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DETERMINANTS INFLUENCING CONSUMER BEHAVIOUR IN ORGANIC FOOD MARKET

M. Frýdlová, H. Vostrá

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Abstract

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This is a treatise of consumer behaviour in the Czech foods market, respectively, organic food market. This concerns comprehensive analysis of consumer behaviour, which places great emphasis on the motivating factors and barriers, which substantially influence the individual consumers when deciding between conventional foods and organic foods and are operationally broken down into a set of empirical indicators. The database comes from a questionnaire survey to ascertain the trends in the development of the consumption of conventional foods and organic foods including the shopping behaviour of the individual consumers. The results of the questionnaire survey were evaluated by analysis of the qualitative features and other sophisticated statistical methods were also used. Based on the results obtained, the influence of the individual factors on the decision-making behaviour of the consumers when purchasing foods. The main factors that influence consumer behaviour were considered to be the income of the consumers, price of the foods, attitudes that influence the purchase of foods.

analysis of qualitative data, barriers to consumption, organic foods, eco farming, motivational factors, consumption behaviour, theory of planned behaviour

The main reason for the study of attitudes is the expectations that it will enable us predict certain types of behaviour. Up to the close of the 60s of the last century, the comprehension of attitudes as a complex phenomenon, this has affectionate, cognitive and behavioural components (Rosenberg and Hovland, 1960). The approach to attitudes as a complex, non-structural phenomenon was clearly the cause of the fact that the explanatory capability of the models, which were based on these attitude theories is low and thus the general consensus between attitudes and behaviour was low (Fischbein and Ajzen, 1975: 336).

There was a certain shift in the 70s of the last century when Fischbein and Ajzen formulated the Theory of Reasoned Action. Based on this theory, the Theory of Planned Behaviour (TPB) was formulated in the 90s, which is based on the theory of reasoned action, and suppresses the deficiencies of this theory. TPB is used in the analysis of the relationship between the attitudes and hypothetical and actual behaviour in many contexts; in the area of conditional evaluation (Ajzen *et al.*, 2000, 2004, 2007; Brown *et al.*, 2004; Meyerhoff, 2004), to research in environmental values (Daigle *et al.*, 2002) and consumer behaviour (Moisander, 1998; Francis *et al.*, 2004). TPB moreover makes it possible to consider various objective limitations, which form the context of action, but are not often integral components of the consumer's decision-making process. Application of the TPB model in empirical research explains to us how the individual acts in a concrete situation, but it does not make it possible for us to judge his action in different situations and other choices.

The objective of this research was to outline the motivating factors and barriers, which influence decision-making concerning purchase of foods and organic foods.

MATERIAL AND METHODS

The objective of this research was to outline the motivating factors and barriers, which influence decision-making concerning purchase of organic foods. In terms of methodology, this research was based on the assumptions of methodological individualism, which was targeted at consumption behaviour and the decision-making mechanisms of the individual consumer. The data was collected based on these partial methodical procedures: **i)** standardized questionnaire techniques (standard interview and questionnaire, **ii)** further, TPB (Ajzen, 1991) was applied, thanks to which the main socio-psychological determinants of actual and potential consumption behaviour in the purchase of conventional foods and organic foods can be examined.

Preparation for research

Preparation for research was targeted at obtaining adequate basic materials, which made it possible to formulate the basic hypotheses and preparation of the questionnaire survey. This mainly concerned **i)** study of professional literature and other professional sources, **ii)** 10 in-depth non-structural interviews with the consumers were done in the period from July to August 2010[1]. The objective of the interviews was to obtain information as to how the consumers generally purchase foods, in what quantity, the average amount of money that they spend on foods, the criteria according to which they select the foods, what motivates them to purchase and select organic foods, etc.

Questionnaire survey procedure

Based on the information acquired from the non-structural interviews and the TPB principles, the draft questionnaire was created that was tested on 10 respondents during the pilot action. The pilot action was done on the basis of the semi-structural interviews that formed the basis for the addition of further closed questions to the questionnaire. Based on these interviews, the final version of the questionnaire was created that was tested again on a sample of 10 respondents. The individual respondents were selected in such a way as for them to represent various age groups, various educational levels and lifestyles.

