Perceived Value and Decision Making: An Experimental Study of Endowment Effect

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Abstract

Behavioral economics, a discipline that integrates psychology with economics, challenges the traditional idea of rational decision-making by revealing systematic cognitive biases that influence individual choices. Among these biases, the Endowment Effect and the concept of Perceived Value are fundamental for understanding deviations from rational choice theory. The current study employed a quasi-experimental design to investigate the endowment effect and perceived item valuation among 112 undergraduate students drawn from 3 academic departments in 4 sets at University of Malakand. The sample was equally distributed, with 28 students in each set. Within each Set, 14 students were randomly assigned Book as a gift, and 14 were gifted with Mug. Data was collected using a tailored questionnaire. The graphical depiction of the data, the statistical test results of Mann- Whitney along with mean ranks and sum of ranks were utilized to analyze the data and draw conclusions. The exchange decision choice further clarifies the participants' behavior regarding endowment effect. The robust WTA-WTP disparity, coupled with owners' significantly higher propensity to keep their endowed item, confirms the presence of the endowment effect among University of Malakand students. The mild framing was also incorporated in some samples and it can be concluded that although the framing was very mild still the effects can be noticed by comparing the exchange decision of two framed groups, and framing effect is evident in the results.

Keywords: Behavioural Economics, Experimental Economics, Endowment Effect, Perceived Value, Willingness to Accept, Willingness to Pay

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1. Introduction

Behavioral economics, a discipline that integrates psychology with economics, challenges the traditional idea of rational decision-making by revealing systematic cognitive biases that influence individual choices. Among these biases, the Endowment Effect and the concept of Perceived Value are fundamental for understanding deviations from rational choice theory.

Perceived value refers to the subjective worth that a consumer assigns to a product or service. Unlike objective value, which might be based on production cost or market price, perceived value is fundamentally personal and influenced by numerous factors, including emotions, past experiences, brand reputation, and individual needs. It is not only about the inherent qualities of an item but how those qualities are interpreted and weighted by the individual. The significance of perceived value in economic decision-making cannot be overstated; it is often the primary driver behind purchasing decisions, willingness to pay, and overall satisfaction. Understanding perceived value is essential because it explains why consumers might choose a more expensive product over a cheaper, objectively similar one, or why they might hold onto items that seem to have little objective worth.

The Endowment Effect describes the strong propensity for individuals to place a higher perceived value on items they own compared to identical items they do not possess. This phenomenon is often judged by the difference between an individual's willingness-to-accept (WTA) a price to sell an owned item and the willingness-to-pay (WTP) to acquire the same item by the non-owners. Standard economic theory suggests that WTA and WTP should be approximately equal, but experiments consistently show WTA significantly exceeding WTP, sometimes by a factor of two or more. The endowment effect's fundamental influence on economic decision-making provides justification for researching perceived value in this context. A person's transactional behavior is directly influenced by the subjective value they place on an item, especially if they already own it. This can result in market inefficiencies and deviations from predictions based on objective value. Therefore, the endowment effect is a strong illustration of how ownership can amplify perceived value and cause a lead away from generally accepted, rational economic behavior. In essence, the endowment effect demonstrates that owning something actually increases object's perceived value. An item is psychologically incorporated into a person's sense of self or belongings when it becomes a part of their endowment. Subsequently, the view of parting with this item is framed as a loss, which, due to loss aversion (Kahneman & Tversky, 1979), is experienced more intensely than the equivalent gain from acquiring it.

Seminal studies by Kahneman, Knetsch, and Thaler (1990) were among the first to empirically demonstrate endowment effect in controlled experimental settings, showing that individuals demanded significantly

higher prices to give up items they had been given than they were willing to pay to acquire those same items. Following this foundational work, extensive research has explored this bias in various contexts, from consumer behavior to financial markets.

While the endowment effect has been robustly demonstrated particularly in Western laboratory settings, the current study is unique in its experimental design. Firstly, it aims to analyze the endowment effect by comparing different items academic (book) vs utilitarian (Mug), usually the experiments are done by comparing Mug Vs note book or Pen or towel etc. Secondly, the price differences are introduced in order to check if the participant perceive the price differences and if the price difference nullifies the endowment effect. Thirdly and crucially, this study is distinctive because it analyzes the endowment effect in south Asian context, specifically among undergraduate students in Pakistan an under explored context. This offers vital cross-cultural insights into the phenomenon. Fourth, a mild framing effect is also analyzed. Fifthly, the book, "Thinking, Fast and Slow" by 'Daniel Kahneman' a foundational book in field of behavioral economics is used for the first time as endowed item in the endowment effect experiment. The primary aim of this research is to elucidate the mechanisms of perceived value and decision-making within a unified experimental design for undergraduate students of Department of Economics and Management at University of Malakand. The main objective is to analyze the endowment effect by means of analyzing perceived values, willingness to accept and Pay and the exchange decisions. Based on the research problem and objectives, the following hypotheses are tested:

- **H1:** The participants endowed with an item will perceive and report higher value of the item as compared to non-owners.
- **H2:** Participants will exhibit a significantly higher Willingness-to-Accept (WTA) than Willingness-to-Pay (WTP) for endowed items, confirming the endowment effect.
- **H3:** Participants showing endowment effect will tend to keep their endowed items when provided with option of exchanging it.

The paper is organized in several sections. Section 1 introduces the aim of the study and its importance. Section 2 reviews literature. Section 3 consists of the conceptual framework, research design and research methodology. Section 4 reports results and discussion in detail. Section 5 is about conclusion, recommendations and limitations of the study.

