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Determinants of the choice of tangible fixed assets, depending on the type of activity[1]

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Abstract. Behavioural economics is the research stream, which repeals the neoclassical assumption of full rationality of decisions. Incomplete rationality may appear particularly in conditions of high uncertainty, and this is precisely when the majority of investment decisions are made. The paper analyses the possibility of two heuristics: availability and affect. The aim of this paper is to check whether behavioural effects may be noticeable in the behaviour of entrepreneurs, depending on whether the company is engaged in manufacturing, trade, services, or construction. Applied research methods: analysis of existing empirical studies of the subject and statistical analysis of responses to a survey by the decision-makers responsible for investments. Analysis of the survey data indicates that the phenomenon of incomplete rationality (understood as making decisions based on incomplete information) occurs regardless of the sector in which the business is engaged – entrepreneurs are prone to behavioural effects to the same extent.

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INTRODUCTION

Models of neoclassical economic theory assume that decisions are fully rational. Behavioural economics is the research stream, which repeals the neoclassical assumption of full rationality of decisions. Incomplete rationality may appear particularly in conditions of high uncertainty, and this is precisely when the majority of investment decisions are made, which may affect entrepreneurs' distant future.

Among the effects that have been observed by researchers of behavioural economics two can be recalled, which specifically may be related to investment activities: the availability and the affect heuristics. These effects may be particularly important in investment decisions undertaken by entrepreneurs. The occurrence of these effects would suggest deciding and choosing certain options not on the basis of the analyses and in accordance with the economic calculations, but often on impulse, subconscious knowledge of the brand of fixed asset.

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The aim of this paper is to check whether the behavioural effects maybe noticeable in the behaviour of entrepreneurs. The research was conducted using a questionnaire survey. Dividing enterprises in sectors of manufacturing, trade, services and construction enabled the analysis of the impact of uncertainty on occurrence of behavioural effects in these specific types of activities. The research hypothesis states that the disposition to the occurrence of behavioural effects of the availability and affect in connection with the purchase of capital goods, varies depending on the type of activity.

Applied research methods: analysis of earlier empirical studies oft he subject and statistical analysis of responses to a survey by the decision-makers responsible for investment decisions.

LITERATURE REVIEW

The neoclassical theory of the firm contains models of the firm in conditions of certainty. However, in economic reality it is necessary to cope with uncertainty and decision-making under risk. Therefore there is a necessity to use the model allowing analysis of the decisions taken in under risk situations. Von Neumann and Morgenstern's theory of expected utility from 1944 became such a model. Empirical studies conducted after the publication of „Theory of Games and Economic Behavior" showed that the theory of expected utility often cannot be used to explain the behaviour of people who systematically violate the assumptions of the model and their behaviour differs from the results indicated by the model. Among the examples of theories, which were to improve the expected utility model the following can be mentioned: the weighted utility theory (Chew and MacCrimmon, 1979; Chew, 1983) , implicit theory of expected utility (Dekel, 1986; Chew, 1989) , or the theory of regret (Bell, 1982; Loomes and Sugden, 1982). It was not until the Kahneman and Tversky's prospect theory was considered a breakthrough in the model analysis of decision-making under risk (Kahneman, Tversky, 1979).

Among the effects that have been observed by researchers from the stream of behavioural economics two can be recalled, which in particular may be associated with investment activities.

The first effect is the availability heuristic. Based on the availability heuristic, it can be assumed that the probability of an event with which a person dealt with in the past or that affected someone's immediate friends, would be overestimated. On the other hand, the probability of the event about which no one discuss will be underestimated (Fischhoff, Slovic and Lichtenstein (1978)). The occurrence of this effect may influence the purchase of specific fixed assets. Decision-makers, rather than prepare a detailed analysis of the benefits and risks associated with the purchase of the asset can be guided by the opinions of friends, so this way of doing business could lead to sub-optimal economic performance.

The second effect, which may be associated with investment activity is the affect heuristics that occurs when someone has to make a decision in a short time and does not have time for a detailed analysis, so the decision-maker is guided by a single characteristic of an object (Zielonka, 2008, p 63).

RESEARCH METHODOLOGY

To obtain information, whether decision-makers may be liable to the availability heuristic, they were asked a question to verify whether the respondents when deciding to purchase the asset are guided only by brand and reputation, or check a product's parameters. The third option was a choice based on the price of the product, regardless of brand awareness and parameters. The analyses assumed that the first response indicates the presence of the availability heuristic (appendix).

