

# Beyond mere ownership: transaction demand as a moderator of the endowment effect

David R. Mandel

*Department of Psychology, University of Victoria, P.O. Box 3050, Victoria, BC, Canada V8W 3P5*

---

## Abstract

Transaction demand refers to the motivation to complete a transaction. As transaction demand increases, owners should sell at lower prices and buyers should buy at higher ones. It was predicted that the endowment effect—the tendency for minimum selling price to exceed maximum buying price for a particular commodity—should be minimized when buyers and sellers have high transaction demand. The results of two experiments supported this hypothesis: In Experiment 1, the endowment effect was observed when participants imagined another individual wanting to buy from or sell to them, but not when they imagined wanting to buy from or sell to another individual. In Experiment 2, a reversal of the endowment effect was observed when transaction demand was high for both prospective buyers and sellers. The findings highlight the importance of motivational factors in addition to other factors (e.g., loss aversion, reference dependence) in determining behavior. © 2002 Elsevier Science (USA). All rights reserved.

*Keywords:* Endowment effect; Transaction demand; Subjective valuation

---

## 1. Introduction

Research on subjective valuation and choice has shown that people tend to demand a higher selling price for commodity  $x$  that they own than they would be willing to pay in order to acquire  $x$  as a buyer (e.g., Kahneman, Knetsch, & Thaler, 1990; Knetsch, 1989; Knetsch & Sinden, 1984; Thaler, 1980; Van Boven, Dunning, & Loewenstein, 2000). This discrepancy in buying and selling price for the same commodity has been termed the *endowment effect* (Thaler, 1980) and it implies that transactions occur far less often than economic theory predicts. The endowment effect, in turn, may be viewed as an exemplar of the *mere ownership effect* in which a target object is rated more favorably by an owner than a non-owner (Beggan, 1992; Heider, 1958).<sup>1</sup>

Explanations of the endowment effect have tended to rely on psychophysical notions of reference dependence and loss aversion as postulated in prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1991) and subsequent research

---

*E-mail address:* dmandel@uvic.ca.

<sup>1</sup> An example of a mere ownership effect that does not involve transactions is the *name letter effect*, which refers to people's preference for letters of the alphabet that are in their own name (Hoorens, Nuttin, Erdélyi-Herman, & Pavakanun, 1990).

on mental accounting (Thaler, 1980, 1985). Reference dependence refers to the notion that value is measured relative to a subjective reference point. The status quo often provides the most salient reference point (Brickman, 1975; Samuelson & Zeckhauser, 1988). However, other reference points, based on expectancies, norms, or ideals may also compete for attention (Kahneman, 1992; Kahneman & Miller, 1986). According to prospect theory, states below the reference point are negatively coded as losses and states above the reference point are positively coded as gains.

The loss aversion postulate further states that losses loom larger than corresponding gains:  $-v(-x) > v(x)$ . Accordingly, the pain of giving up an endowment will exceed the pleasure of acquiring it, and this should be observed as a disparity in selling and buying prices for the same good with the former generally exceeding the latter. Similarly, loss aversion may account for why people are reluctant to exchange lottery tickets even when a small bonus is offered for doing so (Bar-Hillel & Neter, 1996). In support of the loss aversion explanation, it has been shown that endowment effects are more likely to be observed when prospective gains and losses are difficult to integrate due to either high uncertainty about future exchange prices (van Dijk & van Knippenberg, 1996) or reduced comparability of consumer goods (Chapman, 1998; van Dijk & van Knippenberg, 1998).

Although most research on the endowment effect has focused on reference dependence and loss aversion as its primary explanatory bases, some researchers have pointed to motivational factors that also may explain this effect. Belk (1988), for instance, proposed that an individual's possessions can play an important role in self-definition. Possessions may also be used to bolster one's sense of self by attributing a desired characteristic that is perceived to be lacking in one's character to the object (Beggan, 1991). In support of this notion, Beggan (1992) found that the attractiveness of personal possessions increased following ego-threatening negative performance feedback. The endowment effect also appears to be moderated by regulatory focus: participants were reluctant to exchange an endowed object when they focused on prevention goals but not when they focused on promotion goals (Lieberman, Idson, Camacho, & Higgins, 1999). And recently Ciarrochi and Forgas (2000) found that the magnitude of the endowment effect is influenced by the interaction of mood and openness to feelings. More generally, there is no reason why psychophysical and motivational factors cannot jointly influence the valuation process—a view consistent, for instance, with SP/A theory (Lopes, 1987, 1995) and a more general signal detection framework (Green & Swets, 1974).

