

The Influence of Behavioural Effects on the Slovak Online Customer by Gender

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Abstract

Currently, more and more individuals and households, i.e. customers, are starting to shop via the Internet, which has thus become an essential means of influencing the purchasing behaviour of these customers. Behavioural economics, also based on knowledge from psychology and neuroscience, brings with it a view of how to better understand the purchase decision-making processes of consumers and the differences in behaviour between individual genders. Current research shows that most human decisions are only 10% based on rational judgment. Other components of this process are influenced by various factors, such as mood, gender, stress, age etc. The contribution is a partial output of the project "Implications of behavioural economics for the efficiency of the functioning of contemporary economies". Based on the available data on the consumer and his purchasing behaviour, the authors bring a new perspective on how to better understand online customers' behaviour in the Slovak Republic, with an emphasis on gender.

Keywords: behaviour of online customers, price anchoring, gender, households

JEL Codes: H31, L20, M11, Z19

1. Introduction

In recent decades, economics began to import knowledge from psychology, based on which behavioural economics was formed, which is currently used in a wide range of fields, whether in connection with finance (personal finance), game theory, labour economics, public finance, or law and macroeconomics (Camerer and Loewenstein, 2004). With their help, he explains the deviations from the classical theory in behaviour and what is behind non-rational decisions. According to Dharami (2017), behavioural economics has gradually become mainstream in economics. According to Mullainathan and Thaler (2001), behavioural economics is a combination of psychology and economics that examines human behaviour in markets. Thaler (2016) adds that behavioural economics replaces the abstract concept of "Homo economicus" applied in neoclassical economic theory, who behaves rationally in decision-making by simply replacing it with an irrational creature. Behavioural economics, through psychology, tries to explain in many situations incomprehensible human behaviour from the point of view of classical economics. It applies to each of us. Thaler and Mullainathan (2001) state that despite their intelligence, education, experience, wealth or influence, people are limited by rationality, self-control and egoism in certain circumstances and on egoism.

2. Literature Review

Price anchoring is one of the effects of behavioural economics, which undermines the classical economics theory. When making a purchase decision, customers are influenced by the anchoring effect when estimating the product's value. The price anchoring effect is, thus, any value considered when making a numerical estimate (Jacowitz and Kahneman, 1995). The customer thus starts from a particular starting point, resp. However, the value, which may be skewed, and therefore its later decision based on this anchoring effect may be skewed (Book, Tanford, and Chen, 2016). The most common example we can encounter in connection with price anchoring is a situation where the customer perceives the discount of a particular product and evaluates the advantage of this product based on the original price of this product. However, even after the discount product is significantly higher than usual. According to Ariely (2008), everything is relative.

Cervone and Peake (1986) state that the random value of the anchoring effect can strongly influence decision-making and subsequent behaviour. The anchoring effect affects people's judgment about how well they could solve a problem. The results show, in particular, the strong influence of heuristic price anchoring. The person starts with the assessment of the anchoring effect value, which serves as a starting point. The fact that man uses the value of

the anchoring effect as something he decides is also confirmed by the research of Tversky and Kahneman (1974). According to Tversky and Kahneman (1974), the effect of anchoring or the starting point distorts the result, resp how the decision will turn out in the given case. Strack and Mussweiler (1997) state that the anchoring effect is, in particular, the activation of relevant information that affects not only the content of absolute judgment but also the ease with which it is created. Although, of course, anchoring does not have the same effect on every individual. According to McElroy and Dowd (2007), several factors play a role in this respect. Levin and Hart (2003) state that these differences may be due to a very young age, as they did research with children. Differences may also be based on gender. Lauriola and Levin (2001) state that, for example, men were less neurotic in their decisions and, at the same time, risked more than women. Also, younger individuals took more risks and were more open to experimentation than older individuals.

Likewise, the reasons for decision-making can be based on emotions (Baron and Ritov, 2004). Price anchoring is also used at retail prices. E-commerce and various websites represent the physical reality of the online environment. The space in which all types of human-product interactions occur (Chen, Hsu, and Lin., 2010; Milgram et al., 1995; Racat and Capelli, 2020). Online advertising is one of the most costly interactions people perceive on a website. There are several ways to use the price anchor in marketing in conjunction with online advertising. According to Maloli (2019), we can describe several types of price anchoring that some brands use to make their goods seem more affordable and thus increase the value of their goods and services.

