

Is the Endowment Effect Due to Loss Aversion or Mere Ownership?

Lisa L. Shu

Harvard University

## **ABSTRACT**

The endowment effect—the observation that buyers and sellers value the same good at different prices—is an important problem for economists as it presents a violation of the Coase Theorem. In experimental settings, people who are arbitrarily assigned to be buyers or sellers exhibit very different behavior in willingness to pay and willingness to accept prices. On average, buyers are willing to pay only half as much as the price at which sellers are willing to part with their possession. The standard explanation for this price gap is the asymmetry in the subjective impact of losses and gains. Simply put, an equivalent loss feels worse than an equivalent gain feels good; therefore, sellers are more reluctant to give up their possession than buyers are eager to acquire it. However, previous studies have never tested the effect of ownership on valuation, independent of the frames adopted by buyers and sellers. This paper examined the separate effects of ownership and framing. Experiment 1 demonstrated that loss aversion was not necessary for the endowment effect to occur. Experiment 2 showed that the endowment effect, if not completely explained by mere ownership, is at least dominated by an ownership as opposed to a framing explanation. Taken together, the two experiments suggest that mere ownership sufficiently accounts for the endowment effect, whereas the standard framing explanation does not.

### **Is the Endowment Effect Due to Loss Aversion or Mere Ownership?**

Imagine you are trying to sell your car. You meet several prospective buyers who test-drive your car and make their best offers for what they are willing to pay. These buyers' price offers are all below the price you are willing to sell. Finally, after many rounds of negotiations and some flexibility on both sides of the transaction, you and a buyer agree on a price much lower than the initial cutoff at which you were willing to sell. Your perception of the value of your car had been much higher than the buyer's. Is this price gap due to your attachment to the car you are selling, or to different frames adopted by you and the prospective buyer?

The perceived increase in value after ownership could be due to your aversion to the idea of life without the car—*loss aversion*. Alternatively, the increase in value after ownership may be due to your perceiving the intrinsic value of the car more highly than potential buyers do—*mere ownership*. Previous experiments have argued that loss aversion is mainly responsible for the gap between a buyer's Willingness to Pay (WTP) price and an owner's Willingness to Accept (WTA) price. However, no research has cleanly identified each factor's individual contribution to the *endowment effect* (Knetsch, 1989; Kahneman, Knetsch & Thaler, 1990; Loewenstein & Issacharoff, 1994; Bateman, Rhodes, Starmer & Sugden, 1997). This paper investigates whether the observed increase in the value of an object when it is possessed—the *endowment effect*—is due to *loss aversion* or to *mere ownership*.

#### *Endowment Effect*

Kahneman, Knetsch, and Thaler (1990) conducted experiments on the endowment effect by comparing behavior of buyers and sellers of physical goods such as mugs and

pens. Objects were randomly given to half the participants in an experiment, and participants engaged in buying and selling markets. The authors observed little reluctance to buy, but much reluctance to sell between participants in the two conditions. For example, in one experiment the median seller's WTA price of \$5.75 was over twice the median buyer's WTP price of \$2.25.

The endowment effect presents a problem for economists because it violates the Coase Theorem, which states that given perfect competition and information, low bargaining costs, and the absence of wealth and income effects, resources will be allocated efficiently and optimally regardless of who owns them initially (Coase, 1960). In other words, regardless of initial allocation (i.e., endowment) of property, in the absence of transaction costs, individuals will bargain privately to correct any inefficiency. The endowment effect violates the Coase Theorem, as people arbitrarily assigned to be buyers and sellers are unwilling to agree on a price at which to trade in laboratory and field experiments (Kahneman et al., 1990; Cummings, Brookshire, and Schulze, 1986). The implications of this are profound. The Coase Theorem is the rationale for government auctions of everything from radio spectrum to mobile phone licensing. There are also major implications for the financial markets. The efficient market hypothesis requires only a few sophisticated traders to recognize arbitrage opportunities to drive financial and commodity markets to efficiency. However, the existence of an endowment effect in the market means the volume of trade will be well below what it would be without the effect, thus limiting the effectiveness of arbitrage as a guarantee of market efficiency.

### *Loss Aversion*

Kahneman and colleagues (Kahneman et al., 1990; Loewenstein & Adler, 1995) explained the endowment effect as largely due to loss aversion, as represented by a steeper slope in the loss domain than in the gain domain in participants' subjective utility curves (Kahneman and Tversky, 1979). Loss aversion posits that objectively equivalent losses and gains affect utility differently; specifically, equivalent losses loom larger than equivalent gains. Because an object is evaluated as a loss when it is sold and as a gain when it is purchased, the asymmetry in the weighting of losses and gains implies that sellers will typically demand a higher price than buyers.

There are many examples of loss aversion from research in the laboratory and the field (Camerer, 2000). For example, Benartzi and Thaler (1997) cite loss aversion as an explanation for the equity premium puzzle, the observation that investors seem to over-invest in bonds despite the fact that stocks have higher returns relative to bonds. The authors suggest that investors are not as averse to the variance of returns as they are to negative returns. Because annual stock returns are negative more frequently than annual bond returns are, loss-averse investors will demand a high equity premium.

Loss aversion is also used to explain downward-sloping labor supply, an economic anomaly where wages and hours are negatively correlated. Camerer and colleagues (Camerer et al., 1997) observed the tendency of cab drivers to work longer hours on low-wage days, and quit earlier on high-wage days. The classic theory of labor economics predicts the opposite: because a temporary increase in wages represents an opportunity to increase one's wealth, profit-maximizing drivers should work more on profitable days and less on bad days. But empirical evidence suggests otherwise: cab

drivers appear to determine their hours by setting daily income targets and working as many hours as needed to reach their targets. Such behavior indirectly assumes loss aversion (Thaler, 1999). Drivers seem to set a one-day time horizon, and their utility function for one day's income bends sharply as it falls below the daily income target, representing an aversion to "loss" as framed by their set reference point.

