

# Application of behavioural economy principles in the grocery market

## *Aplikace principů behaviorální ekonomie na trhu potravin*

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**Abstract:** The article presents the contribution to the research of questions concerning the price concepts from the point of view of the behavioural economy. According to this scientific discipline, contrary to the neo-classical economy, price is not always the most important factor determining the consumer's purchase decision. The traditional spheres of behavioural approach to price perception have long been the analyses of the purchase processes of electronics and financial market products. Against this conception, the authors propose their own thesis on the possibilities of the behavioural approach utilization in the grocery market. Foodstuff is specific in many aspects, which is given by the fact that food products very often satisfy the very basic human needs. The thesis is backed up by the results of the primary inquiry of 3 520 respondents which has unveiled the fact that the consumer's price perception of grocery products should be more likely examined by the means of behavioural economy than the classical theory of rational choice (*homo oeconomicus*). The conducted survey showed that the price is surprisingly the least important attribute of food products. Furthermore, after divisioning the addressed consumers into groups by their age or by the achieved education level, the percentage share of those who answered that price is very important when choosing grocery products was very fluctuating. The traditional neo-classical approach assumes a consistent or eventually increasing importance (in the case we accept the presumption that the consumer's ability to decide rationally increases with a higher education level achieved). All findings of the primary inquiry then showed to be inconsistent with the traditional theory and in the author's opinion, the behavioural research in the field of food markets has proven to be highly relevant.

**Key words:** consumer behaviour, functions of price, purchase of groceries, behavioural economy

**Abstrakt:** Článek představuje vstupní příspěvek výzkumu problematiky pojetí funkce ceny z pohledu behaviorální ekonomie. Podle tohoto vědního směru, na rozdíl od neoklasické ekonomie, nemusí vždy cena patřit mezi nejdůležitější faktory při kupním rozhodování spotřebitele. Tradiční oblastí aplikace behaviorálního přístupu je vnímání ceny spotřebitele při nákupu elektroniky a v oblasti finančních trhů. Naproti tomuto staví autoři článku vlastní tezi o možnosti využití myšlenek behaviorální ekonomie na trhu potravin, který je v mnoha ohledech specifický. Specifičnost se odvíjí od faktu, že produkce na něm uplatňovaná uspokojuje mnohdy základní lidské potřeby. Tvzení je podloženo výsledky primárního šetření, které na vzorku 3 520 respondentů ukázalo, že vnímání ceny potravinářských produktů spotřebiteli je pravděpodobně třeba zkoumat z pohledu behaviorální ekonomie, spíše než z pohledu klasické teorie racionální volby (*homo oeconomicus*). Při výběru potravin totiž cena překvapivě figurovala jako nejméně důležitý atribut a procentuelní rozdělení respondentů vnímajících při nákupu cenu potravin jako důležitou podle věku i podle dosaženého vzdělání je značně rozkolísané, namísto konzistentního či případně rostoucího (pokud bychom přistoupili na předpoklad vyšší schopnosti racionálně se rozhodovat s rostoucím dosaženým vzděláním). Všechny závěry realizovaného šetření se tedy ukázaly být v rozporu s tradičním neoklasickým přístupem.

**Klíčová slova:** chování spotřebitele, funkce ceny, nákup potravin, behaviorální ekonomie

### INTRODUCTION AND OBJECTIVE

The attempts at the theoretical interpretation of price contributed to dividing a separate current

of economic thought ended in the creation of economics as a discipline. The importance of price is therefore determined by its place in the exchange and the importance of exchange for the man, society and

the economy. Just in this context, price became to be viewed and analyzed. However, the price, especially in a market economy, cannot be reduced just to this one view. The need of analysis of market economy opened new views at the price and its position in the economic system (Fuchs 1999).

Price is an expression of the exchange ratio and it generally reflects the relationship between supply and demand. It is an important element of information that in the process of exchange gives the reason for demand and supply. The price is, in the terms of the marketing concept, one of the most important tools in the marketing mix. As the only one, it directly generates the funds. It depends, for example, on the payment terms, the market structure, the product life-cycle respectively credit conditions.

