinary least squares regressions of elicited offers (i.e., both sellers' WTA and buyers' WTP) for mugs on dummy variables for seller, anonymous condition and their interaction in the mug rounds under our KKT-BC and PZ-BC procedures. As we might have suspected by observing Tables 1 and 2, we see that anonymity has no effect on subject offers. Being a seller leads to much greater offers under the KKT-BC but not the PZ-BC procedures.

The interaction term between anonymity and seller, provides a test as to whether anonymity might reduce WTA-WTP gaps. The term in the KKT-BC regression is not significantly different from zero and very small compared to the seller gap (-0.173 vs. 2.506). The term in the PZ-BC regression is much larger (3.180) but also not significantly different from zero.[10] The term is positive, suggesting, if anything, that anonymity actually *increases* WTA-WTP gaps, the opposite of our tested hypothesis. Thus, there is no evidence that anonymity reduces WTA-WTP gaps in either of our procedures.

a. Dictator game results

As a robustness check on the anonymous environments in the experiments, a dictator game was run in the last round of our designs. Previously literature and our initial experiment (Brown and Cohen, 2012) show that anonymous subjects tend to keep a significantly higher portion of their

[9] The discrepancy is largely due to the results of one anonymous seller who offered $30.50 as the lowest value for which she would sell her mug. Removing the one subject reduces the mean anonymous WTA to 5.19 (from 7.49) and combined mean WTA to 4.77 (from 5.94) in Table 2. The p-values for the three tests comparing WTA and WTP in the anonymous condition (table 2, row 1) are 0.552, 0.481, 0.819 for t-test, Wilcoxon Mann-Whitney, and median tests, respectively. The p-values are 0.612, 0.535, 0.650, respectively, for the same tests comparing WTA and WTP combining the results across anonymous conditions (table 2, row 3). The difference in median WTA vs. WTP is much less than the difference in means, reflecting the disproportionate impact of one subject on mean values.

[10] Other regression specifications (robust regression, median regression) and transformations (log, square root) generally produce much lower coefficient estimates for this term. None are statistically significant ($p>0.1$). Similar results are found (especially a reduced coefficient) by omitting the subject with a WTA of $30.50.

allocation in a dictator game. Table 4 provides results. In neither of our procedures, do we find a statistical difference between money dictators kept in the anonymous and non-anonymous conditions.

The failure to find evidence of a difference across conditions in the dictator game may not be an issue. The effects of anonymity may be quite subtle; Hoffman, McCabe, and Smith (1996) generally do not find a significant *pairwise* difference across anonymous conditions, rather they find significance when examining the ordering of six increasingly anonymous conditions. Additionally the payment differences between our designs—subjects earn $7.95 and $38.84 on average in the KKT-BC and PZ-BC designs respectively, both on the low and high ends for experimental earnings in our lab—may overwhelm the subtle effects of anonymity and determine subject behavior. Note that subjects under the PZ-BC procedures give roughly $2 more than those under the KKT-BC procedures.[11]

Nonetheless, if these results are indicative of the anonymous subjects being no different from non-anonymous, the main implications of this paper still hold. Under a constant level of anonymity—whatever it may be—we have replicated Plott and Zeiler's (2005) result. Thus, anonymity is not necessary to eliminate WTA-WTP gaps in this specific laboratory context.

IV. Conclusion

Our experiment replicates the general results of Plott and Zeiler (2005) under both anonymous and non-anonymous conditions, ruling out that anonymity is necessary to achieve their results. We find WTA-WTP gaps using the KKT-BC procedures, but not when using the PZ-BC procedures. When we vary anonymity across these two sets of procedures, we find no difference in the WTA-WTP gaps observed. However, unlike in our initial study—that used the exact same

[11] This difference is significant at the 1% level (two-tailed t-test, Wilcoxon Mann-Whitney) and 2% level (median test).

anonymous procedures—and previous literature, we do not find a difference in dictator allocations among subjects in the anonymous and non-anonymous conditions. This suggests it is possible that subjects were unaware of, or unresponsive to, the differences between our non-anonymous and anonymous conditions. Therefore, we must be careful what we conclude in general about anonymity and elicited values.

Moreover, it should be noted these findings are not a complete rejection of the theories of Fremling and Posner (1999) on anonymity and WTA-WTP gaps. This experiment was designed to close an unanswered question stemming from Plott and Zeiler (2005) about anonymity, but was not a general test such of theories. Anonymity may still matter with elicited values in situations where goods have virtuous connotations (i.e., charity, vices), repeated play leads to reputational effects, or when the nature of the anonymity is with other buyers and sellers and not the experimenter. We did not test any of these cases.

