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HOW DOES DECOY PRICING AFFECT PURCHASING DECISIONS?

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Abstract:

This paper is devoted to the cognitive biases of decoy pricing, which has become the subject of interest of retail companies in recent years. The paper analyses the principles of the decoy effect with regard to consumer behaviour in the Czech Republic (which represents customers of the Eastern Europe). The analytical part of the paper focuses on examination of often irrational consumer decision-making process, with respect to age, gender, product group, and other factors. A combination of questionnaire survey (N=200) and interviews (N=32) was used. The results indicate a significant influence of the generation the consumer belongs to, further differences in decision-making according to gender, as well as differences in effects in various product categories. The findings may be utilised by companies considering the use of decoy pricing strategies in the Czech market.

Key words: *Decoy pricing, purchase decision, cognitive bias, pricing*

1. Introduction

Cognitive bias describes the irrational errors of human decision-making and is a fundamental part of understanding behavioural economics. Human behaviour is predictably irrational and currently, there are tools that are based on this finding and offer options of how to change consumer behaviour. Findings not just from behavioural sciences but also neuroscience are used (Sperling et al., 2018). According to Kahneman (2010), understanding cognitive biases helps in making it better to read the thoughts of customers and appropriately suggest a product or marketing strategy. Cognitive bias means that people for most of the time make irrational decisions, but are convinced that they are behaving

rationally. According to Wolf (2016), cognitive biases represent a tendency of the human brain to think in certain ways. One of the cognitive distortions which can be used to influence the decision of a consumer when buying a product is “decoy pricing”. Decoy pricing is a price determination method using the influence of the “decoy effect” to increase sales by affecting the choice of the customer.

Wedell and Pettibone (1996) refer to other product alternatives as "decoys" because these alternatives serve to increase preference for another alternative (despite differences in the products). The decoy effect means that consumer's attention can be brought to one of two options by introducing a third option that serves as a decoy. Ariely (2008) or Zhang and Zhang (2007), show that when choosing from two options, customers tend to opt for the cheaper one, but when adding a third option – a decoy alternative – the customer’s decision-making is redirected to this alternative and, as a result of this, the customer decides spontaneously.

Doyle et al. (1999) show that decoy effect affects consumer purchases in the real world – such as decisions to purchase products at a supermarket. Therefore, Pettibone and Wedell (2000) concluded that findings of research into decoy effect are applicable on practical, as well as theoretical level. This has been confirmed by Kim et al. (2019), who stated that decoy effect has often been studied in psychology (Wedell and Pettibone 1999), political science (Herne 1999), medicine (Schwartz and Chapman 1999), marketing (Huber et al., 1982; Gonzalez-Prieto et al., 2013), but also, for example, in tourism (Xianyu et al., 2012; Kim et al., 2019). Furthermore, Ha et al. (2009) presented experimental research results that can be used by manufacturers and retailers when creating competitive position strategies or product presentations.

However, in the available studies, it is difficult to find evidence regarding whether there are differences between the behaviour of different generations of consumers, nor whether it is possible for a particular generation of consumers to use the decoy effect with the same results for different products.

Bettman et al. (1998) have demonstrated that consumer decision-making is context-sensitive. This was confirmed by other studies into decoy effect across product categories – for example, Simonson and Tversky (1992), Ha et al. (2009).

This paper aims to test whether and how, in the specific environment of central Europe, the decoy effect can influence consumer behaviour with respect to consumers’ age (consumers belonging to a particular generation) and whether decoy pricing can be used with the same effect for all products or whether it has a more significant effect in selected product groups.The results of the paper can serve as a basis for company pricing strategies factoring product and customer target group specificities. This study also brings deeper understanding in the field of behavioural economics, with a focus on the decoy effect and its use in practice.

2. Literature review

Solomon et al. (2014) defined consumer behaviour as a series of activities performed or perceived by people before purchasing products or services. Although society

is globalising and, therefore, consumer behaviour, as well as consumers' needs, tastes, and lifestyles, is becoming homogeneous (see, for example, Czincota & Ronkainen 1993; Bullmore 2000), according to De Mooij (2003), there is still a great deal of heterogeneity in all spheres of consumer behaviour across nations. Based on their research, Kolman et al. (2003) concluded that there were significant cultural differences between Central European countries and Western Europe. According to these authors, future changes in social values in Central and Eastern European countries will be more intense and faster in comparison to most other parts of the world, which may also reflect in consumer behaviour. Schütte, Ciarlante (2000) stressed the need to learn about regional specifics of consumer behaviour. These authors emphasised the cross-cultural perspective of consumer behaviour and confirmed that consumer behaviour differed in, for example, Europe, the USA, or Asia. Furthermore, there have also been significant differences between the value systems of consumers in different European countries. Although predictions speak of the disappearance of these differences with the establishment of the single European market, according to De Mooij (2003), national differences in consumer behaviour will prevail in European countries as they are deeply rooted in history and seem to be resistant to change. Schiffman, Kanuk and Hansen (2012) pointed out that consumer behaviour was also influenced by other aspects besides cultural factors, such as internal or psychological factors, social factors, economic factors, and personal factors. According to Lee (2009), age is an important factor and there are differences in expectations between different generations of consumers. Jisana (2014) or Karelakis et al. (2021), confirmed that age was an important variable affecting consumer behaviour as consumers change their shopping habits and patterns of behaviour with increasing age. However, these habits may not only change with increasing age but also with changing stages of the life cycle (Ramya and Ali, 2016). Yarrow, O'Donnel (2009) examined consumption habits of millennials and found out that not only did every generation have their distinctive character traits, but also typical consumer behaviour. However, De Mooij (2015) warns against the prevalent myth of global marketing which speaks of global communities, such as "global teenagers", who would have more in common with each other across countries than with other consumers in their own country. According to Hofstede (2001), individuals are not significantly influenced by the generation they belong to and there are other factors forming consumer preferences, such as education, skills, or cultural-social background. However, according to this author, attention should be paid to consumer behaviour specifics in individual generations. Cole et al. (2008) and also Jackson et al. (2011) explained that elements shared within individual generations were of a long-term nature. People adhered to these elements throughout their lives and let their values, attitudes, preferences, expectations, and purchasing behaviour be formed by these elements. Based on these findings, a "generational identity" has been defined as a component that needs to be understood when targeting specific consumers. The point is that each generation is driven by unique ideas (Smith, 2010).