There is, in conjunction with the price in the context of the traditional concepts of economics, several functions. These individual prices are significantly influenced by the fact the existence of the following functions:

- (1) Coordination function: This function means that the price makes it possible to mutually align production plans on the side of supply and the requirements of demand side (buyers).
- (2) Position function: That means that the price may indicate something by its level. For example, the relative lack of a product in the market. Then, it can be given the impetus to a better supply of the market and also to an entry of other firms into the industry, etc. (Hirshleifer et al. 2005)
- (3) Distribution function: That means that during the insufficient supply in the market (leading to price increases), the resolution is taken to buy the insufficient goods particularly by those buyers, who are forced into it by the urgency of their needs and also the buyers with the sufficient purchasing power for it.
- (4) The function of displacement: That means that, on the supply-side, the price makes the subjects of the market to leave. Important about these subjects is that they are unable, for the reasons of costs, to reach the "market" prices.
- (5) Allocation function: it means that during the increase of the price, also the commitment of the individual companies increases to produce the products the price of which is rising. They are willing to pay higher prices for raw materials and other production factors for the manufacturing of these products. This willingness, however, disappears if there is a drop in prices. This feature responds to the questions what, where, by whom, when and how it should be produced.

The view of the price as only the sum of money paid for goods or services is too simplified. The concept of price, based on the above-stated theses, is alive in clearly a wider context and importance. Some economists think of price as the cost-per-term exchange of goods or services.

The price is reflected in two basic concepts:

1. approach: price is comprehended as a resultant of market conflicts (supply and demand). There the price is, in this concept, taken in the functionalist conception. The price is understood through its function as a resultant of market conditions. There is dominant the battle of supply and demand.

2. approach: based on the principle of equivalence. This concept is based on the fact that if two individuals make themselves understood, then the exchange can exist only at the assumption of equality. An individual is not willing to exchange a product for another product if he/she is not convinced of the equality. This approach emphasizes the equivalence approach. The core of the theory is what is the principle of equality (why one good is exchanged for two other goods) and where is the internal content of prices (why is this good sold for this price and a second for a different price). The authors of the theory hold an opinion that the principle of equivalence is the determination of the internal content of the exchanged goods. This internal content is the value.

Classical economics sees the price difference. Therefore, the difference is the part that is forming the value as an amount incurred by the work spent on the different types of goods. It is evident that the workload for the production of cheaper goods is different than that for more expensive goods (Locke, Smith, Ricardo). They focus on the value of diversity or on the factors causing the difference.

The advocates of the equivalent theory say that there is no dispute about the supply and demand, but they also say, that supply and demand does not influence the formation of the price. The important thing is the workload that creates the basic price level. Supply and demand constitutes a different price level.

Other concepts are:

The concept which argues that the value is determined by the proportional representation of the production factors (labour, land, capital). According to this representation, the value is determined.

Compared with the concept of the neo-classical economics and the behavioural economics, there are evident differences. The consumer does not consider the price only as the value of the good or service, so the consideration needed to obtain goods or services in exchange. This theory is not accurate in the terms of behavioural concepts, because it does not include

the consumer's preferences that influence the price to a great degree. So, the price tends to oscillate around the equilibrium price in the place of the free market, where the price is determined by the ratio between supply and demand. So there is the price the function, not only the workload on the supply side, but also a subjective evaluation of the product on the demand side.

The behavioural economy combines several scientific disciplines – economics, psychology and medicine – on this platform the behavioural economics monitors the influence of the brain activity in the consumer decision-making. The price is an integral part of the behavioural economics. Behavioural economists often study the questions of price from the perspective of the consumer, where the aim is to present the fact, that the price is not the most important factor in any case. The main subject of the examination is how important factor for consumers the price is.

The traditional areas for application of behavioural approach are the perception of price during the purchase of electronics and also in the area of financial markets. In contrast, the authors set their own argument in this article that point to the possibility of using the ideas of behavioural economics in the market of food. The application of behavioural economics in this market leads to a greater efficiency and a more appropriate targeting of marketing tools.