2. Literature Review

The Endowment Effect is conceptualized by Richard Thaler (1980) and recognized as a cognitive bias in behavioral economics. It is the phenomenon where individuals tend to attribute a higher value to an item they possess (their "endowment") than they would if they were merely contemplating its acquisition. This valuation disparity is conventionally quantified by

measuring the gap between an individual's minimum Willingness-to-Accept (WTA) price for divesting an endowed good and their maximum Willingness-to-Pay (WTP) price for obtaining the identical good if they did not already own it. While conventional economic theory posits that WTA and WTP should approximate equivalent, a substantial body of experimental evidence consistently demonstrates that WTA frequently and significantly surpasses WTP, sometimes by a factor of two or more (Kahneman et al., 2011). This phenomenon is often attributed to owners perceiving the surrender of an item as a notable psychological cost, which consequently inflates their subjective valuation.

Kahneman, Knetsch, and Thaler (1991) through his seminal work offered a strong empirical evidence for endowment effect through controlled experimental designs. In one particularly significant experiment, participants were given a university-branded coffee mug (worth about $6 at retail) or nothing at random. The mug's recipients (sellers) reported a median WTA of $5.25, while potential purchasers reported a median WTP of just $2.75. The cash equivalent of the mug was roughly $3.50, according to a different group of choosers who were given the choice of choosing the mug or a predetermined amount of money. This persistent and significant WTA-WTP gap was observed even within market settings that involved induced-value tokens designed to facilitate learning and arbitrage, thereby providing strong evidence against explanations only based on transaction costs or strategic bargaining.

The endowment effect has been extensively observed across a diverse range of empirical contexts, highlighting its broad applicability and robustness. Beyond the classical laboratory experiments, the effect consistently demonstrates with various physical goods. Its influence extends to real estate markets, where Bao and Gong (2016) found evidence suggesting that home-owners exhibit a more pronounced endowment effect, potentially due to heightened emotional attachment and large financial investment compared to typical laboratory commodities. Their investigations, about theoretical models and empirical data (including a field experiment in Beijing), indicated that the endowment effect significantly impacts housing decisions, particularly influencing sellers' reservation prices and market liquidity, particularly during periods of market fluctuation. Furthermore, Colucci et al. (2024) noted that the endowment effect's sensitivity to ownership duration and the specific type of good demonstrates its context-dependency, while Mwanyepedza and Mishi (2024) highlighted that information asymmetry tends to worsen this valuation gap in real estate transactions.

Research has also highlighted the pivotal role of psychological ownership, emphasizing the subjective feelings of possession. Reb and Connolly (2007), through experiments evaluating items simply possessed (without legal title) versus legally owned items, demonstrated that simple possession was frequently sufficient to increase valuations, suggesting that the effect

originates from a felt sense of ownership rather than only legal status. Shu and Peck (2011) further validated this by showing that factors enhancing psychological ownership, such as the imaginative act of owning an item or direct physical control over it, cause to strengthen the endowment effect. The phenomenon is not limited to tangible objects, extending to intangible goods; for instance, Litovsky et al. (2022) found evidence for an endowment effect for non-instrumental information, implying that individuals tend to value information they perceive themselves to "possess" more highly. Similarly, Raban and Rafaeli (2003) observed that WTA for information goods in online environments often exceeds WTP.

The influence of market experience and cultural variation on the endowment effect has also been a subject of scholarly inquiry. Experience appears to mitigate the bias, as demonstrated by Engelmann and Hollard (2010), whose experimental design, separating ownership from market roles, indicated that experienced traders learned to overcome the bias. Cultural differences also play a distinct role; Maddux et al. (2010) compared participants from Western cultures (characterized by independent self-construal) with those from East Asian cultures (exhibiting interdependent self-construal) in classic mug experiments. They reported a significantly stronger endowment effect among Western participants, attributing this disparity to cultural variations in self-enhancement motives linked to ownership. The endowment effect has additionally been observed in specific contexts such as lotteries (Kogler et al., 2013) and has been found to be influenced by curiosity concerning items of ambiguous value (van de Ven et al., 2005). Fehr et al. (2015) noted the persistence of valuation gaps even when controlling for procedural misconceptions, and Fehr and Kübler (2022) provided a comprehensive review of the effect's robustness across various demographics, emphasizing the importance of stringent procedural controls.

According to the integrative explanations, the endowment effect could partly result from the biased information processing such as self-referential memory and emotional attachment, in which case just psychological ownership would be enough to induce the endowment effect (Morewedge & Giblin, 2015). Kahneman et al. (1991) made significant contribution by relating the endowment effect to the status quo bias where they used experiments in which they showed that individuals consistently overvalue objects they own.

Regardless of this vast literature, there still exists much to be filled in terms of contextual validity of the endowment effect in different populations across the world. Most of the current research has focused on samples representing Western, Industrialized, Rich, and Democratic lifestyles, and hence, empirical research is required within a different cultural to determine

its generalizability and possible cultural calibration of this cognitive bias. Furthermore, a more systematic inquiry is warranted into how specific item characteristics, such as an academic book versus a utilitarian ceramic mug, influence the magnitude of these biases. The impact of interventions designed to mitigate these biases among South Asian student populations also requires further assessment. This study aims to address these identified gaps by employing a unified experimental framework with university students in Pakistan, utilizing items possessing differing characteristics, and exploring the impact of specific interventions.

3. Conceptual Framework and Research Design

3.1 Conceptual Framework

The conceptual framework used in this study combines the constructs of perceived value, ownership, and framing to explain the demonstration and manipulation of the endowment effect. Perceived value is understood as a subjective valuation, unlike the objective market price, which an individual assign to an item. This subjective valuation is dynamic and subject to cognitive biases.

The endowment effect emerges as a major manifestation of how perceived value is influenced by ownership. The theoretical foundation for this effect primarily base on loss aversion, a central concept of Prospect Theory (Kahneman & Tversky, 1979), which postulates that individuals experience the psychological pain of a loss more intensely than the pleasure of an equivalent gain. When an individual gains ownership of an item, it becomes part of their "endowment". Subsequently, giving up this item is framed as a loss, leading to an inflated subjective valuation (Willingness-to-Accept, WTA) compared to the price they would be willing to pay to attain it if they did not own it (Willingness-to-Pay, WTP). This WTA-WTP gap is the hallmark of the endowment effect.