Loss aversion has been the standard explanation for the endowment effect (Loewenstein & Adler, 1995). If loss aversion is indeed responsible for the endowment effect, this implies there should be no reluctance to trade when no true loss is involved. Chapman (1998) conducted four experiments investigating whether reluctance to trade declines in situations that involve less of a loss, i.e., trades where one item is exchanged for another very similar item. Three of the four experiments indicated no relation between willingness to trade and similarity of the two items being traded. One experiment indicated that participants were quite willing to trade for an identical item, less willing to trade for a similar item, and mostly unwilling to trade for a completely different item. This mixed result suggests that loss aversion may not be the only explanation for the endowment effect.

Previous studies on the endowment effect have failed to distinguish between the roles of owner and seller. The loss aversion explanation relies on the assumption that the way to determine how much owners value one good is to ask them to sell it. But owning and selling are not necessarily two sides of the same coin; one can be an owner without having to consider the position of selling. Is ownership itself sufficient in explaining the endowment effect?

### *Mere Ownership*

While the endowment effect is often presented as one demonstration of loss aversion (Loewenstein & Adler, 1995), the endowment effect, as coined by Thaler (1980), originally referred to the result that people simply value an object more highly when they own it than when they do not. It is possible that “endowment”—i.e., ownership—itself causes the effect, independent of loss aversion. Beggan (1992) found support for such a *mere ownership effect*—people evaluated an object more favorably purely because they owned it. Participants in his experiment rated the favorability of objects under the guise of a consumer preference task. Participants who owned the target object (e.g., an insulator) rated it significantly higher than those who did not own it. This result cannot be explained by loss aversion, because there is no loss frame involved in rating the attractiveness of an object. Beggan defines this mere ownership effect as “the tendency of an owner relative to a non-owner to enhance the perceived attractiveness of an object merely because it is owned” (Beggan, 1992, p.229).

Heider (1958) first advanced the observation that ownership produces greater liking for an object, and cited Irwin and Gebhard’s (1946) result that a majority of children displayed a preference for an object given to them as opposed to an object given to someone else. This increase in object attractiveness due to ownership can be attributed to participants’ motivation to self-enhance for the sake of social comparison (Festinger, 1954).

Other evidence that the endowment effect may not rely on loss aversion is the *name letter effect*, a preference for one’s own name letters over other letters (Nuttin, 1985). Not only do people show preference for the initials of their name over other

letters, but also the positive valence associated with these letters transfer to brand and object choice (Brendl et al., 2005). This is supported by empirical evidence that show people named Dennis are largely over-represented among dentists (Pelham et al., 2002). This “endowment effect” for letters signifies that the value in ownership may largely be due to having, not necessarily the possibility of losing.

### *Summary*

This paper posits the endowment effect is likely composed of both loss aversion and mere ownership factors. Explaining the endowment effect as based on the asymmetry of responses to losses and gains is very different from attributing it to a mere ownership effect stemming from the motivation for self-enhancement. A mere ownership effect could explain the results of experiments on the endowment effect, but not vice versa.

The experiments presented in this paper aim to clarify whether one factor or both factors are responsible for the endowment effect. If both mere ownership and loss aversion factors are responsible, the aim is to decompose the extent to which each factor contributes to the endowment effect.

This paper separates the factors of mere ownership from loss aversion in the endowment effect in two ways. Experiment 1 presents a test for the existence of a strong mere ownership effect. Experiment 2 presents a more sensitive test to separate and estimate the magnitudes of mere ownership and loss aversion contributions to the endowment effect. The prediction is that mere ownership would prove sufficient for the endowment effect, and that loss aversion would not play a necessary role.



## EXPERIMENT 1

This experiment aims to tease out the mere ownership explanation from the loss aversion explanation of the endowment effect. It aims to clarify whether one factor or both factors are responsible for the endowment effect by de-confounding owning and selling.

## METHOD

### *Participants*

Ninety students (29 males, 61 females; mean age = 20.7, SD = 5.4) participated in exchange for monetary compensation ( $M = \$8.12$ , SD = 4.08) and/or a coffee mug.

### *Procedure*

In a between-subjects design, participants were exposed to a standard coffee mug. Mugs were chosen as appropriate objects because they are universal consumption goods that offer increasing utility, yet are not absolute necessities. *Buyers* stated their Willingness to Pay price for the mug (WTP). Participants in the second condition, *sellers*, were first told by the experimenter that the mug was theirs, and then asked to state their Willingness to Accept price to sell the mug (WTA). In the third condition, *owners* were first given a mug, and the experimenter then asked their Willingness to Pay for a second mug. In the fourth condition, *superbuyers*, participants were asked their Willingness to Pay for two identical mugs. The conditions are summarized in Table 1.

