When the Shoe Is on the Other Foot: Experimental
Evidence on Evaluation Disparities

Lucy F. Ackert, Bryan K. Church, and Gerald P. Dwyer

Working Paper 2005-17
August 2005

When the Shoe Is on the Other Foot: Experimental Evidence on Evaluation Disparities

Lucy F. Ackert, Bryan K. Church, and Gerald P. Dwyer

Working Paper 2005-17
August 2005

Abstract: Research provides evidence that the method chosen to elicit value has an important effect on a person's valuation. We hypothesize that role has a crucial effect on decision makers' elicited values: Buyers prefer to pay less and sellers prefer to collect more. We conduct experimental sessions and replicate the disparity between willingness to pay and willingness to accept. We conduct additional sessions in which role is stripped away: Endowed decision makers provide values that are used to determine a price at which anonymous others transact. Importantly, decision makers' earnings in the experiment are *not* affected by the elicited values, but the endowments influence decision makers' valuations. Our findings suggest that decision makers consider their relative standing, in comparison to anonymous others, in providing valuations. The disparity between willingness to pay and willingness to accept disappears when decision makers' endowments ensure that they are at least as well off as other participants.

JEL classification: C91

Key words: willingness to accept, willingness to pay, endowment effect

When the Shoe is on the Other Foot:
Experimental Evidence on Evaluation Disparities

Economic theory suggests that there should be little disparity between an individual's maximum willingness to pay (WTP) to acquire a good and the minimum compensation to relinquish the good (WTA), when income effects are small. Yet, research over the last 30 years has shown that the method chosen to elicit monetary value has a significant effect on a person's valuation. The results of many experiments suggest that WTA far exceeds WTP and income effects cannot explain the gap. The disparity in valuations, if in fact one exists, has important implications for environmental policy, markets, and the allocation of rights.

In their review of the extensive literature, Horowitz and McConnell (2002) provide insight into the economic importance of valuation disparities. According to their estimates, WTA is approximately seven times higher than WTP. This suggests that the general public would preserve seven times more land already owned than would be preserved if the land had to be purchased from landowners. Furthermore, because the appropriate measure of valuation is unclear, so is the best measure of welfare. In the market domain, if WTA and WTP diverge, it is difficult to predict volume and the gains that result from trade. Legal scholarship recognizes the importance of valuation differentials on legal entitlements and corporate relationships (e.g., Arlen, Spitzer, and Talley (2001)).

The cause of the difference in valuation, if it exists, remains unresolved because of procedural choices made by experimental researchers (Davis and Holt (1993)). Many arguments have been proposed to explain the disparity between WTA and WTP.[1] For example, the

---

[1] In a related literature, the value of gift giving is disputed. Some argue that gift-giving results in a deadweight loss. For example, Waldfogel (1993) concludes that gift recipients value their gifts at 87 percent of their cost. However, Solnick and Hemenway (1996) estimate that there is a 214 percent welfare *gain* so that recipients actually valued

disparity may increase for goods that lack close substitutes because it is more difficult to compensate for the loss of a unique good (Hanemann (1991)). However, recent experimental results suggest that the disparity persists for a wide variety of goods, even those with close substitutes (Horowitz and McConnell (2002)).

Another theoretical explanation from the psychology literature attributes the disparity between WTA and WTP to an endowment effect: ownership itself makes a good more valuable so that WTA exceeds WTP (Thaler (1980) and Thaler and Johnson (1990)). According to this explanation, objects that are owned are valued more because people are subject to loss aversion and a person who is loss averse suffers more from a loss than benefits from a gain of equal magnitude (Kahneman and Tversky (1979)).

The importance of an endowment effect has been widely accepted in the literature and introduced into economics and finance models as a feature of preferences.[2] Recently, Plott and Zeiler (2005) question whether the gap between WTA and WTP can be attributed to an endowment effect. They argue that procedural choices are critical in order to control subject misconceptions. With no unified theory of misconceptions, experimenters have implemented a variety of procedures and controls. When an incentive compatible elicitation mechanism is used and participants receive training and are paid for practice with anonymity, Plott and Zeiler conclude that WTA is not significantly higher than WTP.

