Defending Against Loss: Temperamental Fear Predicts Endowment Effect

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We examine the hypothesis that fear is the underlying mechanism for loss aversion in the endowment effect. In the first study, we relate prices offered and demanded, by subjects assigned the role of buyers and sellers, to the inherent fearfulness of the individual as measured by the Fear Survey Schedule (FSS II). Price demanded by sellers is positively related to temperamental fear, while price offered by buyers is negatively related to temperamental fear. Related constructs such as anxiety or prevention focus had no relationship with the prices elicited. In the second study, we show that the endowment effect under the fear induction condition was significantly greater than under a neutral mood or no fear condition.

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SPECIAL SESSION SUMMARY

Deep Determinants of Value: New Perspectives on the Endowment Effect

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SESSION OVERVIEW

Decision makers exhibit a number of systematic biases both in the lab and in the field. The endowment effect demonstrates two such biases, reference dependence and loss aversion, in the framework of economic transaction. Although the endowment effect has been applied to explaining a wide variety of small and large scale economic phenomena, its underlying mechanisms still remain obscure. Illuminating these deep determinants of value shaping the endowment effect and related phenomena can inform novel predictions, identify the potential scope of observed effects, and reveal the degree to which various market incentives will mitigate or enhance effects (Chen, Lakshminarayan and Santos, 2006). For instance, is the endowment effect driven by universal processes arising from evolved biological features? Emerging evidence for loss aversion in animals suggests that this may be the case (Chen et al. 2006; Marsh and Kacelnik 2002). On the other hand, loss aversion is known to be limited and influenced by complex higher-level cultural and contextual factors (Novemsky and Kahneman, 2005).

The papers in this session explore the endowment effect and the specific processes and systems of valuation from which it arises, employing diverse levels of analysis and taking disparate points of view.

The first two papers address the phenomenon as more fundamentally driven, respectively examining emotional reactions to anticipated losses, and anticipated (but unrealized) gain or reward. Emphasizing the loss aversion that forms the basis of the endowment effect, Ganesan and Saqib examine the temperamental variables that might predispose one to be more or less sensitive to loss. Specifically, they show that prices elicited in the endowment paradigm are dependent upon inherent differences in temperamental fear. Conversely, Litt, Khan and Shiv focus on how gain-anticipation may differentially influence distinct components of value determining the endowment effect. Drawing upon recent neuroscientific research, they examine circumstances that cause the decoupling of wanting (as determining prices offered by buyers) and liking (driving prices and sufficient substitutions demanded by sellers). The third paper gives more emphasis to contextual factors, such as the temporal frame that embeds the transaction. Chatterjee and Irmak show that when pre-owned objects are presented in the past (vs. future) temporal frame (e.g., “three years of the car’s lifetime have passed” vs. “nine years of the car’s lifetime remain”), they are not susceptible to differential valuation by buyers and sellers.

Although the three papers apply different and complementary approaches to studying the bases of the endowment effect, they are united in their measurement and relation of the phenomenon to important individual differences in traits and tendencies. A key unifying goal of discussion will be to explore the compatibility of these approaches and results, and how each paper may illuminate different facets of the deeper processes of valuation driving the endowment effect. Guiding this discussion and audience-inspired debate will be Joel Huber, a leading researcher on the endowment effect and broader conceptualizations of choice and value.

This session will appeal both to researchers interested in the endowment effect itself, as well as those studying the underlying components and mechanisms of valuation probed by the session’s papers in order to provide new insights into the effect and related phenomena. This audience includes behavioral decision researchers, those interested in emotional and motivational influences on valuation and decision making, and those employing methods ranging from behavioral study to neuroscientific investigation.

REFERENCES


EXTENDED ABSTRACTS

“Defending Against Loss: Temperamental Fear Predicts Endowment Effect”

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The endowment effect demonstrates one of the essential properties of Tversky and Kahneman’s (1991) reference-dependent model in that the psychological effect of a loss is greater than a gain of the same magnitude. What causes this endowment effect? To answer this question, we investigate the fundamental psychological mechanism that might conceivably determine this loss aversion. We posit that the mechanism for loss aversion is fear. Fear is our reaction to anticipated loss, whether it is the loss of life itself at one extreme, or the loss of a consumer good in our possession at the other end. Camerer (2005) has previously suggested that the endowment effect may be a short-term fear reaction to anticipated losses and gains.

