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Loss aversion without the endowment effect, and other explanations for the WTA–WTP disparity

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Abstract

To learn why WTA regularly exceeds WTP in economic experiments involving inexpensive market goods with ample substitutes, the verbal protocol technique was used in a real cash experiment employing a random price auction. Results suggest that the primary reason for the disparity was subjects' reluctance to suffer a net loss from any transaction, whether purchase or sale, and tendency to consider sale much below assumed market price as a loss. This interpretation indicates a kind of loss aversion, but not the kind envisioned in the endowment effect, which maintains that selling creates a loss and buying creates a gain.
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1. Introduction

Over the past twenty years, a substantial collection of papers has documented unexpected discrepancies between willingness to pay (WTP) and willingness to accept compensation (WTA). Brown and Gregory (1999) report that the median of the WTA/WTP ratios among

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the 14 real cash experiments they summarized is about 2.5. Horowitz and McConnell (2002) report that the mean of the 59 WTA/WTP ratios reported in nine studies that used inexpensive market goods, such as mugs and candy bars, is 2.9. These ratios are greater than could reasonably be attributed to an income effect, suggesting that the disparity may have important implications for consumer theory (Kahneman et al., 1991; Knetsch, 1989). However, the veracity of these implications depends on the source of the disparity, which is not well understood.

Consumer theory suggests that a WTA–WTP disparity should not occur where there is: (1) no income effect, (2) no transaction cost, (3) perfect information about goods and prices, and (4) a market that engenders truthful revelation of preferences. These conditions, however, were largely met in the experiments that used inexpensive market goods with ample, readily available substitutes and obtained real cash bids using a random price or second price auction.

The economists' principal retort has been that participants in these experiments lacked market experience. To provide experience, Shogren et al. (1994) used repetitions of a second price auction, Plott and Zeiler (2003) used extensive training in the BDM auction prior to the binding transaction, and List (2004) used a subject pool drawn from very experienced traders. In all three studies—real cash experiments using inexpensive market goods—WTA did not exceed WTP. These results are supportive of consumer theory, but the results do not explain why WTA significantly exceeds WTP for subjects with less training or experience. This issue remains important because these less-practiced exchanges are typical of many everyday choices.

The endowment effect (Thaler, 1980) and its essential ingredient of loss aversion (Kahneman and Tversky, 1979) have been proposed to fill this explanatory void. "Endowment effect" refers to the notion that goods are considered to be more valuable when they are part of a person's endowment than when not in the endowment, all else equal. Thaler tied the endowment effect to Kahneman and Tversky's proposition of asymmetric treatment of gains and losses in stating that the endowment effect occurs "because removing a good from the endowment creates a loss while adding the same good (to an endowment without it) generates a gain" (p. 44). Importantly, Thaler not only accepted loss aversion as a viable theory of human behavior, but also claimed that selling creates a loss and buying generates a gain, thus associating loss aversion with the good, but not the net result, of the transaction. The essence of the endowment effect explanation is that, as Kahneman et al. (1990) state, there is "a genuine effect of reference positions on *preferences*" (p. 1326); "the *value* that an individual assigns to such objects as mugs . . . and chocolate bars appears to increase substantially as soon as the individual is given the object" (p. 1342, emphasis added). Experimental findings of WTA–WTP disparity experiments led Tversky and Kahneman (1991) to describe "an endowment effect which is produced, *apparently instantaneously*, by giving an individual property rights over a consumption good" (pp. 1041–1042, emphasis added).

This paper examines this and other possible reasons for the WTA–WTP disparity found in experiments using inexpensive market goods. Unlike most previous studies, which observed the disparity and then theorized about its causes, the approach used here essentially asked the subjects to say why they bid as they did. Subjects were asked to "think aloud" as they decided on their buying and selling prices, and then asked to explain any discrepancies

between their prices.[1] Subjects' verbalizations did suggest many of the explanations that authors of past studies have proposed for the disparity. It is the frequencies with which the various explanations were suggested that provide insights into the reason the WTA–WTP disparity occurs in experiments using inexpensive market goods.