An important feature of Plott and Zeiler's paper is their use of procedural choices to effectively strip away strategic considerations, thereby suppressing the effect of role: being a buyer or seller. The authors point out that procedural choices may have caused participants to perceive that the experimenter wanted to remove any special value of ownership. Others

gifts at more than their cost. Ruffle and Tykocinski (2000) provide insight into the different results and conclude that how you ask the question is critical.

[2] For example, Barberis, Huang, and Santos (2001) imbed the endowment effect in their model of asset pricing.

recognize the importance of the evaluator's point of view (e.g., Marshall, Knetsch, and Sinden (1986) and Van Boven, Dunning, and Loewenstein (2000, 2003)). Eliciting WTA puts participants in the role of a seller, whereas measuring WTP puts them in the role of a buyer. The assigned role creates a perspective from which valuations are based: sellers want to collect more and buyers want to pay less.

Without question, individuals have difficulty setting aside their perspective and fully comprehending another's point of view. As the old adage goes, it is difficult to walk in someone else's shoes. Van Boven, Dunning, and Loewenstein (2000) conduct experiments in which mug owners estimate buyers' average purchase price and mug buyers estimate owners' average selling price. They find that owners overestimate buyers' average purchase price and buyers underestimate owners' selling price. Van Boven, Dunning, and Loewenstein maintain that sellers and buyers underestimate the size of the endowment effect because they are subject to egocentric empathy gaps. People overestimate the similarity between their valuation and the valuation of someone in another role. Participants' role is so critical to valuation that it can affect behavior even more than direct monetary incentives.[3]

Some research has examined the assessments of participants acting on behalf of others. Marshall, Knetsch, and Sinden (1986) conclude that when individuals evaluate entitlements for others, the disparity between WTP and WTA is much smaller.[4] In their experiments, participants were asked to make decisions on behalf of a third person. An *advisor* evaluated whether another should pay a fixed amount for a lottery ticket (WTP) or accept a fixed sum (WTA). Marshall, Knetsch, and Sinden find that advisors' decisions differed significantly from those of participants

---

[3] For example, Moore, Loewenstein, Tanlu, and Bazerman (2004) show that ties to a partisan (an accountability relationship) influence individuals' beliefs more than monetary payments.
[4] Our experiment differs from Marshall, Knetsch, and Sinden's in that we use an incentive compatible elicitation mechanism and vary the endowment of the decision maker. Marshall, Knetsch, and Sinden's decision makers were not compensated.

who answered on their own behalf. When advisors made decisions, there was no evidence of a gap between WTP and WTA. Notably though, the study did not elicit values, rather decisions were provided about buying or selling entitlements.

In another study, Van Boven, Loewenstein, and Dunning (2003) had participants act as buyers' agents. Agents' earnings were contingent on their ability to estimate owner's selling prices. Van Boven, Loewenstein, and Dunning report that agents' offers were too low: buyers' agents underestimated the owner's selling price.

We experimentally investigate the effect of role on individuals' valuations and whether participants can provide objective valuations for others. In a series of experimental sessions, we endow participants with a good and cash and ask for their valuation (WTA). In another series we endow them with cash and ask how much they are willing to pay for the good (WTP). The good is actually transacted in every session. We use coffee mugs because they are highly substitutable and a disparity in WTP and WTA with mugs has been extensively documented (Kahneman, Knetsch, Thaler (1990)). Furthermore, we provide participants with a cash endowment because Morrison (1997) argues that compensated WTP is required for valid comparison (giving those in the WTP an amount of cash that would put them on the same indifference curve). To obtain market values, we use a demand revealing mechanism that allows for learning. We use an n-th price or Vickrey auction, which theoretically provides incentives to reveal true valuations (Vickrey (1961)).[5] In addition, we use repeated participation because experimental research has shown that despite the dominance of a strategy of true revelation, participants do not initially reveal true values (Coursey, Hovis, and Schulze (1987) and Davis and Holt (1993)).

---

[5] Plott and Zeiler (2005) argue that the elicitation mechanism proposed by Becker, DeGroot, and Marschak (1964) is the most incentive compatible, with the Vickrey auction as the next best, in theory. Although strategic considerations may be introduced in an environment such as the Vickrey auction, these considerations are relevant in real markets. In addition, our primary contribution results from markets in which participants are asked to provide valuations for others. In this situation, strategic considerations are minimized.