The market of foodstuff is a specific market. It belongs to the one of the largest economic sector in the European Union. The food is used to satisfy the basic human needs, so the sector is subject to economic cycles less than other production activities. (There are many other particularities of course, such as the "barriers to the use and development of electronic business", introduced by the associate professor Hes (Šálková, Hes 2008). Its total production is moderately increasing and consistently exceeds consumption. The bulk of production is intended for consumption. It is a market that in the last two decades has undergone a major change related specifically to the integration the sub-markets (of the individual EU Member States) in the common market. Along these changes, there come not only many benefits of an easier movement of food across the common market, but also many restrictions due to the organization of agricultural policy. As well as the intense competition that, due to the unequal conditions for the newly accessed countries to the EU, complicates the situation of food producers, as can be read for example in prof. Nagyova's article (Nagyová, Tonkovičová 2008). She also presents here a very interesting view on the impacts of globalization processes on the behaviour of food markets.

The structure of demand for food is influenced by a large number of factors. In economic terms, demand in the market of foodstuff is determined and influenced by the individual consumers income and their distribution, social benefits, the accessible support and loans and the way of distribution among the various segments of the population. A substantial effect has also the offer of products and the pricing policy, the market structure and its quality of operation, the intensity of international trade, the size and structure of consumption in kind, as well as the cost of other product categories. The pattern of demand affects the structure of the population, the current knowledge of population, infrastructure, customs and traditions, fashion, natural conditions, education, religion or marketing activities of companies and others. The structure of food consumption of the individual countries and regions is therefore significantly different. The market of foodstuffs is influenced by the spread of cultural practices across borders, and the general social changes. The market of foodstuffs is impressed by the changes in technology that allow a faster and easier exchange of information and also new opportunities for distribution, promotion, financial transactions, etc. (Turčínková 2008).

There are several views on the importance of prices for consumers in the food-stuff market. The authors attribute as eminent to the behavioural economics in the foodstuff market the so-called price-anchor and the gregarious behaviour. Every time a customer buys a new product for a specified price, the price becomes the benchmark. The customer will always, in the purchase of food from this area, return to this benchmark. The consumer at this time accepts the anchor and it is difficult to change it. The first anchor is strong and it influences all decisions in the field. The first impression (first anchor) is the most important. The possibility of price changes, however, it exists. It is possible by the aid of the gregarious behaviour and subsequently, it is based on the differentiation. There is a type of gregarious behaviour that the consumer attributes to himself/herself in his/her mind. The consumer re-creates a judgment on the basis that he/she attached to this product in the past. This is a consolidation in the subconscious mind, how many times the consumer buys food products. Every purchase is creating an imaginary queue in the consumer awareness, in which each purchase forms another member in the queue.

A repeated purchase is not only subconsciously increasing the prestige of the product, but this purchase of food products also becomes a habit. The consumer can be made aware of another product than the product he/she remembers on the basis of

price anchors. Then he/she can be encouraged to pay another price or to create an imaginary queue, thanks to the behavioural theories, that is based on product differentiation. This is the modulation of food products from the other, but not by the differentiation in price. The price is definitely anchored, the price war would not be efficient. It is possible by the aid of great experience. So there must be done everything possible to provide a different level of experience – so different that the consumer will not have to decide by the aid of the old price anchor, but instead to adopt a new anchor – the anchor of the experience and quality. The known war between the experience and quality (in the food market) was in the United States of America. It was the duel of the firms Dunkin's Donuts versus the Starbucks brand. Both of them specialize in the sale of coffee and donuts. Behavioural economics argues that it is easy to manipulate the willingness of customers to buy something. The consumer does not keep a check on his/her preferences and is not able to rationally determine what price is suitable for the product.

Another possibility of the application of behavioural economics, in the market of food, is based on the relativity of selection. Consumers make most decisions on the basis of comparison with the other possibilities that are currently available to them. It is necessary to enable the consumer to compare the particular product with such products that will lead his/her decision-making process right to this concrete product. This comparison persuades him/her to this choice. So, it is the presentation of the price of bait just because of the possibility of comparison and then discarding those that should be discarded by the consumer. This method of fixing prices is used in many catering establishments. It is based on the idea that the consumer is not assured of the choice of dishes and that the offered meals are comparable for him/her. Therefore, it is advantageous for catering equipments to have in their menu at least one very expensive meal, even if the customers do not order it.

