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No endowment effect when people transact secondhand goods over the Internet

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Abstract

We set up a field experiment of the endowment effect by considering thrift shops in Facebook chat rooms and college chat rooms dedicated to secondhand goods transactions. Owners of goods held for use are generally expected to show the endowment effect, but here we show these very owners (most of them females) switch to a trader-like behavior when conducting transactions in the thrift shops and, as a result, the endowment effect vanishes.

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1. Introduction

The endowment effect refers to the fact that merely owning a good increases its value. The discovery of the endowment effect launched behavioral economics in the early '70s [1]. Experimental evidence for the existence of the endowment effect is overwhelming and the volume of literature is huge. In particular, Kahneman [1] presents an articulate literature review of the key references [2-5]. If someone owns a good, he considers the pain of giving up the good. If he does not own it, he considers the pleasure of getting the good. Loss aversion explains why the values are unequal, that is, giving up the good is more painful than getting an equal good is pleasurable [1]. There is neuroscientific evidence for this. Individuals under the endowment effect activate the right side of the insule, which is a brain region associated with the prediction of loss [6]. The effect has more to do with fear of losing a desired possession than wanting it in the first place. It is well established the endowment effect appears for goods that are held for use, but not for goods that are held for exchange. This is not so surprising because loss aversion is built into the automatic evaluations of the human mind (called "System 1"), and it does require slow thinking for one's rationality to take control using "System 2" [1]. Understanding the advantages of trade requires the use of System 2, which is the evolutionarily more-recent mind. Decisions based on System 1, though seemly irrational from an individual perspective, may have an "evolutionary rationality," as opposed to an "individual rationality" [7]. Thus, from the point of view of System 1, it is better to hold a bird in the hand than two in the bush. The endowment effect may then be "rational" in evolutionary terms, but certainly not in individual terms. Moreover, as cooperation and trade evolve, evolution by natural selection can still favor individuals whose preferences embody an endowment effect because one's bargaining position in bilateral trades is improved. Those who are reluctant to trade might get better prices. It is then evolutionarily beneficial to be psychologically predisposed to hold out for a high price as soon as someone else expresses interest in one's possession. Indeed, it has been shown for a general class of evolutionary processes that strictly positive endowment effects survive in the long run [8].

Thinking like a trader removes the endowment effect because a good becomes held for exchange [1]. Thus, even if a good was held for use in the first place (and its owner was then prone to the endowment effect), we speculate that if the owner now considers sparing his possession he will necessarily behave like a trader. We sought to answer this question considering a Facebook market for secondhand goods as an experimental field. We predicted the owners of the secondhand goods would display no endowment effect in such a situation – a prediction confirmed by the data. When selling in bilateral trades, people have the incentive to charge high [8]. However, we speculate that the Internet markets provide extra incentives for the contrary. Because everyone can observe the prices charged by competitors, sellers' behavior is constrained by the group. As a result, the secondhand online market carries incentives for bid prices to drop because one seller is neither alone (as in bilateral trades), nor are they selling independently from others. Those in secondhand online markets are also interested in making fast deals, which further creates additional incentives to reduce their bid prices. All this speculative rationale can be confirmed by considering the endowment effect in bidding markets where a competing seller cannot see the others' prices. This we leave for future research.

The next section presents the data and methods employed; the one thereafter shows the results; and a final section concludes this report.

2. Materials and methods

The endowment effect is usually assessed in the lab. Here, we set up an experiment to take place in the field. The idea is to consider a market for secondhand items. Such a market will display goods that their owners initially held for use, in which case the endowment effect was expected. Entering the secondhand market prompts a change of attitude from the part of the owner. We then ask: Will he or she continue to display the endowment effect? If owners enter into the "hold for exchange" mode, we predict the endowment effect will vanish.