## 2. Transaction demand

Financial transactions are examples of social exchange that are influenced by the motivations of the agents involved, as well as by the social inferences each makes about the other's motives, beliefs, and desires. It was proposed that the magnitude of the endowment effect may be influenced by *transaction demand*, namely, the motivation or desire of agents to bring about a potential transaction. Specifically, as transaction demand increases, owners may be more inclined to sell and potential buyers may be more inclined to buy. The inclination to sell on the part of owners—at the extreme, an “everything must go” mindset—should lower the selling prices they set. The inclination to buy on the part of consumers—at the extreme, a mindset of “I absolutely gotta have it”—should raise buying thresholds. Both of these tendencies should serve to counter the endowment effect because the former drives selling price down and the latter drives buying price up. Hence Proposition 1: High transaction demand on an agent's own part (i.e., owners who need to sell and buyers who need to buy) will diminish, and possibly even reverse, the endowment effect.

The inferences that individuals make about the motives and desires of others with whom they might enter into a transaction may also influence the magnitude of the endowment effect. Owners who perceive high demand for their possessions from prospective buyers may demand relatively higher selling prices for their goods. Conversely, when prospective buyers perceive that an owner is eager to sell the commodity in question, their willingness to pay may be reduced. (Imagine the reactions of consumers who encounter a retailer who claims that “everything must go” but who refuses to offer a sale.) Hence Proposition 2: The perception or inference of high transaction demand on the part of the other agent with whom one expects to enter into an exchange should support, and perhaps even augment, the endowment effect.

To see how inferred transaction demand might influence the endowment effect, consider the “wine problem” that Frisch (1993) (see also Thaler, 1980) used to test the endowment effect:

1. Back in the 1950s you purchased a case of good wine for \$5 a bottle. Today, a wine merchant offers to purchase it from you. How much would you be willing to sell it for?
2. You have just heard that a wine merchant has a case of good wine dated from the 1950s. He purchased the wine for \$5 a bottle. He now wants to sell it. How much would you be willing to pay per bottle?

Consistent with the endowment-effect prediction, Frisch (1993) found that mean price was significantly greater for participants when they imagined themselves as sellers (scenario 1) than as buyers (scenario 2). It may be implied from both scenarios, however, that transaction demand is relatively stronger for the merchant than for the participant because participants are told explicitly that “the merchant is now interested” in buying/selling the case of wine, whereas nothing is explicitly stated in the scenarios about the intentions or desires of the participant. Hence, following Proposition 2, in the *participant-owns* condition (scenario 1), high buyer demand on the part of the merchant should have increased participants’ selling prices and, in the *merchant-owns* condition (scenario 2), high seller demand on the part of the merchant should have decreased participants’ buying prices.

### 3. Experiment 1

To test the hypothesis that ownership and transaction demand interact to influence subjective valuation, an experiment was conducted in which two additional experimental conditions were added to a slightly modified version of the wine problem. Scenarios A and B below correspond to scenarios 1 and 2, respectively:

- A. A decade ago, you purchased a case of good wine for £5 per bottle. A wine merchant is now interested in buying the case. How much would you be willing to sell it for per bottle?
- B. A decade ago, a wine merchant purchased a case of good wine for £5 per bottle. He is now interested in selling the case. How much would you be willing to buy it for per bottle?

In contrast to the preceding two scenarios in which transaction demand was explicitly high for the merchant, in the following two scenarios, transaction demand is explicitly high for the participant:

- C. A decade ago, you purchased a case of good wine for £5 per bottle. You are now interested in selling the case to a wine merchant. How much would you be willing to sell it for per bottle?
- D. A decade ago, a wine merchant purchased a case of good wine for £5 per bottle. You are now interested in buying the case. How much would you be willing to buy it for per bottle?

As in scenario A, the case of wine is endowed to the participant in scenario C. However, unlike A, high transaction demand is exhibited by the participant in C.

Similarly, transaction demand is reversed between scenarios B and D: In both scenarios the merchant owns the wine but in B it is emphasized that the merchant wants to sell it, whereas in D it is emphasized that the participant wants to buy it.