In order to insure that participants revealed their true valuations, all prices were elicited using the “Becker, DeGroot, Marschak” method (Becker et al., 1964), just as prices were elicited in Kahneman et al.’s (1991) design. *Buyers* received a price-elicitation form with a series of pair-wise choices; each choice was between receiving a

mug and receiving an amount of cash, with cash amounts ranging from \$0.50 to \$12.50 in \$0.50 increments (see Appendix A). *Sellers* received a similar form, with pair-wise choices between keeping the mug they have, and trading it for an amount of cash (Appendix B). *Owners* were first given a mug, and then filled out a Willingness to Pay elicitation form for a second mug (Appendix C). In the fourth condition, *superbuyers* revealed their Willingness to Pay for two identical mugs by choosing between receiving two mugs and receiving a cash amount for each pair-wise choice, with cash amounts ranging from \$1.00 to \$25.00 in \$1.00 increments to reflect the additional mug (Appendix D).<sup>1</sup>

After completing their respective price-elicitation forms, all participants completed a few subjective measures of how attractive they perceived the mug to be (Appendix E). Participants reported how much they liked the mug, how useful, stylish, and attractive they found it, how high quality the mug was, how much they would like to receive the mug as a gift, and how likely they would be to re-gift it on 7-point Likert scales marked with endpoints, e.g., “*Not at all* (1)” and “*Very much* (7).”

After completing these subjective measures, for each subject, one of their choices on their price-elicitation forms was randomly selected to determine their payment at the end of the experiment. Thus, all participants had an incentive to reveal their true values. All participants were exposed to the mug for the same amount of time to control for the

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<sup>1</sup> Note that selling is the choice between receiving a sum of money and keeping a good, while buying is the choice between receiving a good and keeping a sum of money. Technically, *buyers* in this study were choosing between *receiving* a good and *receiving* a sum of money; in effect, *choosers* would a more precise term. The technical difference between buying and choosing has been proved to be insignificant in previous studies (Kahneman et al., 1990). In addition, the method of eliciting “buying” prices by choosing is preferred in that it eliminates the possibility of income effects.

effect that valuation may increase with duration of ownership, as shown by Strahilevitz and Loewenstein (1998).

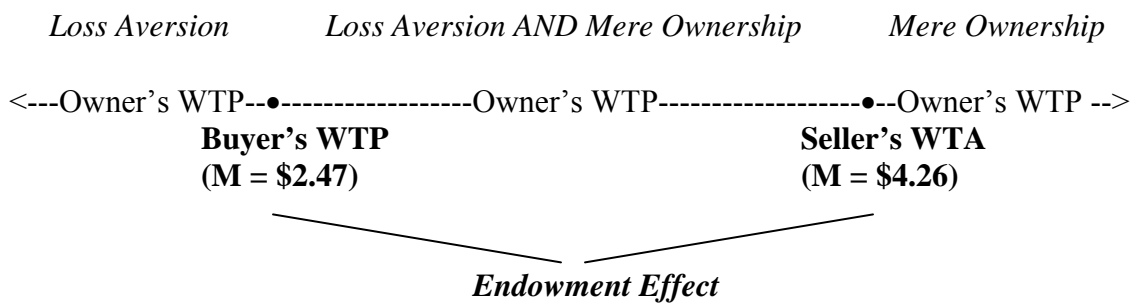
## RESULTS

As participants' subjective evaluations were highly intercorrelated (Cronbach's  $\alpha = 0.81$ ), they were averaged to create an index of *likeability*. The index was based on the response of each subject to seven questions: how much respondents liked the mug, how useful, stylish, and attractive they found it, how high quality the mug was, how much they would like to receive the mug as a gift, and how likely they would be to re-gift it. For the purpose of analysis, the last question on likeliness to re-gift was reverse coded so that across all questions, high numbers represented more liking.

While the likeability index estimates each subject's subjective valuation, the prices elicited measure each subject's monetary valuation. To test for the existence of a strong mere ownership effect, the mean price levels for *owner's* and *buyer's* WTP, *seller's* WTA, and *superbuyer's* WTP2 can be compared. In this study, the difference between the mean *buyer's* WTP (\$2.47) and the mean *seller's* WTA (\$4.26) establishes the endowment effect in the same scale and direction as found by Kahneman et al. (1991).

Where owner's WTP lies in relation to buyer's WTP and seller's WTA tells whether the endowment effect is due to loss aversion or to mere ownership. Owners' and sellers' conditions differ by framing but are identical in initial endowment (both possess a mug); thus if owners are willing to pay as much as sellers' WTA price, then the endowment effect must be largely due to mere ownership. Owners' and buyers' conditions differ by initial endowment, but are identical in framing (both are purchasing a

mug); therefore, if owners are willing to pay less than buyers are willing to pay, then the endowment effect must be largely due to loss aversion. The range of possible explanations is summarized below.



**Figure 1.** Explanations for the Endowment Effect

Analysis of variance (ANOVA) was used to compare the prices of owners, buyers, and sellers. This analysis revealed differences between conditions,  $F(2, 65) = 5.82, p = .005$ . Planned orthogonal contrasts revealed that sellers (+1) and owners (+1) valued the mug at equally high prices; both groups had mean prices significantly higher than those of buyers (-2),  $t(65) = 3.39, p = .001$ . Post hoc Fischer's least-square difference test confirmed the differences between buyers and sellers ( $p = .008$ ) and buyers and owners ( $p = .003$ ), and maintained there was no difference between sellers and owners ( $p = .691$ , see Table 2).

Likewise, using ANOVA to compare the likeability index across participants yielded the same differences between conditions,  $F(2,65) = 3.41, p = .04$ . Planned orthogonal contrast analysis revealed that, as expected, sellers (+1) and owners (+1) valued the mug similarly by subjective measures, and both groups valued it significantly more than buyers (-2) did,  $t(65) = 2.611, p = .01$ . Fischer's LSD test again confirmed the

differences between buyers and sellers ( $p = .029$ ), and buyers and owners ( $p = .026$ ), while there was no difference between sellers and owners ( $p = .947$ , see Table 2).