However, because the behaviors and self-reports of participants in the typical endowment paradigm do not evince fear, one needs to look for alternative methods to determine its effect. We reasoned that, if the endowment effect is essentially determined by fear, then it must be related to the inherent fearfulness of the individual. We suggest that loss aversion is related to one particular trait variable that relates to the threat of loss, temperamental fear or trait fear. In our first study, we show that in the standard endowment paradigm, prices elicited are highly dependent upon temperamental fear, particularly among the sellers. We find further correlational evidence in that a manipulation that reduces the endowment effect (Novemsky and Kahneman 2005) also reduces the relationship between temperamental fear and prices offered or demanded. In the second study we support our argument by manipulating fear and we find that inducing fear increases the magnitude of the endowment effect.

In the first study, we related the participant’s inherent fearful-ness to the price offered for buying the focal object and the price demanded for selling the focal object (set of highlighters). Participants were 228 undergraduate students who were randomly assigned to play the role of buyers or sellers. Temperament scales were administered, followed by filler tasks prior to the endowment procedure. Temperamental fear was measured by the Fear Survey Schedule II (FSS, Bernstein and Allen 1969). For FSS (alpha=0.83), the subjects reported their fear for fourteen individual objects or situations (such as getting hurt, snakes, and public speaking) on 7-
point scale of none, very little, a little, some, much, very much and terror. As it is important to distinguish temperamental fear from other related trait constructs, we also included other well-known and popular scales for anxiety, depression and prevention and promotion focus (NEO-PI-R, Costa and McCrae, 1992; Lockwood et al. 2002). Prior to price elicitation in either condition, current affect was measured by the PANAS scale (Positive and Negative Affect Scale, Watson et al. 1988).

The typical endowment effect was confirmed as sellers demanded twice the amount for the endowed object relative to buyers ($4.08 vs. $1.79, F(1,224)=140.7, p<0.001). Subsequent analyses indicated a significant relationship between the measure of temperamental fear and price demanded by sellers and price offered by buyers. Specifically, we find a strong positive relationship for sellers (r=0.74) and a more moderate negative relationship for buyers (r=-0.36). This indicates that temperamental fear is related predominantly to the increased valuation of the focal object by sellers, but also to some extent to a decreased valuation by buyers. A median split of the subjects based on the FSS score showed that the extent of the endowment effect is significantly greater among the high fear group relative to the low fear group (significant interaction between role and fear group, F(1,144)=53.78, p<0.001).

Other variables (NEO-PI-R anxiety and depression, PANAS current positive and negative affect) had no relationship to price in either condition. A small positive relationship found for promotion and prevention focus became nonsignificant in the follow up regression where temperamental fear score was added to the equation (control factors include age and gender). In the additional condition where subjects experienced a prior loss (losing out in a random drawing for a cup) the endowment effect was eliminated (2.77 vs. 3.08 in buyers and sellers respectively, ns). Here there was no correlation between FSS score and price demanded or offered. This is an important result in relation to the standard endowment condition, as it shows that the effect can be eliminated by quite simple interventions.

In the second study, we induced fear among our participants (n=84) by requiring them to prepare for a public presentation (a modified Trier Social Stress procedure, Childs et al. 2006). Subjects in the neutral condition (n=84) were required to prepare to evaluate a public presentation. Affect scores indicate an increase in current positive and negative affect had no relationship to price in either condition. A small positive relationship found for promotion and prevention focus became nonsignificant in the follow up regression where temperamental fear score was added to the equation (control factors include age and gender). In the additional condition where subjects experienced a prior loss (losing out in a random drawing for a cup) the endowment effect was eliminated (2.77 vs. 3.08 in buyers and sellers respectively, ns). Here there was no correlation between FSS score and price demanded or offered. This is an important result in relation to the standard endowment condition, as it shows that the effect can be eliminated by quite simple interventions.

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References


“Wanting More but Liking Less: Counter-Driving Motivational and Appraisal Elements of Value”

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Underlying many instances of the endowment effect may be qualitative differences in valuation formation processes in the presence versus absence of ownership. Value judgments in the absence of ownership may be most reflective of individuals’ desire or wanting for a target. In contrast, valuation of owned targets may reflect actual, perceived, or forecasted liking of the target; that is, appraisal of its overall appeal and the pleasure it brings one. Growing work in psychology and neuroscience is establishing that wanting and liking are underserved by distinct and dissociable subsystems (Berridge, 1996; Winkielman & Berridge, 2003). This dissociability may not only underlie the valuation disparity characteristic of the endowment effect, but raise the potential for differentially influencing these systems to mitigate or reverse that disparity.