2. Plausible reasons for the disparity

Analysis of data produced by the "think aloud" or verbal protocol technique (Ericsson and Simon, 1984) is facilitated by specifying, prior to data collection, the concepts that subjects' verbalizations might imply. The following five concepts are suggested by theory and past experimentation as plausible reasons for a disparity with inexpensive market goods.

2.1. Income effect

When the goods at issue are familiar and inexpensive with ample perfect substitutes, an income effect (i.e., a sufficiently large income elasticity of demand) is not expected. However, for the subjects in this experiment, who were students responding to an announcement offering a participation fee, purchase of such goods may have represented a significant outlay. A possible statement suggesting this reason would be "I'm short of cash right now, so I can't afford to pay much for it."

2.2. Transaction cost

Transaction costs are those incurred to make a purchase or sale possible, such as locating a good and traveling to where it can be exchanged. A subject might elevate a selling price in order to cover the transaction cost of purchasing a substitute. A possible statement suggesting this reason would be "If I sold this item, I would have to go to the store to buy another one, so I'll add the cost of that effort to my selling price."

2.3. Ambiguity

Risk-averse subjects can be expected to lower WTP or raise WTA to the extent that they lack relevant information (such as about the item's store price or about their own preferences) and want to avoid making a decision they will later regret (Loomes and Sugden, 1982). Possible statements suggesting this reason would be "I'm not sure what these sell for at the book store" and "I don't know whether I'd use this if I had it."

2.4. Seeking a good deal

A buyer focused on getting a good deal would tend to state a low price, whereas a seller focused on getting a good deal would tend to state a price as high as what an interested

[1] Previous use of the verbal protocol method in economic valuation includes two pioneering studies, Schkade and Payne's (1994) analysis of continent valuation and Irwin's (1994) examination of the WTA–WTP disparity. In the verbal protocol part of Irwin's study, five subjects were asked about a set of market and environmental goods.

buyer might pay. A possible statement suggesting this reason for a buyer would be "I would only buy this if I got a good deal on it," and for a seller it would be "If someone wanted this they would expect to pay at least $5."

2.5. Endowment effect

If the pain of loss outweighs the pleasure of gain, and if selling creates a loss but buying creates a gain, then WTA to give up a good will exceed WTP to obtain it. Statements possibly indicating the endowment effect for goods would be "Once I have something, it's more valuable, because it's mine" and "I have a hard time giving things up."

3. Methods

Subjects were recruited individually at the student union and paid $7 to participate in an experiment that took about 20 min and was recorded on audio tape. During the experiment, subjects were asked to state the prices at which they would be willing to buy three different goods, and the prices at which they would be willing to sell the same the goods assuming that they already owned them.[2] They were told that one of these six transactions would later be randomly selected as binding and that their stated price for that transaction would be compared with a randomly selected price to determine the outcome.[3] The experiment had the following five steps: (1) the bidding and "think aloud" procedures are explained to the subject; (2) the subject practices with two goods; (3) the subject states WTA and WTP bids for three other goods (six bids in all); (4) the subject explains cases of WTA $\neq$ WTP; and (5) one of the six bids is randomly selected as binding, a price is drawn, and, depending on the stated and drawn prices, purchase or sale may be completed.

To help subjects understand the auction, the experimenter described the procedure and then asked subjects to read instructions reiterating the main points. The instructions described how the auction worked and emphasized that bids should be relevant to the binding transaction that would result at the end of the experiment rather than to some other circumstance in which subjects might imagine themselves. Pre-testing had shown that subjects often spoke in terms of selling the good for something greater than it was worth to them, so the instructions were changed to emphasize several times that the bids should apply to the binding transaction and its randomly drawn price. The subjects were also given a sheet

[2] Asking individual subjects to state both buying and selling prices is not a common experimental practice, but it has been used in at least thee other studies. In real cash experiments involving lottery tickets, both Kachelmeier and Shehata (1992) and Eisenberger and Weber (1995) found a significant WTA–WTP disparity at the individual subject level. Borges and Knetsch (1998) found a difference between the two measures but did not report a significance level.