We replicate earlier experiments and document a sizable disparity between WTP and WTA when participants provide valuations on their own behalf. As reported in many other studies, participants require more to relinquish a good than they offer to acquire it. To strip away the effect of role, we conduct sessions in which decision makers (denoted DMs) provide valuations that affect others: the valuations determine a price at which others (adherents) buy or sell a mug. Unlike Van Boven, Loewenstein, and Dunning (2003), the DMs' elicited values do *not* affect their final wealth: they are endowed at the beginning of a session and the endowment is theirs to keep, representing experimental earnings.

Initially we endow the DM with a mug and cash ($10). We find a strikingly different relationship between WTA and WTP than in the earlier sessions: WTA is significantly *less* than WTP. This result caused us to consider the standing (experimental earnings) of the DM relative to that of the adherent. Could it be that participants' relative standing affects their valuations? We conduct additional sessions and endow the DM with only cash ($20). We find that the disparity between WTA and WTP is eliminated and, in turn, conclude that the endowment provides a referent to consider relative payoffs. Because the numeraire has a known value and is fungible, it is the natural referent. When DMs are only endowed with cash, they are at least as well off as the adherents – in terms of what is taken away from the experiment. Under such conditions, they are able to provide *objective* valuations. As discussed later, when the DMs are endowed with a mug and cash ($10), relative standing may color their valuations, causing WTA to be less than WTP

The remainder of the paper is organized as follows. The experimental design, discussed subsequently, is summarized in Table I. Sections I, II, and III detail the experimental method and results for each treatment. Section IV contains a discussion and concluding remarks.

I. The Base Treatment

We conduct six sessions in the base treatment, each with eight participants. Each session consists of a series of ten trials and requires approximately 30 minutes. Participants' are students at a medium-sized university located in the Southeastern U.S. and all are inexperienced in that no one took part in more than one session.[6] At the beginning of each session, participants receive a set of instructions and follow along as an experimenter reads aloud.[7]

A. Experimental Procedures

In the first treatment we attempt to replicate the reported disparity between WTP and WTA to provide a basis of comparison. We measure first willingness to accept in sessions 1-3, referred to as the Base/WTA sessions. Student participants are given $10 in cash and a coffee mug bearing the university's emblem that sells at the bookstore for $7.00.[8] The written instructions are as follows:

> Each participant in the experiment just received $10 in cash and a mug. These are yours to keep. During the experiment you will submit offers indicating the amount of money you will accept in exchange for the mug. We will refer to this amount of money as your "offer."

> You will record your offer on the card provided with these instructions. After recording your offer, please turn your card face down (with your offer facing down and your participant number on top). An experimenter will circulate around the room to collect the cards. Once you record your offer, you cannot revise it and you may be required to exchange your mug for cash.

The instructions then describe the Vickrey auction used to elicit WTA with repeated participation as follows:

> After all participants have recorded their offers on the recording cards, the experimenters will collect the cards. We will rank all participants' offers from

---

highest to lowest. Those with the four lowest offers may be required to exchange their mug with the experimenters at the fifth lowest offer. If you are required to exchange your mug for money, you will always receive at least your offer. Any ties in offers will be resolved randomly.

We will repeat these steps 10 times. At the end of each trial, the offer price at which transactions may occur is announced (i.e., the fifth lowest offer). However, only one of the ten trials will be binding. A number from one to ten will be randomly selected to determine the binding trial.

Are there any questions?

You now own the mug and $10 in your possession. Please indicate the amount that you are willing to accept in exchange for the mug.

As the instructions indicate, participants are told at the outset that they will be paid based on the results of only one of the trials, and this trial is chosen by a card draw. Because *ex ante* the students have no way of knowing which trial is the payout trial it is in their interest to treat all trials equally seriously.

Sessions 4-6 are conducted similarly except that participants are endowed with $20 and asked to indicate the amount they are willing to pay to acquire a mug (Base/WTP). The instructions are as follows:

Each participant in the experiment just received $20 in cash. This cash is yours to keep. The experimenter has in her/his possession 4 mugs. You are free to examine the mugs. During the experiment you will submit offers indicating the amount of money you would pay in exchange for a mug. We will refer to this amount of money as your "offer."