To obtain information, whether decision-makers may be liable to the affect heuristic, they were asked a question about the circumstances of the decision-making for the asset purchase: whether they carefully consider all the features of the product, or – so as not to waste time they are guided by the overall assessment, or – make a decision on the basis of one key feature (appendix). The analyses assumed that the first response indicates the lack of the affect heuristics.

The survey was conducted by the Millward Brown SMG/KRC in July 2013 on a sample of 400 middle and senior level managers, responsible for the investment decisions. The method used was CATI (Computer Assisted Telephone Interview). Due to the highly skewed distribution of the number of companies it was used a random-stratified allocation evenly allocated between the layers divided because of the size of enterprises (number of employees). For the research sample were qualified business units, which employ at least two people, so the research sample includes: micro (employing from 2 to 9 people), small, medium and large enterprises.

HEURISTICS IN INVESTMENT DECISIONS

The research was designed to test whether the investment decision-makers may be liable to behavioural effects, indicating incomplete rationality of decisions, particularly the availability and affect heuristics.

To obtain information whether decision-makers are liable to the availability heuristic respondents were asked a question to verify whether the respondents when deciding to purchase the asset consider brand and reputation of the product, the producer's parameters, or only consider the price (appendix).

The results for the manufacturing sector indicate that 36% of decision-makers are guided by how well-known the brand is, 39% choose the product with the best performance according to the manufacturer's catalogue, and 18% are directed primarily by the price (figure 1). In the case of sector of services 30% of decision-makers are guided by how well-known the brand is, 46% choose the product with the best performance according to the manufacturer's catalogue, and 16% are directed primarily by the price (figure 2).

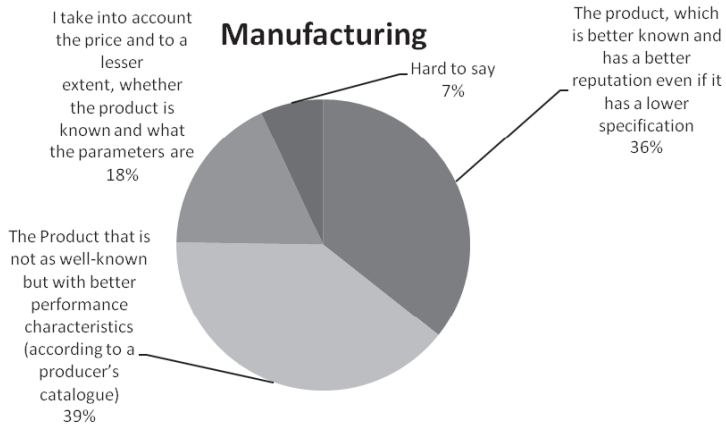

Figure 1. Results of the survey in the sector of manufacturing in respect to the availability heuristic
Source: own compilation.

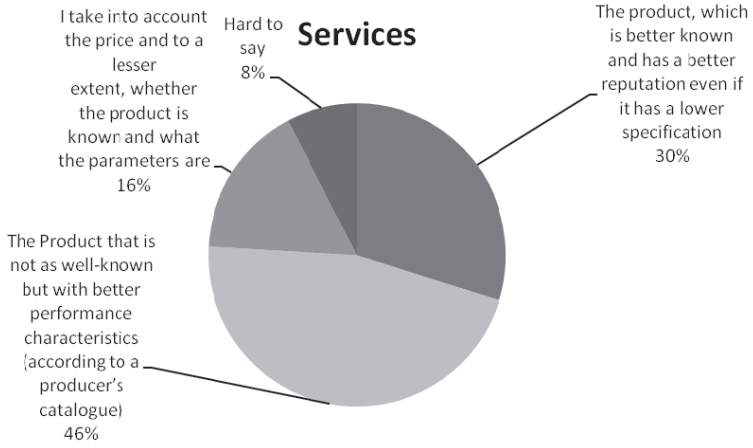

Figure 2. Results of the survey in the sector of services in respect to the availability heuristic
Source: own compilation.

In the case of trade 29% of decision-makers are guided by how well-known the brand is, 47% choose the product with the best performance according to the manufacturer's catalogue, and 20% are directed primarily by the price (figure 3).