Next to age, consumer behaviour is also significantly affected by the nature of the product. Kim and Hasher (2005) said that the nature of the product would significantly influence the rationality of consumers' purchasing decisions – for example, purchases of food tend to become repetitive which leads to a routine and a stereotype affecting consumer

behaviour. In the case of luxury goods, on the other hand, purchasing behaviour is based on completely different decision-making processes.

Bettman, Luce, and Payne (1998) analysed consumer decision-making and concluded that "consumer choice is content-dependent". These authors proved that, depending on its nature, a newly introduced alternative can influence the relative preferences of the original alternatives. The situation when adding a new alternative to a set of options increases the preference for one of the existing options at the expense of another option is called the decoy effect (Kim et al., 2006). This effect was first defined as an asymmetric dominance effect only (Huber et al, 1982), but other types of the effect were gradually identified and added. There have been many studies into the decoy effect – see, for example, Park & Kim, 2005; Pettibone & Wedell, 2000; Wedell, 1991. The asymmetric dominance effect was the first decoy effect to be verified by practical experiments. Connolly, Reb, and Kausel (2013) explained the decoy effect through two alternatives of two attributes (A and B) where one alternative was superior in attribute 1 and the other in attribute 2 (for example, two alternative brands of consumer goods, one superior in quality and one in price). Attribute values are usually selected so that each alternative is opted for by approximately half of the subjects. A third alternative is then introduced as a "decoy". If the A alternative is the "target" one, the decoy's attributes will be close to those of A while A would be the dominant alternative and B not – for example, the decoy would be equal to A in terms of quality but slightly worse in terms of price. Logically, as the decoy alternative is not the dominant option, it should be rejected by consumers and the preference between A and B should not change. In reality, however, the employment of the decoy will lead to a change in preferences. The dominated (decoy) alternative itself is rarely chosen, however, its introduction reliably shifts preferences towards the dominant (target) alternative. According to Ariely (2008), customers usually decide between multiple attributes of purchase options: price, perceived quality, attributes, product parameters, etc. When adding a "decoy" to the offer, the customer's attention unexpectedly shifts from the pre-selected alternative to the decoy. Such consumer behaviour has no logic and is contrary to rational behaviour.

There have been many studies into the practical implications of the decoy effect – for example, Doyle, O'Connor, Reynolds, and Bottomley (1999) analysed consumer behaviour of supermarket customers; Kim et al. (2018) examined the decoy effect in tourism services; and Ha, Park, Ahn (2009) presented experimental results that can be used by manufacturers and retailers when creating competitive product positioning and presentation strategies. The robust effect of asymmetric dominance has been documented in many product categories, for example, cars (Wedell, 1991), audio cassettes, batteries, and juice (Doyle et al., 1999), beer (Huber et al., 1982), bicycles, televisions, and microwave ovens (Ariely, Wallsten, 1995), and refrigerators (Kim et al., 2006). Heath and Chatterjee (1995) confirmed that there was no difference between the robustness of the effect in the durable and fast-moving consumer goods (Heath and Chatterjee (1995). However, there have been few studies into the usability of decoy pricing – whether it can be used with the same effect in all product categories, or whether it brings better results in some product groups.

In terms of generational differences related to the decoy effect employment, there's the common view of older people being more prone to various frauds and manipulations (Cuddy et al., 2005). It may therefore come as a surprising finding that scientific studies have

not confirmed these stereotypical views of older people's decision-making. On the contrary, the elderly tend to be more resilient to social and consumer influences – in some areas, their decisions are highly effective and surpass those of their younger counterparts (Ross et al., 2014; Berg, 2015). The decision-making of elderly people is more consistent and there's a lower inclination to irrational preferences. In other words, the elderly can recognize the decoy effect more often and can make more prudent choices while excluding adverse alternatives. This is thanks to their long-time life experience (Tentori et al., 2001; Kim and Hasher, 2005). Thus, there is a presumption that older adults are very selective in which task to deal with and where to invest their limited resources (Baltes and Baltes, 1990) as demanding mental tasks increase cognitive costs (Hess, 2014) and, according to Sedek et al., 2013, adults experience a gradual decline in basic cognitive abilities (e.g. memory capacity) throughout their lives. Thus, paradoxically, the decline in cognitive abilities and the reluctance to invest cognitive resources in demanding mental tasks lead to a higher resistance to sophisticated contextual manipulations and, therefore, to successful decision-making (Kościelniak et al., 2018). For these reasons, Cuddy et al. (2005) concluded that the stereotypical view of older generations was not correct. However, these conclusions have been refuted by Kubalová (2020) who found out that older generations were more likely to succumb to decoy effects. Kubalová recommends focusing marketing strategies on the "50+" age group.