Beyond mere possession, the strength of this ownership-induced value inflation is hypothesized to be influenced by several factors:

1. **Item Characteristics:** The intrinsic nature of the item (e.g., its utility, symbolic meaning, or emotional relevance) is hypothesized to moderate the strength of the endowment effect. Items that foster a stronger sense of psychological ownership or are perceived as more personally relevant (e.g., academic books for students) may demonstrate a more enhanced endowment effect compared to more utilitarian or less personally significant items (e.g., a generic ceramic mug). This aligns with the idea that greater psychological attachment to an item strengthens the perceived loss associated with its relinquishment.
2. **Framing Conditions:** The manner in which an item or decision is presented, or "framed", is hypothesized to influence its perceived value and, therefore, the magnitude of the endowment effect in this distinct population. Framing can subtly highlight specific attributes, benefits, or

contexts of an item, potentially enhancing its subjective utility or relevance to the individual. For instance, framing an academic book in terms of its utility and relevance for a student's academic career might increase its perceived value and the subsequent endowment effect, whereas a neutral framing might not induce such a strong bias. This indicates that contextual cues can trigger or boost underlying psychological mechanisms of the endowment effect.

Under this framework, the endowment effect is a direct reflection of ownership impacting perceived value, and the characteristics of the item and the framing conditions also play a key role in determining the strength of the associated bias. The testing of these relationships within a non-Western student population, in turn, contributes to enhancing the generalizability of these behavioral economic principles.

3.2. Research Design

The current study employed a quasi-experimental design to investigate the endowment effect and perceived item valuation among undergraduate students at University of Malakand. The study included structured comparisons of participants based on their item endowment (academic book or ceramic mug), the type of framing they were exposed to (Neutral, Book-Framed and Mug-Framed), and their academic department. Participants were randomly assigned to receive either an academic book or a ceramic mug within their respective departments. The central part of the research was Valuation Task designed to elicit Willingness-to-Accept (WTA), Willingness-to-Pay (WTP), and exchange behaviors. This design facilitated the assessment of how ownership, item characteristics, and framing influence subjective valuation.

3.2.1 Participants

A total sample of 112 undergraduate students from the University of Malakand in Pakistan participated voluntarily in this study. Participants were drawn from 3 academic departments in 4 sets: Management (BBA), Commerce, Economics-A, and Economics-B. The sample was equally distributed, with 28 students in each set. Within each Set, 14 students were randomly assigned Book as a gift, and 14 were gifted with Mug. The age range of participants was 18 to 25 years, encompassing both male and female students. No compensation was provided for participation except the gift provided in form of Book or Mug to all participants.

3.2.2 Data Collection Instruments

Data was collected using a tailored questionnaire modified for two different sets of participants, one for Mug Owners and one for Book Owners. Each questionnaire included a section on "Ownership and Valuation," which registered perceived market prices for both items, emotional attachment to the endowed item (via selection from options), willingness to exchange, and open numerical responses for Willingness-to-Accept (WTA) and Willingness-to-Pay (WTP) in Pakistani Rupees. The actual market value of

the ceramic mug (PKR 160) and the academic book (PKR 340) was intentionally withheld from all participants to prevent anchoring effects.

3.2.3 Procedure

The experiment followed a standardized three-phase procedure, conducted independently for each academic department to minimize information diffusion. Participants were approached and given a brief overview of the study's purpose, emphasizing voluntary participation. Upon consent, students were randomly assigned their endowed item (book or mug) within their department. The framing manipulation was applied at this stage through the initial instructions: students in Management and Commerce departments received no framing; Economics-A students received book-specific framing emphasizing academic utility; and Economics-B students received mug-specific framing emphasizing practical utility and special selection of the Mug by the teacher for the participants. Participants then completed the relevant questionnaire, responding to questions about perceived market prices, emotional attachment, exchange decisions, and WTA/WTP values. Researchers provided clarifications but avoided influencing responses.

3.2.4 Data Analysis

All statistical analyses were performed using IBM SPSS Statistics. The data is well tabulated and depicted graphically enabling us to draw some meaningful conclusions even without statistical analysis. Inferential statistics were applied to test the research hypotheses statistically. The level of statistical significance for all inferential tests was set at $\alpha=0.05$.

- **In order to study** the perceived value of endowed items the data is analyzed and tabulated in a meaningful way and presented through graphs showing and explaining participant patterns and behaviors towards item they endowed with vs item their counterparts are endowed with.
- **In order to test endowment effect** Mann-Whitney U tests along with comparison of mean ranks and sum of ranks is used. If participants exhibit a significantly higher Willingness-to-Accept (WTA) than Willingness-to-Pay (WTP) for endowed items, then endowment effect will be statistically confirmed.

4. Results and Discussion

The endowment effect posits that individuals ascribe a higher value to an object they own than they would be willing to pay for the same object if they did not own it. This overvaluation manifests as a discrepancy between the price an owner is willing to accept to sell an item (WTA) and the price a non-owner is willing to pay to acquire the same item (WTP), with WTA typically exceeding WTP. This section examines the data gathered from experiment specifically designed to observe this effect through participants' perceived market prices, stated WTA and WTP, and direct exchange decisions.

4.1 Perceived Market Prices

Perceived Market Prices are participants' subjective estimations of the value of the academic book and the ceramic mug, and presents the subjective valuation by participants. The endowment Effect predicts that ownership can influence these price estimations, making the owned item seem more valuable in the owner's eyes. Participants estimated the market price for both items. Analysis shows a pattern where owners tended to estimate a higher market value for their endowed item compared to non-owners. This provides evidence for an ownership-induced bias, consistent with the endowment effect.