The key prediction was that the interaction effect of owner (participant vs. merchant)  $\times$  transaction demand (i.e., whether the participant vs. the merchant wants to buy/sell) would be significant. Specifically, in line with Proposition 2, a strong endowment effect was expected when the merchant exhibited high transaction demand. That is, an endowment effect was expected in the scenarios in which it was explicitly mentioned that the merchant wants to buy when the participant was a seller (A) and the merchant wants to sell when the participant was a buyer (B). That is, in scenario A, the merchant's desire to buy might have augmented participants' selling prices, whereas in scenario B the merchant's desire to sell might have decreased participant's buying prices, thus contributing to an augmentation of the endowment effect. By contrast, in line with Proposition 1, the endowment effect was expected to be attenuated, if not eliminated, when the participant was explicitly described as having high transaction demand, namely, in the scenarios in which the participant wants to sell when he or she was the owner (C) and wants to buy when the merchant was the owner (D). In the former case (i.e., comparing buying and selling prices from conditions B and A, respectively) the predicted effects of loss aversion and reference dependence are congruent with transaction demand, whereas in the latter case (i.e., comparing buying and selling prices from conditions D and C, respectively) the predicted effects are incongruent.

### 3.1. Method

Eighty undergraduate students from University of Hertfordshire (Hatfield, UK) were randomly assigned in equal numbers to one of four experimental conditions in a 2 (Owner: participant vs. merchant)  $\times$  2 (Transaction Demand: participant vs. merchant is described as *wanting* to buy/sell) between-subjects design. Participants read one of the four modified versions of the wine problem presented earlier and subsequently indicated either their buying or selling prices in UK pounds depending on whether they were in the *merchant-owns* or *participant-owns* condition, respectively.

### 3.2. Results and discussion

Participants' indicated prices were positively skewed ( $SK = 7.46$ ) and thus were log transformed in order to reduce skewness ( $SK = 0.53$ ). A two-way factorial ANOVA on log price revealed a significant main effect of owner,  $F(1, 76) = 4.86$ ,  $MSE = 0.77$ , one-tailed  $p < .02$ . Demonstrating an overall endowment effect, as Table 1 shows, mean log price was higher when participants owned the case of wine than when the merchant owned it. More importantly, however, the predicted interaction effect was significant,  $F(1, 76) = 2.88$ ,  $MSE = 0.45$ , one-tailed  $p < .05$ . As can be seen in Table 1, mean log price was not appreciably different in

Table 1  
Mean log price as a function of owner and transaction demand in Experiment 1

Transaction seeker	Owner	
	Participant	Merchant
Participant	1.21	1.16
Merchant	1.32	0.98
<i>M</i>	1.26	1.07

condition C in which the participant owns the case and wants to sell it than in condition D in which the merchant owns the case and the participant wants to buy it,  $t(38) < 1$ . In support of Proposition 1, then, when the scenario described the participant as having high transaction demand, the endowment effect was eliminated. By contrast, mean log price was significantly higher in condition A in which the participant owns the case and the merchant wants to buy it than in condition B in which the merchant owns the case and wants to sell it,  $t(38) = 2.57$ ,  $SE = 0.13$ , one-tailed  $p < .01$ . In support of Proposition 2, then, when the scenario described the other agent (viz., the merchant) as having high transaction demand, a strong endowment effect emerged.

Note, however, that in scenarios A and B, nothing is explicitly stated about the participant's desire to sell or buy, respectively. Similarly, in scenarios C and D, nothing is explicitly stated about the merchant's desire to buy or sell, respectively. Although the results of Experiment 1 supported Propositions 1 and 2, stronger tests of these propositions would require *simultaneously* manipulating the degree to which prospective buyers and sellers value a target commodity and also having a baseline condition in which no information about transaction demand is provided. Experiment 2 was designed to permit such tests.

#### 4. Experiment 2

The objectives of Experiment 2 were threefold: First, as just noted, Experiment 2 was designed to simultaneously manipulate transaction demand on the part of prospective buyers and sellers, thus permitting more rigorous tests of Propositions 1 and 2. Second, a control condition in which no explicit information about transaction demand on the part of prospective buyers and sellers was added, thus permitting an assessment of augmentation and attenuation of the endowment effect relative to baseline measures of buying and selling price. Third, the problem was changed in an attempt to test the robustness of the predicted effects.