We can therefore conclude that consumer decision-making was affected by the age of respondents and that the older generation was influenced more by the decoy effect. This corresponds to the findings by Kubalová (2020), who analysed consumer behaviour in the same geographical area. This means consumers living in the region showed a certain degree of specificity as even the older generation was susceptible to the decoy effect, which was contrary to the findings of studies from other regions – see Tentori et al. (2001), Kim and Hasher (2005), and Cuddy et al. (2005)

Multiple studies (Wu and Yu, 2018; Kim and Hasher, 2005; Tentori et al., 2001; Kubalová, 2020; Ďuriník, 2013) have therefore called for closer empirical examinations of factors influencing consumers' susceptibility to the decoy effect. The studies argue that different levels of susceptibility to the decoy effect in different age and gender-based consumer groups have not been proven sufficiently by the current scientific knowledge. The differences in scientific conclusions may be caused by different specificities of products used in different studies as the degree of consumer involvement in decision-making may vary for different product categories.

For example, according to Wu and Yu (2018), mental fatigue can increase susceptibility to the price decoy effect in men, while women's decision-making processes remain unchanged. According to Ďuriník (2013), there is a statistically significant gender difference in the perception of various warranty conditions offered for selected products. Similarly, Kubalová (2020) has pointed to gender differences where men tend to be more susceptible to the decoy effect, while women tend to prefer the chosen variant regardless of the inclusion of price decoy. The male variable indicates that men, unlike women, tend to choose the higher-value alternative. The average higher chance share logarithm was 0.35. This means that men would more often opt for the more expensive alternative. Thus, there was a statistically significant difference between women and men in terms of the efficiency of the decoy effect. This is in line with studies by Wu and Yu (2018), Ďuriník (2013), and

Kubalová (2020). According to all these authors, men were more susceptible to the decoy effect. Therefore, we do not consider gender a geographically-specific factor.

3. Methodology and data

To verify if the decoy effect influences consumer behaviour, the authors performed a quantitative survey (N = 200) based on a written questionnaire. This was supplemented by a qualitative survey (N = 32) based on semi-structured interviews (interviewees were not selected from the original respondents who participated in the quantitative survey) the results of which were used to clarify the causality of findings.

The questionnaire survey has been conducted following the DCE (discrete choice experiment) principles. At the start of the survey respondents are told to make spontaneous choices, without thinking about the purpose of the testing or assessments of their responses. The respondents were selected based on quota selection per gender and generation in order to ensure representativeness of the survey. The survey focused on the population in the Czech Republic, specifically, generations X, Y and Z. The generation definition corresponded to the interpretation by Kotler, Keller (2013), Bergh and Behrer (2012). According to these authors, generation X are people born between 1965-1977, generation Y people born between 1978-1994 and generation Z people born between 1995-2010. The selected cohort numbers 200 respondents.

The survey has been targeted at the consumer behaviour of respondents in the food, electronics and service sector. To facilitate respondents' orientation, the examples which have been used in the survey (representing individual areas of interest) applied to ordinary things that consumers comes across every day. The “food” category was represented by the purchase of pop-corn, Coca-Cola and Starbucks coffee, the “electronics” category was represented by the purchase of a mobile phone, computer and a flash drive, and the “services” category was represented by the purchase of a mobile tariff, skipass, and catering during a holiday. For each product and service, respondents were to choose one of three alternative offers from which one variant was a decoy alternative. The prerequisite of the survey was the assumption that customers needed the services and goods being offered. Variables entering multidimensional data analyses are shown (by variable coding) in Annex. Given that a respondent chooses from several alternatives as part of the explained variable, a non-linear logit model (also called the maximum likelihood estimation model) has been chosen for compiling qualitative choice models (Verbeek 2004; Koop 2008; Hendl 2012). A binary logit model and (if chosen between more or two options) the ordered logit model is used. The logistic regression model has been evaluated by the use of the –2LL (–2 log likelihood) statistic with an asymptotic distribution of $\chi 2$. First, the value of the statistic has been determined for a model containing only the α constant, then for a model containing a selected group of explanatory variables (K group). Their difference is called the χ^2 of the model – the value represents a test to the null hypothesis for the logistic regression model: $\beta_1 = \beta_2 = ... = \beta_K = 0$. If the resulting significance level (P-value) is less than or equal to the pre-selected significance level, the null hypothesis is rejected and it can be concluded that information about independent variables allows for better prediction of the dependent

variable (comparing to the situation when the information is not known). The significance threshold to which the P-value is related is usually set at the value of 0.05.

The binary logit model aims to test decoy alternatives – specifically, for the results presented in this paper:

$$Y = \begin{cases} 1, the\ decoy\ alternative\ was\ chosen \\ 0, the\ decoy\ alternative\ was\ not\ chosen \end{cases}$$

The binary logistic regression model can be expressed in the following form:

$$Y_i^* = \beta_0 + \sum_i \beta_i X_i + \varepsilon_i \quad (1)$$

The *i* index represents individual respondent observations. The dependent variable (estimated choice of the decoy alternative) Y_i^* is the "latent" (unobserved) variable and ε_i has the logistic division. This model says that the logit with the value of *P* can be expressed as a weighted total of independent variables. Whereas, for our purposes, the independent variable represents: a question or group of questions, gender, generation.

The adequacy of the model has been assessed through the monitoring of several indicators. The first indicator is the model coefficient *omnibus test* which shows the difference between the original (null) model with the constant and the model with independent regressors. In case that the value is statistically significant (p is less than 0.05), at least one of the regressors is also statistically significant and the model improves the prediction (Verbeek 2004).

In other case it was considered that the consumer could choose from several options $Y_i = 1$ (cheap option), 2 (decoy), or 3 (highest price). The main formula used for the ordered logit model was:

$$y_i^* = x_i'\beta + \varepsilon_i,\ \varepsilon_i \sim N(0,1). \quad (2)$$

The y variable can take the following values:

$$y_i = 1,\ if\ y^* \leq \alpha_1 \quad (3)$$

$$y_i = 2, if\ \alpha_1 < y^* \leq \alpha_2, \quad (4)$$

$$y_i = 3,\ if\ \alpha_2 < y. \quad (5)$$

The multinomial logit model method has been used for assessing the categorical data. The results of the questionnaire survey acquired the following values: y = 0, 1, 2, 3. As part of the given model structure, a model without the use of constants can also be considered. The m-1 values are presented in summary statistics as cut indicators, they fall into the interval (α;α_(j-1)). For this survey, the logit model – index model for individual latent variables was used. Data have been processed in Excel and Gretl.

