

Decision-making process of households on food consumption

Rozhodování domácnosti o spotřebě potravin

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Abstract: Decision-making process of households on food consumption is discussed in the post-Keynesian theory of household choice. Since the core assumption of uncertainty is employed, the set of consumption alternatives is restricted to the subset of the known ones. When searching for these alternatives, the consumer faces the search costs expressed by time of search. The sample of Czech households was investigated to ascertain the volume of the search and 57% of households do not seek for any information that are relevant for decision-making on foodstuff purchase. To overcome this activity, the households more likely rely on prices and the range of goods of the closest sellers to them. Searching for information on product is replaced by reliance on habits and recommendations of the others. On the contrary, the uncertainty of real purchase power is of lower significance in food consumption, because the foodstuffs meet the basic physiological needs and dispose of constrained stability in storage. Thus, households cannot always postpone (or bring forward) their consumption. In order to deal with the lack of money, households from lower income levels reduce their expenditures for foodstuffs more often than those from the higher income levels. Consequently, the relationship between the level of income and needs satisfaction is outlined.

Key words: fundamental uncertainty, incomplete information, optimization, rules of thumb

Abstrakt: Rozhodování domácnosti o spotřebě potravin je analyzováno prizmatem postkeynesovské racionality spotřebitele. Zdůvodnění tohoto přístupu vychází z reálného předpokladu nejistoty, který redukuje soubor spotřebních alternativ. Při hledání těchto alternativ spotřebitel čelí nákladům, které lze vyjádřit časem hledání. Provedené šetření na vzorku českých domácností ukázalo, že 57 % domácností při rozhodování o nákupu potravin informace o těchto alternativách nevyhledává. Proces hledání informací o cenách a prodejcích je tedy nahrazen preferencí nákupu u prodejců v nejbližším okolí, hledání informací o vlastním produktu je pak nahrazeno zvykovým chováním a doporučením či příkladem ostatních spotřebitelů. Méně výrazný dopad na spotřebu potravin má nejistota reálné kupní síly domácnosti, neboť potraviny jsou klasifikovány jako předmět uspokojení základních fyziologických potřeb s omezenými možnostmi skladování. Domácnost tedy nemůže reagovat na všechny změny cen a příjmu odložením (resp. přiblížením) spotřeby v čase. V případě nedostatku finančních prostředků redukuje výdaje na potraviny nejčastěji domácnosti z nižších příjmových skupin, čímž je implikován vztah mezi velikostí důchodu a možnostmi uspokojování potřeb.

Klíčová slova: fundamentální nejistota, nedokonalá informace, optimalizace, palcová pravidla

The neoclassical theory of consumer choice is based on constrained optimization that remains one of the most essential assumptions of the neoclassical synthesis. The goal of the neoclassical rationality is utility

maximization, that is constrained by the external characteristics of the economic environment. These constraints must be known or probably known, or as in the game theory, the description of the various

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outcomes must be exhaustive. These starting points make the household's decision-making process formally tractable and enable its precise mathematical formalization. This advantage of the neoclassical approach is demonstrated for example in Syrovátka (2003) by the analysis of the Engel's law validity within food expenditures. However, the agents usually do not know all possible events or their accompanying probabilities and the market forces generally cannot account for the unknowability and unpredictability of the future. Thereby, they can only disseminate an incomplete, even misleading information. This type of uncertainty is inherent with the real world and is one of the central elements of the post-Keynesian analysis.

The post-Keynesian presentation of decision-making process determining household's consumption expenditure stems from the earlier inquiries of behavioralism, institutionalism, social economics, marketing and dissident mainstream. Some of these empirical investigations are based upon surveys. Lavoie (1994) presents the common foundation of the post-Keynesian consumer theory under the form of six basic principles. One of them, the principle of procedural rationality, asserts that the agents lack perfect knowledge and the capability to process a large amount of information. Under these circumstances, an individual follows procedures that do follow the optimizing behavior. These procedures enable handling the complexities of the decision making and they are called the rules of thumb. These rules of thumb are formulated in seven points: (1) When a satisfactory solution has been reached, stop searching, (2) Take the present and the recent past as guides for the future, (3) Assume that the present evaluation of the future is correct, (4) Follow the opinion of the majority, (5) Look for alternative actions when the existing ones are too uncertain, (6) Take actions that reduce the amount of uncertainty, (7) When uncertainty is too large, postpone the decision (Lavoie 1992).