##### 4.1. Method

*Participants.* One hundred forty-nine University of Hertfordshire undergraduate students participated on a voluntary basis in response to a request to complete a brief questionnaire about compact-disk (CD) purchases.

*Design.* Participants were randomly assigned to one of ten conditions in which they were asked to consider a brief scenario in which either they or another person, Pat, recently bought a new musical album on CD. The experiment used a 2 (Owner: self, other)  $\times$  3 (Owner Satisfaction: low, high, no information)  $\times$  3 (Non-owner Satisfaction: low, high, no information) fractional between-participants design. The design was fractional because the two satisfaction factors were not fully crossed: the *no information* control condition provided no information about the satisfaction of *both* the owner and non-owner (this condition was crossed with owner, however).

*Procedure.* Participants were given a 1-page questionnaire in which they were asked to consider a hypothetical CD purchase. The case varied in terms of who was described as the recent purchaser of the CD (either the participant or a person named Pat is the owner), how many tracks on the CD the owner liked (2, 8, or unspecified), and how many tracks the non-owner liked (2, 8, or unspecified). For instance, in the *self-as-owner* conditions, participants read one of the following four variations:

A week ago you bought a CD for £15. After listening to it a few times, you really like (two) [eight] of the ten tracks on the CD. Pat, who hasn't bought the CD yet, also listens to it and, {like, unlike} you, really likes (two) [eight] of the tracks.

Or else they read the baseline version:

A week ago you bought a CD for £15 and now you've listened to it a few times. Pat, who hasn't bought the CD yet, also listened to it.

Conversely, the *other-as-owner* conditions describe Pat as having recently purchased the CD and the participant as having listened to it.

After reading the scenario, participants indicated how much the owner would like to keep the CD and how much the non-owner would like to buy it on a 7-point Likert scale ranging from *really wants to get rid of it/really doesn't want to get it* (−3) to *really wants to keep it/really wants to get it* (+3). For instance, in the *self-as-owner* conditions, participants were asked “Now that you've listened to the CD, how much would you like to keep it?” and “How much do you think Pat would like to get this CD?” Next, participants were asked to indicate the amounts in UK pounds for which they thought the owner was willing to sell the CD and the non-owner was willing to buy the CD. For example, in the *self-as-owner* conditions, participants were asked to indicate the minimum amount for which they would be willing to sell the CD to Pat, and they were asked to indicate the maximum amount they thought Pat would be willing to pay to buy the CD from them.<sup>2</sup> Finally, participants were asked to estimate how many CDs they bought last year, and if they ever sold a CD that they owned to a friend or to a used-CD dealer.

#### 4.2. Results and discussion

Ninety-five percent of the sample reported purchasing musical CDs and, on average, participants reported having bought 11.59 CDs ( $SD = 12.68$ ). The vast majority of participants had never sold a CD to either a friend or a used-CD dealer (91% in both cases).

The mean minimum selling price was £10.19 and the mean maximum buying price was £9.26, paired-samples  $t(148) = 4.23$ ,  $SE = 0.22$ ,  $p < .001$ . Thus, an endowment effect was observed when price was collapsed across all the manipulated factors in the experiment. Relative to the stated purchase price of £15, however, selling price had significantly decreased, one-sample  $t(148) = -20.49$ ,  $p < .001$ .

*Manipulation checks.* In this experiment, the manipulation of transaction demand was operationalized by varying the description of non-owner and owner satisfaction. To assess whether this operational definition was valid, I examined whether participants' mean ratings of desire to keep (i.e., not sell) or buy varied as a direct function of the satisfaction manipulations. As expected, mean desire to keep the CD differed significantly as a function of owner satisfaction,  $F(2, 145) = 34.12$ ,  $MSE = 1.26$ ,  $p < .001$ . As Table 2 shows, relative to the *no information* control condition, owners were significantly less inclined to keep the CD in the *low satisfaction* condition and were significantly more inclined to do so in the *high satisfaction* condition. Mean desire to buy also differed significantly as a function of non-owner satisfaction,  $F(2, 145) = 50.85$ ,  $MSE = 1.74$ ,  $p < .001$ . Relative to the *no-information* condition, prospective buyers were significantly less inclined to buy in the *low satisfaction* condition and they were significantly more inclined to buy in the *high satisfaction* condition (see Table 2). Therefore, the manipulation was effective.