[3] This "random selection" procedure is commonly used in economic experiments (e.g., Andreoni and Miller, 2002; Holt and Laury, 2002), including WTA–WTP studies (e.g., Bateman et al., 1997). The procedure makes it possible to obtain several responses from each subject without introducing wealth effects that would occur if a payoff were made after each choice. Its use here allowed subjects to be questioned about their own WTA–WTP disparities.

listing the 25 possible drawn prices. The written instructions given to subjects are found in the Appendix, available on the JEBO website.

Subjects were instructed to verbalize their thoughts as they decided on their bids. When the bids were requested, subjects were reminded to verbalize their thoughts if they were silent for 4 s. If subjects stated a price without verbalizing any other thoughts, they were immediately asked to explain why they chose that amount.

After the instructions were delivered and any questions about them were answered, subjects practiced the procedure with two goods. They were asked for a WTP for a pen and a WTA for a poster. After each practice bid, the subject drew a price from among the 25 possible prices in a box, and the drawn price was compared with their stated price to determine what the outcome would have been if the transaction had been the binding one.

The six bids of interest were then obtained, a WTP and a WTA for each of three goods: a large chocolate bar, a university mug, and a bound notebook of blank pages suitable for taking class notes or keeping a journal. The order in which the six bids were elicited was randomly determined for each subject by drawing marked ping-pong balls from a box. For each bid, the experimenter handed the item to the subject.

After the six bids were obtained, subjects were asked to explain any discrepancies between their buying and selling bids for a given good. So as to not prejudice their bids, subjects were not informed beforehand that they would be asked about discrepancies.

The subjects then drew a ball to determine which transaction was binding and drew a price from among the 25 prices.[4] In keeping with the random price (BDM) auction (Becker et al., 1964), it was explained in step 1 that, in the purchase situation, if the stated price was greater than or equal to the drawn price, the individual would purchase the good at the drawn price; and in the sale situation, if the stated price was less than or equal to the drawn price, the individual would sell the good at the drawn price.

Analysis began with transcribing the audio tapes of the experiment and then reading the transcripts carefully in search of concepts not already articulated based on theory that would help interpret a WTP, WTA, or explanation of a difference between these two measures. Statements that did not necessarily aid in understanding the disparity but did help explain an individual WTA or WTP were also included, such as statements about the usefulness or characteristics of a good. Fourteen categories of statements were defined. Using the transcripts, three people separately coded incidence of the defined concepts, after which differences among the three codings were reconciled. Finally, using the reconciled record, frequencies of kinds of statements were compiled for each of the six bids and for each of the three possible discrepancies.

[4] The 25 prices ranged from 5¢ to $10. Except for 5¢ replacing 0, the prices were in steps of 25¢ up to $2 and in steps of 50¢ from $2 to $10. Bohm et al. (1997) have shown that selling in a random price auction can be sensitive to the range of prices from which the buying price is randomly drawn, potentially raising the selling bid if the range exceeds what would otherwise be considered by the subject to be the maximum price any real buyer would be willing to pay. The $10 upper range is above the retail price of the goods used in this study and therefore probably above what subjects thought of as the maximum price real buyers would pay, so the data of this study are potentially subject to the bias that Bohm et al. demonstrate. It is the reason for the disparity, however, not its precise magnitude, that is of primary interest herein.

4. Results

Twenty-four subjects completed the experiment, but three did not sufficiently understand the instructions or cooperate with the "think aloud" request, and thus were removed from the sample, leaving 21 subjects.