4. Results

Decoy effect in the categories "food", "electronic" and "services"

As already mentioned, the purpose of the decoy offer is to attract customers to the most expensive option. Unlike the decoy alternative, this option has more functionalities or better attributes (capacity, design, etc.), but the price difference is relatively small. The aim is to make this most expensive option the best possible choice. The value/attribute/function ratio to the decoy is greater than the price difference between the most expensive option and the decoy – see Table 1. However, the results of the survey differ significantly from the expectations and the offer of the decoy alternative does not always cause the consumer to deviate from the highest offer.

Table 1 Overview of the tested options

Category	Product	Parameter	The lowest price	Change %	Decoy	Change %	The most expensive option
Food	Popcorn	Price (CZK)	109.0	9.2	119.0	8.4	129.0
		Offered (l)	1.5	53.3	2.3	108.7	4.8
	Coca-Cola	Price (CZK)	22.9	13.1	25.9	11.6	28.9
		Offered (l)	1.0	25.0	1.3	60.0	2.0
	Starbucks ceffee	Price (CZK)	109.0	9.2	119.0	16.8	139.0
		Offered (ml)	354.0	33.6	473.0	25.2	592.0
Electronics	Flash drive	Price (CZK)	188.0	89.4	356.0	40.2	499.0
		Offered (GB)	1.0	100.0	2.0	100.0	4.0
	Mobile phone	Price (USD)	199.0	50.3	299.0	33.4	399.0
		Offered (GB)	16.0	100.0	32.0	100.0	64.0
	Computer	Price (USD)	1299.0	15.4	1499.0	20.0	1799.0
		Offered	many different parameters				
Services	Skipass	Price (EUR)	45.8	16.8	53.5	73.8	93.0
		Offered (hour)	3.0	100.0	6.0	33.3	8.0
	Mobile tariff	Price (CZK)	39.0	76.9	69.0	101.4	139.0
		Offered (day)	0.5	100.0	1.0	200.0	3.0
	Catering	Price (CZK)	200.0	150.0	500.0	30.0	650.0
		Offered (pc)	1.0	100.0	2.0	100.0	4.0

The following chart (Figure 1) shows summary results of the survey questionnaire concerning the choice of individual options of product and service offers (relative frequency, N = 200).

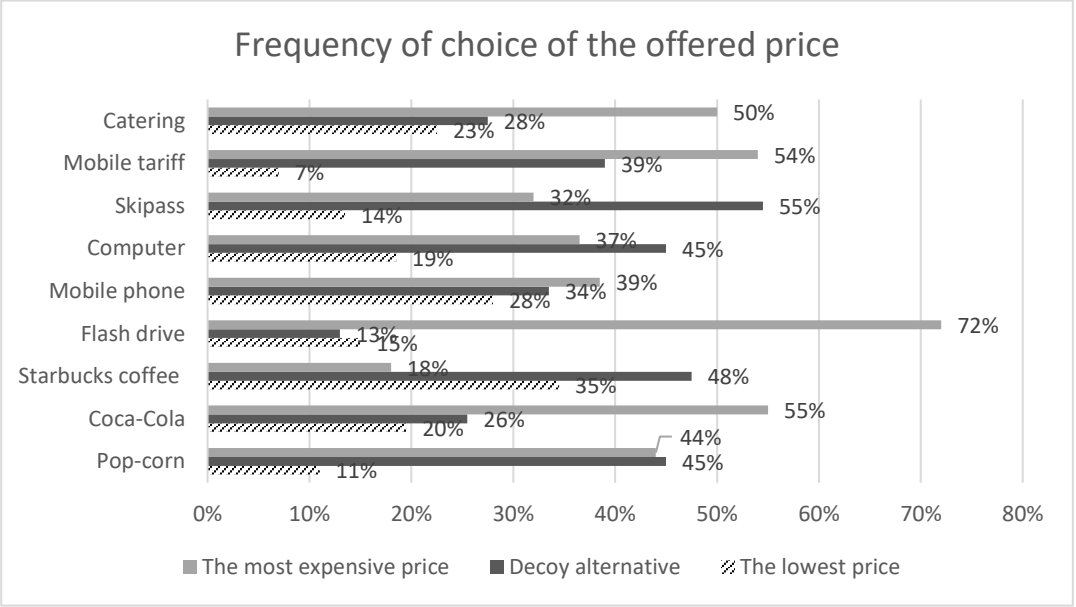

Figure1: Relative frequency of choice of the offered price for all products

For example, the decoy alternative for the popcorn and coffee category reached the highest relative representation. Even though popcorn and Coca Cola, for example, had the same (absolute) price differences, respondents made a completely different choice between the decoy alternative and the more expensive option. In the case of coffee, there was a higher price difference for the more expensive option, the prices were determined according to the current price list, i.e. CZK 109, CZK 119, and CZK 139. Respondents mostly chose the option worth CZK 119. As we can see, the difference between the small-size cup of coffee and the medium-size cup is CZK 10, the medium-size cup and biggest cup is CZK 20. It can be assumed that the higher difference in price between the decoy and the most expensive alternative, despite the increase in the amount of sold goods, was critical for the type of product as a consequence of which there was a more significant change in consumer behaviour than expected.