*Effect of transaction demand: tests of Proposition 1.* The first key objective of this experiment was to directly test the hypothesis that transaction demand influences valuation in a predictable manner as specified in Propositions 1 and 2. According to

<sup>2</sup> Participants provided three measures of buy and sell estimates: in the first measure, the participant/Pat was described as a friend; in the second measure, the participant/Pat was described as an acquaintance; and in the third measure, the participant/Pat was described as a used-CD dealer. These measures were collapsed in subsequent analyses.

Table 2

Mean desire of owners to keep CD and non-owners to buy CD as a function of owner and non-owner satisfaction in Experiment 2

Of whom?	Satisfaction		
	Low	No information	High
Owner	0.59 <sub>a</sub>	1.67 <sub>b</sub>	2.28 <sub>c</sub>
Non-owner	-0.42 <sub>a</sub>	0.83 <sub>b</sub>	2.03 <sub>c</sub>

Different subscripts within rows indicate pairwise comparisons that differ at  $\alpha = .05$  (two-tailed) by Fisher's LSD test.

Proposition 1, two effects are predicted: First, high transaction demand on the part of owners should decrease selling price. Second, high transaction demand on the part of prospective buyers (non-owners) should increase buying price. In support of the first prediction, participants' mean selling price in the *self-as-owner* conditions differed significantly as a function of owner satisfaction,  $F(2, 74) = 3.88$ ,  $MSE = 10.06$ ,  $p = .025$ . The mean selling price was £8.84 in the *low satisfaction* condition, £9.88 in the *no information* condition, and £11.12 in the *high satisfaction* condition. Fisher LSD tests revealed that mean selling price differed significantly at  $\alpha = .05$  in the *low* and *high satisfaction* conditions ( $p = .007$ ); however, mean selling price in neither of these conditions differed significantly from the baseline condition.

In support of the second prediction, participants' mean buying price in the *other-as-owner* (i.e., participant as prospective buyer) conditions differed as a function of non-owner satisfaction,  $F(2, 73) = 2.55$ ,  $MSE = 6.25$ ,  $p = .085$ . The mean buying price was £8.65 in the *low satisfaction* condition, £9.78 in the *no information* condition, and £10.07 in the *high satisfaction* condition. Fisher LSD tests revealed that mean buying price differed significantly at  $\alpha = .05$  in the *low* and *high satisfaction* conditions ( $p = .033$ ); however, buying price in neither of these conditions differed significantly from the control condition. Thus, the present findings directly support Proposition 1.

*Effect of inferred transaction demand: tests of Proposition 2.* According to Proposition 2, two effects are predicted: First, owners who infer high transaction demand on the part of prospective buyers should increase selling price. Second, prospective buyers who perceive high transaction demand on the part of sellers should increase/decrease buying price. Contrary to the first prediction, participants' mean selling price in the *self-as-owner* conditions did not differ significantly as a function of non-owner satisfaction,  $F(2, 74) < 1$ . Contrary to the second prediction, participants' mean buying price in the *other-as-owner* conditions did not differ significantly as a function of owner satisfaction,  $F(2, 71) < 1$ . Therefore, Proposition 2 was not supported.

*Transaction demand and the endowment effect.* To further examine the effect of transaction demand on valuation, a four-way (Owner  $\times$  Owner Satisfaction  $\times$  Non-owner Satisfaction  $\times$  Transaction [repeated measure: buy, sell]) ANOVA on price was conducted. The four-way interaction effect was non-significant; however, the owner satisfaction  $\times$  non-owner satisfaction  $\times$  transaction interaction effect, shown in Fig. 1, was significant,  $F(1, 134) = 5.90$ ,  $MSE = 9.66$ ,  $p = .016$ . As the figure shows, endowment effects were observed in all but one condition. Only when the prospective buyer is highly satisfied with the CD and the owner is not very satisfied was there a reversal of the endowment effect. In that condition, as one would expect on the basis of Proposition 1, mean buying price ( $M = £9.95$ ) significantly exceeded mean selling price ( $M = £9.03$ ), paired  $t(28) = 2.46$ ,  $SE = 0.37$ ,  $p = .020$ .