The instructions continue and describe the Vickrey auction as follows:

After all participants have recorded their offers on the recording cards, the experimenters will collect the cards. We will rank all participants' offers from highest to lowest. Those with the four highest offers may be required to exchange cash for a mug with the experimenters at the fifth highest offer. Thus, if you are required to exchange money for a mug, you will never pay more than your offer. Any ties in offers will be resolved randomly.

Again the procedures are repeated over ten trials and one randomly selected trial determines the binding outcome.

B. The Results

Table II reports measures of WTA and WTP using the Vickrey auction. Panel A reports the average price and median offer across trials and sessions for the Base treatment. The price in the WTA (WTP) sessions is the fifth (highest) lowest offer. The table reports the average WTA and WTP for all 10 trials, as well as trials 1-5 and 6-10 for each treatment. Below the value measurements are z-statistics and corresponding p-values, the result of Mann-Whitney tests of the null hypothesis that WTA and WTP do not differ.[9]

For the Base treatment, WTA exceeds WTP for prices and offers, at high significance levels ($p < 0.0001$). Inferences are unchanged if the tests use data for all trials, trials 1-5, or trials 6-10. We also estimated a repeated-measures ANOVA to compare prices across sessions and find that method of elicitation (WTP versus WTA) is statistically significant ($F_{1,4} = 7.71$, $p = 0.05$).[10] Although not reported, results are unaffected when the repeated-measures ANOVA uses participants' offers as the dependent measure.

II. The Decision Maker Treatment: Mug Endowment

The results of our Base treatment are consistent with the widely reported disparity between WTP and WTA. As argued by others (e.g., Marshall, Knetsch, and Sinden (1986) and Van Boven, Dunning, and Loewenstein (2000, 2003)), the evaluator's viewpoint is important to the elicited valuation. In order to separate the effect of role, we ask decision makers (DMs) to

---

[9] Inferences are unchanged with Kolmogorov-Smirnov tests for all Mann-Whitney tests reported here and subsequently in this paper.

[10] Period and the interaction of period and method of elicitation are not significant in any of the repeated measures ANOVAs ($p > 0.10$) reported in the paper. In determining statistical significance, the degrees of freedom for within-subject effects are adjusted using the Greenhouse-Geisser procedure. The adjustment is necessary because, in each case, Mauchly's test of sphericity is rejected at $p < 0.01$.

provide valuations for others in the second treatment. The DMs are endowed with a mug and $10, which they take from the experiment as their compensation. We refer to this as the DM/Mug treatment.

A. Experimental Procedures

In sessions 7-12 we again elicit measures of WTA and WTP. The process differs, however, in that participants (the DMs) are asked to indicate valuations for other students (the adherents). Twelve inexperienced students are recruited for each session and randomly divided into groups of 8 and 4. The two groups meet in separate rooms and do not see each other until the conclusion of the experimental session.

In sessions 7-9, all twelve participants are given $10 in cash and a coffee mug bearing the university's emblem that sells at the bookstore for $7.00 (DM/Mug/WTA). The endowment is common knowledge to all twelve participants. In these sessions, the DMs provide values that determine a price at which the adherents will sell their mug. The group of eight DMs is directed as follows:

> Each participant in this room just received $10 in cash and a mug. In addition, four participants in another room also have received $10 in cash and a mug.
>
> During the experiment you will submit offers indicating the amount of money that participants in the *other* room will accept in exchange for their mug. We will refer to this amount of money as your "offer."
>
> You will record your offer on the card provided with these instructions. After recording your offer, please turn your card face down (with your offer facing down and your participant number on top). An experimenter will circulate around the room to collect the cards. Once you record your offer, you cannot revise it, and it may represent the amount that participants in the other room are required to exchange their mugs for cash.

As in the Base/WTA treatment (sessions 1-3), the instructions then describe the Vickrey auction: the fifth lowest offer determines the market valuation. But in this case, the market valuation is the amount that others may be required to accept in exchange for their mugs. Again, one of the 10 trials is randomly selected as the binding trial and the fifth lowest offer determines the market valuation. The instructions continue as follows:

> At the conclusion of the experiment, participants in the *other* room will be brought into this room and the binding trial will be determined. Participants from the other room will then exchange their mugs for cash.

> Sessions 10-12 are similar in that the eight DMs are endowed with a mug and $10.