Together, the likeability and price data suggest that the endowment effect is largely due to the mere ownership effect. Owners of mugs were not affected by loss aversion because the question “how much would you pay for a second mug?” was framed exclusively in the gain domain—and still owners were willing to pay for a second mug as much as sellers demanded to be paid for a mug. Mere possession seems to increase both the dollar and subjective value of a good regardless of the framing of the elicitation method.

The critical assumption for this test was that participants had linear utility curves for mugs. In reality, an owner’s WTP price for a second mug is confounded when marginal utility is not constant. Decreasing marginal utility of mugs would bias the results against the hypothesis that there is a mere ownership effect. Finding the mere ownership effect in spite of decreasing marginal utility of mugs would then bolster the case for a strong mere ownership effect.

However, if utility curves for mugs were convex—i.e., exhibited increasing marginal utility—then it would be difficult to conclude from the data a definite mere ownership effect. If two mugs are complements, then a pair of mugs has value greater than the summed value of each mug individually. Goods that have this characteristic include concert tickets, salt and pepper sets, and peanut butter and jelly. If mugs are indeed complementary goods, it is possible that owners are willing to pay a high price for a second mug simply because they want a pair, not because the value of each mug has increased due to ownership.

In order to eliminate this confound, the *superbuyers* data was analyzed to determine whether mugs are complementary, i.e., whether two mugs in a matched pair is significantly more valuable than the added value of two individual mugs. *Superbuyers* stated their WTP for two mugs; thus one can compare half their mean price (the price per unit mug) to the mean price of *buyers* of one mug (see Table 2). A between-subjects t-test revealed no difference between half the superbuyer price ( $M = \$2.22$ ,  $SD = 1.70$ ) and the buyer price ( $M = \$2.47$ ,  $SD = 1.57$ ),  $t < 1$ . Additionally, the mean price of owners ( $M = \$4.52$ ,  $SD = 2.80$ ) was significant higher than superbuyer price for one unit mug,  $t(21) = 6.30$ ,  $p < .001$ . Therefore, one can rule out the possibility that mugs have increasing marginal utility. The willingness of owners to pay more for a second mug cannot be attributed to any premium on having a set of mugs. The data continues to support the hypothesis that mere ownership is responsible for the endowment effect.

## **EXPERIMENT 2**

Experiment 1 established that framing is not necessary for the endowment effect, but does not completely rule out loss aversion as a possible explanation. The following study tries to separate the roles of framing and ownership in the endowment effect, and also asks whether the mere ownership effect is particular to the specific item owned, or whether the effect generalizes to all items of the same type. Additionally, this study eliminates the nonlinear marginal utility problem (participants were only asked to price one good) and any income effects that may have played a role in Experiment 1.

## METHOD

### *Participants*

Seventy-eight students (25 males, 53 females;  $M$  age = 20.3,  $SD$  = 3.0) participated in exchange for \$5.

### *Procedure*

Participants were assigned to one of two conditions—one group was given a mug (*owners*) and the other was not (*non-owners*). Within each of these two conditions, half the participants were assigned to choose WTP price for the mug for a *future buyer*—a future participant who would not have a mug. They were presented with a set of pair-wise choices between cash and mug, and they chose whether a future participant should receive the mug or receive cash for each amount indicated (see Appendix F). The other half of participants was asked to choose WTA price for the mug for a *future seller*—a future participant who already has a mug. For each set of pair-wise choices between cash and mug, they chose whether a future participant should keep the mug or receive cash instead (Appendix G). The conditions are summarized in Table 3.

After participants completed their respective price-elicitation forms, all participants were asked to complete a few measures of how much they thought the future participant to whom they were assigned would value and like the mug (Appendix H).<sup>2</sup>

## RESULTS

The four cells in this experiment allow for separation of two explanations of the endowment effect. The dimension of condition (*owner* or *non-owner*) tests the mere

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<sup>2</sup> To ensure there was no deception in this study, a post-study group of students was recruited, and paired with a study participant's choices. Each student picked from a box a slip of paper with a cash amount on it. If the study participant with whom they were matched picked a mug for them at that amount, they received a mug. Otherwise, they received the cash amount instead. The sole purpose of this post-study procedure was to ensure there was no deception in the experiment.

ownership explanation, while the dimension of assignment (*future buyer* or *future seller*) tests the loss aversion explanation. If mere ownership is the main explanation for the endowment effect, then the mean prices elicited from *owners* ( $WTP_o, WTA_o$ ) will be significantly greater than the mean prices elicited from *non-owners* ( $WTP_n, WTA_n$ ). This would mean that, regardless of how the question is framed, those who have a mug price it higher than those who do not. If, however, loss aversion is the sole reason for the endowment effect, then the mean prices assigned to *future buyers* ( $WTP_o, WTP_n$ ) by both *owners* and *non-owners* would be lower than mean prices assigned to *future sellers* ( $WTA_o, WTA_n$ ). This would signify that regardless of whether participants owned an object, the framing of how much something is worth—either in terms of loss (sale) or gain (purchase)—changes the valuation of that object.

Mean prices elicited from participants in each condition are summarized in Table 4. A between-subject comparison of means revealed there was no price difference between participants assigned to *future buyers* and participants assigned to *future sellers* ( $t(74) = 0.070, p = 0.946$ ). There was however a significant difference between reported prices of *owners* and *non-owners* ( $t(74) = 2.570, p = 0.012$ ). Owners' mean price of \$4.61 was statistically higher than non-owners' mean price of \$3.56. The price data suggests that regardless of whether or not the question was framed in loss or gain, those who owned mugs priced it higher than those who did not.