Table 1 represent perceived market prices of book by book owners vs mug owners across departments. The table shows that the minimum price for book that the book owners listed is 200 while the maximum is 3000. On the other hand the minimum price for book listed by mug owners is 200 and the maximum is 1500. Book owners' perceived prices are often higher,

Table 1: Perceived Market price of Book by book owners Vs Mug owners

Perceived Market price of Book							
Book Owners				Mug Owners			
BBA	Commerce	Economics A	Economics B	BBA	Commerce	Economics A	Economics B
349	400	350	200	225	200	380	200
350	400	400	250	250	200	430	250
350	500	500	380	250	300	450	300
380	600	590	400	270	300	500	350
400	600	600	400	400	450	500	350
450	700	600	450	400	450	600	350
499	750	650	480	450	500	650	400
500	900	650	600	450	500	700	450
500	999	750	600	500	500	800	500
600	1000	800	800	600	700	800	500
650	1000	1000	1200	700	750	850	570
950	1200	1200	1500	700	800	850	700
1200	1200	1500	1500	750	900	1000	1200
2000	3000	2500	3000	900	1000	1500	1200

reinforcing the observation that owners tend to place a higher market value on the book they possess. Figure 1 offer a quick and intuitive way to visualize potential differences in perceived book prices based on ownership status, supporting the initial exploration of the endowment effect on the basis perceived value. The figure shows a clear pattern of higher perceived value of book by book owners as compared to mug owners across all departments.

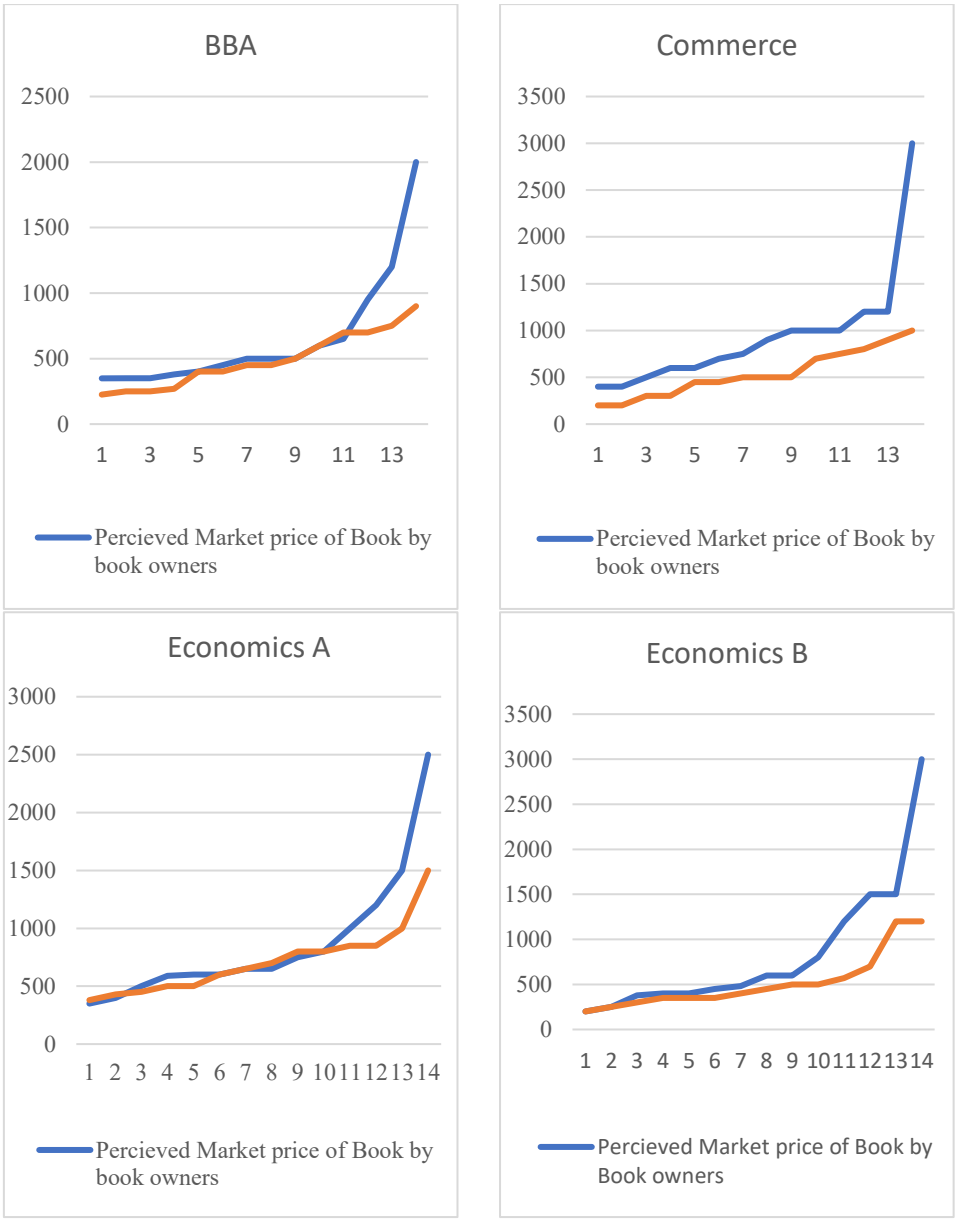
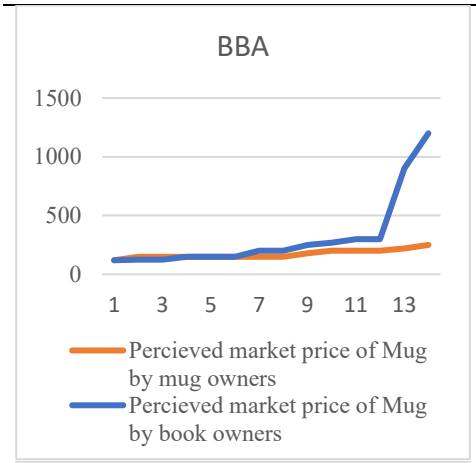