In the case of electronics, it is evident that consumers devote far more attention to the decision-making process while especially product parameters are thoroughly scrutinised. The subject compares the increase of the price with better performance, but there can also be an option that prioritises a medium option with better performance – given that the added value of the most expensive option does not justify the higher expenditure. In this category, the decoy effect was observed only in PCs where the price difference between the cheapest and the decoy alternative was USD 200, and between the decoy and the most expensive alternative USD 300. Even though the ratio of the achieved performance PC was

advantageous, the price increase made the high-performance variant insufficiently attractive for the user.

Subsequently, the testing of the services category in the survey confirmed the choice of the most expensive option for two (catering, telephone tariff) of the three tested services. Only in the case of the purchase of a skipass did more than half (55%) of respondents decide for the decoy alternative (i.e. this alternative became dominant).

During the questioning, respondents were also asked how they subjectively perceived the effect of sales and marketing techniques, and how convinced were they of the rationality of their purchase decision-making. The results are shown in Figure 2.

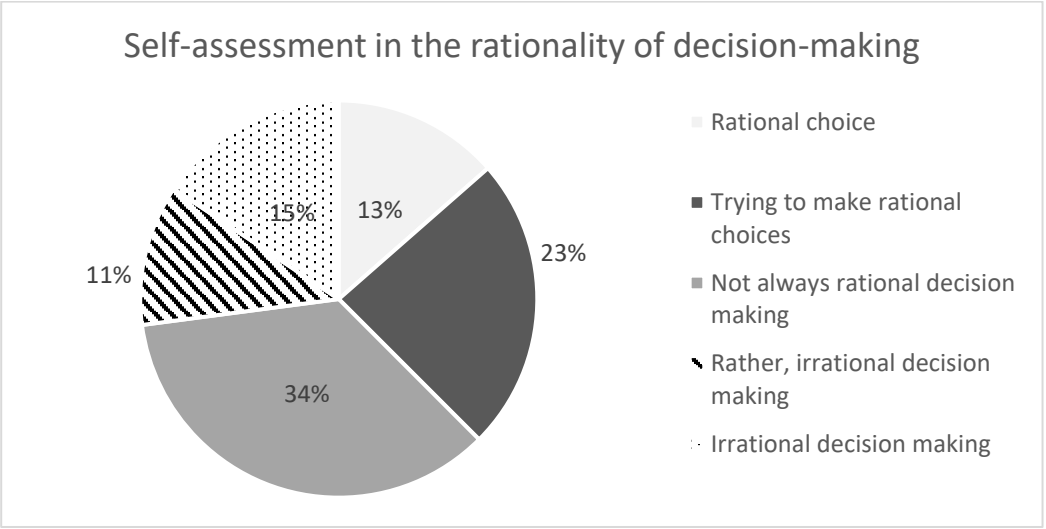

Figure 2: Relative frequency of self-assessment in the rationality of decision-making

The chart in Figure 2 shows that most respondents (34 %) declared that they did not always make rational choices. A further 26 % of respondents admitted that they did not make rational choices (they were aware that they gave into other effects) and 36 % of respondents said they made rational choices or tried to ignore sales or marketing techniques.

Therefore, one of the main survey questions is whether the significant effect on the choice of any of the offered options of products depends on the generation (Cuddy et al. 2005) that the respondent belongs to, the gender (Wu and Yu 2018) of the respondent, or whether the choice is affected by the category of purchased goods (Kubalová 2020). The following hypothesis was set:

H_0: The Choice variable does not depend on the generation of the respondent.

H_1: The Choice variable depends on the generation of the respondent.

For this type of multinomial independent variable (three variants of choice – lowest, decoy, and the highest price), when we can arrange the individual answers (in our case from the lowest to the highest price), dependence can be verified using the ordered logit model. The basic category of the product chosen for the given model is the food variable, and the basic category for the generation is the genX variable (see Annex). All analyses are based on

answers of 200 respondents who evaluated 9 different product categories (1800 observations in total).

Table 2 shows that all the tested independent variables statistically significantly affect the likelihood of the choice of some of the price options. Thus, it can be stated that the choice variable depends on what generation the respondent belongs to, what gender they are, and what category the product falls into. These variables help to explain the choice of one of the offered price variants. The model explains 833 cases (46,3 %).

The positive value of the coefficient in the service and electronics variable indicates that for these variables, in comparison with food, the respondents tend to go for the more expensive variants. In services, as opposed to food, the higher chance share logarithm is 0.33 (i.e. the higher choice chance share in services is 0.33=1.4 times higher as opposed to food) and in the case of electronics, the value is 0.30, i.e. very similar.

Table 2: Ordered logit model (dependent variable – price option choice)

Model 1: Ordered Logit, using observations 1-1800 dependent variable: Choice				
	Coefficient	Std. error	z	p-value
Man	0,3499	0,0891	3,9294	0,0001***
genY	-0,3359	0,1049	-3,2012	0,0014***
genZ	-0,3221	0,1157	-2,7849	0,0054***
Electronics	0,3026	0,1095	2,7640	0,0057***
Services	0,3341	0,1076	3,1058	0,0019***
cut1	-1,3365	0,1157	-11,5491	0,0000***
cut2	0,3773	0,1109	3,4031	0,0007***
Number of cases correctly predicted			833 (46.3%)	
Probability ratio test: Chi-square			227,247 [0,0000]	

The male variable indicates that males, unlike females, tend to go for the higher choice value. The average higher chance share logarithm is 0.35. This means that males will more often buy the more expensive option.