Research sample for questionnaire survey

Within the framework of the questionnaire survey that was done in November/December 2010, 250 respondents were addressed, of which 162 answered the questionnaire[2]. The respondents were selected on quota basis, i.e. the sample has the same percentage representation of persons as the population of the Czech Republic, special attention was devoted to sex, education and income. The only exception is the age of the respondents. Only adults were involved in the questionnaire survey; it is possible to statistically enunciate that the selection is representative and the results can be generalised across the entire population of the Czech Republic.

Statistical analysis

Analysis of qualitative symbols and other suitable statistical methods were primarily applied to the acquired data. Everything was processed in STATISTICA 9.1. The testing of statistical hypotheses was at 5% significance level.

Analysis of qualitative signs was applied first. A category sign is one that is entered using a "non-numerical value". The most commonly used test for determination of mutual dependence in the contingent table is the $\chi 2$ *test*. This test measures overall variance of numbers n_{ij} (ascertained frequency) and m_{ij} (expected frequency). The greater the differences between the ascertained and expected frequencies, the greater $\chi 2$. The $\chi 2$ test value is compared with the critical $\chi 2$ distribution with a scattering of [(r–1)(s–1)], and if this value is greater than the value in the table, we reject the hypothesis, thus the assessed signs are dependent. Or it is possible to use P-values, which are compared with the significance level. When the p-value is lower than the required significance level, then the evaluated phenomenon is statistically significant. For evaluation of the dependence of the qualitative signs, Pearson's contingent coefficient was applied (Cp) (Nešetřilová, 2002; Řezanková, 2007). For the calculation, we select:

$$C_P = \sqrt{\frac{\chi_P^2}{\chi_P^2 + n}},$$

where $q = \min\{r, s\}$, $\langle 0; \sqrt{\frac{(q-1)}{q}} \rangle$.

The value 0 rises in case of non-dependence. The higher the value at identical n, r and s, the stronger the dependence (Řezanková, 2007).

Further, regressive analysis was applied. Regressive and correlation analysis falls under statistical induction methods, which evaluate the mutual dependence of quantitative symbols. Concretely, this concerns a quadratic regression equation, which is as follows (Hendl, 2004):

$$y' = a + bx + cx^2,$$

where y' is a dependent variable, x respectively x^2 is an independent variable, a, b, c are equation parameters. They selected identical procedure for evaluation of the questionnaire survey (Goldman

1 All live in Prague and represent various educational levels, professions and lifestyles.
2 The return rate of this questionnaire was thus 65%.

and Clancy, 1991; Pellizzari *et al.*, 1995). To get an overview of the analysed data, dispersion analysis was applied, which makes it possible to evaluate the differences between three or more averages of independent selection sets. It is possible to evaluate the means based on multiple classification criteria. Upon ascertaining differences between the tested sets, it is necessary to do post-hoc analysis. It is possible to use many methods for this evaluation, e.g. the T-method, S-method, etc. (Hendl, 2004).

RESULTS AND DISCUSSIONS

Economic factors that influence food consumption

Demand for foods and organic foods are related to many factors that influence the behaviour of the consumers, respectively, also organic food traders. Among the economic factors are mainly the prices of the organic foods and the income of the consumers. The influence of these factors is so strong that it compels the consumer to decide on purchase of organic foods only assuming an organic food price reduction or to the contrary upon rise of family income. For this reason, the price of the organic foods is also considered as one of the most important marketing tools by the producers and traders. This is also the basis of the most frequently discussed acceptance of the higher price of concrete organic foods as compared with conventional foods by the consumers. 66.2% of respondents that participated in the survey replied that they purchase organic foods, 33.8% of the respondents do not.[3]

Regressive and correlation analysis

One of the factors tested in the survey was dependence of the expenditure on organic foods on total expenditure on foods. The respondents were asked how much they spend on organic foods. Dependence was solved by means of regressive and correlation analysis.

$$y' = 2.06 - 0.61\,x + 0.15\,x^2.$$

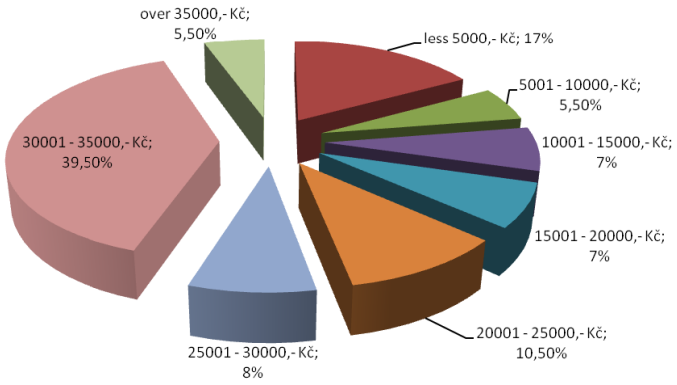
Using this equation, it is possible to assume different consumption for concrete total consumption.