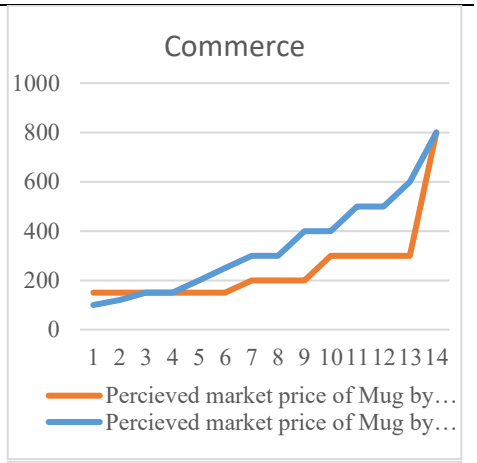
Figure 1: Perceived Market price of Book by book owners Vs Mug owners

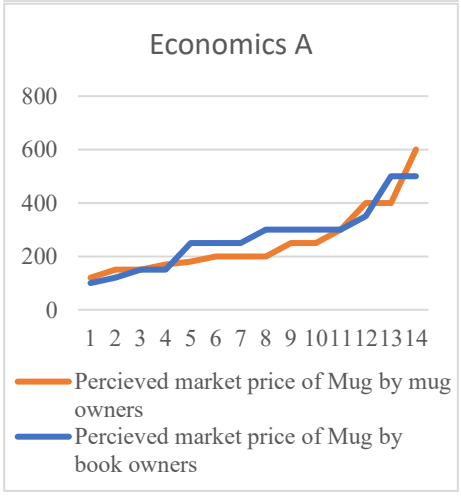
Table 2 reports the perceived value of Mug by book owners vs mug owners by all participants across four set of students across different departments. Figures 2 visually represent the perceived market price of the mug for each department, distinguishing between mug owners' and book owners' perceptions. Mug owners' estimated prices appeared higher in case of Economics-B illustrating how ownership may inflate subjective market value estimations for the mug, aligning with the endowment effect. It is important to mention here that sample Economics-B is mildly framed in favour of mug. However the graphical representation of the

Table 2: Perceived Market price of Mug by book owners Vs Mug owners

Perceived Market price of Mug							
Book Owners				Mug Owners			
BBA	Commerce	Economics A	Economics B	BBA	Commerce	Economics A	Economics B
120	100	100	100	120	150	120	70
125	120	120	100	150	150	150	120
125	150	150	130	150	150	150	120
150	150	150	150	150	150	170	120
150	200	250	150	150	150	180	150
150	250	250	200	150	150	200	200
200	300	250	250	150	200	200	200
200	300	300	250	150	200	200	200
250	400	300	250	180	200	250	200
270	400	300	300	200	299	250	200
300	500	300	300	200	300	300	200
300	500	350	300	200	300	400	250
900	600	500	300	220	300	400	300
1200		500	350	250	800	600	450







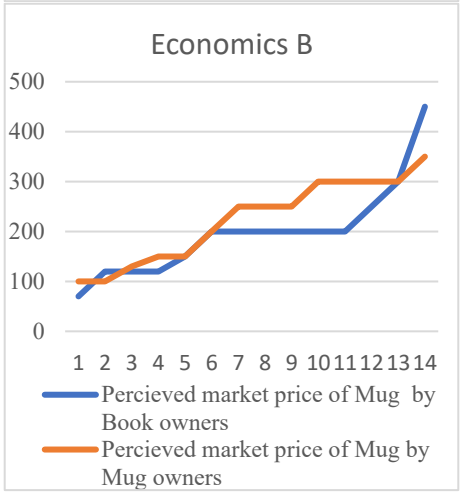


Figure 2: Comparison of Perceived market price of Mug by Mug owners Vs Book owners

data for BBA and commerce show that mostly the book owners perceived value of mug remained higher than its perceived value by the mug owners. For Department Economics-A the results are not very straightforward.

4.2 Willingness-to-Accept (WTA) vs. Willingness-to-Pay (WTP)

Willingness-to-Accept (WTA) is the minimum price an owner would accept to sell an item, and Willingness-to-Pay (WTP) is the maximum price a non-owner would offer to buy the same item. Comparing WTA and WTP is the method for quantifying the endowment effect: the central prediction is that WTA will be significantly higher than WTP for the same item because ownership adds subjective value, making owners demand more to part with it than non-owners are willing to pay to acquire it. The core empirical evidence for the endowment effect is presented by comparing the prices owners are willing to accept to sell an item (WTA) with the prices non-owners are willing to pay to buy the same item (WTP). This comparison is a direct test of Hypothesis H2 (WTA > WTP).

Table 3 comprehensively list the WTA prices for the book (Book Owners) and WTP prices for the book (Mug Owners) across departments. A clear and substantial disparity is observed, with stated WTA prices by book owners consistently higher and exhibiting a significantly wider range compared to the WTP prices stated by the mug owners (potential buyers). This pattern provides strong evidence for the endowment effect in this sample. Figures 3 illustrate the WTA by Book Owners versus the WTP by Mug Owners for the academic book across the four departments. These graphs vividly depict the gap. The line representing WTA (blue line) is consistently and often significantly higher than the line representing WTP, strongly supporting and demonstrating the endowment effect.

Table 4 registers WTA for the mug (by Mug Owners) and WTP for the mug (by Book Owners) across departments. The data in table depicts that the WTA stated by Mug Owners are consistently higher and exhibit a wider range than the WTP stated by Book Owners, presenting a significant WTA-WTP gap and provide further empirical evidence for the endowment effect for the mug. Figures 4 present the WTA of Mug Owners versus the WTP of Book Owners for the ceramic mug across the four departments. These graphs compare the price mug owners require to sell their mug with the price book owners are willing to pay. The line representing WTA for the mug is generally higher than the line representing WTP, illustrating the overvaluation by owners for the mug as compared to non-owners, reinforcing the presence of the endowment effect for the mug (Hypothesis H2).