The experimenter (E.S.) posted a set of five questions (described below) on the Internet using thrift shops in Facebook chat rooms and Brazilian university college chat rooms. Participants from anywhere in the world could answer the Google Docs questionnaire, of course, as long as they entered the rooms (and understood Portuguese). However, the rooms were especially designed to target residents of the particular cities listed in Tables 1 and 2. The experimenter thus approached groups of participants in more than 50 Brazilian cities from almost all states in the country. Potentially, more than one million people could answer the questionnaire because this is the total membership size of all the Facebook chat rooms in Tables 1 and 2. Nevertheless, in the end, the experimenter received feedback from only 209 participants. While this is a tiny proportion of the potential participants, it is acceptable because of the nature of the Internet postings. After the experimenter had made a posting, only those participants online could potentially answer the questionnaire. After a while, subsequent postings by others soon relegated our questionnaire out of reach from the screen. Inevitably, the questionnaire was posted in "vanishing windows." New postings on other dates and across the sites were then necessary, which rendered a laborious task for the experimenter. However, the positive side of this tedious sampling process was that our sample ended up very likely free of sampling bias because the data collected from the actual participants came from a Poisson-like process of sampling. Membership in the chat rooms was heavily made up of females.

Table 1. Thrift shops in Facebook chat rooms approached in the study

Thrift shop	*Location*	*Membership size*
Brechó Florianópolis	Florianópolis, SC	34,986
Não Uso Mais! Coisinhas para Venda/Troca	Florianópolis, SC	4,641
Florianópolis Compra e Vende	Florianópolis, SC	52,255
Brechó das Amigas	Toda, SC	37,734
Escambo São Miguel do Oeste	São Miguel do Oeste, SC	25,335
Desapego entre Amigos	São José dos Campos, SP	52,318
Escambo	São Paulo, SP	23,939
Brechó Itabirito	Itabirito, MG	4,504
Compra e Venda Virtual Anuncie Aqui	Porto Velho, RO	36,787
Brechó Corujas de Plantão	Countrywide	14,154
Total		286,653

The questionnaire was continually posted across the websites between July 2014 and July 2015, and the participants were anonymously asked to respond to five questions as follows:

1. Are you a dealer or do you sell goods you have previously used?
( ) I am a dealer.
( ) I am not a dealer; I just sell my possessions.

This question is intended to filter out from the sample those participants who were professional traders and obviously always think like a trader. It is trivial that dealers will not display the endowment effect.

2. You sell your belongings:
( ) For a price higher than the price you initially paid to acquire the good because you wish to profit.
( ) For the same price you initially paid to acquire the good.
( ) For a price lower than the price you initially paid to acquire the good because the item was used by you anyway.

Table 2. Facebook university college chat rooms approached in the study

University	*Location*	*Membership size*
UFBA	Salvador, BA	27,175
UFRPE	Recife, PE; Garanhuns, PE; Serra Talhada, PE; Cabo de Santo Agostinho, PE	24,871
UFPE	Recife, PE	30,001
IFPE	Caruaru, PE	11,778
UNIVA	Vale do São Francisco, SP	20,721
UFLA	Lavras, MG	9,374
UFFS	Chapecó, SC	6,999
UFRGS	Porto Alegre, RS	22,203
IFBA	Salvador, BA	7,312
UnB	Brasília, DF	28,461
IFCE	Fortaleza, CE	16,994
IFMT	Cuiabá, MT	6,198
UFMG	Belo Horizonte, MG	13,257
IFPR	Palmas, PR	2,744
UFAL	Maceió, AL	8,324
IFPA	Belém, PA	1,735
UFSCar	São Carlos, SP	19,289
UFOP	Ouro Preto, MG	23,539
UEMG	Belo Horizonte, MG	4,038
UECE	Fortaleza, CE	19,485
UFG	Goiânia, GO	20,297
UFSJ	São João Del Rei, MG	18,760
UFV	Viçosa, MG	34,381
UNIFAL	Alfenas, MG	21,086
UFPI	Teresina, PI	10,326
UFPB	João Pessoa, PB	38,513
UFJF	Juiz de Fora, MG	2,024
UNIPAMPA	Bagé, RS	12,512
UFPE	Recife, PE	16,697
UFPel	Pelotas, RS	13,244
UFPR	Curitiba, PR	6,242
UFVJM	Unaí, MG	17,849
UFV	Viçosa, MG	42
UFABC	Santo André, SP	14,266
FGV	São Paulo, SP	4,899
UFCG	Campina Grande, PB	21,686
USP	São Paulo, SP	44,716
UFAM	Manaus, AM	8,269
UTFPR	Toledo, PR	10,637
UNIFAP	Santana, AP	5,800
UEM	Maringá, PR	18,095
UFRN	Caicó, RN	28,337
IFPI	Teresina, PI	13,039
IFTO	Araguaína, TO	11,768
UNIRIO	Rio de Janeiro, RJ	7,037
Unicamp	Campinas, SP	25,077
PUC	São Paulo, SP	4,825
IFSC	Florianópolis, SC	2,721
Total		776,156

Those who chose the last option did not present signs showing the endowment effect.