I: *Quadratic regressive model*

R= .55673653 R2= .30995556 adaption R2= .30127576
F(2, 159) = 35,710 p < .00000 standard error: 1.2527

N = 162	b*	Standard error b*	b	Standard error b	t (159)	p-value
absolute term			2.056029	0.457662	4.49247	0.000013
total	–0.662510	0.307536	–0.611829	0.284011	2.15425	0.032727
V1**2	1.185476	0.307536	0.151175	0.039217	3.85475	0.000168

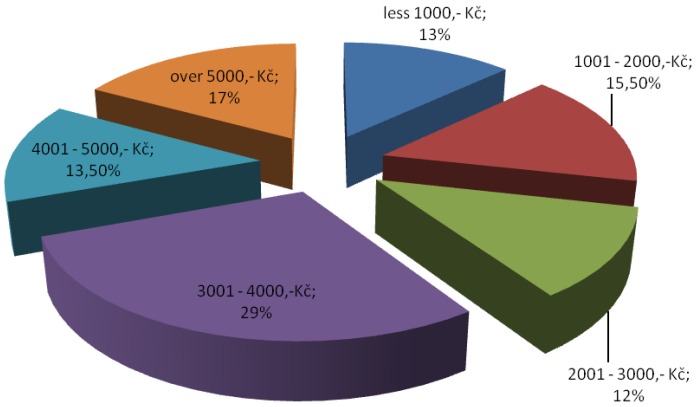
Source: own questionnaire survey and authors' calculations, outputs from STATISTICA 9.1, n = 162[4]



1: *Net monthly household income in thousand CZK*
Source: own questionnaire survey and authors' calculations

3 The respondents were also asked if they had purchased organic foods in the last three months, if their answer was no, the interview was closed.

4 Age was dived into eleven categories, beginning with aged less 20 and continuing to aged 65 over (the questionnaire answered: 2.7% respondents of age group less 20 years, 10. 1% respondents aged 20 to 25 years, 12.8% respondents aged 26 to 30 years, 18.9% respondents aged 31 to 35 years, 13.6% respondents aged 36 to 40 years, 12.8% respondents aged 41 to 45 years, 12.2% respondents aged 46 to 50 years, 4.1% the respondents aged 56 to 60 years, 4.7% respondents aged 61 to 65 years and 8.1% respondents aged over 65 years. In the aged 51 to 55 years did not participate in any survey respondent).



2: *Monthly household expenditure on foodstuffs in CZK*
Source: own questionnaire survey and authors' calculations

It is possible to enunciate that the expenses on organic foods are at 31% influenced by total food expenditure.

The following Fig. 1 shows the net monthly income of households that were involved in the survey. The largest number of respondents stated that the net income of their households is between 30 001–35 000 CZK (almost 40 %)[5].

The expenditure on food substantially differs according to the types of households. The least expenditure on food is incurred by single households regardless of where they live, which is about 2 000 CZK per month. Pensioners' households, mainly those that live in the big cities are the second type of household with the lowest food expenses. Their expenses are approximately 3 001–4 000 CZK per month. The highest food expenditure is characteristic of multiple-member families with children – more than 5 000 CZK per month; the respondents most often say that they spend 3 000–6 000 CZK per month on foodstuffs, s. Fig. 2. We can generally say that households in small towns spend less on foodstuffs than households in the cities.

To the question whether the price is decisive for the consumer in the choice of foodstuffs, 1.4% of the respondents replied that this factor is wholly unimportant for them and for 2% it is not important. Only 6% of respondents stated that the price has neutral consequences for them in choice of foodstuffs. On the contrary, it is important for 21.6% and more than 35% of consumers state that it is quite important in the selection of foods.