The subjective measures of likeability did not reveal any systematic differences across participants (see Table 5). The same *likeability* index was created as that in Experiment 1. A comparison of means revealed there was no difference between participants assigned to *future buyers* and participants assigned to *future sellers*,  $t(74) =$



0.992,  $p = 0.32$ , nor was there a difference in reported likeability between *owners* and *non-owners* ( $t(74) = 0.212$ ,  $p = 0.83$ ). In general, participants in all four cells agreed on subjective measures of how highly they thought future buyers or sellers would rate the mug.

Multivariate regression was used to examine the individual impact of ownership, loss framing, age, gender, and interaction effects (between ownership and loss framing) on elicited prices and likeability. Table 6 details the results of two regression models.

Regression (1) regressed *price* on ownership, loss framing, gender, age, and the interaction of ownership and framing. Ownership is a binary variable representing the possession of a mug; i.e., all participants for whom ownership=1 were owners. Loss framing is another binary variable, which refers to participants who were assigned to consider the position of a future seller. An ordinary least-squares regression with robust standard errors revealed ownership as the only significant predictor of price at a 5% confidence level ( $p = 0.012$ ). The  $\beta$  coefficient on ownership was 1.409, meaning that, *ceteris paribus*, owners priced mugs \$1.40 higher than non-owners. The coefficients on all other variables, including loss framing, were not statistically significant. The model suggests that whether or not participants chose for a future buyer or future seller makes no difference in the expected price.

Regression (2) regressed *likeability* on ownership, loss framing, gender, age, and the interaction between ownership and framing. Ordinary least squares analysis with robust standard errors showed none of the aforementioned independent variables were significant predictors of likeability. Even at a 10% confidence level, neither ownership nor loss framing were statistically significant. The model suggests that neither framing

nor ownership predicts differences in participants' projected likeability scores for future participants.

## **DISCUSSION**

Experiment 1 showed that loss aversion was not necessary for the endowment effect to occur. The fact that owners were willing to pay more for a second mug than buyers were willing to pay for one mug indicates that ownership alone can boost the reservation price for a mug. Experiment 2 showed that when choosing reservation prices for future buyers and sellers, owners chose higher prices than non-owners. Whether the future participant would be a buyer or seller did not matter. Taken together, the two experiments support the mere ownership explanation of the endowment effect.

Evidence against this claim comes from studies where experimenters were able to induce the endowment effect without ownership. Query theory, as proposed by Johnson, Haeubel, and Keinan (2004), supposes that the endowment effect arises from the order in which reasons for why a transaction should be made comes to mind for buyers and sellers. When prompted to give their reservation prices, buyers and sellers both naturally think through reasons why they should make a trade, and reasons why they should not—but in opposite orders. Citing Carmon and Ariely (2000), query theory supposes that the focus of a potential transaction is on the forgone. Buyers first focus on the money they are about to give up and then think of the mug they are about to acquire, whereas sellers first think of the mug, then the money. The retrieval of the first set of thoughts interferes with retrieval of the second; consequently a gap in WTP and WTA prices results.

Johnson et al. demonstrated that by manipulating the order in which participants placed

their focus, experimenters could induce an endowment effect without endowment, and eliminate the endowment effect even with endowment.

Johnson et al.'s finding supports loss aversion as the explanation for the endowment effect, because it implies that a buyer or seller's reservation price can be manipulated by guiding the agent towards a positive or negative frame of mind. That changing the order in which queries are prompted can bring about the endowment effect suggests that framing is partly responsible for the endowment effect. However, these results do not imply that the endowment effect is mediated exclusively through loss aversion. Loss aversion may enhance the endowment effect, but it is not necessary for the effect to occur. Johnson et al.'s work shows that interference with natural thought processes can indeed override the endowment effect. This does not necessarily conflict with the finding of this paper that mere ownership is sufficient to bring about the endowment effect.

One question remaining from the data is why owners in Experiment 2 did not rate the mug more highly on subjective measures than non-owners, even though they priced the mug higher. While higher prices correlated with higher likeability ratings in Experiment 1, owners' and non-owners' likeability ratings were similar in Experiment 2, despite the difference in elicited prices. It is ironic that owners and non-owners agreed on subjective measures of how much future participants would like the mug, yet on the supposedly objective measure—price—owners' and non-owners' responses significantly differed.

Note that prices elicited from owners and non-owners in Experiment 2 did not differ as much as prices of endowed (sellers, owners) and non-endowed (buyers,

superbuyers) participants differed in Experiment 1. In fact, the size of the endowment effect was almost twice as large in Experiment 1 as it was in Experiment 2 (\$1.79 compared to \$1.03). The obvious difference between the two studies is that Experiment 1 participants chose outcomes for themselves, while Experiment 2 participants chose outcomes for others. Experiment 2 may be a less sensitive test of the endowment effect because it assumes that the increase in value from endowment is global, i.e., the value increase can be generalized to all objects identical to the one owned, not just the specific item owned. Perhaps a generalized endowment effect is not as strong as an endowment effect for the specific item received. If so, then Experiment 2 is a weaker test for the endowment effect than Experiment 1. That mere ownership produced a significant difference in prices elicited from owners and non-owners in Experiment 2 is therefore strong evidence that ownership is sufficient in inducing an endowment effect. As for the framing explanation, loss aversion may indeed be a component of why the endowment effect occurs, but Experiment 2 may not be sensitive enough to test for this. The endowment effect, if not completely explained by mere ownership, is at least dominated by an ownership as opposed to a loss aversion explanation.