This article aims to consider the relevance of the post-Keynesian approach to consumer behavior. The identification of the limiting factors in optimization process enables us to compare their supposed and real impacts on household's decision making process on food consumption. Consequently, we can determine if the consumer employs non-optimizing procedures when expending upon foodstuffs. Hereby, we can identify behavioral patterns that are consistent with the post-Keynesian model of consumer behavior.

MATERIAL AND METHODS

The basic theoretical proposition of the paper is limitation of the rational behavior in the optimizing

sense. Thus the attainment of optimal solutions in decision-making process is prevented by the incomplete information about alternatives, uncertainty, and complexity of calculation. To consider the relevance of post-Keynesian model of consumer behavior, these theoretical limitations are confronted with the real data.

These data have been collected in the survey via questionnaires aiming to analyze changes in consumption behavior of households. The survey was conducted using a sample of Czech households and 1074 questionnaires were processed. Respondents were addressed during the fall 2005 and their answers provided information about decision-making process of households when purchasing the selected group of goods. The basic trend of development of Czech households expenditures is described for example in Ševela (2004). In order to realize the aim of the paper, information on purchasing foodstuffs is employed.

The processed data are analyzed by using the distribution of frequencies of all provided alternatives. In comparison of the real data with theoretical framework, we can identify behavioral patterns of the households in decision-making process about food consumption. Finally, the compatibility of these data with the post-Keynesian theory will be examined.

RESULTS AND DISCUSSION

The post-Keynesian rejection of neoclassical optimization is indicated by the weight of uncertainty, the problems associated with the complete knowledge and the limited computational capacity of economic agents (Arestis 1992; Tolar, Courvisanos 1997). Although the economic agents are supposed to be rational, their choices are made of a reduced set of possibilities, a subset of the total. Since an agent is required to construct a simplified model of the real situation in order to deal with it, he behaves rationally with respect to this model. As the individual's cognitive and capability constraints increase, there can be formed only the satisfactory decision at the best.

Incomplete information and the search costs

Searching for alternatives creates the first restrictive problem for the optimizing paradigm because of its association with the costs of search. These costs are too high to evaluate all of the possible alternatives. In the frame of the survey, the households were inquired for the most often used source of information needed when deciding on foodstuffs purchase. The acquired

data evaluation is in favor of reduction of the cost of search since 57% of households usually do not seek for information when forming purchase decision on foodstuffs. The review of the most commonly used information sources is provided in the Figure 1.

In order to reduce search cost, Stigler (1961) suggests that households make decisions to reduce the number of alternatives searched by limiting their search to local sellers. This phenomenon of “search” defines on the basis of the fact, that “...prices change with varying frequency in all markets, and, unless a market is completely centralized, no one will know all the prices which various sellers (or buyers) quote at any given time. A buyer (or seller) who wishes to ascertain the most favorable price must canvass various sellers (or buyers)” (Stigler 1961). The question is how consumers can make a conscious decision to reduce the number of the investigated alternatives while still forming optimal decision. In order to reduce the number of the investigated alternatives, the consumer employs the rule of thumb and in conse-

quence, he/she will purchase only from local sellers. This necessarily leads to sub-optimal decision and the exhibition of the satisfying behavior.

When seeking the proof of the aforementioned behavior, the households were asked where they purchase foodstuffs the most often. The answers are presented in Figure 2. The households are ordered with respect to the number of inhabitants of the municipality where they live. It is apparent, households living in smaller municipalities rely on smaller local sellers more than the ones in bigger cities. The idea is simple, the households usually purchase in the place of their residence. People in the countryside are forced to rely on small local sellers, while people in bigger cities have more purchase opportunities. The big share of purchases in discounts, supermarkets, shopping centers and hypermarkets in every category of households can be explained by the increasing mobility of population. However, it does not prevail over the former effect of seller attainability.