In the case of the construction sector 28% of decision-makers are guided by how well-known the brand is, 42% choose the product with the best performance according to the manufacturer's catalogue, and 21% are directed primarily by the price (figure 4).

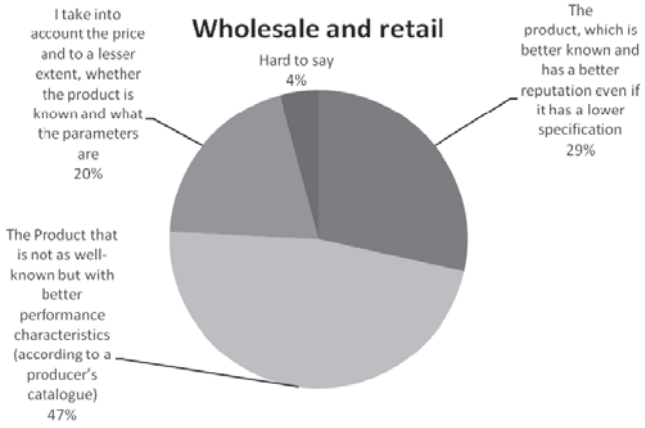

Figure 3. Results of the survey in the sector of trade in respect to the availability heuristic
Source: own compilation.

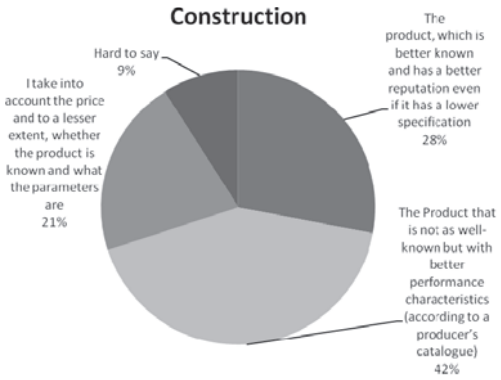

Figure 4. Results of the survey in the sector of construction in respect to the availability heuristic
Source: own compilation.

In this research, it was assumed that the response indicating that a decision-maker is guided by how well-known the brand is and reputation of the asset means that the availability heuristic could occur. The study indicates that it may affect 36% of decision-makers in the manufacturing sector, 30% of decision-makers in the services sector, 29% of decision makers from the trade sector and 28% of decision-makers in the construction sector (figures 1-4).

To obtain information whether decision-makers are liable to the affect heuristic respondents were asked a question about the detailed considerations prior to the purchase of an asset: if they carefully consider the importance of all the features of the product, or – so as not to waste time they are guided by the overall assessment, or - make a decision on the basis of one key features.

The results for the manufacturing sector indicates that 80% of decision makers consider in detail the importance of all the characteristics of the asset purchased, 9% decide based on one key trait, and 9% use the general impression (figure 5). In the case of services 74% of decision-makers consider in detail the importance of all the characteristics of the asset purchased, 8% decide based on one key trait, and 15% are guided by the overall impression (figure 6).

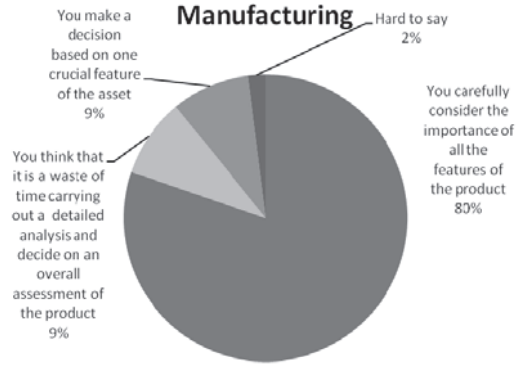

Figure 5. Results of the survey in the sector of manufacturing in respect to the affect heuristic
Source: own compilation.

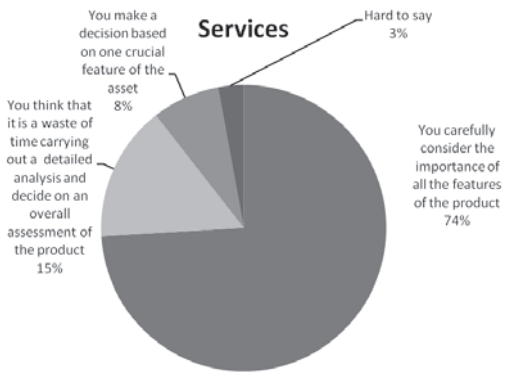

Figure 6. Results of the survey in the sector of services in respect to the affect heuristic
Source: own compilation.