That being said, of the two explanations provided for the differences between the results of the KKT-BC and PZ-BC procedures, familiarity with an incentive compatible second-price mechanism has much more evidence in its favor. Regardless of the level of anonymity achieved in these experiments, varying familiarity with an incentive compatible second-price mechanism greatly changes the observed WTA-WTP gap. While we cannot rule out its effect in other contexts, there is no evidence in this study or any other that anonymity has any effect on elicited values for consumer goods. Both explanations could be true, but if only one is responsible for Plott and Zeiler's results, familiarity is the clear favorite.

In the most pragmatic sense, these results can be seen as general guidelines for future experiments involving value-elicitation with second price mechanisms. The experimenter should carefully decide what level of familiarity with the second-price mechanisms is appropriate for

subjects, because that appears to affect subject elicitation. However, the experimenter need not worry about enforcing anonymous protocols in these experiments, because there is no evidence that subjects alter their elicited valuations under conventional consumer good experiments.

REFERENCES

Becker, Gordon M.; DeGroot, Morris H. and Marschak, Jacob. "Measuring Utility by a Single-Response Sequential Method." Behavioral Science, 1964, 9(3), pp. 226–32.

Brown, Thomas C. 2005. "Loss aversion without the endowment effect, and other explanations for the WTA–WTP disparity." Journal of Economic Behavior & Organization no. 57 (3): 367-379.

Brown, Alexander L. and Cohen, Gregory. 2012. "Does Anonymity Affect the Willingness To Accept and Willingness To Pay Gap?" Texas A&M University.

Burnham, Terence C. 2003. "Engineering altruism: a theoretical and experimental investigation of anonymity and gift giving." Journal of Economic Behavior & Organization no. 50 (1): 133-144.

Charness, Gary, and Uri Gneezy. 2008. "What's in a name? Anonymity and social distance in dictator and ultimatum games." Journal of Economic Behavior & Organization no. 68 (1): 29-35.

Dubourg, W. R., M. W. Jones-Lee, and Graham Loomes. 1994. "Imprecise Preferences and the WTP-WTA Disparity." Journal of Risk & Uncertainty no. 9 (2): 115-133.

Eckel, Catherine C., and Philip J. Grossman. 1996. "Altruism in Anonymous Dictator Games." Games and Economic Behavior no. 16 (2): 181-191.

Engelmann, Dirk and Guillaume Hollard. 2010. "Reconsidering the Effect of Market Experience on the "Endowment Effect." " *Econometrica*, no. 78 (6): 2005-2019.

Franciosi, Robert, Praveen Kujal, Roland Michelitsch, Vernon Smith, and Gang Deng. 1996. "Experimental tests of the endowment effect." Journal of Economic Behavior & Organization no. 30 (2): 213-226.

Fremling, Gertrud M., and Richard A. Posner. 1999. "Market Signaling of Personal Characteristics." SSRN eLibrary.

Greiner, Ben. 2004. The online recruitment system ORSEE 2.0 — A guide for the organization of experiments in economics, University of Cologne Discussion Paper (www.orsee.org).

Hoffman, Elizabeth, Kevin McCabe, and Vernon L. Smith. 1996. "Social Distance and Other-Regarding Behavior in Dictator Games." American Economic Review 86 (3): 653-660.

Isoni, Andrea, Graham Loomes, and Robert Sugden. 2011. "The Willingness to Pay--Willingness to Accept Gap, the "Endowment Effect," Subject Misconceptions, and Experimental Procedures for Eliciting Valuations: Comment." American Economic Review 101 (2): 991-1011.

Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. 1990. “Experimental Tests of the Endowment Effect and the Coase Theorem.” Journal of Political Economy no. 98 (6): 1325-1348.

List, John A. 2003. “Does Market Experience Eliminate Market Anomalies?” *Quarterly Journal of Economics.* 118, 41-71.

Loewenstein, George, and Samuel Issacharoff. 1994. “Source Dependence in the Valuation of Objects.” Journal of Behavioral Decision Making no. 7 (3): 157-168.

Loomes, Graham, Chris Starmer, and Robert Sugden. 2003. “Do Anomalies Disappear in Repeated Markets?” The Economic Journal no. 113 (486): C153-C166.