The mere ownership explanation is consistent with the findings of many other experiments. For example, Tom (2004) conducted two versions of the classic endowment experiment (buyers and sellers only)—one version with plain white mugs, and one with college insignia mugs. He found that owners of insignia mugs not only exhibited the endowment effect, but also what he calls an *institutional affinity effect*—owners of college insignia mugs actually reported higher satisfaction with the college than non-owners did. This endowment effect on institutional affinity cannot be explained by loss

aversion, as college attendance is not reference dependent. Those who owned an emblem of their college enjoyed a boost in satisfaction toward their college because the emblem is a reminder of having—not fear of losing—their college experience. The higher satisfaction rating among those who were endowed with insignia mugs thus supports the mere ownership explanation.

The mere ownership effect also explains the observation that the longer someone owns something, the more highly they value it. Strahilevitz and Loewenstein (1998) demonstrated that valuation increases with duration of past ownership for objects one possesses. For objects not possessed, previous ownership experience itself increases valuation, and furthermore, the increase in valuation correlates positively with duration of ownership before loss. These findings suggest that the quality of ownership itself, and not necessarily loss, causes the endowment effect.

That the endowment effect is due to ownership also helps explain why the discrepancy between WTP and WTA diminishes as buyers and sellers gain experience in a market setting (Coursey, Hovis, and Schulze, 1987; List, 2004). It may be that the association between an object and the self dissipates after repeated transactions; transient ownership might lack the meaning that true ownership has for buyers and sellers. Another explanation that also stems from the mere ownership effect is that in repeated markets, buyers and sellers become more similar in terms of their ownership history. Thus the endowment gap consequently decreases as participants' experiences with ownership converge.

Another possible demonstration of the mere ownership effect may be found in the body of literature on the *status quo bias*. The status quo bias is the observation that

people have an exaggerated tendency to remain at a default option. Samuelson and Zeckhauser (1988) first observed this effect when Harvard University switched from enrolling its faculty members in a default health care plan to allowing faculty members to choose their own plans. Older faculty members overwhelmingly chose to remain with their existing plan, while younger members' choices were expectedly varied. Samuelson and Zeckhauser explained this status quo bias as yet another demonstration of loss aversion. Older faculty members had become accustomed to the original default as a reference point, and were reluctant to move away from this default because an equivalent loss would hurt more than an equivalent gain would feel good. Because a reference point had been established under the original default health care plan, older faculty members were unwilling to switch unless the possibility of gain outweighed the possibility of loss.

The status quo bias result could just as reasonably be explained by mere ownership: older members of the faculty may value the original plan more simply because they have it, not because they are reluctant to move away from an established reference point. It would be interesting to investigate whether reluctance to choose other plans correlated with professors' tenures. Because reference points are considered instantaneous shifts, according to the loss aversion explanation, it should not matter whether or not one has the default plan for 5 or 10 years before one considers the choice to switch. But if reluctance to switch correlates positively with tenure of professors, then the effect of mere ownership, which increases over time, would be a more compelling explanation than the loss aversion explanation, which supposes instantaneous reference shifts.

In scenarios where both loss aversion and mere ownership are possible explanations for the price gap between owners and non-owners, remember that loss aversion only arises under narrow bracketing. Narrow bracketing assumes an agent only thinks about the current choice and immediate results, without aggregating the net result of many such choices over time. For example, one might be indifferent between entering a lottery with 50 percent chance of winning \$8 and 50 percent chance of losing \$5. Such reluctance to enter one probabilistically favorable lottery can be explained by loss aversion. But if one were faced with multiple lotteries, this reluctance disappears. With broader bracketing, such phenomena are difficult to explain with respect to reference frames. Mere ownership can explain an increase in the value of an object without assuming narrow bracketing. It offers a more parsimonious explanation of the endowment effect.

## **CONCLUSION**

The significance of finding a mere ownership effect may help explain the difficulties faced in reaching negotiations in used-goods markets, whether it be a small-scale yard sale or the large-scale real estate market. Beyond explaining willingness to trade (or perhaps more appropriately, unwillingness to trade), the mere ownership effect could also be a powerful tool for marketers. It suggests that objects already in possession enjoy a boost in value due simply to possession itself. The practice of sending consumers free samples as a marketing tactic provides support that advertisers are aware that owning an object leads one to value it more. This paper finds that owning without losing is sufficient to produce an endowment effect; the natural next question is whether losing without owning can induce the same effect.

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Table 1

*Experiment 1 Condition Assignments*

Condition	Initial Endowment	Alternative	Index
<i>Buyer</i>	0 mug	1 mug	WTP
<i>Owner</i>	1 mug	2 mugs	WTP
<i>Seller</i>	1 mug	0 mug	WTA
<i>Superbuyer</i>	0 mug	2 mugs	WTP2

Table 2

*Experiment 1 – Comparison of Mean Prices and Likeability*

	<i>Price</i>	<i>Likeability</i>
Buyers	2.47 <sub>a</sub> (1.57)	4.06 <sub>a</sub> (1.06)
Sellers	4.26 <sub>b</sub> (2.07)	4.72 <sub>b</sub> (0.94)
Owners	4.52 <sub>b</sub> (2.80)	4.74 <sub>b</sub> (0.97)
Superbuyers ( $\frac{1}{2}$ Price)	2.22 <sub>a</sub> (1.70)	4.35 <sub>a</sub> (1.10)

*Note.* Entries in the *Price* column indicate the mean of the cutoff amounts (in dollars) at which participants chose the mug instead of cash. Entries in the *Likeability* column represent the mean across participants of seven questions that gauged subjective valuation of the mug, with 1 representing lowest value, and 7 representing highest. Standard deviations are in parentheses. Within a column, means that do not share a subscript differ at  $p < 0.05$  by t-test with combined error term of all participants.