The Y and Z generations, in comparison with the X generation, tend to choose the lower choice value. The Y generation, as opposed to the X generation, has a lower chance share logarithm of 0.34, The generation Z, comparing to the X generation, has a lower chance share logarithm of 0.32. The coefficient values and relationship to the basic variable shows that respondents chose otherwise in questions directed at food than in questions directed at services and electronics. It is clear from the given model that the genY and genZ variables, corresponding to the classification of respondents to individual generations based on age, behave differently and indicate statistically significant differences compared to generation X, which was chosen as the basic generation for compiling the given model. Therefore, the X generation is the most likely to go for the more expensive option. The results of logistic regression can also be confirmed by the summary distribution of answers

according to individual generations. We can follow the relative frequency of choice of the price alternative depending on which generation respondents belong to in the table, see Table 3.

Table 3: Summary of statistics of individual choices of relevant generations

	The lowest price	Decoy alternative	The most expensive price	Total responses
Generation X	13,7 %	36,9 %	49,4 %	585
Generation Y	20,6 %	37,3 %	42,1 %	720
Generation Z	21,2 %	34,9 %	43,8 %	495
Total	333	658	809	1800

As can be seen in the summary table, the X generation most often chose the most expensive option. The second most frequent choice was the decoy option (it was 12.5% less popular than the most expensive option). The Y generation also most often chose the most expensive option, but the difference between the decoy alternative is not that significant (4.8%). The Z generation is the generation that most often of all chose the cheapest option and the least of all chose the decoy alternative. The differences between the choices are not that great and there are many causes and reasons for that.

In this survey, it was not possible to capture many qualitative objections, but the authors were able to verify another survey question whether the binary choice regression model (when the independent variable is limited to option 0 = the consumer did not use the decoy option and option 1 = decoy alternative choice) would also confirm the significance of independent variables. Thus, as mentioned in the literature review, one of the main research questions is whether the choice of one of the offered price variants is significantly influenced by the consumer's age (the generation they belong to) and gender and whether the choice is influenced by the category of the product. Scientists' conclusions differ here with some speaking of a high dependence between a consumer's choice and the generation they belong to (Lee, 2009; Jisana, 2014; Ramya and Ali, 2016; Yarrow and O'Donnel, 2009; Smith, 2010), while others do not consider the age a significant factor in consumer decision-making processes (Hofstede, 2001; Koscielniak et al., 2018). Surprisingly, according to some studies, the gender of the consumer may affect the effectiveness of employing decoy alternatives (Wu and Yu, 2018; Ďuriník, 2013; Kubalová, 2020). The following hypothesis was set:

H_0: The choice of the decoy alternative does not depend on the generation and gender of the respondent.

H_1: The choice of the decoy alternative depends on the generation and gender of the respondent.

The basic product category for the model was the food variable, the basic generation category was the genX variable. The compiled model produced the following values, see Table 4.

Table 4: Binary logit model (dependent variable – decoy option choice)

Model 2: Logit, using observations 1-1800 dependent variable: Decoy				
	Coefficient	Std. error	z	p-value
const	-0,2440	0,1206	-2,0228	0,0431**
Man	-0,3223	0,0987	-3,2669	0,0011***
genY	0,0116	0,1160	0,0996	0,9207
genZ	-0,0790	0,1283	-0,6158	0,5380
Electronics	-0,4003	0,1222	-3,2758	0,9564
Services	0,0065	0,1185	0,0547	0,0011***
Number of cases correctly predicted			1142 (63,4 %)	
Probability ratio test: Chi-square			25,9337 [0,0000]	

As the probability ratio test shows, in this case, the null hypothesis on the nonexistence of the dependence of the decoy choice on generation and gender has also been rejected on the significance level of 5 %. The choice of the decoy alternative is statistically significantly dependent on the respondent's gender as males choose it less than females. This corresponds to the previous model the results of which showed that males are inclined to choose the more expensive option*. The positive coefficient value in the *services* variable shows that for services, in comparison with food, there is a slightly higher tendency to choose the decoy alternative. As for services, as opposed to food, the chance share logarithm is 0.0065 higher.

1142 answers were explained by the use of the model, which represents 63.4 % of the answers of the basic cohort.

Given that questions concerning the decoy effect were not directed at testing one type of decoy prices only, we needed to test whether the answers to questions in which there is a relatively small price difference between the decoy alternative and the most expensive alternative will be statistically different to the answers to questions to the entire basic cohort. Questions with a relatively close price difference between the decoy alternative and the most expensive alternative correspond, above all, to the offer for the *flash drive* product (question 4) and the *holiday catering* service (question 9). The following Chart (Figure 3) compares the relative frequency of choice of individual options for the entire basic cohort (i.e. all tested products and services) and the choice of individual options in the case of close offers (flash drive + catering).

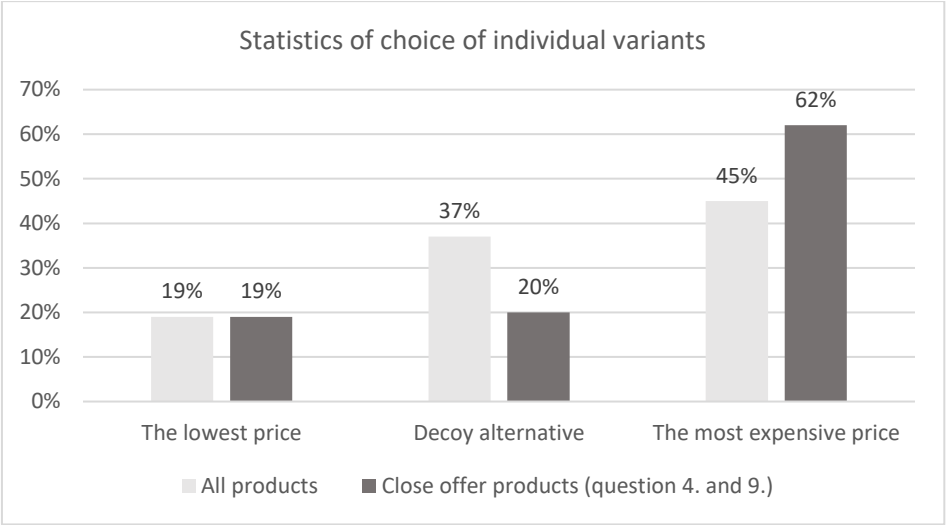

Figure 3 Comparison of the choice of individual options in all products with close offer products

The chart shows that the same number of respondents chose a cheaper option (which, in this case, corresponded to rational behaviour). But the choice between the decoy alternative and the most expensive option was distributed in the offer using the symmetric dominance offer as opposed to the decoy alternative and the rest of the cohort differently, which shows that customer behaviour can be influenced substantially by properly combining an offer and a symmetricaly dominant offer as opposed to the decoy alternative.

