

Gawrońska, Magdalena

## Article

# Influence of the endowment effect on the valuation of goods: An experimental verification

e-Finanse: Financial Internet Quarterly

## Provided in Cooperation with:

University of Information Technology and Management, Rzeszów

*Suggested Citation:* Gawrońska, Magdalena (2015) : Influence of the endowment effect on the valuation of goods: An experimental verification, e-Finanse: Financial Internet Quarterly, ISSN 1734-039X, University of Information Technology and Management, Rzeszów, Vol. 11, Iss. 1, pp. 86-96,  
[https://doi.org/10.14636/1734-039X\\_11\\_1\\_009](https://doi.org/10.14636/1734-039X_11_1_009)

This Version is available at:

<https://hdl.handle.net/10419/147120>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

## INFLUENCE OF THE ENDOWMENT EFFECT ON THE VALUATION OF GOODS. AN EXPERIMENTAL VERIFICATION

---

MAGDALENA GAWROŃSKA<sup>1</sup>

---

### Abstract

The article refers to the issue of the endowment effect, which acts as a mechanism that influences valuation. The paper's main aim is to verify the endowment effect phenomenon for branded, fast-moving consumer goods. The subject of this paper also includes examining whether short-term possession, generates the endowment effect. It also studies how the possibility of using a product influences the power of the examined phenomenon. In order to verify the proposed hypothesis, an economic experiment was used. Its results were analyzed with the use of descriptive statistics and econometric methods. The study demonstrated that the endowment effect determines the perception of goods and influences their valuation.

**JEL classification:** C91, D12

**Keywords:** endowment effect, experimental economics, auction pricing, valuation

Received: 25.05.2015

Accepted: 01.09.2015

---

<sup>1</sup> Faculty of Economic Sciences, University of Warsaw, e-mail: gawronska.mg@gmail.com.

## INTRODUCTION

Rationality is thought to be the basic rule of mainstream economics. Although in the theory of economics, there are many various definitions of this concept, they possess a common feature. All of them assume that the individual will always make the best choices for himself, that is, according to his own function of preferences and limitations. The theory of rational choice is based on two assumptions concerning human preferences: completeness (all of the actions can be classified depending on one's preferences) and transitivity (if action A is more desirable than action B and action B is more wanted than action C, which means that A is preferred to C). According to this concept, a human being is a rational and egoistic subject, who makes decisions based on reasoning as well as on the calculation of profits and losses (Kowalewska-Chiarini, 2007). Thus, rationality should also be evident in the financial decisions of market participants, such as the valuation of goods. According to the principles of mainstream economics, the individual should assess specific goods alike, regardless of being or not being their owner. However, the market reality tends to be rather far from its standard principles. It does not clearly explain all consumer or investor behaviors. One of the phenomena that stands against the rationality paradigm is the endowment effect, also known as divestiture aversion. This specific psychological mechanism manifests itself in cross-border purchase and offer price differentials, as well as in the higher valuation of goods (which are the elements of the individual's endowment). It is possible that because of this mechanism, investors value their shares at a higher price and consumers decide on the purchase of the product after being given its sample (or in the case of the purchase of a car, a test drive).

The main subject of the article is the endowment effect, which acts as one of the mechanisms influencing the valuation of goods. The main aim of the article is the experimental verification of the endowment effect phenomenon for branded and fast-moving consumer goods. It also aims at demonstrating that the endowment effect can influence the perception of the product as well as its valuation. Additionally, research regarding the possibility of short-term ownership generating the endowment effect was conducted. The study also focused on the way the use of a product influences the power of the endowment effect. The paper discusses

methodology and the results of the economic experiment conducted by the author. It also contains the review of relevant literature.

## THE ESSENCE OF THE ENDOWMENT EFFECT AND THE REVIEW OF SELECTED STUDIES

The difference between the cross-border purchase price (the lowest price at which the consumer is willing to sell a specific good; a.k.a. WTA – willingness to accept) and the cross-border offer price (the highest price, for which the consumer is willing to pay for the specific good; a.k.a. WTP – willingness to pay), is referred to in the literature as WTA-WTP disparity. Willing (1978) suggested that the possible cause for the disparity might be the income effect, while noting that the effect should be small provided that the good forms a small part in the entity's endowment. Another cause for this phenomenon is indicated by Rove (1980), as well as by Brookshire and Coursey (1987). According to them, the emergence of disparity is related to the conscious disparities of the established valuation adjustments, e.g. in order to have an advantage in the process of negotiations (Czajkowski, 2003). What appears to be the most convincing explanation for the WTA-WTP disparity is the endowment effect, which is defined in literature as the fact that people often demand much more to give up an object than they would be willing to pay to acquire it (Kahneman et al., 1991, p. 194). This term is related to the trend of behavioral economics, which rejects the rationality paradigm, while appreciating the meaning of emotions and psychological factors in human behavior. This concept was also adopted by the field of behavioral finances (cf. Zielińska & Ostrowska, 2013).