We propose that frustrating failure to obtain desired outcomes can induce such parallel counter-driving. Responses to such unpleasant “jilting” have significant implications for both peoples’ subsequent desire for denied objectives (wanting), and how they feel about the targets themselves (liking). In particular, we propose that failure to achieve a desired end-state can simultaneously increase desire to obtain the outcome, but decrease its overall appeal due to tainting by the unpleasantness of failing to obtain it. Perversely, a target becomes more desired as it becomes less desirable. Thus, after experiencing initial denial, people can come to want something more and like it less, a valuation disparity opposite to that most consistent with the endowment effect.

Primary-Effect Study

Experiment. Sixty subjects were provided an allotment of ‘virtual tokens’, and told they would be used to purchase or play games for real prizes. They then made a series of willingness-to-pay (in tokens) judgments for various potential prize products. For half of the subjects (the “non-jilted” group), this initial series included a prize, $P$, that they subsequently won in a rigged game. The other half (the “jilted” group) were instead told that they lost this same game with the same possible prize $P$, and only after were queried.
regarding willingness-to-pay for P. These willingness-to-pay judgments were our dependent measures of “wanting” for prize P.

All subjects then played a second rigged game, in which the jilted group finally won prize P (and non-jilted subjects won tokens). All were then offered the chance to trade P for an alternative, Q, with willingness-to-switch taken to conceptualize “liking” for prize P, in terms of satisfaction (higher willingness-to-switch being akin to lower liking, and lower willingness-to-accept in typical endowment effect studies). Subjects also completed an Affect Intensity Measure (AIM) of individual differences in strength of emotional experience and responsiveness (Larsen & Diener, 1987), to explore the centrality of affective reactions to our proposed effects.

Results. For wanting, jilted subjects reported significantly amplified willingness-to-pay for prize P, both compared to non-jilted subjects (mean 7.56 vs. 5.29 tokens; t(53)=2.289, p=.026), and in within-subject comparison to a highly similar prize, P′ (paired t(26)=3.276, p=.003) pre-tested to be similarly attractive. Importantly, this effect was driven by individuals scoring low in affect-intensity, based on an AIM median-split (interaction β= -1.602, p=.043); high-AIM jilted subjects did not show significant mean difference from non-jilted subjects in willingness-to-pay for P. In contrast, for liking, jilted subjects reported significantly higher willingness-to-switch away from prize P to alternative prize Q (78%) than did non-jilted subjects (43%; p=.013, Fisher’s exact test).

A second study provided converging evidence by employing alternative wanting-liking operationalizations; tested robustness to changing product-denial attribution from a subject’s own failure to a stock-out; and explored generalizability of jilting effects to based on brand-overlap alone.

Generalized-Effect Study

Experiment. Using a nested between-subjects design (n=159), in Part 1, half of subjects faced an “out of stock” denial of putative potential to obtain a pair of Guess-branded sunglasses following task completion. The other half performed the same task and were exposed to the same sunglasses, but did not expect to receive them (or anything else).

Part 2 measured wanting and liking between-subjects across Part 1 conditions. Rather than the Guess sunglasses, a pair of his- and-her Guess watches (the “jilt-proxy”) was introduced. For wanting measurement, subjects chose one of two prize packages for a lottery draw-entry, either the Guess watches or similar Calvin Klein-branded watches. In contrast, our liking measure queried attractiveness evaluations, detached from wanting-influenced choice inclinations. We adapted the distortion paradigm (e.g., Russo et al., 1996), in which favoring/disfavoring of alternatives is captured by individuals’ judgments of serially presented equivocal information as actually favoring one alternative over another. In particular, we measured distortions between the Guess and CK watches in evaluating equivocal and non-diagnostic attribute information (movement, watch-band, etc.). Finally, all subjects completed the AIM used in the primary-effect study.

Results. As before, we observed AIM-moderation for wanting: jilted low-AIM subjects significantly over-chose the jilt-proxy (83%; B(24,0.5), p=0.0015), whereas high-AIM subjects trended marginally towards under-choosing the jilt-proxy (30%; B(23,0.5), p=0.093) in favor of the alternative (p<0.0005, Fisher’s exact test).

For liking, distortion computed across nine attributes as per Russo et al. yielded near-zero distortion in favor of either Guess (jilt-proxy) or CK by non-jilted subjects, versus +0.40 units against the Guess item by jilted subjects (t(582)=2.7592, one-sided p<0.005), and cumulative distortion after all nine stages of 3.83 units against Guess. Paneling by AIM did not yield significant differences in anti-Guess liking-distortion (t(286)=1.1637, p=0.2455).