As Fig. 1 also reveals, mean buying price is sensitive to non-owner satisfaction regardless of owner satisfaction, whereas mean selling price depends on the congruence between owner and non-owner satisfaction. To test this directly, a 2

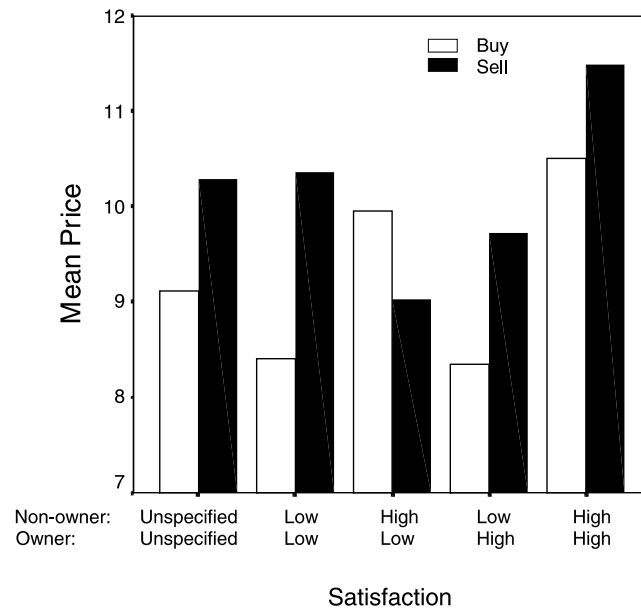


Fig. 1. Mean price as a function of transaction, non-owner satisfaction, and owner satisfaction in Experiment 2.

(Satisfaction Congruence)  $\times$  2 (Transaction: buy, sell) mixed ANOVA on price was conducted. As anticipated, the interaction effect was significant,  $F(1, 117) = 6.77$ ,  $MSE = 3.28$ ,  $p = .010$ . Whereas mean buying price did not significantly differ depending on whether satisfaction levels were the same or incongruent ( $M_s = \text{£}9.46$  vs.  $\text{£}9.14$ , respectively;  $t < 1$ ), mean selling price was significantly greater when satisfaction levels were the same than when they were incongruent ( $M_s = \text{£}10.93$  vs.  $\text{£}9.38$ , respectively;  $t[117] = 3.03$ ,  $SE = 0.51$ ,  $p = .003$ ). More specifically, when owner satisfaction was low, mean selling price was higher in the *low non-owner satisfaction* condition than in the *high satisfaction* condition ( $M_s = \text{£}10.37$  vs.  $\text{£}9.03$ , respectively;  $t[57] = 1.96$ ,  $SE = 0.68$ ,  $p = .055$ ). And when owner satisfaction was high, mean selling price was lower in the *low non-owner satisfaction* condition than in the *high satisfaction* condition ( $M_s = \text{£}9.72$  vs.  $\text{£}11.49$ , respectively;  $t[58] = 2.36$ ,  $SE = 0.75$ ,  $p = .022$ ). Finally, to examine whether the magnitude of the endowment effect differed significantly in the remaining four conditions, for each participant, mean buying price was subtracted from mean selling price. A one-way (owner and non-owner satisfaction) ANOVA on these difference scores was non-significant ( $F[3, 119] < 1$ ), indicating that the magnitude of the endowment effect in the remaining three conditions in which owner and non-owner satisfaction was made explicit did not differ from the control condition.

## 5. General discussion

All other things being equal, endowments tend to be more valuable than corresponding potential acquisitions as measured by selling and buying prices, respectively (Thaler, 1980). However, as the present research demonstrated, transaction demand and nature of the relationship between prospective traders can influence the magnitude of the endowment effect in a predictable manner. According to Proposition 1, the value of an endowment as measured by price will vary inversely with desire to sell and the value of a potential acquisition will vary directly with desire to buy. Accordingly, the least favorable condition for an endowment effect is when owners and

prospective buyers both have high transaction demand. In Experiment 2, this conjunction of demand features resulted in a reversal of the endowment effect, but all other conjunctions resulted in endowment effects that were not significantly different from that observed in the control group in which no information about transaction demand was given.