The endowment effect implicates the growth of a good's value in the eyes of the entity, the moment it becomes part of its endowment. The endowment effect phenomenon

is about, *ceteris paribus*, the fact that we value more the goods that we actually possess, than those that we do not (Czajkowski, 2003). The endowment effect exemplifies the symptom of a loss aversion, which is one of the assumptions of the prospect theory (Tversky & Kahneman, 1979 for: Czajkowski, 2003). According to this theory, the balance of loss is bigger than the balance of objectively proportional profit. In other words, grief after the loss is more acute than the pleasure resulting from gaining the goods (Morewedge et al., 2009).

The most common method used for the WTA - WTP disparity, as well as for the study of the endowment effect, is the economic experiment. The application of the experimental economic method is in this case most definitely legitimate. A study conducted with the use of traditional methods can thus cause many problems, such as difficulties with the control of external conditions, or differences in the results that depend on the method of collecting data (Czajkowski, 2003). Since the 1980s, the endowment effect has been studied with the use of experimental methods. In the case of experiments involving the actual exchange of goods, lottery tickets (e.g. Knetsch & Sinden, 1984; Plott & Zeiler, 2005), mugs (e.g. Loewenstein & Issacharoff, 1994; Morewedge et al., 2005), bars of chocolate (Knetsch, 1989), tickets for sport events (Carmon & Ariely, 2000; List, 2003), pens (e.g. Kahneman et al., 1991), cookies (Apicella et al., 2014), cardboard binoculars (Kahneman et al., 1990), etc. were used. Also known are the experiments, in which deer hunting permits (Haberlein & Bishop, 1985 for: Czajkowski, 2003), or even the choice of the number of trees in the nearby park (Coursey & Brookshire, 1987), were used. The author of the article is not familiar with the experiments in which luxury, branded and fast-moving consumer goods were used. This is why, in the described experiment, a branded cosmetic product was used.

It is worth mentioning that the implications of the endowment effect were also examined, based on behavioral finances. In Poland, in 2010, a study of the shareholder structure as well as the financial structure of the stock exchange listed companies was conducted. The results indicated a high dependency between a sense of subsidiary ownership and overestimating its financial results. Among the companies whose management and supervisory boards before its first listing held 80% of shares, more than 67% indicated overestimated results in unaudited reports. In this study, the phenomenon was named the ownership effect (Kowalewska, 2010). Other research regarding the behavior of the capital market participants showed that the endowment effect manifests itself in the fact the investors prefer the form of investment which they inherited (high-risked shares, medium-risked shares, bonds). They are therefore willing to withhold securities, which they already hold, regarding them as a sort of privilege (Samuelson & Zeckhauser, 1998 for: Zielonka, 2003).

## DESIGN OF THE EXPERIMENT

In the chapter below, empirical research conducted in 2014 at the Faculty of Economic Sciences of the University of Warsaw was described. The research took the form of a laboratory experiment. It was essentially aimed at verifying the existing endowment effect phenomenon for branded and fast-moving consumer goods.

Modification of the experiment with the use of products within the color cosmetics section, carries many new scientific possibilities. Most of all, it allows a look at the endowment effect, not only from the economic and financial (valuation) perspective, but also from the marketing point of view. Thus, it facilitates the analysis of some mechanisms responsible for the efficiency of marketing activities. In the decisive process leading to the choice of specific choice of section and product among color cosmetics, given features were included:

- 1) The product should be diversified horizontally - many varieties of the same good exist, consumers propose a demand for different alterations, as they possess heterogenic preferences concerning products they believe are the most desirable. This quality contributes to the elimination of potential research disruptions. The choice of product, which is offered on the market by many companies and which exists in various alterations, minimize the risk of the influence of a previous experiment with a product on its valuation. It also limits the possibility of the specific, established price to be indicated by the majority of respondents in the process of valuation.
- 2) The product should be branded. This quality makes it possible for the specific recommendations to be presented, as well as allows for the occurrence of the endowment effect in the marketing mechanism to be examined.
- 3) Above the line (ATL) advertising of the specific product is available, in particular, television advertising. It allows for the specific, experimental conditions, which set the research in a more realistic marketing context to be created.
- 4) The chosen goods should be products of everyday use, lacking any specific conditions for them to be used, or tested. The choice of such products allows without any major effort for the experimental conditions similar to the conditions of natural use, to be created.