4.1. Bids

Subjects' bids were similar to those of most other disparity experiments, with WTA being roughly twice WTP (Table 1). Mean WTA was significantly greater than mean WTP for all three goods (see two-tailed *t*-test significance levels in Table 1). Over two-thirds of the subjects stated greater WTA than WTP bids. It is notable that most subjects not only produced their own individual WTA–WTP disparity, but they also, when asked to explain differences between their buying and selling bids, had little trouble in doing so, apparently not considering a difference as out of the ordinary.

The relation between subjects' WTP and WTA bids was positive but weak, with Pearson correlations between the two measures of 0.08, 0.49, and 0.59 for the chocolate bar, mug, and notebook, respectively. Removing one extreme case from the chocolate bar data (WTA = \$10; WTP = 50¢) raised that correlation from 0.08 to 0.41. These rather low correlations were not unexpected, as two prior studies found similar correlations: Kachelmeier and Shehata found a correlation of 0.35 and Borges and Knetsch found a correlation of 0.24. The low correlations suggest that subjects use a mixture of rationales in arriving at their bids.

Table 1
Bids for three goods

	Chocolate	Mug	Notebook
Mean			
WTP ($)	0.71	2.05	1.22
WTA ($)	1.88	3.69	2.58
WTA/WTP[a]	2.7	1.8	2.1
t-Test significance level	0.016	0.001	0.003
Median			
WTP ($)	0.50	2.00	1.00
WTA ($)	1.50	3.50	2.00
WTA/WTP[b]	2.0	1.7	2.5
Number of subjects			
WTP = WTA	5	6	1
WTP > WTA	0	1	2
WTP < WTA	16	14	18
Total	21	21	21
Approximate retail price ($)	1.75	6.00	4.00

[a] Ratio of mean WTA to mean WTP.
[b] Median of the individual WTA/WTP ratios.

Table 2
Number of subjects indicating a statement category with at least one good

Statement category[a]	WTP	WTA	Explanation	Any time[b]
Personal utility or disutility of item	21	17	15	21
Item quality and characteristics	20	19	3	21
Seeking a good deal	11	17	20	21
What it costs at the store or what it's "worth"	16	16	4	20
Reasonable or compromise price	5	7	5	10
Ambiguity about price or value	5	7	3	10
Make a gift of the item	5	6	1	9
Selling cheaply to make sale likely	0	8	1	9
Awareness of opportunity cost	2	5	2	6
Lack of funds (*income constraint*)	4	0	2	4
Loss aversion	1	0	3	3
Replacement cost ($ to buy another)	0	2	0	2
Transaction cost	0	1	1	2
Cost to manufacture the item	1	0	0	1

[a] Statement categories in order from most to least common "any time". Categories in italics refer to explanations suggested by theory and past experimentation, listed in Section 2.
[b] Subject made such a statement in response to a WTP, WTA, or explanation question.

4.2. Statements

Table 2 reports the frequencies with which subjects made statements conforming to each of the 14 statement categories. The "WTP" and "WTA" columns report the frequencies with which the categories were mentioned during the articulation of a WTP or WTA amount, and the "Explanation" column reports the frequencies with which the categories were mentioned when subjects were explaining a difference between their prior WTA and WTP bids. The "Any time" column gives the frequencies with which the categories were used by subjects at least once during steps 3 or 4 of the experiment. For a subject to be counted in the frequency computation, a given statement category needed to be used with only one of the three goods. For example, 20 subjects (line 2 of the table) mentioned the quality or characteristics of at least one of the items in arriving at a WTP amount, and all 21 subjects mentioned item quality or characteristics at least once.

In addition to statements indicating the five reasons for the disparity listed in Section 2, subjects made nine other types of statements that, while not necessarily helping to explain a disparity, did help explain a given WTP or WTA. For example, all 21 subjects (Table 2, line 1) made statements indicating the personal utility of the item (e.g., "I like this mug"; "I don't need a notebook"); all subjects (line 2) also described characteristics of the items (e.g., "It [the notebook] doesn't have lines"; "It's a fairly large candy bar"); 20 subjects (line 4) mentioned the item's store price or its "worth" (e.g., "The typical price for that mug is about $5"; "It's worth $2, but I don't want it"); and ten subjects (line 5) settled on a "reasonable" or "fair" price, (e.g., "I'd spend 50¢ on it because it seems like a reasonable price"; "$3 sounds reasonable to sell it") (all quotes were taken from the transcripts).