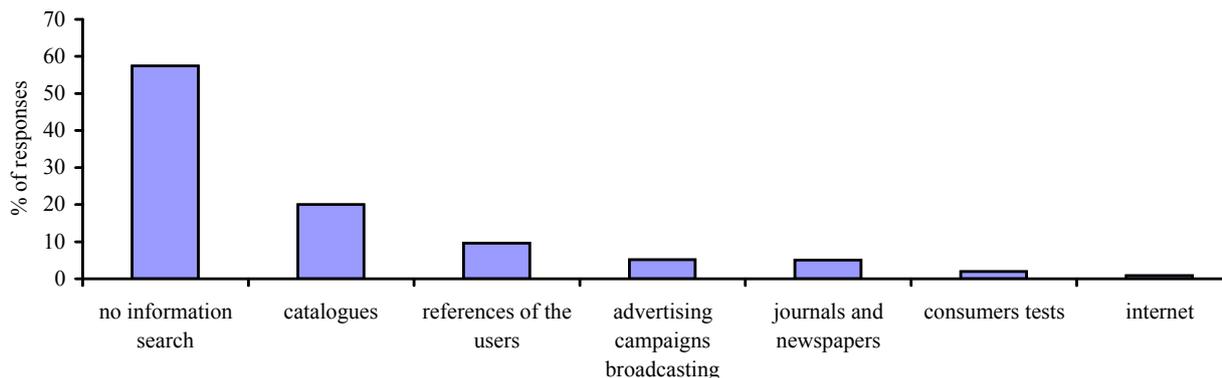


Figure 1. Using of informational sources

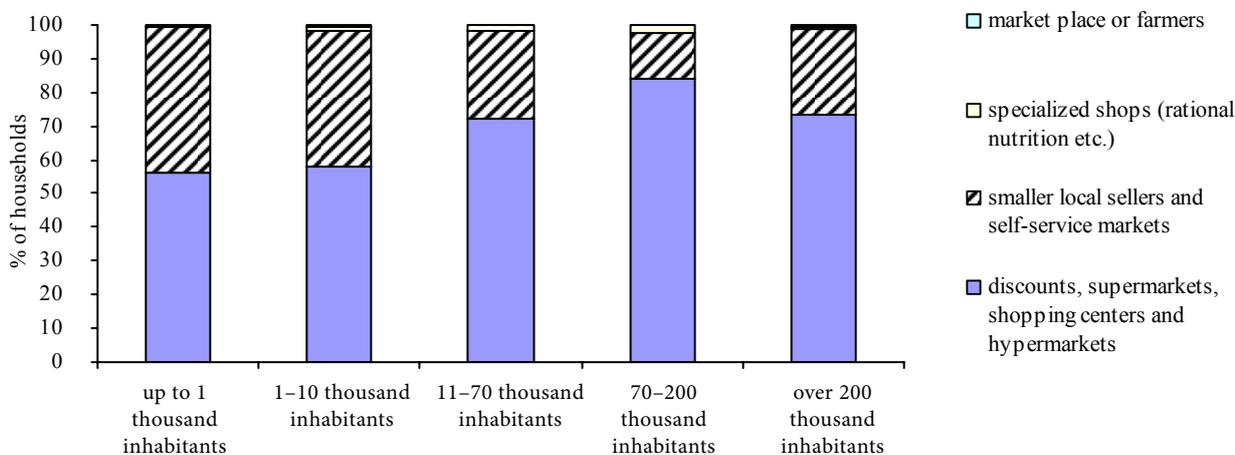


Figure 2. The place of household's purchase by the size of the municipality

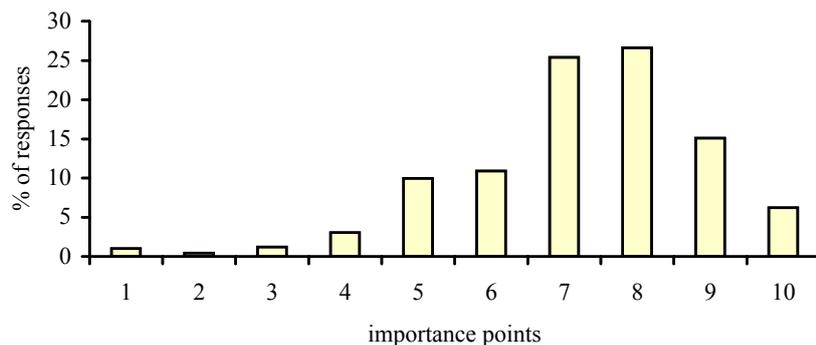


Figure 3. The importance of habit in decision-making on foodstuffs purchase

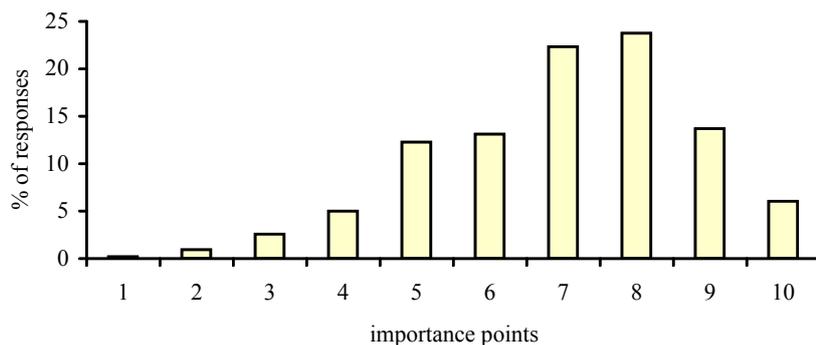


Figure 4. The importance of social environment in decision-making on foodstuffs purchase

Thereafter, the amount of searches (or searching strategies) has to be questioned. Since purchases of foodstuffs are repetitive in nature, the volume of purchases based upon the initial search increases. In other words, a household can rely upon past behaviors and this behavioral pattern could come up to the post-Keynesian concept of habit. Figure 3 presents the importance of habit when foodstuffs are purchased. The households were asked for evaluation of the habit influence on the scale from 1 (zero importance) to 10 (completely influenced). The weighted average of the habit importance amounts to 7.22 points, therefore this behavioral pattern considerably matters in the decision making on foodstuffs purchases.

Thus consumer relies upon past experiences and knowledge in attempting to solve the current problem. In doing so, he establishes a rule of thumb based upon the principle “what has worked for me in the past will continue to do so in the future”. However, there is another limitation of consumer choice connected with the duration of period, because over time new alternatives are introduced into the market place. They may go unexamined for reasons of habit. Similarly, if a consumer enters the market for the first time, he will probably have no idea of any alternative. Then the consumer can employ another rule of thumb based upon the principle “rely on the opinion of the majority”. The consumer can rely on the opinion of the others, who are either better informed or who represent the majority view, that is the view that