Among many products, from the significantly fragmented market of color cosmetics, a section of lip-glosses, characterized by its diversification (products are diversified horizontally) and high level of competitiveness, was chosen. What is more, the use of a lip-gloss does not require any specific conditions; the beauty product can be applied almost anywhere. The research was carried out with the use of Rimmel Stay Glossy 3D lip-gloss. In the experiment, 86 items of the product were used.

The participants of the experiment were volunteers – female students of the Faculty of Economic Sciences of the University of Warsaw. Due to the specificity of the chosen product, the participants of the research were women only. The choice of the cosmetic

as a valued good, implied that the product from either a women's or men's line should be agreed on. Diversification of the product in the context of one experiment could significantly distort its results. Engagement in the experiment by the representatives of one sex only, is therefore justified. However, it is worth mentioning that the results are not affected by the choice of sex, as all equinumerous, experimental groups are non-coeducational, therefore they are comparative. Maybe in the future the influence of sex on the occurrence and the intensity of the endowment effect would be worth analyzing. In this paper however, the focus is centered on the influence of other varieties. Thus, one may notice a particular direction of the development of further studies.

The participants of the research are students of different age and fields of study. The only criterion according to which one was qualified to take part in the study was the Faculty of Economic Sciences of the University of Warsaw student status. Because of this kind of group selection, the problem with the understanding of the experiment which could appear

if students from other fields would participate, was avoided. In the present paper (following the example of previously conducted studies), year and field of study were recognized as irrelevant variables.

For the purpose of the experiment, a survey was conducted. A questionnaire, which was designed in the way it would deliver data, which could later influence the decisions of the participant during the experiment, was therefore prepared. The questions were concerned with i.e. previous experience with the product, reaction after seeing the commercial, consumer customs of the surveyed persons, the perception of the specific brand,

as well as features that the students thought were appealing during the valuation process.

The actual purchase and offer transactions will be conducted, the moment the prices will be selected with the use of the auction method. In the experiment, modification of the nth-price auction was used – in each group, eight best offers were selected, and the transaction at a price suggested by the eighth person was conducted. The quotas were ranked high to low (purchase transactions), or low to high (offer transactions). The nth-price auction takes the Vickrey auction technique as its model. According to this system, participants interested in purchasing specific goods confidentially bid. The winner is the person who offers the highest value bid. However, the transaction is executed after the second highest bid is offered. Nevertheless, Vickrey's technique possesses one significant drawback. It involves persons whose offers oscillate around the second price, while the rest of the individuals can bid falsely. In order to eliminate this problem, Shogren designed the nth-price auction, in which the number of winners is chosen randomly. After the offers are ranked, winners purchase goods that are put up for auction at an nth-person's price. Valuation with the use of the nth-price auction is characterized by high credibility, as the best strategy for the bidder is to announce the actual price at which they are willing to purchase a specific product (Chern et al., 2013).

## RESEARCH HYPOTHESES

The purpose of the planned and conducted research was to verify hypotheses related to the following issues:

**H<sub>1</sub>: There exists an endowment effect phenomenon for branded, private, fast-moving consumer goods.**

The conducted study aimed most of all at verifying the existence of the endowment effect phenomenon, in reference to fast-moving, branded consumer goods. The hypothesis was deduced, based on a rich experimental literature, which indicated the occurrence of the endowment effect for many kinds of goods. It is worth noticing that in the previous studies, these kinds of quality goods, especially cosmetic products, were not used. The decision-making process of the consumer in the moment of purchasing this kind of product differs significantly from the purchase of such goods as mugs or pens. Psychological aspects as well as customer loyalty to a specific brand might here play a crucial role. The demand for this kind

of product (makeup cosmetics in particular), is also incredibly sensitive to the consumers' individual preferences. It is not, however, as meaningful, as in the case of more universal goods (like for example, the previously mentioned cups). Consumers can value products in different ways, depending on the preferred color, consistency, smell, etc. Equally important in this case, would also be informing the potential consumers of the need for the ownership of specific goods. This particular need is related to the individual consumer's custom. Whilst a mug is practically used by anyone (if it is not used by the individual, it by his guests), a specific makeup product may be redundant (in general, or at a particular moment) for some of the consumers.

**H<sub>2</sub>: Short-term possession also generates the endowment effect.**

Another issue studied with the use of the planned experiment was the endowment gradation. In the previous studies, the participants were divided into the two groups only: owners and non-owners, without any intermediate possibilities. The aim of the present experiment was to examine whether short-term experience with a product could be considered as a kind of possession (later termed temporary, or incomplete possession). The hypothesis according to which short-term possession influences the valuation and that it will generate a kind of endowment effect (maybe weaker than in the case of full-term ownership), was suggested. With this end in view, the comparison of the cross-border purchase prices among persons who do not possess specific goods, or possess them for a short term, should be conducted.