In comparison with the most expensive meal, the consumer considers the second most expensive meal as appropriate and he/she is willing to order this second variant. So it can be said, that if there is offered a very expensive meal in the menu, in fact it stimulates the demand for the second most expensive meal. Studies show that during the consumer decision to purchase, whether to accept the offer or not, the consumer is using the field of the prefrontal cortex that helps consumers in the rational decision-making. But he/she is also uses other parts of the brain, the bilateral anterior insula. The insula is activated when the consumer is exposed to stress, feel nerv-

ousness or anxiety. Therefore, if the consumer feels the situation in the context of unfair and stressful, then the processes in the brain lead him/her to the situation that the behaviour is impressed by emotion much more than by rational reasoning. Similar results of the experimental economics research and the results of the investigation from the perspective of the behavioural economics show that it is appropriate to leave the strict traditional concept of *Homo Oeconomicus* – the imaginary creature, that acts only with regard to his/her interest and that is perfectly rational in this activity.

The purchase of food is, contra wise, envisaged as a typical example of the functionalist or strukturalistic decision-making process. It is a psychological category that is in economics interpreted as a rational choice theory (*homo oeconomicus*).

This theory says that people behave in such a way that is according to the logic and statistical patterns that is for them optimal. Moreover, the Rational Choice Theory assumes that people have enough information to properly evaluate all the information. Based on these considerations, it is possible to create different types of mathematical models easily.

The behavioural economists' approach to the theory of rational selection is expressed by the statement that by its acceptance, the economy diverted from analyzing the real problems to only formally precise the theoretical constructions. They appear from the psychological category of fraction notable behaviour and note less mind.

The founder of the scientific approach is a behavioural psychologist John B. Watson, who claimed that almost all behaviour is the result of conditioning and that the environment forms the individual behaviour by reinforcing certain patterns. As a part of the research, therefore, the authors represented in terms of considering the complaint and response in the form of consumer purchasing decisions, where the initiative – intervening variables – reaction. The most important representative of the behavioural economics is Daniel Kahneman, who won the 2002 Nobel Prize in economics.

The main basis of the following paper is based on numerous studies of the reflection and work of experts (foreign and national) and after the analyze of the results of a series of consumer research, there are the results of the extensive primary investigation. The authors therefore decided to set the following research hypothesis: The perception of the consumer prices of food products should be rather examined from the perspective of behavioural economics than from the perspective of the classical economy, i.e. the Theory of Rational Choice.

## MATERIAL AND METHODS

The article presents the evidence for this claim, and aims at opening up a broader discussion. The verification or refutation will be the contents of the long-term research activities, involving a primary and a secondary survey.

In the end of year 2008 the authors carried out a marketing survey in cooperation with specialized innominate commercial subject. Respondents, numbering 3 520 people from The Czech Republic, engaged the survey, that provides fully adequate representativeness of the sample. Among others, the respondents was catechized on the reasons for the selection of food and also a possible of choice of caterers. The aim was the verification of reflection the behavioural access to the consumer decision the purchase of food.

Functionalistic and especially so-called classical conception of decision-making process is represented by rational emphasis that buyers lay on selected characteristics of groceries. There are lot of these attributes whereas most important according to the theory should be the price<sup>1</sup>. In other words – according to classical presumption of rational consumer price should be perceived as the most important factor in point of influence over decision making process.

## RESULTS AND DISCUSSION

Inquiry however showed that in comparison with other factors price is surprisingly the least important

one. Functionalist and particularly the classic concept of decision-making process are represented by rational emphasis that the buyers insist on selected characteristics of foods. There is a large number of these attributes, the most important, according to the theory should be the price. In other words, price is, in the standard assumption of a rational consumer in the area of food, given to first the place, within the meaning of influence on decision-making.

The investigation had however showed that in comparison with other factors, the price is in the selection of food the least important attribute (Figure 1).

Only 33.61% of the respondents indicated that the price is a very important characteristic for them during the select of food. 8.27% of the respondents, contra wise, do not consider the price important at all, or even they does not pursue it.