Of the five plausible reasons for the disparity listed in Section 2, "seeking a good deal" (line 3) is the most prominent, having been mentioned in some form by all 21 subjects. In estimating a WTP, 11 subjects mentioned getting a bargain (e.g., "I'd pay $1—it's probably

a lot more in the bookstore, so a bargain"), getting a good deal (e.g., "Well, to buy chocolate, it would have to be a good deal"), or spending only a trivial amount (e.g., "I'd say 10¢ for the notebook because 10¢ doesn't mean anything to me"), and in estimating a WTA, 17 subjects suggested that they were thinking about what they could get for the item in a sale situation. This notion had the following three forms: (1) what someone else would spend for the item (e.g., "My thoughts are, what do I think I can get for the notebook"), (2) the item's utility to others (e.g., "I don't need it that much, but I have friends who like to write in such notebooks"), or (3) making a profit (e.g., "I wouldn't pay a lot to buy it, but to sell it I would probably go higher . . . I would try to make a profit from it").

Twenty subjects included the "seeking a good deal" concept in their explanations of WTA–WTP differences, as indicated by the following three examples: (1) "If I were in the market for a notebook, I would probably pay three dollars for it, but since I'm not I won't pay that much" (stated in explaining a WTA of $3 versus a WTP of $1). (2) "I grew up with 'buy low, sell high'. I know that people charge more for things than they are worth. But in buying, I know that I really don't need it, so I'm not really motivated to spend what I think is a fair selling price." (3) "I wouldn't normally buy something unless I felt really compelled to buy it, such as when it's a really cheap price, but if I have something I wouldn't mind selling it if I can get more than it's worth to me."

Ten subjects suggested ambiguity, or at least lack of certainty, about price or value at some time during the experiment (e.g., "There's a big range [in store price]—coffee mugs can be expensive"; "I have no need for something like this that I can think of at this point, but that doesn't mean something couldn't arise"). Any indication of lack of certainty was accepted, such as "I guess normal candy bars cost about close to $1." No subjects suggested risk aversion (with statements such as "I'd hate to pay too much for it" or "I'd regret it if I sold this too cheaply"), so in listing incidence of ambiguity as an observed reason for the disparity we are assuming the subjects were risk averse.

Four subjects mentioned an income constraint (e.g., "I'm totally broke"), and two subjects mentioned transaction cost (e.g., "I'd want to make a little bit extra for my time trying to sell it"). Of course, subjects had been given $7 to participate, so they technically were not broke. Most likely, their comments indicate a need to save their money for other purchases.

In looking for statements indicating loss aversion and the endowment effect, any indication of sensitivity to loss or of an increase in value with ownership was accepted as a possible expression of the concept, but only three subjects made such statements. One such statement was "Because I don't really need it, I probably wouldn't buy it, but I'd like to keep it if I had it." Perhaps the clearest indication of loss aversion was the following explanation of a disparity: "When I had it, I wouldn't be willing to part with it as easily, cause I like it, and it would take a lot for someone to take it from me, whereas if someone just showed me this mug and said do you want to buy it, I could pick out of a whole bunch of other mugs and might not want this one."

As reported above, many subjects mentioned the item's store price in the course of articulating WTP or WTA. Some stayed with that price as their bid (e.g., "I would say $1.50 . . . it's about the average price you would pay at a grocery store"). Others stated a bid lower than their estimate of store price (e.g., "I'm thinking of them as being $2.50 . . . in a store . . . but I have a lot of mugs at home . . . I'd pay $1 for it"). These behaviors suggest that store price sometimes served as a starting point in forming a bid. Using a starting point and then

adjusting from that point based on additional information is an acknowledged strategy for tasks such as estimating monetary values (e.g., Schkade and Johnson, 1989). To the extent that market price served as a starting point for subjects in this study, the adjustment appears to have been greater for WTP than for WTA.