Table 3: Willingness to Accept for Book by Book-Owners vs Willingness to Pay by Mug Owners

BBA		Commerce		Economics A		Economics B	
WTA	WTP	WTA	WTP	WTA	WTP	WTA	WTP
50	100	400	130	400	300	300	200
350	150	450	150	600	300	450	250
380	220	450	200	700	400	500	250
400	230	500	250	800	400	500	250
460	250	900	350	800	450	500	300
550	300	900	420	900	450	650	300
750	400	1000	500	1000	500	700	300
800	400	1000	500	1000	570	700	350
1000	400	1000	500	1000	600	900	350
1199	600	1200	700	1200	650	1000	450
1500	700	1400	700	1400	700	1000	500
2200	750	1500	730	1500	800	1300	700
5000	800	3000	750	2000	1500	1500	1300
15000	900	3500	1000	2700	1500	3500	1500

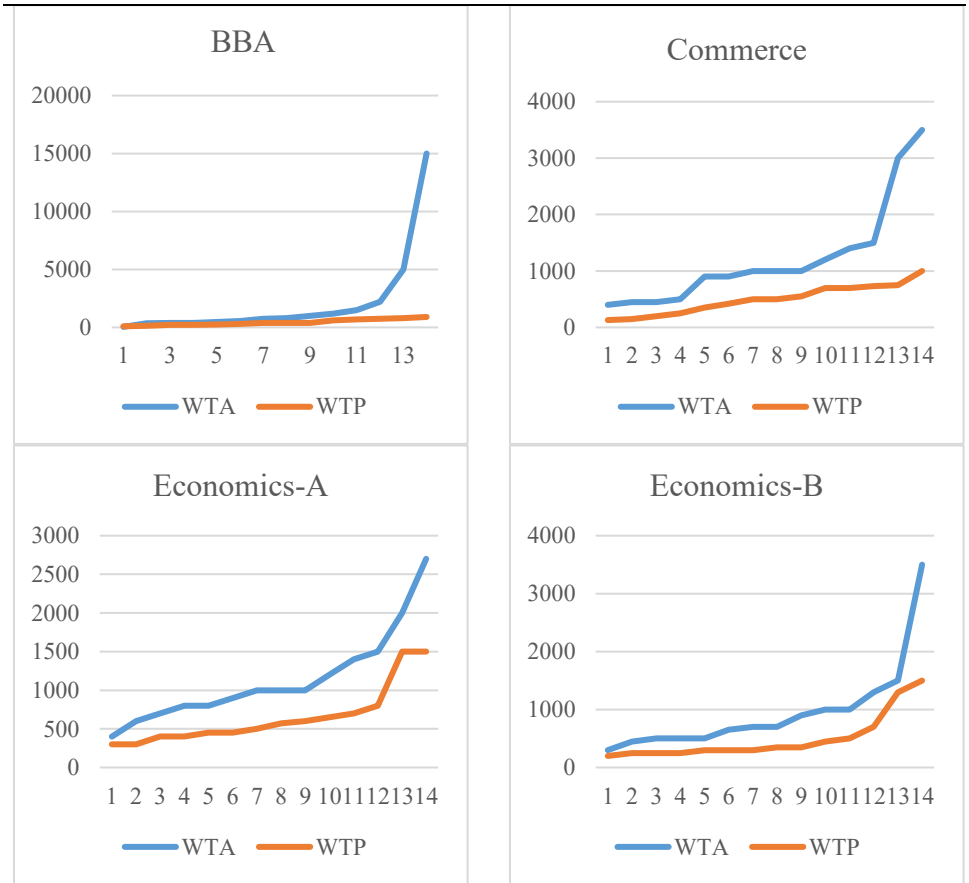


Figure 3: WTA by Book Owners Vs WTP by Mug Owners for Book

Table 4: Willingness to Accept for Mug by Mug owners vs Willingness to Pay by book Owner

BBA		Commerce		Economics A		Economics B	
WTA	WTP	WTA	WTP	WTA	WTP	WTA	WTP
100	50	150	120	150	100	100	100
100	100	160	130	150	100	100	100
130	120	180	150	170	100	100	120
130	130	200	150	250	150	150	120
150	130	200	150	300	150	170	150
200	150	250	150	300	150	180	150
200	150	250	200	350	160	280	150
250	150	400	200	380	170	300	160
300	150	450	200	400	200	300	180
350	150	550	200	500	200	350	200
350	200	580	250	500	300	400	200
1500	200	600	300	500	350	400	230
1500	220	600	500	550	400	500	250
5000	250	800	850	850	400	1000	400