The following model verifies whether for these offers (containing a relatively small price difference between the decoy alternative and the most expensive alternative) a dependence can also be observed between the decoy alternative and the respondents' gender and generation. The basic product category for the model is again the food variable, the basic category for generation is the *genX variable* – which represents respondents belonging to the X generation. To compile the cohort, the basic cohort of data was limited to 400 observations – individual respondent choices in questions no. 4 and no. 9. Based on the data of the newly created model (Table 5) it can be stated that the compilation of the offer with a relatively small price difference between the decoy alternative and the most expensive alternative can affect the frequency of individual choices, and also have a fundamental effect on the ability of the model to make correct predictions. This binary model is able to correctly predict 80% of cases. Again, gender has proven to be a statistically significant variable where males are more inclined to decide for the other option than the decoy. Also when choosing a flash drive, the chance share logarithm, as opposed to food, is 0.9129 lower which means that different alternatives are more likely to be chosen than the decoy alternative.

Table 5: Binary logit model for products with a close offer (dependent variable – decoy)

Model 3: Logit, using observations 1-400 dependent variable: Decoy				
	Coefficient	Std. error	z	p-value
const	-0,7825	0,2722	-2,8754	0,0040*
Man	-0,4251	0,2560	-1,6607	0,0968*
genY	0,0303	0,2995	0,1012	0,9194
genZ	-0,0505	0,3333	-0,1514	0,8797
Electronics	-0,9129	0,2648	-3,4478	0,0006*
Number of cases correctly predicted			320 (80,0%)	
Probability ratio test: Chi-square			15,3433 [0,0040]	

Results of interviews

Justifying the motives of the answers obtained from the quantitative survey is a very important source for compiling recommendations for company product pricing strategies using the decoy effect. For a deeper understanding of a respondent's choice, the survey has also been supplemented by a qualitative part within which several in-depth interviews (32 respondents) were conducted.

Here, the respondents chose their answers spontaneously and would answer in the same way if they were to decide on a purchase offer in real life. The results showed that in the case of the purchase of a known product (above all in the food category), the respondents most often go for the same offer option and do not consider other variants much. So it is essential to know what the product is. For example, for the food category, consumers decide based on their current needs, taking into account large packaging offers available (however, these are particularly of less importance for the younger generation).

On the contrary, regarding the younger generation, the electronic category plays an increasingly greater effect. Here, the respondents said they had a stronger urge to buy more expensive options. Often this choice is also accompanied by the demonstration of status through the purchase of these more expensive electronic devices (PC, phone). A fundamental finding is also the fact that in some choices, the decisive factor was brand awareness – respondents used brands as product quality benchmarks.

Regarding the services, respondents made their decisions based on their feelings and personal preferences. This was mainly due to the infrequent use of these services, or a lack of information about the services. For example, the choice of purchasing a skipass depended on whether the particular respondent was a skier, and how experienced in skiing they were (this fact influenced the time the skier would like to spend in a ski area/resort). The choice of vacation depended on the type of travel and destination the respondent prefered.

Four respondents also mentioned that when making a decision, they were influenced considerably by their financial situation. Most respondents (28) stated that they perceived the effects of marketing techniques in their daily visits to stores or shopping centres. Even though they try not to take these techniques into account, most agree that it

is very difficult to ignore advertising campaigns, and that marketing has a significant impact on their consumer behaviour. Generation Z is particularly perceptive to marketing techniques as its members are most often exposed to advertising through social media.

5. Discussion and conclusion

There are many different opinions concerning the existence of the decoy effect mainly due to the attraction effect. However, the decoy effect is a relatively new phenomenon that is not that widespread globally, but in recent years there is increasing talk about it and companies worldwide are slowly beginning to introduce and implement decoy pricing in their price strategies. Therefore, it is desirable to understand the nature and search for products/product groups in which the decoy effect can be used for increasing a company's turnover (Frederick et al., 2014).

In accordance with the assertion of Ariely (2010) that decision-making is contrary to rational behaviour, it is also clear from our survey that the consumer is aware that his decision-making is irrational for the most part – only 36% of respondents said they would try to make a rational choice.

Heath and Chatterjee (1995) recommend devoting attention to the specifics of individual groups of respondents. The results of the survey are in agreement with studies conducted by Heath and Chatterjee (1995), Wu and Yu (2018), Kim and Hasher (2005), Tentori et al. (2001), Kubalová (2020) and Ďuriník (2013) as they indicate considerable differences in the sensitivity to decoy pricing for different genders and generations. Our study shows that in generation X there is a greater likelihood that they will go for the more expensive option. However, this is not in line with the authors who speak of the older generation's higher resistance to complex contextual manipulation – according to these authors, the elderly are better at ignoring decoy effects and thus making optimal decisions. See, for example, studies by Koscielniak et al. (2018), Tentori et al. (2001), Kim and Hasher (2005), and Cuddy et al. (2005). On the other hand, Kubalová (2020), who examined consumers in the same geographical area (EEC), came to the same conclusions – that the older generation tends to succumb to the decoy effect more easily.