should prevail on the markets. The rationale here is that there are less chances of getting burned when one is following the crowd. By matching the importance points to the references or the others’ example, the households have shown their evaluation of social environment. Results are summarized in Figure 4, the weighted average of the importance of social environment is 7.00 points.

Fundamental uncertainty

Lavoie (1992) defines fundamental uncertainty as “where the individual is ignorant of the available courses of action or of the extent of future states of the world. Such a form of uncertainty leads to unknown probabilities or to what Keynes and others call non-measurable probabilities. This is the type of uncertainty which is the least likely to be subsumed within standard analysis”. The manner in which uncertainty can influence decision-making process can be clearly demonstrated in many areas within the external environment of the individual.

Uncertainty reduces the number of options a household may choose from and thus places a limitation upon the level of utility that may be obtained from decision. The rationale is simple, there may be additional products that enter the market and they may perform the same function better. Then, the alternate locations from where the same product may be pur-

chased at a lesser price may also arise. Furthermore, uncertainty surrounds the utility derived from the good purchased. When consumer purchases a product, he does so in anticipation of the utility that will be derived from its consumption. Once the product is actually consumed, these expectations will either be met, exceeded or leave the consumer with a feeling of disappointment. There is no guarantee that what is perceived to be the best alternative will actually fulfill this expectation.