3. Did you actively take part in thrift shops in chat rooms for more than three years?
( ) Yes
( ) No

This question is intended to further filter out those who, even if they are not professional dealers, have acquired enough experience in chat room thrift shops to make them behave like traders. There is compelling evidence from the literature that market experience dampens behavioral biases [9, 10], like the endowment effect.

4. What is your household income?
( ) Less than 3 minimum wages.
( ) Between 3 and 5 minimum wages.
( ) Between 5 and 10 minimum wages.
( ) More than 10 minimum wages.

This question is intended to evaluate whether the reason for those showing no endowment effect is related to poverty. We do not expect to find the endowment effect among the poor, because they behave like traders [11]. Unlike traders, the poor are not indifferent to the differences between gaining and giving up. Nevertheless, their choices are between losses. For them, costs are losses because money that is spent on one good is the loss of another good that could have been purchased instead. (The Brazilian minimum wage in 2014 was 724 *reais* ($310) per month, and 788 *reais* in 2015.)

5. How to you feel when selling your belongings?
( ) Unpleasant due to a feeling of loss.
( ) Pleasant because I am giving up an item no longer useful to me.
( ) Pleasant because there are other affordable items for sale in this thrift shop that I wish to acquire.

This question is intended to elicit the very emotional reason for the behavior of the seller. Behaving like a trader should be accompanied, or not, by a pleasant feeling. Those who choose the first option still show some reluctance even after being willing to sell it.

3. Results

From the sample, 12 participants (6.6 percent) were dealers (Figure 1). These were removed from the sample. The subsequent questions were then considered only for the remaining 197 participants (93.4 percent). The answers were unlikely to be given randomly (p-value < 0.00001).

As for the second question, the vast majority wished to sell their items for a lower price, in which case there was no endowment effect (Figure 2). This was statistically significant: p-value < 0.00001, and confirmed our prediction.

Moreover, this result came from participants who were neither professional traders (Figure 1) nor experienced traders (Figure 3). Figure 3 shows the answers to Question 3. The vast majority was made up of inexperienced traders (statistically significant: p-value < 0.00001).

We still had to make sure the absence of the endowment effect was not related to poverty. Figure 4 shows the answers to Question 4. Only 32.1 percent of the inexperienced traders who avoided the endowment effect could be considered poor in terms of the metrics represented by the minimum wage (chi-square test for homogeneity: p-value < 0.05). Indeed, Table 3 shows the percentage frequency distribution of the occurrences of the endowment effect, considering the levels of income in terms of the minimum wage. We performed the Pearson's chi-squared test with simulated p-value based on 2,000 replicates, and the Fisher's exact test for assessing the independence between the endowment effect and income. The p-values were 0.56 and 0.499,

respectively, and therefore we could not confirm the occurrence of the endowment effect was associated with a participant's income. (Even when merging classes of income, there was no significant correlation. This is not shown, but available upon request.)

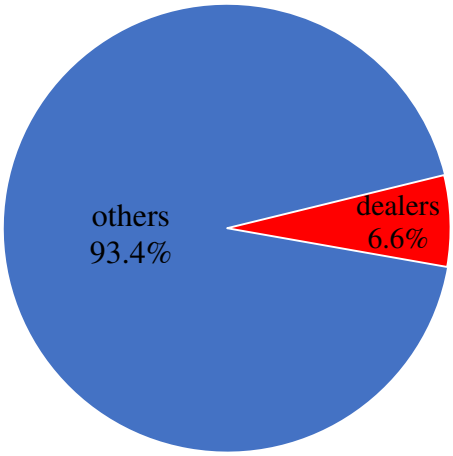

Figure 1. Answers to Question 1. Of the original sample, 6.6 percent were dealers. These were removed from the sample.

Figure 5 shows the answers to Question 5. Only a minority felt unpleasant when selling their belongings (statistically significant: p-value < 0.00001). Thus, the participants who felt good as they sold their belongings can in a sense be considered newly, fully converted traders.