If motivational factors did not often override the effects of loss aversion on valuation, then far fewer transactions would be expected to occur than they actually do. As Kahneman (1992) noted, “loss aversion does not affect all transactions. The critical distinction is between goods held for use and goods held for exchange” (p. 301). The present treatment makes explicit why this may be so: Owners of goods held for use have low transaction demand (they are quite happy to keep these possessions), whereas owners of goods held for exchange have high transaction demand (they are quite happy to sell for the right price). This distinction highlights one factor that may influence transaction demand; namely, is the reason to own a particular good to use it or to trade it? Even among goods for use, however, transaction demand may vary as a function of product satisfaction. This was the case in Experiment 2: as the results indicated, musical CDs are purchased as goods for use (i.e., most participants buy them but hardly any ever sold or traded them), but variations in imagined satisfaction influenced price.

There is also a subtle connection between loss aversion and transaction demand that has not been examined thus far. There is no *a priori* reason why selling should be more likely to be viewed as a loss than not buying. A prediction that might be profitably tested in future research is whether transaction demand mediates shifts in the focus of potential loss. Prospective buyers and sellers with high transaction demand may be more inclined to view a missed transaction as a loss than the cost associated with the transaction were it to proceed, whereas prospective buyers and sellers with low transaction demand may experience just the opposite. Put differently, opportunity costs may represent losses under high demand and real costs may represent losses under low demand.

According to Proposition 2, prospective sellers and buyers are likely to be influenced by their inferences about each other such that the inference of high transaction demand on the part of the other agent should augment the endowment effect. Although the results of Experiment 1 were consistent with Proposition 2 (*viz.*, the endowment effect observed when participants were told that the merchant either wanted to buy from them or wanted to sell to them was eliminated when no explicit information about the merchant’s transaction demand was specified), it did not provide a pure test of the hypothesis. Experiment 2, which provided a rigorous test of the proposition, did not find support for the augmentation prediction. Rather, Experiment 2 indicated that considerations of transaction demand on the part of the other agent influenced selling prices in a somewhat more complex way than Proposition 2 proposed. If owner satisfaction was low, mean selling price was higher when non-owner satisfaction was low rather than high. By contrast, if owner satisfaction was high, mean selling price was lower when non-owner satisfaction was low rather than high. The former finding suggests that owners who want to rid themselves of a commodity will make more generous offers if they have a prospective buyer who stands a reasonable chance of buying than one who is very unlikely to want to buy. The latter finding, in line with Proposition 2, suggests that satisfied owners are especially likely to hike their selling price if they infer that the non-owner is motivated to buy the commodity. When transaction demand on the part of buyers is less transparent to owners, however, they may be likely to think that others value the good much as they do due to an “egocentric empathy gap” (Van Boven et al., 2000). This sort of perspective fixedness may underlie people’s tendency to underestimate the degree to which they will value a commodity once they own it (Loewenstein & Adler, 1995).

### 5.1. Behavioral effects, their explanations, and congruence effects

It is important to clearly distinguish the behavioral definition of the endowment effect from its possible explanations. For instance, consider the original versions of the wine problem. Price was higher in the *participant-owns* condition than in the *merchant-owns* condition. In behavioral terms, an endowment effect was observed. However, it is unjustified to say that the discrepancy in mean price occurred *because* of “mere ownership,” reference dependence, or loss aversion because the manipulation of ownership was confounded experimentally with transaction demand. The predicted effect of transaction demand, moreover, was *congruent* with expectation based on the implications of status-quo reference dependence and loss aversion. When the predicted effect of transaction demand was reversed in Experiment 1, making it incongruent with expectation based on those same implications, no endowment effect was observed. Similar “congruence effects” in research on decision framing are reported by Mandel (2001).

The present findings, of course, do not imply that reference dependence and loss aversion are less important for valuation processes than prospect theory proposes. Rather, they indicate that consumer behavior also may be significantly shaped by the motives, beliefs, and desires of agents of potential transactions. These factors, in turn, are likely to shape people’s construals or mental accounts of past and prospective transactions; for instance, whether relinquishing an endowment for some much needed cash will be viewed as a good deal or as an unfortunate loss. As one of Frisch’s (1993, Experiment 1) participants put it, “Definitely [I would treat the two scenarios as subjectively] different because I would want to get as much as I could from a buyer, but spend the least amount if I were the buyer” (p. 407). Or, as another participant in her experiment said, “It would depend on whether you’d become sentimentally attached to the wine or if it was just a business deal” (p. 407). The psychophysics of subjective valuation notwithstanding, financial transactions are fundamentally instances of social exchange. Transaction demand may help to predict aspects of valuation, such as when the endowment effect may be more or less likely to arise.