5. Discussion

In spite of: (1) the incentive inherent in the binding transaction, (2) the admonition to state "the minimum amount you would accept to sell each item here and now" rather than "in some other circumstance," and (3) the knowledge that the auction price would be determined by randomly drawing a price from among 25 possible prices, most subjects still mentioned the item's value to others or the opportunity for making a profit in the course of both articulating their WTA and justifying a disparity (Table 2, line 3). Although a few subjects were obviously cognizant of the opportunity cost of failing to sell the item (line 9), most indicated they were primarily concerned with not giving up the item for less than some meaningful portion of what it was worth in a sale situation, and many of these same subjects mentioned their willingness to purchase the good only if they got it for a low price. Overall, most subjects seemed primarily concerned with getting a good deal (or, conversely, avoiding a bad deal) in the transaction.

The effect of "seeking a good deal" on the disparity could be enhanced by the second most frequently indicated explanation, that of ambiguity. If we assume risk aversion in the face of ambiguity about prices or value, subjects would tend to lower WTP and raise WTA to assure they got the good deal they sought.

Additional support for the "seeking a good deal" explanation is perhaps contained in the finding of induced value experiments (e.g., Franciosi et al., 1996; Kahneman et al., 1990) that the disparity does not occur when money is traded in a riskless environment. A critical difference between goods and money in non-risky trades is that the value of money is apparent to everyone. This transparency preempts the opportunity to profit or to take advantage of the greater value that others may place on the good. If removing the opportunity to profit precludes the disparity, then the disparity observed for inexpensive market goods may be due to the opportunity to profit that exists when such goods are traded among people with different tastes and incomes.

Seeking a good deal is not necessarily a greedy attempt to gain at someone else's expense or even a habitual resort to a bargaining strategy; rather, it may be an attempt to avoid losing the market value that the good represents. In stating a selling price, some subjects focused not on what the good was worth to themselves but rather on what it was worth to potential buyers. For these subjects, a request for WTA may simply call for estimating a reasonable selling price, which is the highest price at which the good would tend to sell. Subjects' statements suggest that, for some people, that price *is* the good's worth in a sale situation.

A related reason that owners may refuse to sell a good at a price as low as their own WTP is that they can always give the good away (Table 2, line 7) as a gift that may be worth as much to the recipient as the good's market price.

Maintaining a WTA twice WTP seems irrational unless sale at WTA is possible. In fact, over half of the 25 prices that could have been drawn for the binding transaction were

above the median WTA bids for the three goods, so the chances of selling the goods at the stated bids were substantial. Nevertheless, many subjects' statements about what the good was worth to others or about making a profit suggest that they did not embrace, or perhaps even understand, the random price auction. When stating a WTA bid, many subjects were apparently not thinking about what the good was worth to themselves. This interpretation of subjects' behavior is supported by the recent test of the random price auction in a WTA–WTP experiment performed by Plott and Zeiler. When they made a more thorough attempt than the current or prior experiments did to train subjects in use of the random price auction, they found no disparity. Apparently, when buying or selling, subjects who are insufficiently trained in the nature of the random price auction remain focused on familiar notions of getting a good deal.

The most surprising finding of this study is that there was not more evidence of the endowment effect. The paucity of such evidence, in light of the intuitive appeal of the loss aversion notion, leads one to wonder whether this implementation of the verbal protocol method simply failed to detect the concept. It is possible that most subjects were unaware of the true nature of their preferences. However, an alternative and more transparent explanation is that loss aversion was indeed present, but not in the form characterized by the endowment effect.