**H<sub>3</sub>: The ability to use the product influences the power of the endowment effect.**

The conducted experiment enabled us to study the way the experience with the product in the form of its usage influences the power of the endowment effect (measured with the size of WTA-WTP disparity). With this end in view, the comparison of the size of the given disparity between the groups of possessors and non-possessors who are not able to use the product and the groups of owners and non-owners, who are able to use the product, should be conducted. This issue is immensely interesting, in particular, if one would notice that the previous studies reduced the experience with the product, to the possibility of seeing it up close and touching it. In the previously conducted experiments, the possibility of using products in a natural, or close to natural environ-

ment by the participants was not included. It was however conducted by the author in this study.

## PROCEDURE

The research was conducted in four, equinumerous experimental groups. In each group, the number of the experiment's participants numbered twenty-six volunteers. It took about fifteen minutes for each study to be conducted.

After the participants of the research took their seats and were informed of the basic rules of being part of experiment, a television commercial for the lip-gloss was screened. Next, depending on the experimental group, the products were given or shown to the participants. In two groups, the participants could try on the given product. In the next step, participants of the study filled out the valuation questionnaires concerned with cross-border purchase and offer prices. They were also given questionnaires to fill out. Further, the auction was held during which from each group eight of the best offers were selected. Afterwards, actual purchase and offer transactions were conducted.

The experiment in the first group aimed at studying the price ceiling at which the participants were willing to purchase the offered lip-gloss (WTP). In this group, participants could bid their valuation offers, based on the TV commercial and on the product that was held up and shown by the experimenter from afar. The participants of the study were therefore not the owners of the product, nor were they allowed to have an experience with the product during the experiment. Because of the auction, eight participants could purchase the previously shown product.

The experiment in the second group also aimed at studying the participants' WTP. In this group, the variable which did not appear in the previous version was the possibility of a short-term experience with the product. After watching the commercial, each participant was given a lip-gloss. She was informed that from this moment on, during the next two minutes, the product was her own – she can look at it, try it on, use it – however, after the given time passes, she needs to give the product back. The described situation could be termed a temporary, short-term, incomplete possession. The group was included in the experiment with the aim of studying the gradation of the endowment, as well as of examining whether the given experience, that is a short-term possession, also generates the endowment

effect. As a result of the auction, eight participants of the experiment purchased exactly the same lip-glosses which they had used several minutes earlier (the products had a number on them).

In the third experimental group, after the screening of the commercial, each participant was given a Rimmel Stay Glossy lip-gloss. Thus, they became the owner of the product. The participants were informed that they do not have to give the product back and that from that moment on, they are its owners. However, they were asked not to use, or even open the lip-gloss. After distributing the products, the minimum price at which the respondents would be willing to sell the received lip-gloss (WTA), was studied. After the auction was conducted, eight participants sold the received lip-glosses to the experimenter.

In the fourth experimental group, after seeing the TV commercial, each participant was also given permanently a Rimmel Stay Glossy lip-gloss. This time however, the

participants could start using the product, only in order to experience the product (as was in the case of the studied second group). In this group, the participants were aware that not only can they use the product, but that it is also their property. After the experience with the product, participants' WTA, that is the minimum price for which they would be willing to sell the received lip-gloss, was studied. What is more, the purchase transactions were conducted.

## RESULTS OF THE STUDY. VERIFICATION OF THE RESEARCH HYPOTHESES

**H<sub>1</sub>: Occurrence of the endowment effect phenomenon for branded, private, fast-moving consumer goods.**

Table 1 presents basic statistics concerned with the auction valuation.

**Table 1: Basic statistics concerned with the auction valuation within the division of the groups**

group	mean	sd	p50	max	min	range	variance
1	11.53846	6.929535	10	30	1	29	48.01846
2	7.884231	5.907662	8	20	0	20	34.90047
3	15.34615	5.670572	15	30	7	23	32.15538
4	18.69231	12.83049	15	70	7	63	164.6215
<b>Total</b>	<b>13.36529</b>	<b>9.190583</b>	<b>12</b>	<b>70</b>	<b>0</b>	<b>70</b>	<b>84.46682</b>

*Source: Own elaboration based on results from Stata program*

In the first group, the average price (mean) equals 11.54 zł and median (p50) 10zł. The minimum offer (min) was amount to 1 zł and the maximum (max) to 30zł. In the second group, the average price equals 7.88 zł, median 8zł. The minimum offer was 0zł, while the maximum 20zł. In the third group, the average price reached the level of 15.35 zł, median 15 zł. The lowest bid was 7 zł, while the highest 30 zł. In the remaining fourth group, the average price equals 18.69 zł and median 12.83 zł. The minimum bid equals 7 zł, while the maximum is 70 zł.