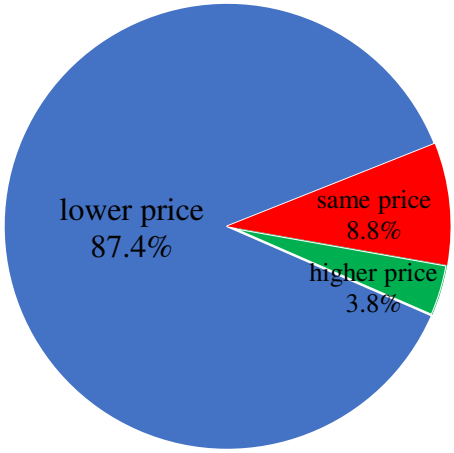

Figure 2. Answers to Question 2. The vast majority wished to sell their items for a lower price, thereby showing no endowment effect.

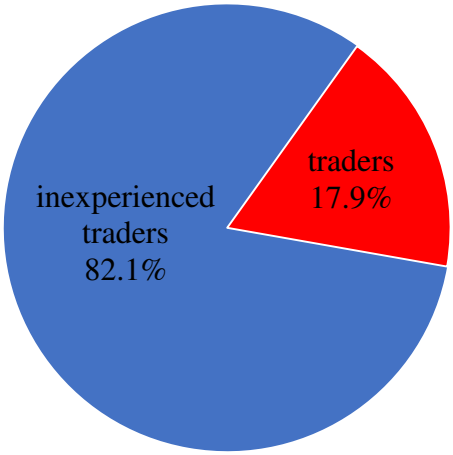

Figure 3. Answers to Question 3. The vast majority was made up of inexperienced traders.

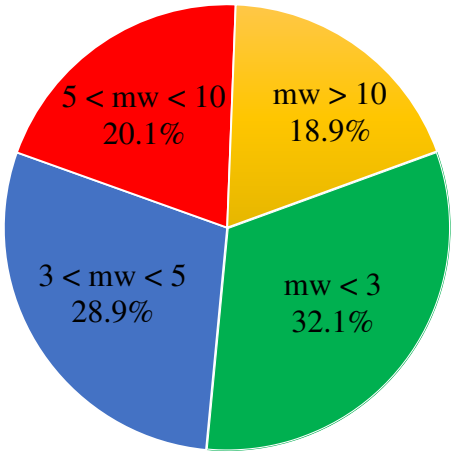

Figure 4. Answers to Question 4. Only 32.1 percent could be considered poor in terms of the metrics represented by the minimum wage.

Table 3. Percentage frequency distribution of the occurrences of the endowment effect related to income

	Level of income in terms of the minimum wage (mw)				
Endowment effect?	mw < 3	3 < mw < 5	5 < mw < 10	mw > 10	Total
Yes	4.4	3.8	2.5	1.9	12.6
No	27.7	25.1	17.6	17.0	87.4
Total	32.1	28.9	20.1	18.9	100

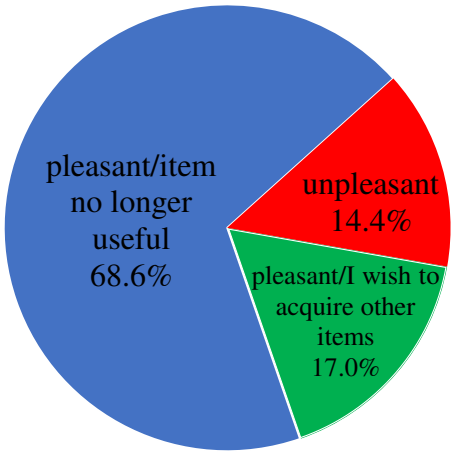

Figure 5. Answers to Question 5. Only a minority felt unpleasant when selling their belongings.

4. Conclusion

It is well established that owners of goods held for use are expected to show the endowment effect, unlike those who held the goods for exchange. The endowment effect is usually shown in the lab. Here, we set up a field experiment using thrift shops in Facebook chat rooms and college chat rooms dedicated to secondhand goods transactions. We contribute to the literature by demonstrating that owners who previously held their goods for use can switch to a trader-like behavior when participating in such thrift shops. As a result, the endowment effect vanishes. Almost all participants were females and the sample is of good quality because it came from a Poisson-like process.

After removing professional traders (dealers) from the sample, we found the vast majority of the inexperienced traders wished to sell their items for a lower price, in which case there was no endowment effect. We found this result to be robust because it could not be related to the low income of the participants. We also found signs that the change of attitude to a trader-like behavior was accompanied by a feeling of pleasure by riding themselves of a good they no longer found useful.

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