Dispersion analysis – expenditure households on organic foods

Upon application of dispersion analysis to the acquired data, statistically significant differences were ascertained between the monitored expenses ($p < 0.00031$). Based on the detailed evaluation by ANOVA, it is possible to evaluate the statistically significant differences between consumption more than 2 000 CZK and the rest of the compared variants. Three statistically significant differences were found. This concerns a difference between the expenses of less than 100 CZK and more than 2 000 CZK ($p < 0.01089$), difference between the expenses 101–300 CZK and more than 2 000 CZK ($p < 0.005225$), difference between 501–1 000 CZK and more than 2 000 CZK ($p < 0.00698$).

Analysis of qualitative symbols – expenditure households on organic foods

Null hypothesis for testing: No statistically significant difference in the individual organic food consumption groups. Based on the p-value ($p < 0.000$), we reject the null hypothesis, i.e. statistically significant differences exist in the expenditure on organic foods and overall expenses, s. Tab. II. Here, it is possible to observe the distinctiveness of opinions

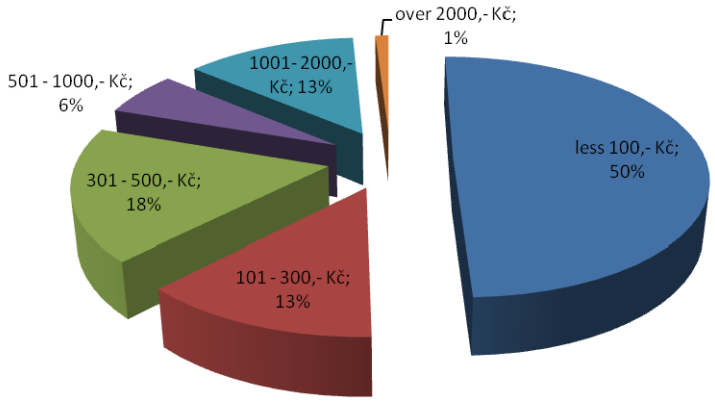
II: *Testing of the difference between total expenses and organic foods*

Observed variable	Test criterion	P-value	Strength of dependence
Total expenses/ organic foods	34.35403	P = .00000	0.4182818

Source: own questionnaire survey and authors' calculations, outputs from STATISTICA 9.1, n = 162[6]

5 Income below 5 000 CZK, respectively, 10 000 CZK was mainly stated by students that only take odd jobs.

6 Age was dived into eleven categories, beginning with aged less 20 and continuing to aged 65 over (the questionnaire answered: 2.7% respondents of age group less 20 years, 10. 1% respondents aged 20 to 25 years, 12.8% respondents aged 26 to 30 years, 18.9% respondents aged 31 to 35 years, 13.6% respondents aged 36 to 40 years, 12.8% respondents aged 41 to 45 years, 12.2% respondents aged 46 to 50 years, 4.1% the respondents aged 56 to 60 years, 4.7% respondents aged 61 to 65 years and 8.1% respondents aged over 65 years. In the aged 51 to 55 years did not participate in any survey respondent).



3: *Monthly expenditure on organic foods in CZK*
Source: own questionnaire survey and authors' calculations

on healthy lifestyle with emphasis on organic foods. Those that accept organic foods as healthier foods than conventional foods buy organic foods regardless of the size of their income, which limits them.

The respondents that stated that they buy organic foods were asked to specify the average amount they spend on organic foods per month. 50% of respondents usually spend less than 100 CZK per month on organic foods; it is thus possible to enunciate that they buy organic foods occasionally or only by chance. Fig. 3 clearly shows the higher percentage of consumers that spend more than 1001–2000 CZK per month on organic foods. This fact may be due to increasing interest of consumers in the direct purchase of organic foods from the farmers and also the increasing possibility to purchase organic foods at the farmers' markets.

Non-economic factors that influence food consumption – consumer attitudes

Further factors that were examined in course of the survey are dependence of health, environmental attitudes, product appearance, respectively, packaging and recommendations from the neighbourhood on purchase of foods depending on age group and sex. The null hypothesis was also conceived in such a way that there is no difference in the age groups or sex between the examined factors in the purchase of organic foods.

Dependence of examined factors on age group

For all the examined factors, the p-value is less than the significance level, which was set at 5%. We reject the null hypothesis on the individual tested dependences and it is possible to enunciate that there exists a statistically significant difference in the age group and purchase of organic foods from the viewpoint of health, environmental attitudes, price, product appearance and commendations from the neighbourhood, s. Tab. III.