In the examined sample of respondents, gender proved to be one of the statistically significant factors. The conclusions point to the fact that men tend to choose more expensive variants more often, and it is, therefore, more effective to use decoy pricing strategies with male consumers. This conclusion corresponds to previous findings published by Wu and Yu (2018), Ďuriník (2013) and Kubalová (2020). These studies also speak of men's higher responsiveness to the decoy effect. On average there is a 16% greater likelihood that the more expensive option will be purchased in case that there is a smaller difference between the decoy option and the more expensive option. So it is good to start with the smaller difference in prices and gradually try to increase the difference in the offers. If the difference between the price offer is marked, or in case that the consumer cannot simply compare the parameters of the cheaper and the more expensive options, the decoy effect often fails to fulfil its goal and the consumer chooses the decoy option (which purpose was only to steer

the customer's attention towards the more expensive option). This finding corresponds to the compromise effect described by Grasset (2015).

Jayaram et al. (2015) point out that the employment of marketing techniques may not have the same effects in different European countries. This is mainly due to cultural differences, market maturity divergence, or disparities in the level of industrialization. On the other hand, the increasing globalization, which is strongly supported by the ongoing digital revolution, will most likely contribute to a convergence in factors influencing consumer decisions (McKinsey & Company 2013). Experiments conducted on groups of respondents living in the US (see Hochma 2010) and respondents from the Czech Republic (representing Eastern Europe) differ very fundamentally. So it can be assumed that a different mentality can also have a substantial effect on decoy pricing. People here also like to buy cheap but are not so accustomed to creating greater supplies. A situation when a customer buys a greater quantity without needing it, as mentioned by Hochma (2010), is not typical for these consumers, particularly if these are individuals belonging to generation Y or Z.

The difference in the results can also be caused by the fact that the data are affected by the Z generation (whose members are now getting to the productive age) which shows statistically significant differences from the X generation. For example, a very high significance is attributed to electronics. This does not reflect in excessive purchasing, the point is that generation Z members are influenced by online sales and creative advertising through social media. In the Czech Republic, Starbucks and Apple brands were selected for the survey (in order to ensure comparability with already conducted studies) – both regarded as luxury brands. However, in the US these are ordinary products with prices comparable with other brands.

It is also important to stress that the decoy alternative need not always represent an irrational choice. During in-depth interviews, it was found that respondents made their choices because they didn't feel the desire for greater quantity and the decoy alternative was sufficient to fulfil their needs. Given this, the respondents did not see any reason why they should pay more in order to obtain a greater quantity or volume. In this case, the question is whether this is a choice best corresponding to the needs of the individual.

So the decoy effect becomes one of the further options of how to influence consumers in their decision-making. In pricing, it is essential to determine the generation that we want to present the offer to. In the presented research, the greatest effect – after including the decoy alternative – was achieved for the X generation. The relation between the employment of a decoy alternative and the decision-making of men has also been decidedly confirmed, as men proved to be much more sensitive to the decoy effect than women. A clear recommendation is to support the choice of the more expensive alternative of the closeness of the offer, i.e. select the decoy alternative in a way so that it clearly tells the consumer that it is "not as good a choice". The dominant relationship must be evident. So it can be stated that the decoy effect weakens with loyalty to one brand and if the purchase has more of a routine character (such as with ordinary food). Thus, product categories that require greater consumer involvement and are therefore more demanding in terms of decision-making processes are more suitable for the employment of decoy pricing strategies (as for the categories covered by the authors' research, this applies especially to

electronics). This finding corresponds to the agent-based simulation of consumer purchase decision-making by Zhang and Zhang (2007).

The limits of the paper can be seen in the remarks made by respondents within the in-depth interviews. When answering individual questions of the quantitative survey, respondents dealt with various circumstances which would have a fundamental effect on their decision-making. Respondents most often hesitated over the question concerning the purchase of a skipass, Macbook (PC), holiday catering, and a flash drive. The choice of a skipass was difficult because respondents do not ski that much, or they knew from their personal experience that got tired after 3 hours of skiing, while the prices of other options were attractive. The choice of the MacBook was difficult mainly for females because, in general, they do not know much about computers and their parameters, and they cannot recognise what is important when choosing technological products in general. The choice of holiday catering was difficult given that the destination was not stated. In the case of electronics, the fundamental parameter considered by respondents was memory capacity. Respondents evaluated the products according to their requirements.

Despite the statistically significant explanatory variables that have a fundamental effect on the ability to predict the decoy choice, logit models do not always substantially improve the prediction of the null model. So it is possible to increase the number of observations or expand the model by further variables which were not monitored in this article.

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ANNEX

Variables entering multidimensional data analyses

		Variable									
	Code	**Choice**	**Question**	**Man**	**Generation**	**Food**	**Electronics**	**Services**	**genX**	**genY**	**genZ**
Coding of used variables	**0**	x	x	Woman	x	not questioned 1-3	not questioned 4-6	not questioned 7-9	not a generation X	not a generation Y	not a generation Z
	1	The lowest price	Pop-corn	Man	generation X	questioned 1-3	questioned 4-6	questioned 7-9	generation X	generation Y	generation Z
	2	Decoy alternative	Coca-Cola	x	generation Y	x	x	x	x	x	x
	3	The most expensive price	Starbucks coffee	x	generation Z	x	x	x	x	x	x
	4	x	Flash drive	x	x	x	x	x	x	x	x
	5	x	Mobile phone	x	x	x	x	x	x	x	x
	6	x	Computer	x	x	x	x	x	x	x	x
	7	x	Skipass	x	x	x	x	x	x	x	x
	8	x	Mobile tariff	x	x	x	x	x	x	x	x
	9	x	Catering	x	x	x	x	x	x	x	x