Plott, Charles R., and Kathryn Zeiler. 2005. “The Willingness to Pay-Willingness to Accept Gap, the “Endowment Effect,” Subject Misconceptions, and Experimental Procedures for Eliciting Valuations.” The American Economic Review no. 95 (3): 530-545.

Plott, Charles R., and Kathryn Zeiler. 2007. “Exchange Asymmetries incorrectly interpreted as evidence of endowment effect theory and prospect theory?” The American Economic Review no. 97 (4): 1449-1466.

Plott, Charles R., and Kathryn Zeiler. 2011. “The Willingness to Pay—Willingness to Accept Gap, the “Endowment Effect,” Subject Misconceptions, and Experimental Procedures for Eliciting Valuations: Reply” The American Economic Review no. 101 (2): 1012-1028.

Table 1: Willingness to Pay and Willingness to Accept Gap in Anonymous and Non-Anonymous Conditions, KKT-BC Procedures

	Willingness to Accept: mean, median, (std error)	Willingness to Pay: mean, median, (std error)	Difference: mean, median, (std error)	Student's T Test	Non-Parametric Tests: Wilcoxon-Mann-Whitney	Non-Parametric Tests: Median Test
	4.20	1.87	2.33			
Anonymous (N=30)	4.50	1.50	3.00	t= 3.4851	z=2.973	χ=4.8000
(15 buyers, 15 sellers)	(0.39)	(0.55)	(0.67)	p=0.002	p=0.003	p=0.028
	4.45	1.94	2.51			
Non-Anonymous (N=36)	4.50	2.00	2.50	t= 4.2639	z=3.651	χ=4.5393
(17 buyers, 19 sellers)	(0.49)	(0.30)	(0.59)	p=0.001	p=0.000	p=0.033
	4.34	1.91	2.43			
Combined (N=66)	4.50	1.50	3.00	t= 5.5846	z= 4.693	χ=9.1677
(32 buyers, 34 sellers)	(0.36)	(0.24)	(0.44)	p=0.000	p=0.000	p=0.002

Table 2: Willingness to Pay and Willingness to Accept Gap in Anonymous and Non-Anonymous Conditions, PZ-BC Procedures

	Willingness to Accept: mean, median, (std error)	Willingness to Pay: mean, median, (std error)	Difference: mean, median, (std error)	Student's T Test	Non-Parametric Tests: Wilcoxon-Mann-Whitney	Non-Parametric Tests: Median Test
	7.49	4.15	3.33			
Anonymous (N=22)	4.00	3.00	1.00	t=1.184	z=1.019	χ=0.000
(11 buyers, 11 sellers)	(2.58)	(1.12)	(2.82)	p=0.250	p=0.308	p=1.000
	4.39	4.24	0.15			
Non-Anonymous (N=22)	3.00	3.00	0.00	t=0.099	z=0.000	χ=0.183
(11 buyers, 11 sellers)	(1.13)	(1.07)	(1.55)	p=0.922	p=1.000	p=0.669
	5.94	4.20	1.74			
Combined (N=44)	3.83	3.00	0.83	t=1.087	z=0.857	χ=0.091
(22 buyers, 22 sellers)	(0.18)	(0.18)	(1.61)	p=0.283	p=0.391	p=0.763

Table 3: Least-Squares Regressions of Elicited Offers on Anonymity and Seller Role by Procedure Type

dependent variable:	elicited offer, mug round, KKT-BC procedures	elicited offer, mug round, PZ-BC procedures
under anonymity	-0.075	-0.085
	(0.635)	(2.275)
seller	2.506***	0.155
	(0.599)	(2.275)
under anonymity x seller	-0.173	3.180
	(0.888)	(3.217)
constant	1.941***	4.238***
	(0.435)	(1.608)
observations	66	44
R^2	0.330	0.070

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Table 4: Dictator Game Results for KKT-BC, PZ-BC, and our initial study (Brown and Cohen, 2012)

				Non-Parametric Tests	
	Anonymous Money Kept	Non-anonymous Money Kept	Parametric Test	Wilcoxon-Mann-Whitney	Median Test
KKT-BC Procedures	8.79	8.73	t=0.083	z=0.041	
(N=22)	(0.42)	(0.54)	p=0.934	p=0.968	n/a
PZ-BC Procedures	6.91	7.18	t=-0.297	z=-0.404	χ=0.000
(N=22)	(0.68)	(0.62)	p=0.769	p=0.686	p=1.000
Initial Study (out of $5)	4.27	3.64	t=2.019	z=1.895	χ=0.8934
(N=51)	(0.19)	(0.24)	p=0.049	p=0.058	p=0.345