Dependence of examined factors on sex

If we examine dependence of health factors during purchase of foods in relation to sex, we must enunciate that the p-value is less than the significance level and for this reason, we reject the null hypothesis. Dependence strength is weak. Similarly, we can reject the null hypothesis in the case of environmental attitudes – s. Tab. IV.

III: *Dependence of factors on age group*

Observed variable	Test criterion	P-value	Strength of dependence
Health	40.77840	p = .00164	0.5420685
The environment	68.72117	p = .00083	0.6459078
Appearance (packaging)	83.99068	p = .00001	0.6793460
Recommendations	73.58795	p = .00022	0.6548773

Source: own questionnaire survey and authors' calculations, outputs from STATISTICA 9.1, n = 162[7]

7 Age was dived into eleven categories, beginning with aged less 20 and continuing to aged 65 over (the questionnaire answered: 2.7% respondents of age group less 20 years, 10. 1% respondents aged 20 to 25 years, 12.8% respondents aged 26 to 30 years, 18.9% respondents aged 31 to 35 years, 13.6% respondents aged 36 to 40 years, 12.8% respondents aged 41 to 45 years, 12.2% respondents aged 46 to 50 years, 4.1% the respondents aged 56 to 60 years, 4.7% respondents aged 61 to 65 years and 8.1% respondents aged over 65 years. In the aged 51 to 55 years did not participate in any survey respondent).

IV: *Dependence of factors on sex*

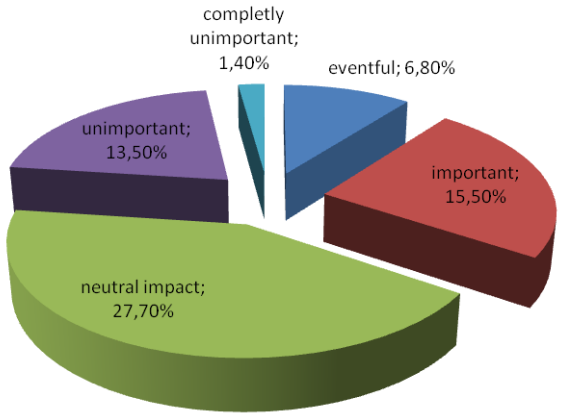
Observed variable	Test criterion	P-value	Strength of dependence
Health	15.04588	p = .00054	0.3648224
The environment	11.76665	p = .01918	0.3304337
Appearance (packaging)	1.294112	p = .86237	0.1141627
Recommendations	2.148316	p = .70850	0.1464628

Source: own questionnaire survey and authors' calculations, outputs from STATISTICA 9.1, n = 162[8])

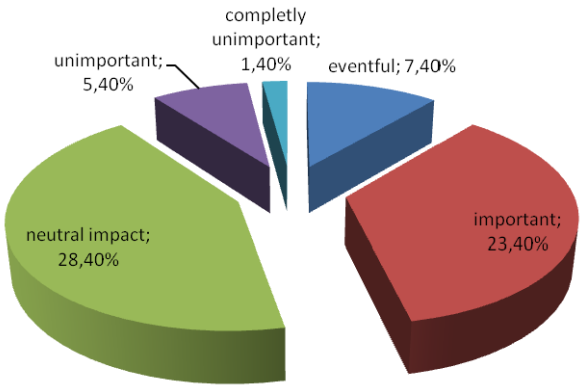
On the contrary, the null hypothesis cannot be rejected in the case of appearance and recommendations from the neighbourhood. In these cases, we must enunciate that there is no dependence of the examined factors on sex in the purchase of organic foods. In both cases, the dependence strength is medium.

The respondents were asked whether the effect of the product on their health is important in the selection of the foods. More than 28 % stated that this factor has neutral weight for them, it is important for 18.4 % and very important for almost 20 % of the respondents.

The method used to produce the food is considered by 23 % of respondents when making a decision to buy foods, for 27.7 % this factor has a neutral influence, on the contrary, almost 15 % of the respondents consider ecology as unimportant in their decision-making, respectively, entirely inconsequential factor.