Hereafter, uncertainty impacts upon the future wage and price levels. While forming expectations on real purchasing power, individuals not only have to anticipate the future price and wage increases in a relative sense, but they also have to estimate which will occur first and hence how this will affect their real purchasing power. If their real purchasing power is expected to fall (rise) in the next period, then their utility will be maximized by bringing forward (postponing) their spending to this (the next) period (Tolar, Courvisanos 1997). By treating the foodstuffs as goods meeting the basic needs, we can regard most of the food expenditures as relatively stable amount of money, no matter how the consumer's income or prices change. Furthermore, the foodstuffs are the goods of daily consumption and some items are characterized by constrained storage feasibility. By asking the households how the lack of money will affect their foodstuffs expenditures, the information in Figure 5 was obtained. To evaluate this effect, the distribution of households' income is taken into account. Households in lower income levels reduce expenditures for foodstuffs in the quantity purchased and the quality of good most often, because the foodstuffs expenditures are considerable part of their income. Conversely, the households with higher incomes more likely do not make any reduction in expenditures. The rationale

consists in the relationship between the income and needs satiation. Food meets the most basic needs of human and households are more likely expected to reduce their expenditures for goods belonging to higher levels of the need hierarchy (e.g. vacations, entertainment). Thus the higher income enables the household to reduce purchases of goods at higher levels of the need hierarchy or to reduce the consumption of more expensive food that is not a necessary part of human nutrition. On the latter explanation, Lavoie (1992) argues that the consumer has to fulfill first his physiological needs, then the other necessary ones. When the need of the last level is fulfilled, the consumer revises the criteria serving to appraise whether or not the need is being fulfilled and new characteristics of goods are then considered. Thus as income rises, the consumer may start looking for more sophisticated characteristics of food, instead of only checking the caloric intake.

Thus every household has to expend upon some minimal amount of foodstuffs in order to keep its members in good living conditions and the existence of uncertainty will then influence rather the purchases of all other goods. In the budget of every household, the stable amount of expenditures for foodstuffs occurs. These minimal expenditures vary for every household and the related deviations can be explained by the amount of the non-purchased production to a great extent. Then, non-purchased production can notably reduce the aforementioned impact of fundamental uncertainty on household decision making on food consumption. The importance of this fact can be assessed by means of Figure 6. The households have estimated the percentage share of their consumption that they do not have to purchase (self-production, production of relatives or friends). The acquired data were ordered by the percentage range of meeting the food consumption by the non-

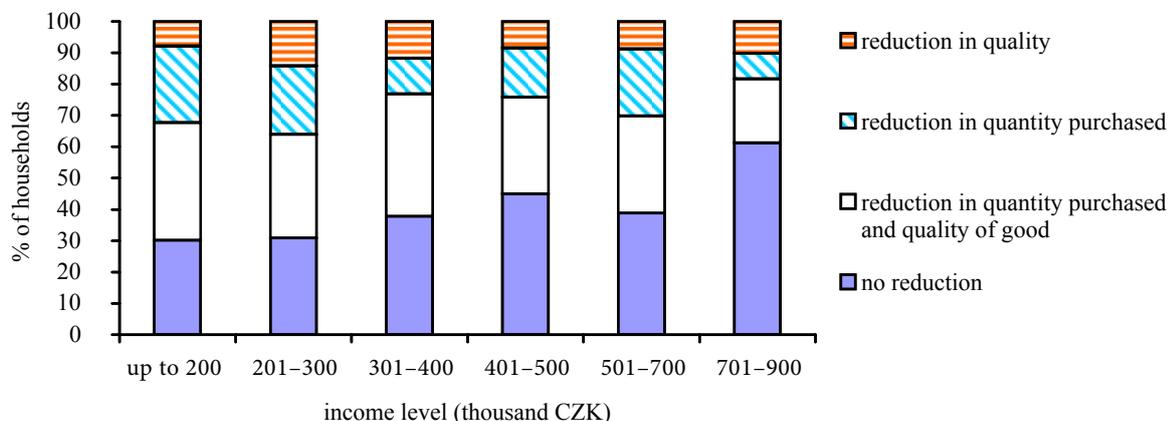


Figure 5. The effect of the lack of money on households expenditures for foodstuffs