Unlike sessions 7-9, the four adherents are endowed with $20. The eight randomly selected DMs indicate the amount that participants in the other room should pay to acquire a mug (DM/Mug/WTP). The eight DMs are instructed as follows:

> Each participant in this room just received $10 in cash and a mug. These are yours to keep. In addition, four participants in another room have received $20 in cash. Participants in the *other* room will exchange cash for a mug with the experimenters at an amount determined by you. The mug they will receive is identical to the mug you received.

> During the experiment you will submit offers indicating the amount of money that participants in the *other* room will pay to acquire a mug. We will refer to this amount of money as your "offer."

> You will record your offer on the card provided with these instructions. After recording your offer, please turn your card face down (with your offer facing down and your participant number on top). An experimenter will circulate around the room to collect the cards. Once you record your offer, you cannot revise it, and it may represent the amount of cash that participants in the other room are required to exchange for a mug.

The instructions then describe the Vickrey auction with repeated participation. The procedures are repeated ten times. The instructions end with the following:

> At the conclusion of the experiment, participants in the *other* room will be brought into this room and the binding trial will be determined. Participants from the other room will then exchange cash for a mug.

The four adherents in the other room are informed that they are bound by the DMs' offers.

B. The Results

Panel B of Table II reports measures of WTA and WTP using the Vickrey auction for the DM/Mug treatment. The table reports the average WTA and WTP for all 10 trials, as well as trials 1-5 and 6-10 for each treatment. Below the value measurements are z-statistics and corresponding p-values, the result of Mann-Whitney tests of the null hypothesis that WTA and WTP do not differ.

Unlike the Base treatment, for the DM/Mug treatment, the relationship between WTP and WTA is reversed and WTP exceeds WTA, again at high levels of significance (p < 0.0001). Inferences are unchanged if the tests use data for all trials, trials 1-5, or trials 6-10. A repeated-measures ANOVA comparing prices across WTA and WTP sessions indicates that the method of elicitation is statistically significant ($F_{1,4} = 23.02$, p = 0.009). In contrast to the often-reported finding that WTA exceeds WTP, valuations of the DMs in our second treatment lead to a significantly higher purchase price than selling price for adherents.

III. The Decision Maker Treatment: Cash Endowment

When decision makers are endowed with a mug and $10 in cash, the results are puzzling. With WTP higher than WTA, the DMs' valuations are quite different than those of agents providing valuations for themselves. After reflecting, we wondered if the DMs' endowment affected their valuations. Because cash is fungible and a natural referent, we conducted six additional sessions in which the DMs were endowed with $20. We refer to this as the DM/Cash treatment.

A. Experimental Procedures

We conduct six sessions in the DM/Cash treatment (sessions 13-18) in which we elicit measures of WTA and WTP using valuations for other students. The procedures differ from the second treatment in that the DMs are all endowed with $20. For WTA (sessions 13-15), the four adherents are each given $10 in cash and a coffee mug. The DMs indicate the amount that participants in the other room should accept in exchange for their mugs (DM/Cash/WTA). The instructions are as follows:

> Each participant in this room just received $20 in cash. This cash is yours to keep. In addition, four participants in another room have received $10 in cash and a mug. The experimenter has an identical mug in her/his possession. You are free to examine the mug. Participants in the *other* room will exchange their mugs with the experimenters at an amount determined by you.

The instructions continue as before (i.e., as in the DM/Mug/WTA sessions).

For WTP (sessions 16-18), the procedures are similar except that the four adherents are endowed with $20 (as are the eight DMs). The DMs indicate the amount that participants in the other room should pay to acquire a mug (DM/Cash/WTP). The instructions begin as follows:

> Each participant in this room just received $20 in cash. This cash is yours to keep. In addition, four participants in another room also have received $20 in cash. The experimenter has in her/his possession 4 mugs. You are free to examine the mugs. Participants in the *other* room will exchange cash for a mug with the experimenters at an amount determined by you.

Again, the instructions continue as before (i.e., as in the DM/Mug/WTP sessions).