In the case of the construction sector 67% of decision-makers consider in detail the importance of all the characteristics of the asset purchased, choices of 11% are based on one key trait and 18% follow the general impression (figure 7).

In the case of trade 65% of decision makers consider in detail the importance of all the characteristics of the asset purchased, choices of 10% are based on one key trait, and 22% based on the general impression (figure 8).

In this study, it was assumed that the response indicating the detailed consideration of all the characteristics of the purchased asset, means that the affect heuristics does not occur. The study indicates that it may cover one fifth of the decision-makers in the manufacturing sector (20%), 26% of decision-makers in the services sector, 33% of decision-makers in the construction sector and more than one third of the decision-makers in the trade sector (35%) (figures 5-8).

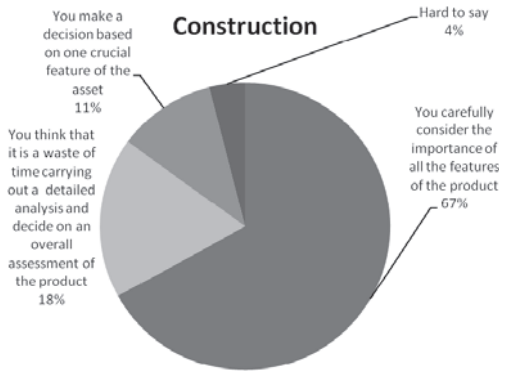

Figure 7. Results of the survey in the sector of construction in respect to the affect heuristic
Source: own compilation.

Figure 8. Results of the survey in the sector of trade in respect to the affect heuristic
Source: own compilation.

The above presented survey results show an overall picture of responses of decision-makers, which shows the possibility of the occurrence of behavioural effects in different sectors of economic activity. To determine whether there is a relationship between the possibility of the occurrence of the behavioural effects and the type of business Chi2 test of independence was used.

Table 1 presents the results of calculations Chi2 statistics for responses indicating the possibility of behavioural effects, where co-occurring variable is the type of business.

Table 1

Chi2 independence test for the possibility of the behavioural effects depending on a type of activity (Critical Chi2 = 7.815)

Behavioural effect	Empirical Chi2	Relationship
The availability	1.78	No
The affect	6.9	No

Source: Own compilation.

Chi2 independence tests show that there is no relationship between the type of activity and the possibility of occurrence of behavioural effects: availability and affect. This means that despite the differences visible in the figures, there is no difference between the types of activities and effects are irrespective of the business sector – entrepreneurs are prone to behavioural effects to the same extent.

CONCLUSION

Analysis of the responses to the survey by decision-makers responsible in enterprises for investment decisions indicates that there is a possibility of occurrence of some behavioural effects when making investment decisions. The answers indicate that about one-third of businesses may be prone to the occurrence of the availability and affect heuristics. This may indicate that decisions are made without taking into account all available information, which can be attributed to the absence of the rationality of the decision-maker, that can be seen in

the literature of behavioural economics. Analysis of survey data indicates that the phenomenon of incomplete rationality (understood as making decisions based on incomplete information) occurs regardless of the business sector – all entrepreneurs are prone to behavioural effects to the same extent. The above analysis indicates the necessity of rejecting the hypothesis according to which susceptibility to the behavioural effects of the availability and affect, in connection with the purchase of capital goods, varies depending on the type of activity.

APPENDIX

The availability heuristic question

Having a choice between a known and an unknown brand of the fixed asset usually you choose...

1) the product, which is better known and has a better reputation even if it has a lower specification.
2) the product that is not as well-known but with better performance characteristics (according to a producer's catalogue).
3) I take into account the price and to a lesser extent, whether the product is known and what the parameters are.
4) Hard to say

The affect heuristic question

In making investment decisions about buying new asset (computer, car, machinery) usually:

1) you carefully consider the importance of all the features of the product.
2) you think that it is a waste of time carrying out a detailed analysis and decide on an overall assessment of the product.
3) you make a decision based on one crucial feature of the asset.
4) Hard to say.

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