It is therefore apparent that according to the theoretical predictions, in the case of bids, both means, as well as medians of the cross-border purchase prices are lower than the analogical statistics for the cross-border offer prices. In the first and third group, the average WTA to WTP ratio equals 1.33, while in the second and fourth group, the ratio equals 2.37. A formal test examining the parity of means, in order to verify statistical significance of the monitored result, was conducted.

The groups were compared in pairs, therefore small (N=26), self-contained samples were juxtaposed. The results of Shapiro-Wilk's test suggest that at the adopted level of significance which equals 0.05, the variable bid in the first, second and third groups is characterized by a normal distribution, however in the case of fourth group, null hypothesis of the normal distribution (p. value equals 0.00001) had to be rejected. Formal test for the equality of variances was conducted, however it did not succeed. Due to this fact, the equality of means was studied with the use of non-parametric Mann-Whitney's test. The test results indicated that the differences at the levels of average cross-border prices between the first and the third groups are statistically significant (p.value equals 0.00142). A similar case was noticed in the second and fourth groups (p. value equals 0.001).

The conducted analysis supported the hypothesis of the endowment effect phenomenon for branded, private, fast-moving consumer goods. The specificity of

the product used in the study did not eliminate WTA-WTP disparity, neither did it change its direction.

### **H<sub>2</sub>: Generating the endowment effect through short-term possession.**

As a result of the conducted experiment, the hypothesis according to which the short-term possession also generates some kind of endowment effect was verified. In order to examine the authenticity of the prediction, comparison of the cross-border purchase prices of the persons who did not possess the goods and those who possessed them for a short term was conducted. It was expected that the experience with the product representing novelty in the experiments studying the endowment effect would influence the rise of cross-border purchase prices. This sort of result would suggest that there exists a kind of an endowment gradation. It was noticed that in the group of purchasers who could only look at the product from afar and see its commercial, the lowest bid price equaled 1zł, the highest 30zł, while the average stood at the level of 11.54 zł. In the group of purchasers who for some time were the owners of the product, the lowest WTP value equaled 0 zł, the highest 20 zł, while the average reached 7.88zł. The ratio of the average WTP from the second group (WTP\*) to the average WTP from the first group, equals 0.68, while it was expected that the WTP\* to WTP ratio would equal more than 1. This result suggests that in human perception an intermediate state between possessing and not possessing, termed in this study a short-term or incomplete endowment, does not exist. In order to check the statistical significance of the noticed differences, a non-parametric Mann-Whitney test was conducted. The test indicated that the differences between the average WTP values in the monitored groups are not statistically significant (p.value equals 0.0724). The appearing interrelations are therefore random, thus in order to verify the second hypothesis it would be necessary to repeat the study in a bigger trial.

However, based on the conducted surveys, it is possible to attempt at explaining which factors potentially influenced the results. The possible explanation for the achieved result is brought by the analysis of the answer to the question concerned with consumer customs of the participants.

The respondents were asked the question: *How often do you use this type of a product (lip-gloss)?* Among the respondents, significant differences between groups are noticed. In the first group, more than 53% of the respondents use a lip-gloss, more than three times a week, while in the second, barely 19%. This group is also characterized by the large number of respondents, who use a lip gloss less than once in a month (34.6%). The consumer customs of the participants from the first and second group can have an increasing influence on the valuation of goods. Among the respondents who do not use regularly this kind of product, the need of its purchase may be slight; therefore, valuation of the good is relatively low.

Another possible explanation for the observed WTP\* to WTP ratio could be differences in the perception of the screening of the TV commercial. The average rating of the commercial (from 1-5) in the second group was lower than in the first group (3.04 vs. 3.27). The participants in the first group could therefore rate the good higher than the participants of the second group in relation to the positive reactions aroused by the TV commercial.

Equally interesting is the distribution of the answers to the question concerned with the previous experiences with the Rimmel brand. Responders were asked: *Have you ever used Rimmel makeup cosmetics?* In the second group, the number of negative responses equaled 30.8%, however in the first one, 11.5%. Previous experiences with the brand could therefore have an influence on the higher valuation of goods in the first group. Interesting results are also delivered by the answers to the question: *Have you ever used Rimmel lip cosmetics (e.g. lip gloss)?* In the second group, the percentage of responders who had previously used Rimmel lips cosmetics was 23%, while in the first group as many as 61% have previously used these products. The participants who had at least once bought Rimmel cosmetics may know its market price. The participants who had previously used Rimmel lip products could also value the product (which is the subject of the experiment) higher due to their previous experience with the brand. In order to study the feelings of the respondents, the question was asked: *How would you rate your satisfaction after using the lip cosmetics (e.g. lip-gloss) by this brand?* None of the respondents rated their satisfaction after using the product as very bad, or bad. The results confirm the assumption that significant participation of the previously satisfied Rimmel lip cosmetics users influenced the higher average valuation of the subsample of goods.