B. The Results

Panel C of Table II reports measures of WTA and WTP for the final treatment (DM/Cash), in which DMs are endowed only with cash. Unlike the first two treatments, the

valuation gap disappears. Inferences are unchanged if tests use prices or offers for all trials, trials 1-5, or trials 6-10. Also unlike the first two treatments, a repeated-measures ANOVA comparing prices across WTA and WTP sessions indicates that the method of elicitation is not statistically significant ($F_{1,4} = 0.01$, $p = 0.935$).

IV. Discussion and Concluding Remarks

The literature has documented the impact of elicitation method on individuals' valuations. This paper demonstrates the importance of role.[11] Commonly, WTA is elicited by putting the experimental participant in the role of the seller and WTP by putting the participant in the role of buyer. In our experiment, we first replicate the often-reported result that sellers demand more to surrender a good than buyers are willing to pay to acquire the same good (Base treatment). Next we ask participants to act as decision makers (DMs) who provide valuations for others, referred to as the adherents (DM/Mug treatment). We endow the DMs with a mug and $10 in cash. We now observe that the relationship between WTA and WTP is reversed. The DMs' valuations are significantly higher when the adherent purchases the mug than when the adherent sells the mug. The striking change in the gap between WTA and WTP in the DM/Mug treatment calls for further investigation.

Models of economic behavior recognize that some people care about fairness (Kahneman, Knetsch and Thaler (1986), Fehr and Schmidt (1999), and Bolton and Ockenfels (2000)) and equity is an important factor in bargaining games (Davis and Holt (1993)). Fairness

---

[11] Price censoring does not explain the results we report in this paper. In an experiment that elicits value, problems can arise if participants rationally believe the good can be purchased at lower prices outside of the laboratory (Harrison, Harstad, and Rutstrom (2004)). In our post-experiment questionnaire we asked participants how much they thought the experimenters paid for the mug. Although price censoring is potentially a significant methodological problem, we have no evidence to suggest that it affected our results. There is no consistent pattern in reported costs to the experimenters across treatments.

can be modeled as an aversion to inequity, measured in relative terms. Individuals are self-centered and care about relative standing. While the identification of the reference group may not be simple, in an experiment the reference group is the set of participants (Bolton and Ockenfels (2000)).

In our experiment, it appears that a DM who cares about relative standing does not want to be worse off than the adherent. The effect of the DM's role contrasts sharply with a seller who wants to collect more or a buyer who wants to pay less. The behavior of the DMs in the DM/Mug treatment is consistent with recent economic models of behavior. For example, Fehr and Schmidt (1999) provide a model of inequity aversion in which people care about their material payoff relative to the payoffs of others. In addition, relative standing motivates people's behavior in Bolton and Ockenfels' (2000) model. In our experimental setting, the WTP valuation may be high because the DMs perceive their relative standing to be below that of the mug buyers if the mug buyers pay a low price for the mug. Recall that the DMs are endowed with a mug and $10. In the WTP treatment, if the adherents pay, on average, $8.55 for a mug (refer to Panel B of Table II), they leave the experiment with a mug and, on average, $11.45. On the other hand, if the adherents acquire a mug for a low price, they leave the experiment with relatively more than the DMs who have a mug and $10.

In the DM/Cash treatment, DMs may be more objective because they end up in a better position than the adherents, assuming cash is preferred. Interestingly, WTA and WTP are quite close to the actual purchase price of the mugs ($7), an amount that was never disclosed to the participants. Because cash is fungible and its value is clear, it is a natural referent. With an endowment of $20, relative standing is of less concern to the DMs and they can focus on the decision to be made.

Our results are consistent with DMs being inequity-averse when their relative standing is *inferior* to that of others. By comparison, DMs do not appear to be concerned about their standing when they are better off relative to others. In other words, our data are consistent with preferences being one sided. Individuals do not like differences in outcomes, at least when they are not doing as well as others.

This paper documents the important effect of role on the elicitation of value. Although the disparity between WTA and WTP disappears when DMs are endowed with cash and asked to provide valuations for others, we certainly cannot conclude that third party decisions are superior. Because DMs evaluate the effects of a change in position so differently depending on their own position, they do not necessarily make welfare enhancing decisions for others.

REFERENCES

Arlen, Jennifer, Matthew Spitzer, and Eric Talley, 2001, "Endowment Effects within Corporate Agency Relationships," CLEO Research Paper Series #261, University of Southern California Law School.