Implications

These findings support the notion that wanting and liking can be counter-driven by denial of desired targets; in particular, in a direction contrary to that most consistent with the endowment effect. This may aid in understanding how consumer experiences such as stock-outs could differentially affect valuation metrics that are more wanting-driven (e.g., demand, WTP) versus those more related to liking (e.g., return rate, repeat-purchase propensity, WTA). Affect-intensity interaction results may suggest tighter coupling of wanting and liking sub-systems in high-AIM individuals, leading to greater inter-regulation and reduced disparity. Such “hot-headed” individuals actually exhibit more hedonically normative desires, that is, desires and desire-driven behaviors more consistent with the ultimate evaluative feelings that would govern happiness.

References


“The Impact of Temporal Focus on the Endowment Effect”

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Imagine a consumer interested in buying a three-year-old, pre-owned car. The seller claims that the car is good for nine more years (future focus). On the other hand, the buyer can think of the car as one that has been used for three years (past focus). Do sellers and buyers approach such exchange occasions with pre-determined temporal foci, which diverge from each other? If so, does this variation in the temporal focus affect selling and buying prices? Given the large body of research on the endowment effect (Thaler 1980), demonstrating selling prices of objects to be considerably higher than buying prices, answers to these questions are of considerable theoretical and practical importance.

While the endowment effect has mostly been explained as a manifestation of loss aversion (Kahneman, Knetsch and Thaler 1990), some recent research investigated how sellers’ and buyers’ foci diverge, which sheds more light into the underlying process of this phenomenon. For example, Carmon and Ariely (2000) show that buyers and sellers focus on what they forgo in the exchange. While buyers focus on the money, sellers focus on the benefits of possessing the product and, as a result, buying prices are more affected by the change in expenditure-related aspects of the object; whereas selling prices are more influenced by the change in aspects that are related to the benefits of the object. Nayakankuppam and Mishra (2005) indicate that sellers and buyers focus on features of differing valence. Sellers’ evaluations of the products are more influenced by the positive (vs. negative) features of the products,
while buyers’ evaluations are more affected by the negative (vs. positive) features of the products.

In the present research, we build on this body of research by investigating how temporal focus affects selling and buying prices of objects. Since time is an inherent factor in the evaluation of pre-owned products, we focus on such products in our research. Focusing on pre-owned products is not only theoretically interesting and perhaps necessary in our context, but also it is practically important given the market size of some pre-owned products (e.g., books, cars) in the U.S. is actually larger than that of the new counterparts. For example, Bureau of Transportation Statistics (2007) reports a trade volume of $339 billion for pre-owned cars and substantially greater number of old automobiles being traded than new ones.

Research on time perspective literature suggests that future-orientation entails a focus on future goals and a tendency to relate immediate choices to distant objectives (Lewin 1948). Past-orientation, on the other hand, involves a focus on similar previous situations with their accompanying positives and negatives. Importantly, Zimbardo, Keough and Boyd (1997) contend that though time perspective tends to be a functional cognitive style, it can vary as a function of situational, structural, and task demands. Based on this, and the aforementioned research on the endowment effect, we predict that, when a pre-owned product is presented in the future temporal frame, sellers, with ownership as their point of reference, will view the sale as a loss of the future benefits, while buyers will incorporate both past and future aspects of the product in their evaluation. Consequently, selling prices will be higher than buying prices. When the product is presented in the past temporal frame, however, sellers will not be able to focus solely on future benefits of the product, resulting in no significant difference between selling and buying prices, i.e., mitigation of the well-established endowment effect. We tested these predictions across three studies; summaries of these studies are described next.

In study 1 we explored how chronic temporal focus (i.e., temporal orientation) affects selling and buying prices of an object. We reasoned that sellers who are high on past-orientation would focus on the past of the product (a 3 year old car) and thus lower their valuation mitigating the endowment effect. Consistent with this, we find that endowment effect is mitigated for high past oriented people but not low past oriented people. In study 2a, 2b we manipulate the foci of buyers and sellers by a temporal framing (e.g., 3 years life used vs. 9 years life remaining) across two different domains–used cars and partly used football season tickets. Consistent with our hypothesizing we find endowment effect only in the future frame but not in the past. Study 3 again used a temporal framing but used a real stimulus of Netflix coupon instead of hypothetical scenarios as in previous studies. We also focus on the process underlying the effect. Our findings suggest that it is sellers’ heightened focus on future that results in the disparity of selling and buying prices. These findings not only provide insight to the underlying process of the endowment effect by demonstrating a key moderator (e.g., temporal focus), but also have important implications for marketers of used goods (e.g., eBay, Amazon.com, car dealers).

References