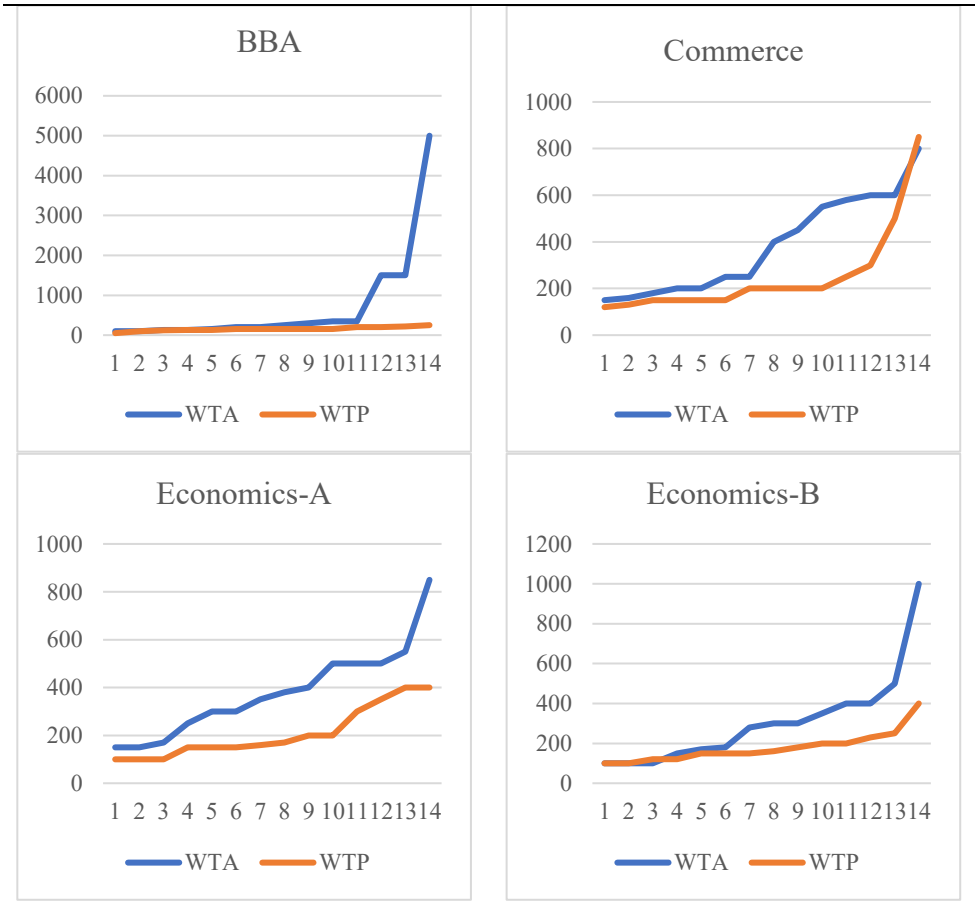


Figure 4: WTA by Mug Owners Vs. WTP by Book Owners for Mug

4.3 Statistical Verification of the Endowment Effect: Mann-Whitney U Test

A Mann-Whitney U test was chosen after analyzing the basic characteristics of the WTA and WTP series across the departments. It was found that series do not satisfy normality test therefore parametric tests like t-test to test equality of means cannot be applied. Hence, non-parametric test for two independent samples, The Mann- Whitney U Test is conducted to test if WTA is significantly higher than the reported WTP for endowed items.

Table 5 reports the results of comparison of Willingness-to-Accept (WTA) by book owners with the Willingness-to-Pay (WTP) by mug recipients for the academic book across all samples. The results of Mean ranks and sum of ranks are reported. The comparison of mean ranks of WTA and WTP in each department shows that mean rank of WTA is always higher than mean rank of WTP and same is the case with sum of ranks. Similarly, as the number of participants are same in each department we can compare the mean ranks across departments and it can be seen from table that the highest WTA mean rank and Sum of rank and gap between WTA and WTP is highest for commerce department indicating the highest endowment effect in case of book among students of commerce and least in case of BBA students.

Table 5: Endowment Effect in case of Book, Mean Rank and Sum of Ranks

Departments	WTA and WTP	N	Mean Rank	Sum of Ranks
BBA	WTA by Book Owners	14	17.89	250.50
	WTP by Mug Owners	14	11.11	155.50
Commerce	WTA by Book Owners	14	18.96	265.50
	WTP by Mug Owners	14	10.04	140.50
Economics A	WTA by Book Owners	14	18.79	263.00
	WTP by Mug Owners	14	10.21	143.00
Economics B	WTA by Book Owners	14	18.68	261.50
	WTP by Mug Owners	14	10.32	144.50

Table 6: Endowment Effect: Mann-Whitney Test

WTA by book owners Vs WTP by mug owners for Book		
Department	**Mann-Whitney U**	**Exact Significance p-value**
BBA	50.500	0.027
Commerce	35.500	0.003
Economics A	38.000	0.005
Economics B	39.500	0.006

The results of Mann-Whitney Test along with exact significance p-value are listed in table 6. The test results shows that the hypothesis that there is no difference in the distributions of WTA and WTP in case of book is highly rejected in all cases. The p-values are much smaller than 0.05 indicating the strong statistical significance of the test. Hence the Mann-Whitney test results strongly supports the presence of endowment effect in case of book for all departments.

A Mann-Whitney U test was also conducted to compare the Willingness-to-Accept (WTA) of Mug owners with the Willingness-to-Pay (WTP) of book-owners for analysis of endowment effect in case of ceramic Mug. The results of mean ranks and sum of ranks are briefed in table-7 while Mann-Whitney test results are listed in table 8. The results show that there is large gap between mean ranks and sum of ranks of WTA and WTP by mug owners and book owners respectively indicating endowment effects. However, the results of Mann-Whitney supports endowment effect at significance level of 5% for commerce and Economics A, while for BBA its p-value is higher than 0.05, i.e. 0.069 and for Economics B its 0.125. While these two departments doesn't qualify the endowment effect test at 5% level of significance still the p-values are not very high and the differences in mean ranks and sum of ranks represent weak endowment effect.

Table 7: Endowment Effect in case of Mug, Mean Rank and Sum of Ranks

Departments	WTA and WTP	N	Mean Rank	Sum of Ranks
BBA	WTA by Mug Owners	14	17.36	243.00
	WTP by Book Owners	14	11.64	163.00
Commerce	WTA by Mug Owners	14	17.64	247.00
	WTP by Book Owners	14	11.36	159.00
Economics A	WTA by Mug Owners	14	18.50	259.00
	WTP by Book Owners	14	10.50	147.00
Economics B	WTA by Mug Owners	14	16.93	237.00
	WTP by Book Owners	14	12.07	169.00

Table 8: Endowment Effect: Mann-Whitney Test

WTA by Mug owners Vs WTP by book owners for Mug		
Department	**Mann-Whitney U**	**Exact Significance p-value**
BBA	58.000	0.069
Commerce	54.000	0.044
Economics A	42.00	0.009
Economics B	64.00	0.125

4.3 Endowment Effects embedded in Exchange Decisions

Beyond valuation, the endowment effect also predicts a reluctance to trade an owned item for an alternative item of similar objective value. This 'status quo bias' in exchange decisions is another behavioral manifestation of the endowment effect as giving up an owned item is perceived as a loss. Participants' decisions when offered a direct exchange option between the two items also provide an important tool to judge the presence of endowment effect. An important consideration here is the price differences the two items have, even the Mug has lower price than book, almost half of book price still Mug owners present endowment effect and not all Mugs are exchanged with books. It demonstrate presence of endowment effect in participants' decisions even when they have high value alternate.