When determining the value of a product, customers often rely on the original price of the product. We display the product's or service's original price through online advertising, which we cross out and show our stock price next to it. By deleting the original price, we will therefore attract their attention. This effect works almost precisely in the case of expensive or exclusive products or services. This is because customers assume that more expensive products are of better quality. They believe that a more expensive product or service has excellent quality, style, and longevity and is worth buying. This can make customers feel that they are buying more cheaply and that the product will ultimately cost them much less money than it would initially cost. In order to further support Price anchoring, in addition to the crossed-out original price, we can also state the price without VAT and a highlighted discount in%, which aims to influence the customer's choice from among other products. Price anchoring can manifest itself in various ways, positive but, on the contrary, also negative impressions.

Creating a price anchor in the customer's mind with an attractive design can be considered another way to use price anchoring in marketing, through which we relieve the customer of the cognitive burden. The value of advertising, which the customer first registers in their mind, acts as an anchor and suggests that it is a popular option to create a price anchor for a given product in the mind of the customer, from which their other purchasing decisions develop. According to Manoli (2019), this is a method used by charities, for example, to raise more money from people. They need to highlight the amount they prefer on their site and mark it as a popular option used by the most generous customers. All other customers will also want to look like generous donors and contribute more than planned.

Multiple unit prices, also called quantity discounts, arise when we add a discount for bulk purchases. This is a pricing technique in which we offer the customer a lower price per unit if he buys a larger quantity of product. This pricing tactic is used mainly by supermarkets, food chains, and traders, who primarily sell consumer goods or can be translated as consumer goods in English. According to Manoli (2019), this is a pricing technique whose primary goal is to force people to anchor in terms of saving money. An enticing offer from sellers is supposed to convince them that it is a bargain to buy more products or services, even if they do not need them. Ultimately, such offers will not save them money.

The bulk discount pricing technique offers the customer three options for purchasing goods. The seller highlighted the least advantageous price offer in red to enhance in the customer's mind the feeling of price anchoring at the highest price of the product per piece. The other two prices, therefore, seem to be an advantageous purchase option in the eyes of the customer. It is essential to note the box next to the number of pieces the customer has put in the shopping cart, showing the amount saved by the customer. The goal is for the customer to buy three or more pieces and the amount of discount saved, which he sees, enhances the good feeling of buying goods.

2.1. Gender differences in online consumer behavior

Several authors in their study report that there are gender differences between consumer decisions of men and women who buy via e-commerce (Luk et al., 2013; Ganesan-Lim et al., 2008; Sharma et al., 2012; Zhou et al., 2014; Lin et al., 2019). The type of product or service also affects the relationship between the perceived risk and the intention to purchase goods or services through e-commerce. Such an impact may be significantly higher for

women or, conversely, for men. According to Yang and Wu (2007), consumers may be willing to pay more during e-shopping due to the convenience and timelessness of the Internet. While women make innovative decisions dominated by creative fashion, men make more rational decisions based on the brand. Thus, gender differences between online consumers are different for women than for men. Although interest in consumer lifestyle information or psychographic information has grown among e-commerce professionals, demographic information is still a fundamental and generally necessary consideration for segmenting and targeting e-commerce directly to the consumer (Ganesan-Lim et al., 2008; Fang et al., 2016). Purchasing behaviour has been found to vary between demographic groups (Hood et al., 2020). Several authors suggest that the motives of consumer shopping (Luk et al., 2013) and various demographic variables (Sharma et al., 2012) mitigate the relationships between the multiple benefits offered by e-commerce and the consumer's perceived value. The buying motive and demographic variables can help us predict the perceived value of the consumer and his possible intention to repeat the purchase. Mortimer et al. (2016) report that women shop e-commerce more frequently than men in several retail sectors. In their research, Hood et al. (2020) reported that, demographically, women are more likely to use e-commerce than men, and the most likely age groups to visit e-commerce are the younger, but not the youngest, age groups of higher-income customers. The influence of emotional factors also demonstrated significant gender differences. Zhang et al. (2014) report essential findings on consumers' cognitive confidence in e-retailers, which affects their emotional confidence and leads to another intention to shop again. Cognitive bias occurs mainly in decision-making. E power to influence consumers, various retail companies are also trying through online consumer reviews published on multiple websites. The results show that the impact of online consumer reviews on consumer intentions to buy is more vital for women than men. It has also been found that consumers are affected by negative rather than positive ratings, which has also been reflected to a greater extent in women (Bae and Lee, 2011).