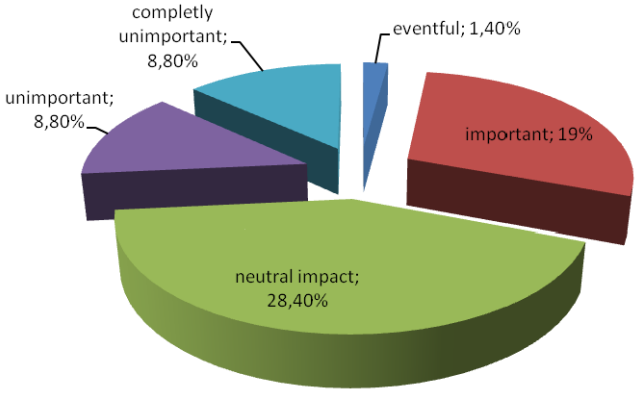


4: *The influence of the product on the produce is important for me in the choice of foods*
Source: own questionnaire survey and authors' calculations



5: *The influence of the product packaging is important for me in the choice of foods*
Source: own questionnaire survey and authors' calculations

8 Age was dived into eleven categories, beginning with aged less 20 and continuing to aged 65 over (the questionnaire answered: 2.7 % respondents of age group less 20 years, 10. 1 % respondents aged 20 to 25 years, 12.8 % respondents aged 26 to 30 years, 18.9 % respondents aged 31 to 35 years, 13.6 % respondents aged 36 to 40 years, 12.8 % respondents aged 41 to 45 years, 12.2 % respondents aged 46 to 50 years, 4.1 % the respondents aged 56 to 60 years, 4.7 % respondents aged 61 to 65 years and 8.1 % respondents aged over 65 years. In the aged 51 to 55 years did not participate in any survey respondent).



6: *The influence of the product to advice from the neighbourhood is important for me in the choice of foods*
Source: own questionnaire survey and authors' calculations

In the selection of foods, most of the respondents (almost 32%) stated that the packaging and appearance food is important or very important, s. Fig. 5.

Selection of foods according to advice from the neighbourhood (s. Fig. 6) applies to more than 22% of the respondents, and for almost 19%, this factor is unimportant or wholly unimportant.

Based on the obtained results, we can make the following conclusions. Demand for foods is increasingly being influenced by a more complex group of factors than economists and scientists included in their earlier considerations and studies. A classic demand model for homogeneous foods, which showed the function of relative price and consumer income, was only a tool for comprehension of the purchasing behaviour of the individual consumer in the food market. This model made it possible to monitor the price and income elasticity and to a greater extent abstract from the effect preference of foods. The classic models are thus not suitable for complex evaluation of consumer behaviour in the food market, since modern day consumers demand qualitatively differentiated products. The consumers are influenced by information about the product, attitudes, their perception and other psychological factors. The organic foods are differentiated from the conventional equivalents mainly by the fact that their production is a smaller burden for the environment. The consumer thus in the purchase of organic foods purchases the utility value of the given product and smaller negative consequences for the environment. It is just this factor, which shapes the highly complicated decision-making situation of the consumer. It is necessary to realise that the environment is considered a public asset in public sector economics. The consumer thus purchases utility value and a positive effect on the public asset. It is just the purchase that creates various motivation conflicts and barriers for the consumers, which may reduce the consumer's willingness to buy organic foods.

For the majority of the respondents, the price is the most important factor. This factor can influence the behaviour of the consumer from various viewpoints, e.g. Will the potential consumer choose a cheaper or more expensive product? Did the consumer associate the product to his earlier behaviour or habits? Did the consumer notice the alternative product? The price criterion however cannot be perceived in such a way that the consumer always seeks the lowest price, but as the suitability of the price in view of the subjective evaluation of the considered food. Our feeling of the necessity of need has a great influence on our decision-making, whereby if necessary, we are willing to reduce our demands just ensure that our need is satisfied.

The high price of the organic foods is generally accepted as the biggest obstacle to their consumption. Organic foods are generally more expensive by several tens of percent as compared to conventional foods. One of the causes may be, for instance, the high portion of imported organic foods, inadequately collaborating distribution chains or higher costs related to the local production of organic foods, which is done in relatively small batches or inadequate assortment of products in the shops. Also important are the marketing principles, which may make an effort to artificially raise the prices of the organic foods disproportionately to the production costs as compared with conventional foods. For instance, if the producers and traders use low price strategy, it is very suitable to support the sale of organic foods by means of price cuts or bargain offers, mainly in the case of products where the price awareness of the consumers is high (bread, milk). The price of organic foods is to a greater extent also influenced by sociodemographic and psychographic factors. It is possible to consider their price from various angles during the actual purchasing process, e.g. additional information on the product itself. In a case where the producers and traders are using a premium price strategy, it is highly suitable to emphasize to the consumers, for instance, the more strict standards, which apply to

the growing of crops or breeding of animals, and the like; also highly suitable is the combination of both suggestions.