Author's assumption of existing dependence between price importance and age and educational structure of respondents is being verified in following paragraphs, starting with Figure 2.

The research has shown that the percentage of distribution of respondents by age, sentient in the purchase, that price of food is important, is very volatile. The consumers in the productive age lay stress on the price most. In contrast, people from the extreme age-class (age group from 12 to 17 years and over 65 years) lay stress to the price at least. This fact is in contrast to the classical assumption of a rational consumer, again. 25.95% of all respondents indicated the importance of high prices food, when

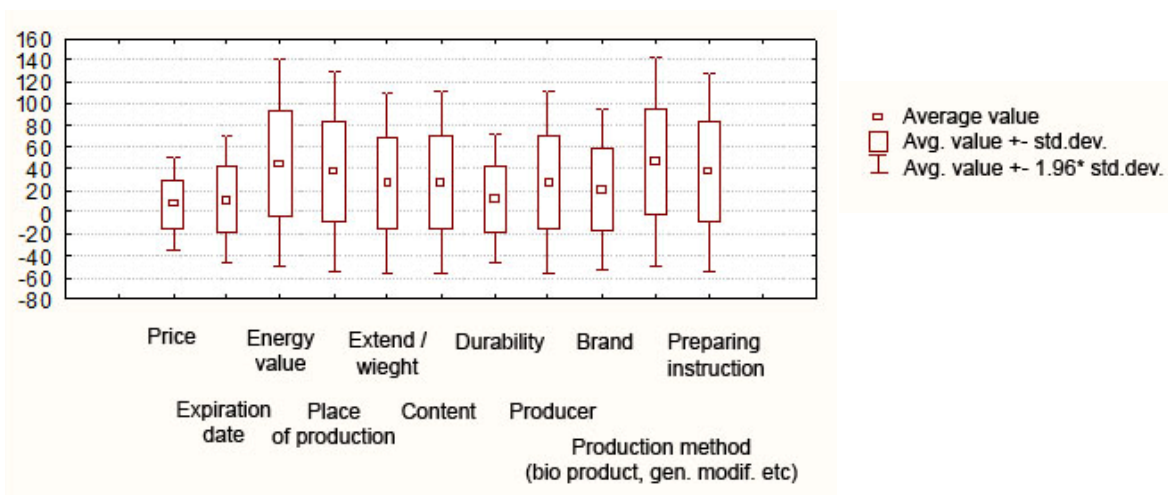


Figure 1. Selected determinants of consumer's purchase decision

Source: author's primary research

<sup>1</sup> On the basis of study the methodological approaches from branches of psychology, marketing and economics and also by analyses of many own and extraneous inquires authors had identified the expiration date, name of the producer and product brand as other important determinants of consumer's purchase decision within approach of classical theories. Nevertheless the importance of price at decision making about purchase should be fundamental.

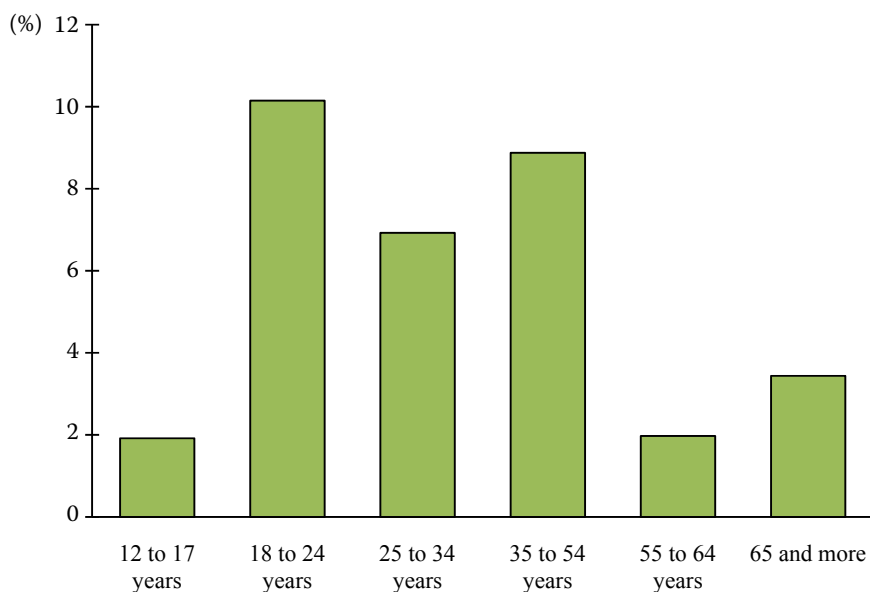


Figure 2. Respondents emphasising price factor at purchase groceries, age structure