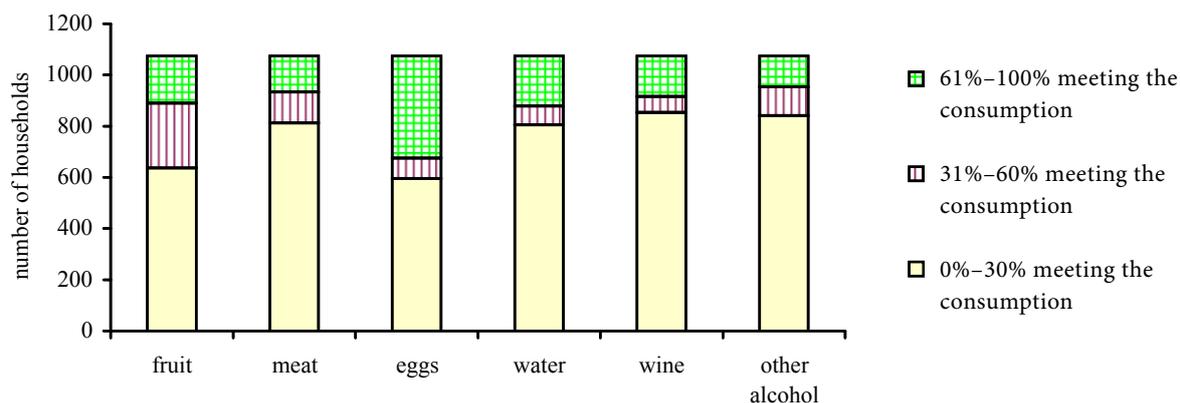


Figure 6. Meeting the food consumption by non-purchased production

-purchased production of fruit, meat, eggs, water, wine and other alcohol.

Meeting the food consumption by the non-purchased production is strongly connected with the lifestyle of the households. The input-intensive products like meat, water, wine and other alcohol are reducing uncertainty of much fewer households than eggs and fruit.

Finally, uncertainty surrounds the behavior of the others, too. Consequently, the individual cannot treat his environment and the behavior of other agents as constant. This statement enables the individuals to act impulsively.

The limits of a human mind

To overcome the complexity of calculation, the procedural rationality is introduced. When processing information, the individuals have to face a number of constraints. These constraints can be described in two basic types. Those that exist externally in the individual's environment and those that exist within the individual. The latter are the constraints on the capabilities of the agent in processing information when the computational and classifying requirements are too great. Thus whether the gathered information is complete or not, in all but the simplest of problems, is accessory.

Lavoie (1992) suggests that in all but the simplest problems, "...there exists a gap between the relevant amount of information and the information that can be effectively processed. The relevant information might not be processed because either it is known or the computational and intellectual limitations of the agent prevent part of the available information to be dealt with. To the extent that we might consider the available information that are not processed as unknown information, it could be argued that

the gap between the processed information and the relevant information is the measure of the extent of uncertainty".

CONCLUSION

Three limiting factors of optimization are investigated in the paper. The first, incomplete information is associated with the search costs. Households try to reduce these costs by purchasing from local sellers or relying upon past behavior. When they cannot use the past behavior as the guide to the future, as in the case of the first entrance to the market, they follow the opinion of majority. The second limiting factor, fundamental uncertainty, influences the household's decision-making process through the number of known options, the utility obtained from the good purchased, the real purchasing power and the impulsive behavior of the others. To lower the extent of uncertainty, the household can meet its food consumption by its own (or non-purchased) production. Finally, the limits of human mind arise from the constrained capabilities of the human processing information.

All of the mentioned behavioral patterns are consistent with the post-Keynesian conception of consumer's choice and the households apparently employ the rules of thumb in decision-making on foodstuff purchases. However, it is necessary to note, that foodstuffs are non-durable goods and they meet the most basic needs. Thus, a household always spends a certain amount of money for them and the whole decision-making is based on habits and routine. This statement reflects the narrowed validity of the conclusions of the paper. To examine the post-Keynesian model of consumer behavior in general, the further investigation is required. Thus behavioral patterns should be proved for goods (or group of goods) in each level of the need hierarchy.

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