As has already been stated, according to TPB it is possible to predict human behaviour based on intent of action and control of behaviour. The key problem is in that we always do not know the intent of consumption behaviour so that we can predict consumption behaviour on its basis.

If we examine the consumption of organic foods, we can encounter various opinions. Some consumers see alleviation of the negative consequences for the environment in the purchase of organic foods; others on the contrary, see a benefit to their health and lifestyle. The attitudes of the individual consumers may thus differ in terms of content. The subjective standards, which are related to the behaviour, which contain the set of normative ideas about how the given behaviour was evaluated by a different group and also willingness to observe these expectations. For the producers and dealers, the information concerning the criteria according to which the consumers make food selection and purchase decisions may be key.

From the questionnaire survey, it also follows that the consumers in the purchase of foods and organic foods mainly act according to the effect on their health, consequences of food production on the environment, recommendations from their neighbourhoods and appearance of the packaging. In future, probably only innovative food products shall have the greatest chance in the market, i.e. products that will combine ecological origin and neutral consequences for the environment.

CONCLUSION

Interest in organic foods is rising with the rising income of the Czech households. Thanks to the economic recession, the growth of the organic foods market slightly stagnated in 2009. Demand for these products was to a greater extent influenced by declining consumer expenses (households). As already mentioned, demand is also influenced by consumer preferences. The consumers expect much more from the organic foods than from their conventional equivalents – in Europe, interest in organic foods is to a certain extent influenced by fears of risky foods and as confirmed by the questionnaire survey, consumer interest in a healthy lifestyle is rising.

Demand for food, respectively, organic foods is related to many factors, which influence consumer behaviour. Under the economic factors, we can consider mainly the price of the organic foods and the income of the consumers. These factors also influence the conduct of the traders, subsequently, the dealers that in organic foods for the present see only a suitable supplement to make the offered assortment more variegated. Among the non-economic factors, we can include the effect of food selection on the health of the consumer, his attitudes to food production in relation to its environmental consequences, appearance of the offered product or how the advice from the neighbourhood influences the consumer's decisions in the choice of foods.

SUMMARY

This article is a treatise of consumer behaviour in the Czech foods market. The database comes from a questionnaire survey, which was done to ascertain the trends in the development of the consumption of conventional foods and organic foods including the shopping behaviour of the individual consumers. The objective of this research was to outline the motivating factors and barriers, which influence decision-making concerning purchase of organic foods. In terms of methodology, this research is based on the assumptions of methodological individualism, which is targeted at consumption behaviour and the decision-making mechanisms of the individual consumer. The data was acquired by means of standardized questionnaire techniques (standard interview and questionnaire), the questionnaire was compiled using the theory of planned action, thanks to which it is possible to examine the major socio-psychological determinants of actual and potential consumption behaviour in the purchase of foods and organic foods. Preparation for research was targeted at obtaining adequate basic materials, which made it possible to formulate the basic hypotheses and preparation of the questionnaire survey. This mainly concerned **i)** study of professional literature and **ii)** in-depth non-structural interviews with the consumers. Based on the information acquired from the non-structural interviews and the TPB principles, the first version of the questionnaire was created that was tested on 10 respondents during the pilot action. Within the framework of the questionnaire survey, 250 respondents were interviewed, of which 162 answered the questionnaire. Analysis of qualitative signs and other suitable statistical methods were primarily applied to the acquired data. For most of the respondents, the price is the most important factor, which is generally perceived as the biggest obstacle to organic food consumption. From the questionnaire survey, it also follows that the consumers in the purchase of foods and organic foods mainly act according to the effect on their health, consequences of food production on the environment, recommendations from their neighbourhoods and attractiveness of the packaging (appearance), of the offered food.

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Address

Ing. Monika Frýdlová, Katedra ekonomiky, Ing. Hana Vostrá, Katedra statistiky, Česká zemědělská univerzita v Praze, Kamýcká 129, 165 21 Praha 6 – Suchdol, Česká republika, e-mail: frydlovam@pef.czu.cz, vydrova@pef.czu.cz