3. Data & Methodology

To investigate the influence of gender on online customer behaviour in the case of price anchoring, we used a quantitative research sample of selected subjects. The target group of the chosen entities consists of online customers who made purchases through electronic stores. From a demographic point of view, these are men and women who made a purchase in the Slovak Republic.

The research sample consists of orders that contained 475 randomly selected types of goods from the consumer goods segment. The data used in the analysis consisted of a random sample selection based on the placement of goods in promotional leaflets in the monitored period from August 2017 to the end of January 2020. We included all orders made and paid for in the analysis, which contained at least one or more randomly selected types of goods. The selected types of goods were not sold during the entire period. The number of all online customer orders is 45,021 orders.

We created two models. We used the first logistic regression model to determine the probability of buying goods on sale depending on the goods, not on sale. In the case of the second model, as a next step, we chose a more complex model to model the same dependency. As a second model for data analysis, we used a generalized linear mixed model GLMM. We verified the models through McFadden R^2 (McFadden, 1974) and found the predictors' influence on the purchase probability. We used the Chi-square test and the Wilcoxon test to test statistical hypotheses. We have defined a research question: How does gender affect the online customer's behaviour in the case of price anchoring?

There is an assumption in society that women tend to go shopping more than men. Therefore, we assume they will be much more prone to buy discounted goods than men. We have defined hypothesis 1a following this social need, but this hypothesis will only answer whether there is a statistically significant difference in purchasing behaviour between the sexes. We defined hypothesis 1b to verify whether a particular gender tends to buy more expensive goods. Therefore, we proposed a hypothesis to confirm whether the average price of purchased items in discounts for men is statistically significantly different from the average price of purchased items in discounts for women.

These hypotheses are as follows:

1a) H0: There is no difference in the number of women and men using discount shopping.

H1: There is a difference in the number of women and men using discount shopping.

1b) H0: The average price paid for shopping items in discounts for women and men is equal.

H1: The average price paid for shopping items in discounts differs for women and men.

4. Results and discussion

This research was aimed at analyzing the influence of gender on online customer behaviour in the case of using price anchoring in online shopping. The results of the logistic regression model are in Table 1. From Table 1, we can see that the model's coefficients are significant. Women are 15% less likely to shop at a discount than men. The chance that customers will purchase goods from the promotional flyer at a discount is 1,541% higher than goods not included in the promotional flyer. We found that if a gift is attached to the order, then the probability that it will also be attached to discounted goods is 13% lower than non-discounted goods. But synergistic effects are also interesting, which were also included in the model; from them, we can see that the combination of the predictors "gender female" and "the product is from a promotional leaflet" increases the probability of purchase by 14%. The combination of the predictors "enclosed gift" and "the product is in the promotional leaflet" reduces the probability of purchase by 51%. The fact that the addition of a gift causes a decrease in the probability of purchasing goods at a discount is explained by the fact that when sellers wanted to support the sale of goods, they either made them cheaper or they lured customers to the goods with a gift that was part of the product without a discount, but they did not often use a combination of both methods.

Table 1. Logistic regression of dependence of all variables

Coefficient	Estimate		Influence	Stat. dev.
(Intercept)	-1.99627	***	0.135841	0.02829
Gender female	-0.15729	***	0.854456	0.04301
Discount	2.7979	***	16.41015	0.03416
Gift	-0.13387		0.874704	0.18224
Gender female*Discount	0.13368	**	1.143027	0.05172
Discount*Gift	-0.70788	***	0.492688	0.19806

Significance codes: 0 „***” 0,001 „**” 0,01 „*” 0,05 „.” 0,1 „.” 0

Source: Authors computations

We calculated McFadden's pseudo R^2 using the null model for this model. For this model, the logarithm of the likelihood came out to be -22,007.07 with 6 degrees of freedom, from which we determined McFadden's pseudo R^2 to be 0.2742. Since the value of McFadden's pseudo R^2 is higher than 0.2, we evaluate this model as perfectly fitted. The generalized mixed linear model results can be seen in Table 2, and the influence of individual fixed effects on the probability of purchasing goods at a discount is shown in Table 3.

Table 2. The results of the generalized mixed linear model

Random effects				
Groups	Name		Std. dev.	Stat. dev.
Districts	(Intercept)		0.02411	0.1553
Fixed effects				
Coefficient	Estimate		Stat. dev.	z value
(Intercept)	-2.04212	***	0.03815	-53.534
Gift	-0.12216		0.18057	-0.677
Discount	2.82248	***	0.03442	82.002
Gender female	-0.14981	***	0.04312	-3.475
Discount*Gift	-0,73271	***	0.1963	-3.733
Gender female*Gift	0.13106	*	0.05185	2.528

Source: Authors computations

In Table 3, we included a recalculation of the fixed effects and the effect on the resulting probability, and we added the lower and upper 95% confidence intervals.