The Participants' decisions when offered a direct exchange between their endowed item and the alternative are noted through questionnaire and are summarized in Table 9. A notable number of participants chose to retain their randomly assigned item, showing the endowment effect and only few have opted for exchange. The results presented in table offer a stronger motivation to keep books than Mugs. Additionally, a very mild framing was introduced in case of Economics-A towards book by emphasizing the importance of the book, 'Thinking, Fast and Slow' in field of Economics, and led to interesting results. For Economics B, the participants were mildly motivated more towards Mugs by informing that these Mugs are specially selected for them from a large set of available Mugs in market. Although the framing was very mild still we can see in the exchange decision table for the book framed participants (Economics A) more Mug owners tried to exchange the Mug for books (6 Mugs are kept, 8 are exchanged). In contrast in comparison to Economics-A, Mug framed participants (Economics B) kept more mugs and less are exchanged for book (8 mugs are kept and 6 are exchanged).

Table 9: Item received and Exchange decision

Item received	BBA		Commerce		Economics A		Economics B	
	Keep	Ex-change	Keep	Ex-change	Keep	Ex-change	Keep	Ex-change
Books (14)	13	1	14	0	11	3	11	3
Mugs (14)	9	5	8	6	6	8	8	6

5. Conclusion, Recommendations and Limitations

The findings of this experimental study provide valuable insights into the endowment effect and the influence of framing within a non-Western student population featuring distinct experimental characteristics and modifications. Consistent with established behavioral economics literature, the participants reported higher perceived values for the endowed items as compared to the different item endowed counterparts. The results are very clear in case of Book across all departments, the book-owners perceived higher prices of the book as compared to mug owners. In contrast for Mug the results of perceived values are not very straightforward. Often the book owners reported higher perceived value for the mug as compared to mug owners. However, the results of willingness to accept and willingness to pay are clear for both endowed items (book and mug). The graphical depiction of the data shows that in all departments/ samples for both endowed items WTA always remained clearly higher than the WTP series. The statistical test results of Mann- Whitney also supported the difference between WTA and WTP and the existence strong endowment effect in all departments for book and for commerce and Economics-A for mug and existence of weaker endowment effect for Mug in behaviours of students of BBA and Economics-B. The exchange decision choice further clarifies the participants' behavior

regarding endowment effect. The results show that most of the participants in all departments decided to keep their randomly assigned items rather than using the option of exchanging the item. This robust WTA-WTP disparity, coupled with owners' significantly higher propensity to keep their endowed item, confirms the presence of the endowment effect among University of Malakand students. This aligns with seminal work by Kahneman, Knetsch, and Thaler (1991), reinforcing the generalizability of this cognitive bias beyond Western populations. The mild framing was also incorporated in some samples and it can be concluded that although the framing was very mild still the effects can be noticed by comparing the exchange decision of two framed groups, and mild framing effect is evident in the results.

The presence of the endowment effect among the studied population suggests several relevant considerations for both educational practices and the formulation of public policy. Recognizing that the cognitive bias (endowment effect) operates within this population, even among university students, emphasizes the importance of incorporating concepts from behavioral economics, including discussions of biases like the endowment effect into educational curricula. Particularly within fields such as economics, business, psychology, and even general education programs. From a policy perspective, insights gathered from understanding how these biases manifest in this population can be highly relevant for policymakers when designing and implementing public policies, especially those that involve choices under conditions of ownership and choice. This understanding can potentially lead to more effective policy outcomes. Furthermore, understanding how the endowment effect influences valuation can inform consumer protection efforts. Policies could be designed to ensure transparency in pricing and marketing and to prevent practices that might exploit this bias to unfairly inflate perceived value for consumers. Awareness of the endowment effect is also beneficial in negotiation and bargaining settings, where sellers may tend to overvalue their own possessions. Recognizing this bias in oneself and others can help parties approach negotiations more realistically and potentially reach agreements more efficiently.

Although an effort is made to conduct a in depth analysis of endowment effect, the study is limited the sample, while addressing a non-Western context, is still limited to university students in a specific region, which may affect the broader generalizability of the findings on framing. Moreover, while an attempt is made to analyze the framing effect, it lacks salient framing manipulations and more in depth statistical analysis.

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Appendix : Questionnaire

Perceived Value and Decision-Making: An Experimental Study of the Endowment Effect

Demographics:

1. **Gender:** ☐Male ☐Female
2. **Department:** ☐ Economics ☐ Management ☐ Commerce

Section 1: Ownership and Valuation

3. **Which item did you receive?**
   ☐ Book ☐ Mug
4. **In your opinion, what is the actual market price of the book?** Rs. _____.
5. **In your opinion, what is the actual market price of the Mug?** Rs. _____.
6. **How do you feel about the item you received? (Select all that apply.)**
   ☐ I like it and want to keep it.
   ☐ It feels like mine.
   ☐ I don't care about it.
   ☐ I want to exchange it for the other item.
7. **What price would you accept to exchange your book? .Rs**. _____.
8. **How much would you pay to purchase the mug? Rs _____.**
9. **What would you like to do with your item?**
   ☐ *Keep my item*
   ☐ *Exchange my item for the other available item*
10. **If you exchanged, what motivated your decision? (Mark all that apply.)**
    ☐I found the other item more useful
    ☐I believed the other item was more valuable.
    ☐ I had no attachment to my item.
    ☐Other. _____
11. **If you did NOT exchange, what was the reason? (Mark all that apply.)**
    ☐I preferred what I already had.
    ☐I thought my item was worth more.
    ☐I felt attached to my item after having it.
    ☐Other: ___
12. **Do you have any regrets about your decision to keep or trade your item? Why or why not?**
    ☐ Yes, I regret my decision because I believe I made the wrong choice.
    ☐ No, I do not regret my decision because I am satisfied with the item.
    ☐ I have some regrets, but I think I made the best choice at the time.
    ☐ I am unsure how I feel about my decision.
13. **How confident are you in your price decision? (1 = Not confident at all, 10 = Extremely confident)**
    ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Name: _____
Signature: _____