A surprisingly low valuation of the cosmetics by the participants of the study in the second group could also be caused by the specificity of the experience with the product. All of the respondents in this group received the same lip-gloss, in the same color. In the presented commercial however, one could see the whole color palette, while the displayed product was only visible from afar. Due to a verification of the specific color imagination through one’s personal experience, this particular difference could cause significant consequences. It could be noticed that as many as eleven respondents (about 42%) indicated color as the determiner of valuation. One would assume that if the respondents could try on lip-glosses in different colors (their experience would not be fragmented), the valuations could shape differently.

**H<sub>3</sub>: Influence of the possibility of using the product on the power of the endowment effect.**

In the next step, the hypothesis according to which the use of product influences the power of the endowment effect was verified. It was assumed that the experience with the product in the form of its usage, influences the size of WTA-WTP disparity. In order to verify this hypothesis the size of the mentioned disparity between the first and the third groups and the second and the fourth groups was compared. As was remarked earlier, in the first and fourth groups the average WTA to WTP ratio equals 1.33, while in the second and fourth group 2.37. Among the purchasers and the sellers who were given permission to use the product at the time of the experiment, the disparity is almost 78.2% higher than in the case of those who could not try the product. One can therefore assume that using the product gives the endowment effect more power.

In order to identify other potential causes for the occurrence of differences in the size of WTA-WTP disparity, the results of surveys were used. Different sizes of disparity may be caused by discrepancy between the first and the second group (WTP1>WTP2) and between

the third and the fourth group (WTA3<WTA4). More significant differences between the first and the second group were analyzed in the previous subchapter. In this passage other potential differences, in particular between the third and the fourth group were indicated. Previous viewing of the product by the participants could have, to some extent influence on the valuation (e.g. the possibility of acquaintance with the market value of the product). The respondents were asked the question: *Have you ever (before the experiment) seen any commercial of the product?* The majority of positive answers was registered in the fourth group (42%), while the smallest number of positive responses was in the second group (23%). Thus again, the contact with any commercial could mean the possibility of the acquaintance with the product’s market price, which potentially influenced WTA/WTP assessment.

Another possible source of the differences can be found in dissimilar perception of the Rimmel brand, in particular groups. The respondents were asked the question: *How do you perceive Rimmel cosmetics?* It is worth noticing that the respondents perceive the Rimmel brand as neither very bad nor bad. In each group positive responses dominated. The group which rated brand the highest was the fourth group. In this group, only one participant perceived the brand “neither bad, nor good,” other participants perceive it as good or very good. The participants from the third group, in which 44% of the respondents thought of the product as “neither bad, nor good,” rated the brand the lowest. The presented interrelations could be the cause of WTA value differences between the third and the fourth groups.

**Other important interrelations**

Below, the analysis of the correlations between the chosen as a result of the conducted surveys variation and the cost of the bid is presented. Due to the fact that the data concerned with the auction valuation do not have normal distribution, Spearman’s rank correlation

**Table 2: Correlation matrix**

	offer	holding	seeing	hearing	advert_e	seeing_tv_ad	seein_ad	usage_l-g	R_perc	using_R	using_R_l-g
offer	1.0000										
holding	-0.1215	1.0000									
seeing	-0.0914	0.4577*	1.0000								
hearing	-0.1154	0.3553*	0.8340*	1.0000							
advert_e	0.1642	-0.1047	-0.3588*	-0.2259*	1.0000						
seeing_tv_ad	-0.0505	0.2432*	0.5033*	0.4624*	-0.1044	1.0000					
seein_ad	-0.0991	0.3636*	0.5167*	0.4930*	-0.2652*	0.5498*	1.0000				
usage_l-g	0.2154*	-0.1189	-0.2662*	-0.1581	0.2150*	-0.0564	-0.1500	1.0000			
R_perc	-0.0077	-0.0836	-0.1672	-0.0363	0.2925*	0.0170	-0.0588	0.1149	1.0000		
using_R	0.0000	-0.1667	-0.0689	-0.1353	-0.2271*	-0.2044*	-0.1111	-0.0684	-0.2199*	1.0000	
using_R_l-g	0.0351	-0.0668	0.1105	0.0039	-0.1291	-0.0452	0.0445	-0.3093*	-0.2681*	0.3563*	1.0000

Source: Own elaboration based on results from Stata program

The results presented in table 2 indicate that statistically significant is the correlation between the use of product and the amount of valuation – the amount of valuation increases along with the frequency of using lip-glosses by the respondents. Among other significant correlations, the relation between the use of lip-glosses and the rate of the screened commercial, as well as between the perception of the brand and the rating of the commercial is worth mentioning. Equally interesting can also be the correlation between the usage of the Rimmel cosmetics and the Rimmel lip cosmetics and the perception of the brand. Spearman's coefficients are in both cases negative.