Table 3

*Experiment 2 Condition Assignments*

Condition	Assignment	
	<i>Future Buyer</i>	<i>Future Seller</i>
<i>Owner</i>	WTP <sub>o</sub>	WTA <sub>o</sub>
<i>Non-owner</i>	WTP <sub>n</sub>	WTA <sub>n</sub>

Table 4

*Experiment 2 – Comparison of Mean Prices*

Condition	Assignment	
	<i>Future Buyer</i>	<i>Future Seller</i>
<i>Owner</i>	4.77 <sub>a</sub> (1.78)	4.44 <sub>a</sub> (1.97)
<i>Non-owner</i>	3.42 <sub>b</sub> (1.47)	3.70 <sub>b</sub> (1.92)

*Note.* Entries indicate the mean of the cutoff amounts (in dollars) at which participants choose the mug instead of cash. Standard deviations are in parentheses. Within a column or row, means that do not share a subscript differ at  $p < 0.05$  by t-test with combined error term of all participants.

Table 5

*Experiment 2 – Comparison of Mean Likeability*

Condition	Assignment	
	<i>Future Buyer</i>	<i>Future Seller</i>
<i>Owner</i>	4.45 (0.80)	4.67 (0.71)
<i>Non-owner</i>	4.53 (0.74)	4.66 (0.85)

*Note.* Likeability represents the mean across participants of seven questions that gauged subjective valuation of the mug, with 1 representing lowest value, and 7 representing highest. Standard deviations are in parentheses.

Table 6

*Experiment 2 – Regression Analysis*

<i>Explanatory Variables:</i>	(1) <b>Dep. Variable: Price</b>	(2) <b>Dep. Variable: Likeability</b>
<i>Endowment</i>	1.409** (.545)	-.138 (.252)
<i>loss frame</i>	.296 (.537)	.118 (.262)
<i>Endowment*loss frame</i>	-.690 (.915)	.176 (.373)
<i>Gender</i>	-.126 (.425)	-.010 (.215)
<i>Age</i>	-.028 (.099)	.037 (.035)
<i>N</i>	78	78

*Note.* All regressions include an intercept. Heteroskedasticity-robust standard errors appear in parentheses below estimated coefficients. \*\* Indicates coefficient is statistically significant at 5% significance level.



## Appendix A

### *Buyers* Willingness to Pay Elicitation Form

One pair from the following choices will be randomly selected at the end of the experiment, and you will receive the option you have chosen. For each pair, circle the option you prefer:

I would prefer:

\$0.50 / the mug  
\$1.00 / the mug  
\$1.50 / the mug  
\$2.00 / the mug  
\$2.50 / the mug  
\$3.00 / the mug  
\$3.50 / the mug  
\$4.00 / the mug  
\$4.50 / the mug  
\$5.00 / the mug  
\$5.50 / the mug  
\$6.00 / the mug  
\$6.50 / the mug  
\$7.00 / the mug  
\$7.50 / the mug  
\$8.00 / the mug  
\$8.50 / the mug  
\$9.00 / the mug  
\$9.50 / the mug  
\$10.00 / the mug  
\$10.50 / the mug  
\$11.00 / the mug  
\$11.50 / the mug  
\$12.00 / the mug  
\$12.50 / the mug

## Appendix B

### *Superbuyers* Willingness to Pay Elicitation Form

One pair from the following choices will be randomly selected at the end of the experiment, and you will receive the option you have chosen. For each pair, circle the option you prefer:

I would prefer:

\$1.00 / two mugs  
\$2.00 / two mugs  
\$3.00 / two mugs  
\$4.00 / two mugs  
\$5.00 / two mugs  
\$6.00 / two mugs  
\$7.00 / two mugs  
\$8.00 / two mugs  
\$9.00 / two mugs  
\$10.00 / two mugs  
\$11.00 / two mugs  
\$12.00 / two mugs  
\$13.00 / two mugs  
\$14.00 / two mugs  
\$15.00 / two mugs  
\$16.00 / two mugs  
\$17.00 / two mugs  
\$18.00 / two mugs  
\$19.00 / two mugs  
\$20.00 / two mugs  
\$21.00 / two mugs  
\$22.00 / two mugs  
\$23.00 / two mugs  
\$24.00 / two mugs  
\$25.00 / two mugs

## Appendix C

### *Owners* Willingness to Pay Elicitation Form

One pair from the following choices will be randomly selected at the end of the experiment, and you will receive the option you have chosen. For each pair, circle the option you prefer:

I would prefer:

\$0.50 / a second mug  
\$1.00 / a second mug  
\$1.50 / a second mug  
\$2.00 / a second mug  
\$2.50 / a second mug  
\$3.00 / a second mug  
\$3.50 / a second mug  
\$4.00 / a second mug  
\$4.50 / a second mug  
\$5.00 / a second mug  
\$5.50 / a second mug  
\$6.00 / a second mug  
\$6.50 / a second mug  
\$7.00 / a second mug  
\$7.50 / a second mug  
\$8.00 / a second mug  
\$8.50 / a second mug  
\$9.00 / a second mug  
\$9.50 / a second mug  
\$10.00 / a second mug  
\$10.50 / a second mug  
\$11.00 / a second mug  
\$11.50 / a second mug  
\$12.00 / a second mug  
\$12.50 / a second mug