Barberis, Nicholas, Ming Huang and Tano Santos, 2001, "Prospect Theory and Asset Prices," *Quarterly Journal of Economics*, 464(1), 1-54.

Bazerman, Max H., George Loewenstein, and Donald A. Moore, 2002, "Why Good Accountants do Bad Audits," *Harvard Business Review* (November), 80(11), 96-102.

Bolton, Gary E., and Axel Ockenfels, 2000, "ERC: A Theory of Equity, Reciprocity, and Competition," *American Economic Review* (March), 90(1), 166-193.

Coursey, Don L., John L. Hovis, and William D. Schulze, 1987, "The Disparity between Willingness to Accept and Willingness to Pay Measures of Value," *Quarterly Journal of Economics*, 679-690.

Davis, Douglas D., and Charles A. Holt, 1993, *Experimental Economics* (Princeton University Press, Princeton, New Jersey).

Fehr, Ernst, and Klaus M. Schmidt, 1999, "A Theory of Fairness, Competition, and Cooperation," *Quarterly Journal of Economics* (August), 817-868.

Hanemann, W. Michael, 1991, "Willingness to Pay and Willingness to Accept: How Much Can They Differ?" *American Economic Review* (June), 81(3), 635-647.

Harrison, Glenn W., Ronald M. Harstad, and E. Elisabet Rutstrom, 2004, "Experimental Methods and Elicitation of Values," *Experimental Economics* 7, 123-140.

Horowitz, John K., and Kenneth E. McConnell, 2002, "A Review of WTA/WTP Studies," *Journal of Environmental Economics and Management*, 44, 426-447.

Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler, 1986, "Fairness and the Assumptions of Economics," *Journal of Business*, 59(4), S285-S300.

Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler, 1999, "Experimental Tests of the Endowment Effects and the Coase Theorem," *Journal of Political Economy*, 98(6), 1325-1348.

Kahneman, Daniel, and Amos Tversky, 1979, "Prospect Theory: An analysis of Decision Under Risk," *Econometrica*, 47, 263-291.

Knetsch, Jack L., and J. A. Sinden, 1984, "Willingness to Pay and Compensation Demanded: Experimental Evidence of an Unexpected Disparity in Measures of Value," *Quarterly Journal of Economics* (August), 507-521.

Knetsch, Jack L., and J. A. Sinden, 1987, "The Persistence of Evaluation Disparities," *Quarterly Journal of Economics* (August), 691-695.

List, John A., and Jason F. Shogren, 1988, "The Deadweight Loss of Christmas: Comment," *American Economic Review* (December), 1350-1355.

Marshall, James D., Jack L. Knetsch, and J.A. Sinden, 1986, "Agents' Evaluations and the Disparity in Measures of Economic Loss," *Journal of Economic Behavior and Organization* 7, 115-127,

Moore, Donald A., George Loewenstein, Lloyd Tanlu, and Max H. Bazerman, 2004, "Conflict of Interest and the Unconscious Intrusion of Bias," Working Paper, Carnegie Mellon University and Harvard University.

Morrison, Gwendolyn C., 2000, "WTP and WTA in Repeated Trial Experiments: Learning or Leading?" *Journal of Economic Psychology*, 21, 57-72.

Morrison, Gwendolyn C., 1998, "Understanding the Disparity between WTP and WTA: Endowment Effect, Substitutability, or Imprecise Preferences?," *Economics Letters*, 59, 189-194.

Morrison, Gwendolyn C., 1997, "Resolving Differences in Willingness to Pay and Willingness to Accept: Comment," *American Economic Review*, 87(1), 236-240.

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," *American Economic Review* (forthcoming).

Ruffle, Bradley J., and Orit Tykocinski, 2000, "The Deadweight Loss of Christmas: Comment," *American Economic Review* (March), 319-324.

Shogren, Jason F., Seung Y. Shin, Dermot J. Hayes, and James B. Kliebenstein, 1994, "Resolving Differences in Willingness to Pay and Willingness to Accept," *American Economic Review* (March), 255-270.

Smith, Vernon, 1994, "Economics in the Laboratory," *Journal of Economic Perspectives* 8(1), 113-131.

Solnick, Sara J., and David Hemenway, 1998, "The Deadweight Loss of Christmas: Reply," *American Economic Review* (December), 1356-1357.