## DISCUSSION

In the present chapter, some of the limitations of the conducted study of which the author of the article is aware will be discussed. The possibilities of improving the experiment in the future are also indicated.

It should be taken into consideration that the sample on which the experiment was conducted is unrepresentative. Students represent a specific population, they are frequently characterized by their different approach to money, as opposed to social representative groups. They have however, relatively low opportunity cost (Krawczyk, 2012), which was a significant justification for the choice of respondents. Furthermore, the majority of economic experiments are conducted on university students, not least because of the easy access to this group for researchers. It is also worth mentioning that the previous studies concerned with the endowment effect were also conducted on students, extrapolating the received results onto other social groups, or even the entire population (Czajkowski, 2003).

It is also worth considering whether the adequate procedure of the valuation was applied. In the present experiment the auction method was the main method of valuation. Worth considering in the future is the application of the random nth-price, which excludes giving the participants the ex-ante of the number of winners. Perhaps, in this way, a participant's temptation to overestimate, or understate prices, would be eliminated. The use of another method like the BDM procedure, often applied to the experiments studying WTA-WTP disparity, is also worth considering.

During the experiment, several problems worth preventing in the future were detected. The first issue noticed during the experiment was a failed transaction

made by one of the participants in the first group. The subject, despite being previously informed that the winning bids will be actually executed, did not conform to the rules and left the room without executing the payment transaction. However, such a situation was successfully eliminated in the next groups. Due to the disruption's incidental character and the fact that during the moment of filling out the questionnaire, the respondent knew the rules of the auction, there seems to be no cause for rejecting the results of the whole group, or even for recognizing the result as faulty.

Furthermore, during the experiment, in the fourth group (owners-sellers, who at the time of the experiment were able to use the product), the question was asked whether at the time of determining the minimum selling price, it is worth taking into consideration the fact that the lip-gloss is being used. Because cosmetics are personal goods, the selling of previously used items is not usually practiced. Due to this fact, it was suggested that the participants not take the use of product into consideration during the valuation process. In order to avoid this kind of ambiguity, it would be necessary to enable participants to have the experience with the product and then gather the used goods while handing over new products. This kind of procedure however, was impossible due to a limited budget. Therefore, one had to be satisfied with the solution suggested in the discussed experiment.

Another issue worth considering is the modification of the structure of the questionnaire. As it was revealed, some of the questions that the participants were asked did not provide any significant information. They included: questions concerned with the previous experience with the product, previous watching of the TV commercial or willingness to take part in the next study. Therefore, maybe it is not worth asking this of kind of question, while asking those which could explain the decisions of respondents. Issues which could be discussed in such a study would include their self-esteem, current need for the product, or their financial capacities.

Also worth considering is the modification of the scientific plan and the structure of the survey, so that all of the respondents would be asked what main reasons guide them while placing purchase or selling offers. Adding more possible answers to the survey, while not focusing on the product features only, would also be advised. Perhaps it is worth conducting a survey, not during, but after the study as a post-experimental questionnaire.

## CONCLUSIONS

The conducted study confirmed the hypothesis of the existence of the endowment effect phenomenon for branded, private, fast-moving consumer goods. According to the theoretical predictions, both the means and the medians of the cross-border purchase prices are lower than the means and medians of the cross-border offer prices. In compared experimental groups, statistically significant WTA-WTP disparity that assumes the 1.33 and 2.37 values was noticed.

It was impossible for the hypothesis according to which, the short-term possession also generates some kind of endowment effect to be confirmed. The hypothesis was not previously verified in the experimental studies (the participants were only divided into owners and non-owners, without any other intermediate option). The differences in the rise of the cross-border purchase prices by the persons who did not possess the goods, or possessed it for a short time turned out not to be statistically significant. Therefore, the existing dependencies, contradictory to the predictions, were recognized as random and in order to verify the second hypothesis, the study would have to be repeated on a bigger sample. However, with the use of descriptive statistics, potential sources of the higher cross-border purchase price by the persons who could not experience the product than by those who were enabled to experience it was indicated.