Source: author's primary research

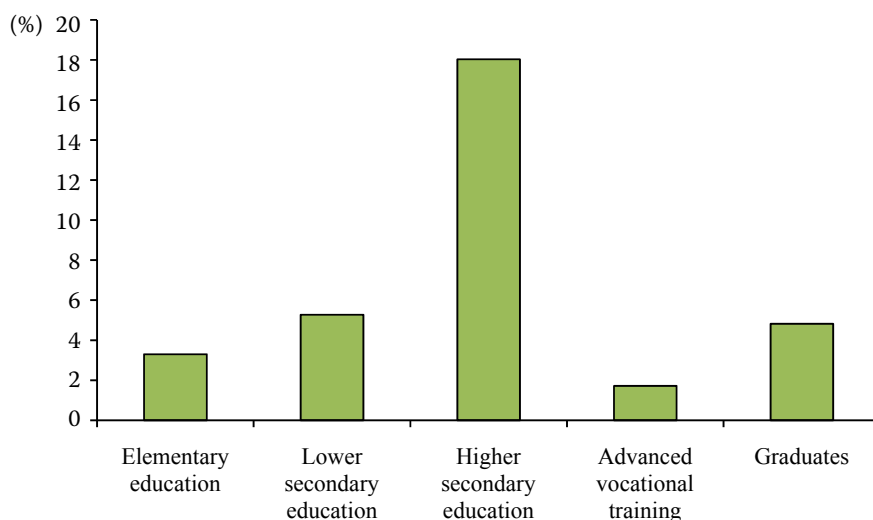


Figure 3. Respondents emphasising price factor at purchase groceries, scholarship structure

Source: author's primary research

they are deciding on their purchase. These consumers mostly in here in the class of age 18 to 55 years. If we does not impeach age group 18 to 24 years, in that can be found many students, who still do not have the revenue, it would be 15.80%. On the contrary, it would be only 5.37% of the extreme age groups (age group from 12 to 17 years and over 65 years), which Rational Choice Theory says, that they should be think of price as an important factor.

Looking at the educational composition of the respondents (Figure 3), for which the price is a crucial

determinant for food purchases, so there is evident the absolute highest representation of secondary school educated respondents. 18.03% High School Educated respondents indicated that the price is an important factor for them. Only 4.82% persons with completed university education have the same opinion (price is for them important factor). But according to the Theory of Rational Choice they should think of price as an important factor, because they should be able to valorise the price and their personal situation in the intellectual way.

## CONCLUSION

The authors consider all above presented findings to be sufficient for the defence therein before hypothesis, which says that, contrary to the classical Theory of Rational Choice “the perception of the consumer prices of food products should be examined from the perspective of behaviourism, or more precisely neobehaviorism, and behavioural economics”.

Rational emphasis put on selected characteristics and especially price of purchased groceries, which is typical for functionalistic and especially so-called classical conception of decision – making process has not been proven in any result of primary research.

Authors are of course aware of fact that conducted analyses were only elementary. It was an intention to base the conclusions on such basic analyses because, as was said in introductory paragraphs, aim of the article is not to explicitly verify or disconfirm the research hypothesis. This will be the contents of long-term examinations encompassing many primary and secondary inquiries. The primary purpose was to vindicate its justness and stir up broader scientific discussion.

There are already a few interesting consecutive findings such as results of research conducted by Dr. Ševela. He had examined formation of social preferences between economic subjects, which means influence of other subjects over individuals' preferences. Also the research of importance of expectations in individual's decision-making process (Ševela 2006, 2007).

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Arrived on 25<sup>th</sup> May 2009

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