Solnick, Sara J., and David Hemenway, 2000, "The Deadweight Loss of Christmas: Reply," *American Economic Review* (March), 325.

Thaler, Richard, 1980, "Toward a Positive Theory of Consumer Choice," *Journal of Economic Behavior and Organization*, 1, 39-60.

Thaler, Richard, and Eric J. Johnston, 1990, "Gambling with the House Money and Trying to Break Even: The Effects of Prior Outcomes on Risky Choice," *Management Science* 36, 643-60.

Van Boven, Leaf, David Dunning, and George Loewenstein, 2000, "Egocentric Empathy Gaps Between Owners and Buyers: Misperceptions of the Endowment Effect," *Journal of Personality and Social Psychology* (July), 79(1), 66-76.

Van Boven, Leaf, George Loewenstein, and David Dunning, 2003, "Mispredicting the Endowment Effect: Underestimation of Owners' Selling Prices by Buyers' Agents," *Journal of Economic Behavior and Organization* (July), 51(3), 351-365.

Vickrey, W., 1961, "Conterspecualtion, Auctions, and Competitive Sealed Tenders," *Journal of Finance*, 16, 8-37.

Waldfogel, Joel, 1993, "The Deadweight Loss of Christmas: Reply," *American Economic Review* (December), 1328-1336.

Waldfogel, Joel, 1998, "The Deadweight Loss of Christmas: Reply," *American Economic Review* (December), 1358-1359.

Table I
Experimental Design

This table summarizes the experimental design. All sessions include 10 trials.

Treatment	Measure of Value	Sessions	Total Number of Participants	Endowment (8 participants)	
Base	WTA	1-3	8	Mug + $10	
	WTP	4-6	8	$20	

Treatment	Measure of Value	Sessions	Total Number of Participants	DM's Endowment (8 participants)	Adherent's Endowment (4 participants)
DM/Mug	WTA	7-9	12	Mug + $10	Mug + $10
	WTP	10-12	12	Mug + $10	$20
DM/Cash	WTA	13-15	12	$20	Mug + $10
	WTP	16-18	12	$20	$20

Table II
Prices and Offers

The table reports the average price and median offer across trials and sessions in each treatment. In the WTA sessions participants are asked to submit offers indicating the amount of money that should be accepted in exchange for a mug and in the WTP sessions participants are asked to indicate the amount that should be paid to acquire a mug. The price in the WTA (WTP) sessions is the fifth (highest) lowest offer. Each session includes 10 trials. The table also reports the average WTA and WTP in trials 1-5 and 6-10 for each treatment. Below the value measurements are z-statistics and corresponding p-values, the result of Mann-Whitney tests of the hypothesis that WTA and WTP are equal. Panels A, B, and C, report prices and offers for the Base, DM/Mug, and DM/Cash treatments, respectively.

Panel A: Base Treatment

Measure	All Trials		Trials 1-5		Trials 6-10	
	WTA	WTP	WTA	WTP	WTA	WTP
Prices	8.83	1.34	9.04	1.51	8.61	1.18
	-6.67 (0.000)		-4.69 (0.000)		-4.69 (0.000)	
Offers	10.09	1.64	10.74	1.89	9.03	1.53
	-5.31 (0.000)		-5.25 (0.000)		-4.83 (0.000)	

Panel B: DM/Mug Treatment

Measure	All Trials		Trials 1-5		Trials 6-10	
	WTA	WTP	WTA	WTP	WTA	WTP
Prices	3.79	8.55	4.00	8.00	3.57	9.10
	-6.70 (0.000)		-4.67 (0.000)		-4.72 (0.000)	
Offers	3.71	8.91	3.94	8.31	3.63	9.24
	-5.88 (0.000)		-5.50 (0.000)		-5.29 (0.000)	

Panel C: DM/CashTreatment

Measure	All Trials		Trials 1-5		Trials 6-10	
	WTA	WTP	WTA	WTP	WTA	WTP
Prices	6.99	6.92	7.06	6.45	6.92	7.38
	-0.55 (0.582)		-1.54 (0.126)		-0.80 (0.424)	
Offers	7.53	6.72	6.73	6.74	8.26	6.89
	-0.86 (0.391)		0.00 (1.000)		-1.31 (0.189)	