The endowment effect relies on the idea that buying creates a gain whereas selling creates a loss, which focuses on the good rather than on the net result of the transaction. The aversion suggested by most subjects' WTA statements, however, was not to losing the good, but to losing the asset value inherent in the good, and on the WTP side, the aversion suggested by subjects' statements was to paying more than the good was worth to them. Subjects were, to put it simply, averse to incurring the net loss that results from paying too much or selling too cheaply. If loss aversion is separated from the good per se and instead refers to the net result of the transaction, loss aversion may certainly play a role in the disparity.

The endowment effect argues for a change in preference upon a change in endowment, leading to a change in value for the good, but loss aversion—the notion that losses are weighted more than objectively commensurate gains—does not require a change in preference for the good once it becomes part of an individual's endowment. If the loss is of asset value, rather than of the good per se, no change in preference is needed for loss aversion to cause or enhance a disparity.

This reasoning suggests a new interpretation of the interesting results presented by Kahneman et al. (1990) in their "chooser" experiment. They compared sellers' WTA bids and buyers' WTP bids, each elicited with a random price auction, with the valuations of a third group of subjects who chose between the good (a mug) and various sums of money. The results were that the buyers and sellers exhibited the typical WTA–WTP disparity and that the choosers valued the mug only slightly more than did the buyers. Interpreting this result, Tversky and Kahneman argued that because the choosers and sellers faced the same decision problem (in that each could have either the mug or money without incurring a monetary loss) but produced very different values, placing the mug in the sellers' endowment allowed loss aversion to increase the mug's value. An alternative interpretation is that the WTA and chooser bids differ so much because choosing is not at all like selling, for selling brings up the issue of what the good is worth to someone else whereas choosing does not. Perhaps it was the choosers and buyers who faced the same decision problem,

each deciding how much money they would give up to get the mug, whereas the sellers were indicating how much they should receive in return for the mug.

6. Conclusions

As in most previous experiments using inexpensive market goods, WTA was roughly twice WTP. The most commonly indicated reason for the disparity was that subjects based WTP on what the good was worth to them personally and WTA on what the good was worth in a sale situation. That is, in deciding on WTA, most subjects referred to what the good would be worth to others and often appeared to rely on store price as a starting point. This suggests, first, that they did not embrace or understand the random price auction, in spite of considerable instruction about it and some practice in using it. The results of Plott and Zeiler suggest that additional training would have been needed to get subjects, when stating a WTA bid, to focus clearly on what the good was worth to them rather than on what it was worth in a sale situation.

Second, although the results do not contradict loss aversion in general (nothing in the results suggests that a loss does not have greater subjective effect than an equivalent gain), they also do not support the endowment effect. Few subjects suggested an aversion to losing the good itself or a greater attachment to the good in a WTA than in a WTP situation. Apparently, the good did not suddenly become more precious when owned. Although the endowment effect does not appear to explain the disparity, for most subjects there was a reluctance to lose the value represented by the good. This finding could be interpreted as indicating a desire for a good deal, perhaps accentuated by risk aversion in the face of ambiguity, or as a kind of loss aversion; indeed, these two explanations become nearly synonymous when the aversion is to losing asset value by selling too low.

The "getting a good deal", "loss aversion without endowment effect" explanation of the disparity offers a new view of the puzzling "instant" change in preference referred to by Tversky and Kahneman quoted in the Introduction. The explanation puts the focus on the *process* the subject is asked to engage in, either buying or selling, rather than on preferences for the item. We are all accustomed to the roles of buyer and seller, and the results of this experiment suggest that we can quickly switch between them.

The verbal protocol results support a commonsense explanation of the disparity found in many past experiments using inexpensive market goods and also help to show what subjects are thinking of when the random price auction is not fully understood or accepted. However, because the results rely on self-reports that may reflect subjects' rationalizations rather than underlying tendencies or motives, the results must be taken as only offering hypotheses worthy of careful testing. I have tried to make a logical case based on the subjects' statements, one that sheds new light on the disparity, but the final word on that case awaits such testing.

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