### Acknowledgments

I thank Darrin Lehman, Elke Weber, and two anonymous reviewers for constructive comments on an earlier draft of this paper.

### References

- Bar-Hillel, M., & Neter, E. (1996). Why are people reluctant to exchange lottery tickets? *Journal of Personality and Social Psychology*, *70*, 17–27.
- Beggan, J. K. (1991). Using what you own to get what you need: The role of possessions in satisfying control motivation. *Journal of Social Behavior and Personality*, *6*, 129–146.
- Beggan, J. K. (1992). On the social nature of nonsocial perception: The mere ownership effect. *Journal of Personality and Social Psychology*, *62*, 229–237.
- Belk, R. W. (1988). Possessions and the extended self. *Journal of Consumer Research*, *15*, 139–168.
- Brickman, P. (1975). Adaptation level determinants of satisfaction with equal and unequal outcome distributions in skill and chance situations. *Journal of Personality and Social Psychology*, *32*, 191–198.
- Chapman, G. B. (1998). Similarity and reluctance to trade. *Journal of Behavioral Decision Making*, *11*, 47–58.
- Ciarrochi, J., & Forgas, J. P. (2000). The pleasure of possessions: Affective influences and personality in the evaluation of consumer items. *European Journal of Social Psychology*, *30*, 631–649.
- Frisch, D. (1993). Reasons for framing effects. *Organizational Behavior and Human Decision Processes*, *54*, 399–429.

- Green, D. M., & Swets, J. A. (1974). *Signal detection theory and psychophysics* (2nd ed.). New York: Wiley.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Hoorens, V., Nuttin, J. M., Jr., Erdélyi-Herman, I., & Pavakanun, U. (1990). Mastery pleasure versus mere ownership: A quasi-experimental cross-cultural and cross-alphabetical test of the name letter effect. *European Journal of Social Psychology*, 20, 181–205.
- Kahneman, D. (1992). Reference points, anchors, norms, and mixed feelings. *Organizational Behavior and Human Decision Processes*, 51, 296–312.
- Kahneman, D., Knetsch, J. L., & Thaler, R. (1990). Experimental tests of the endowment effect and the Coase Theorem. *Journal of Political Economy*, 98, 728–741.
- Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, 93, 136–153.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263–291.
- Knetsch, J. L. (1989). The endowment effect and evidence of nonreversible indifference curves. *American Economic Review*, 79, 1277–1284.
- Knetsch, J. L., & Sinden, J. A. (1984). Willingness to pay and compensation demanded: Experimental evidence of an unexpected disparity in measures of value. *The Quarterly Journal of Economics*, 99, 507–521.
- Liberman, N., Idson, L. C., Camacho, C. J., & Higgins, E. T. (1999). Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology*, 77, 1135–1145.
- Loewenstein, G., & Adler, D. (1995). A bias in the prediction of tastes. *Economic Journal*, 105, 929–937.
- Lopes, L. L. (1987). Between hope and fear: The psychology of risk. *Advances in Experimental Social Psychology*, 20, 255–295.
- Lopes, L. L. (1995). On modeling risky choice: Why reasons matter. In J.-P. Caverni, M. Bar-Hillel, F. H. Barron, & H. Jungermann (Eds.), *Contributions to decision making—I* (pp. 29–50).
- Mandel, D. R. (2001). Gain-loss framing and choice: Separating outcome formulations from descriptor formulations. *Organizational Behavior and Human Decision Processes*, 85, 56–76.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, 1, 7–59.
- Thaler, R. H. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization*, 1, 39–60.
- Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science*, 4, 199–214.
- Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 107, 1039–1061.
- Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: Misperceptions of the endowment effect. *Journal of Personality and Social Psychology*, 79, 66–76.
- van Dijk, E., & van Knippenberg, D. (1996). Buying and selling exchange goods: Loss aversion and the endowment effect. *Journal of Economic Psychology*, 17, 517–524.
- van Dijk, E., & van Knippenberg, D. (1998). Trading wine: On the endowment effect, loss aversion, and the comparability of consumer goods. *Journal of Economic Psychology*, 19, 485–495.

Received 18 December 2000