We can see that the influence of gender on the purchase of goods at a discount was confirmed in this model, where women buy 12% less at discounts than men, and the influence of the action increased to 1,581%. We found that if a gift is attached to the order, then the probability that it will also be attached to discounted goods is 12% lower than non-discounted goods. The synergistic effects included in the model were again manifested; from them, we can see that the combination of the predictors "gender female" and "the product is from the promotional leaflet" increases the probability of purchase by 14%. The combination of the predictors "enclosed gift" and "the product is on sale" leaflet" reduces the probability of purchase by 52%. In Tables 1 and 2, we see that the estimated coefficients of the first logistic model and the random effects of the logistic model differ little, which is the expected result.

Table 3. The influence of fixed effects on the probability of purchasing goods at a discount

Coefficient	Estimate	95 % LL	95 % UL
(Intercept)	0.129754	0.120406	0.139827
Gift	0.885005	0.62122	1.2608
Discount	16.81856	15.72136	17.99233
Gender	0.860873	0.791111	0.936786
Discount*Gift	0.480604	0.327111	0.706122
Gender female*Discount	1.140036	1.029877	1.261979

Source: Authors computations

We verified null hypothesis 1a by performing a Chi-square test. When verifying hypothesis 1a, we selected from all items only those that customers bought as discounted goods. The total number of items purchased at a discount and purchased by men was 10,263, by women, 7,805. The value of the Chi-square test statistic was 334.39, and the number of degrees of freedom was 1. The p-value of the test was 2.2×10^{-16} , which means that we reject the null hypothesis and accept the alternative.

We found that men used discount shopping more often than women, which contradicts the fact that even if the company thinks that women will shop more at discounts than men, this may not be true. Hypothesis testing confirmed that women and men have different purchasing behaviour. This could be explained by the fact that the types of goods monitored in the research sample were more suitable for men. In the sample, we also have more technical goods, which are more inclined towards men, but on the other hand, we also have large and small household appliances, which women choose more.

When verifying hypothesis 1b, we selected from all items only those in which customers bought goods at discounts, and we made two selections, one for men and the other for women. The average price of purchased items in discounts was 242.95 for men and 238.84 for women. We tested the null hypothesis 1b by performing the unpaired two-sample Wilcoxon test, a non-parametric alternative to the unpaired sample t-test or the test of agreement of two means. The goodness-of-fit test assumes that the samples have a normal distribution. To avoid verifying this fact, we decided to use a non-parametric test as an alternative, which does not make such an assumption. The value of the test statistic W was 39,958,000. The obtained p-value of the test was 0.79, which means that we accept.

5. Conclusion

We investigated whether gender affects the online customer's behaviour in the case of price anchoring. We decided to measure the influence of the online consumer in the case of the anchor effect as the probability of buying goods at a discount, assuming that if people buy goods at a discount more often, they are influenced by price anchoring. This intention is based on the information that the retail price is listed next to the promotional price in electronic stores and in the promotion leaflet.

We also tested these claims through the hypothesis "There is no difference in the number of women and men using discount shopping" against the alternative hypothesis "There is a difference in the number of women and men using discount shopping" and the hypothesis "Average price paid for shopping items in discounts for women and men is equal to the alternative hypothesis "The average price paid for shopping items in discounts for women and

men is different. We tested the hypotheses using the Chi-square test and confirmed that there is a difference in the behaviour of men and women, which is significant. Their knowledge is justified for practice on several levels, and we found that gender differences in consumer online behaviour in the consumer goods segment were confirmed. As reported by several studies (Luk et al., 2013; Sharma et al., 2012; Kukar-Kinney et al., 2012), shopping motives and various demographic variables, such as gender, moderate the relationship between the multiple benefits offered by e-commerce and the perceived value of the consumer.

There are gender differences between men and women in online consumer behaviour and purchase decisions. However, there is an assumption that male customers do not prefer to buy goods at discounts or that women buy discounted goods more often than men. The research results provide convincing evidence that this rule does not apply in the consumer goods segment, and the authors create the ground for further research in the given area using more robust statistical methods. The contribution brings a new perspective on how to understand better online customers' behaviour in the Slovak Republic's territory.

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