Furthermore, the genuineness of the hypothesis

according to which the use of product influences the power of the endowment effect was not excluded. The hypothesis was not verified in the previous studies, in which participants were only allowed to see the product up close and touch it. In this study, among buyers and sellers who were permitted to use the product, the WTA-WTP disparity was almost 78.2% higher than in the case of respondents who could not try the item. One can therefore assume that the use of a product increases the power of the endowment effect, however the article indicated other potential causes for the obtained difference.

In the present article, it was proved that the possession of goods can influence their perception and valuation. The fact that the use of a product positively influences the power of the endowment effect was not excluded. Therefore, it is worth reflecting on the ways in which the endowment effect is (possibly often unconsciously) used on different markets. The decisions of customer purchasing are made under the influence of the participation in the marketing of experience, the use of free samples, or the makeup sessions offered by the drugstore chains. They are the perfect examples of the use of this phenomenon on the market of goods and services. However, on the capital market this effect may manifest itself through the behaviors of the investors, who overestimate their securities, or through inflating profits, or overvaluing enterprises, by their sole owners or by the persons, who hold a significant part of shares in a specific subsidiary.

## REFERENCES

- Apicella, C.L., Azevedo, E.A., Christakis, N.A., Fowler, J. (2014). Evolutionary Origins of the Endowment Effect: Evidence from Hunter-Gatherers. *American Economic Review*, 104, 1793-1805.
- Bookshir, D., Coursey, D. L. (1987). Measuring the Value of a Public Good: an Empirical Comparison of Elicitation Procedures. *American Economic Review*, 77, 554-566.
- Carmon, Z., Ariely, D. (2000). Focusing on the Forgone: How Value Can Appear so Different to Buyers and Sellers. *Journal of Consumer Research*. 27, 360-370.
- Chern, W. S., Hong, J. P., Liu, K. E. (2013). Comparison of the Vickrey Second-Price and Random nth-Price Auctions for Analyzing Country of Origin Labeling in Taiwan. *Academia Economic Papers*, 41 (2), 215-254.
- Czajkowski, M. (2003). Przyczyny powstawania dysparytetu WTA-WTP dla dóbr konsumpcyjnych. *Ekonomia*, 11, 197-210.
- Kahneman, D., Knetsch, J. L., Thaler, R. H. (1990). Experimental Tests of the Endowment Effect and the Coase Theorem. *Journal of Political Economy*, 98, 1325-1348.
- Kahneman, D., Knetsch, J. L., Thaler, R. H. (1991). The Endowment Effect, Loss Aversion, and Status Quo Bias. *Journal of Economic Perspectives*, 5, 193-206.
- Knetsch, J. L., Jack, L. (1989). The Endowment Effect and Evidence of Nonreversible Indifference Curves. *The 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. *Quart. J. Econ.*, 99, 507-21.

- Kowalewska, I. K. (2010). *Analiza struktury akcjonariatu, czyli jak mieć ASA w rękawie*. Retrieved from <http://www.parkiet.com/arttykul/970916.html>.
- Kowalewska-Chiarini, A. (2007). *Marketing a postulat racjonalności (master's dissertation)*. Warszawa: WNE UW.
- Krawczyk, M. (2012). *Planowanie eksperymentów*. In M. Krawczyk (Ed.) *Ekonomia eksperymentalna* (57-58). Warszawa: Wolters Kluwer.
- List, J. A. (2003). Does Market Experience Eliminate Market Anomalies? *Quarterly Journal of Economics*, 118 (1), 41–71.
- Loewenstein, G., Issacharoff, S. (1994). Source Dependence in the Valuation of Objects. *Journal of Behavioural Decision Making*, 7, 157–69.
- Morewedge, C. K., Shu, L. L., Gilbert, D. T., Wilson, T. D. (2009). Bad Riddance or Good Rubbish? Ownership and not Loss Aversion Causes the Endowment Effect. *Journal of Experimental Social Psychology*, 45, 947-951.
- Plott, C., Zeiler, K. (2005). The Willingness to Pay – Willingness to Accept Gap, the “Endowment Effect,” Subject Misconceptions, and Experimental Procedures for Eliciting Valuations. *American Economic Review*, 95, 530–45.
- Zielińska, E., Ostrowska, E. (2013). *Uwarunkowania behawioralne decyzji inwestycyjnych*. *Prace i Materiały Wydziału Zarządzania Uniwersytetu Gdańskiego*, 2/4, 489-499.
- Zielonka, P. (2003). *Czym są finanse behawioralne, czyli krótkie wprowadzenie do psychologii rynków finansowych*. NBP Materiały i Studia, 158.

*Translation: Agata Koj*