## Appendix D

### *Sellers* Willingness to Accept Elicitation Form

One pair from the following choices will be randomly selected at the end of the experiment, and you will receive the option you have chosen. For each pair, circle the option you prefer:

I would prefer:

\$0.50 / the mug  
\$1.00 / the mug  
\$1.50 / the mug  
\$2.00 / the mug  
\$2.50 / the mug  
\$3.00 / the mug  
\$3.50 / the mug  
\$4.00 / the mug  
\$4.50 / the mug  
\$5.00 / the mug  
\$5.50 / the mug  
\$6.00 / the mug  
\$6.50 / the mug  
\$7.00 / the mug  
\$7.50 / the mug  
\$8.00 / the mug  
\$8.50 / the mug  
\$9.00 / the mug  
\$9.50 / the mug  
\$10.00 / the mug  
\$10.50 / the mug  
\$11.00 / the mug  
\$11.50 / the mug  
\$12.00 / the mug  
\$12.50 / the mug

## Appendix E

Next, please evaluate the product in today's experiment.

*Circle the number that best represents your answer.*

**1. How much do you like the mug?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Not at all						Very much

**2. How useful is the mug?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Not at all						Very much

**3. How stylish is the mug?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Not at all						Very much

**4. How attractive is the mug?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Not at all						Very much

**5. How high is the quality of the mug?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Very Low						Very High

**6. How pleased would you be to receive the mug as a gift?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Not at all						Very much

**7. If you received the mug as a gift, how likely would you be to give it to someone else (that is, re-gift it)?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Not at all						Very likely

\_\_\_ Male

\_\_\_ Female

AGE \_\_\_\_

## Appendix F

Here you will make a choice for another Harvard Undergraduate who will be participating in our study soon. One of the following pairs will be randomly selected and the student will receive the option you chose for him or her.

For each pair below, please decide whether the student should *receive a mug* like the one you see in front of you, or *receive cash* in the amount indicated.

“The other student should...”

Receive \$0.50 / Receive the mug  
Receive \$1.00 / Receive the mug  
Receive \$1.50 / Receive the mug  
Receive \$2.00 / Receive the mug  
Receive \$2.50 / Receive the mug  
Receive \$3.00 / Receive the mug  
Receive \$3.50 / Receive the mug  
Receive \$4.00 / Receive the mug  
Receive \$4.50 / Receive the mug  
Receive \$5.00 / Receive the mug  
Receive \$5.50 / Receive the mug  
Receive \$6.00 / Receive the mug  
Receive \$6.50 / Receive the mug  
Receive \$7.00 / Receive the mug  
Receive \$7.50 / Receive the mug  
Receive \$8.00 / Receive the mug  
Receive \$8.50 / Receive the mug  
Receive \$9.00 / Receive the mug  
Receive \$9.50 / Receive the mug  
Receive \$10.00 / Receive the mug  
Receive \$10.50 / Receive the mug  
Receive \$11.00 / Receive the mug  
Receive \$11.50 / Receive the mug  
Receive \$12.00 / Receive the mug  
Receive \$12.50 / Receive the mug

## Appendix G

Here you will make a choice for another Harvard Undergraduate who will be participating in our study soon. One of the following pairs will be randomly selected and the student will receive the option you chose for him or her.

When the student arrives for the study, he or she will be given a mug like the one you see in front of you. For each pair below, please decide whether the student should *keep the mug* or *receive cash* in the amount indicated.

“The other student should...”

Receive \$0.50 / Keep the mug

Receive \$1.00 / Keep the mug

Receive \$1.50 / Keep the mug

Receive \$2.00 / Keep the mug

Receive \$2.50 / Keep the mug

Receive \$3.00 / Keep the mug

Receive \$3.50 / Keep the mug

Receive \$4.00 / Keep the mug

Receive \$4.50 / Keep the mug

Receive \$5.00 / Keep the mug

Receive \$5.50 / Keep the mug

Receive \$6.00 / Keep the mug

Receive \$6.50 / Keep the mug

Receive \$7.00 / Keep the mug

Receive \$7.50 / Keep the mug

Receive \$8.00 / Keep the mug

Receive \$8.50 / Keep the mug

Receive \$9.00 / Keep the mug

Receive \$9.50 / Keep the mug

Receive \$10.00 / Keep the mug

Receive \$10.50 / Keep the mug

Receive \$11.00 / Keep the mug

Receive \$11.50 / Keep the mug

Receive \$12.00 / Keep the mug

Receive \$12.50 / Keep the mug

## Appendix H

Next, please estimate how the student for whom you have made a choice would evaluate the mug.

*Circle the number that best represents your answer.*

1. How much do you think he or she would like the mug?

1	2	3	4	5	6	7
Not at all						Very much

2. How useful would he or she find the mug to be?

1	2	3	4	5	6	7
Not at all						Very much

3. How stylish would he or she find the mug to be?

1	2	3	4	5	6	7
Not at all						Very much

4. How attractive would he or she find the mug to be?

1	2	3	4	5	6	7
Not at all						Very much

5. How high would he or she perceive the quality of the mug to be?

1	2	3	4	5	6	7
Very Low						Very High

6. How pleased would he or she be to receive the mug as a gift?

1	2	3	4	5	6	7
Not at all						Very much

7. If he or she received the mug as a gift, how likely would he or she be to give it to someone else (that is, re-gift it)?

1	2	3	4	5	6	7
Not at all						Very likely

I AM...

\_\_\_ MALE

\_\_\_ FEMALE

\_\_\_\_\_ YEARS OLD