

DEVELOPMENT AND CHANGES IN CONSUMPTION EXPENDITURES OF THE POPULATION

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Abstract

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The paper deals with development and changes in consumption expenditures of population. It uses secondary data to analyze consumption expenditures of EU-25 and the Czech Republic and concentrates on changes in the expenditure groups over the period of past years. Other part of this paper is devoted to primary data analysis. Primary data were obtained in a questionnaire survey. Primary data analysis is based on statistical methods and it investigates changes in the structure of consumption expenditures of households in relation to changes in household income. By using dependency analysis the paper verifies dependency of surveyed groups of consumption expenditures and groups of households sorted by identification characteristics. Additionally, also based on the primary research, the paper tries to find out the way households allocate money surplus remaining after covering all the adequate expenses.

consumer, consumer behaviour, research, dependency analysis, consumption expenditures

Consumer behaviour research enables better understanding and prognostication not only of subject of purchases but also of purchasing motives and purchasing frequency (Schiffman, Kanuk; 2004).

Except conventional conception of consumption being only instrument of satisfaction of basic needs, Solomon (2004) identifies another four different types of consumers' activities:

- consumption as an experience (emotive or esthetic reaction to product consumption),
- consumption as an instrument of integration (usage and consumption of the product integrates us somehow to the society),
- consumption as a classification scale (choice of products influence the way how we are perceived by our environment and how we are ranged in society),
- consumption as a game.

Complex purchase process involves several decisions. A decision involves a choice between two or more alternative actions. The key process in consumer decision making is the integration process by which the knowledge is combined to evaluate

two or more alternatives and select one. The outcome of the integration is a choice which is a decision plan to engage in one or more behaviours. Decision-making process occurs even for the impulsive purchases. This does not mean, however, that a conscious decision-making process occurs each time purchase behaviour is performed. Some behaviours become habitual. They are based on intentions stored in memory that were formed by some past decision-making process. When activated, these formerly stored intentions influence behaviour and additional decision-making process may not be necessary. Some behaviours are not voluntary and are largely affected by environmental factors. For example, product displays or aisle placement determines how consumers move through stores.

Consumer decision making is viewed as a problem-solving process. We focus on consumers' goals (desired values) that consumers seek to achieve. A consumer recognizes a problem because the desired consequence hasn't been attained. Consumers make decisions about the behaviour to perform in order to achieve the goals and thus solve the problem.

Model of problem solving identifies five basic stages:

- *Problem recognition* – perceived difference between ideal and actual state.
- *Search for alternative solutions* – seek relevant information about potential solutions to the problem from external environment or activate knowledge from memory.
- *Evaluation of alternatives* – evaluate or judge competing alternatives in terms of salient beliefs about relevant consequences and combine this knowledge to make a choice.
- *Purchase* – Buy the chosen alternative
- *Postpurchase use and reevaluation of chosen alternative* – use the chosen alternative and evaluate it again in light of its performance.

This basic model identifies several important activities involved in problem solving. However, for several reasons, the generic model often provides an imperfect account of actual processes. Actual consumer problem solving seldom proceeds in a linear sequence and most processes actually involve multiple problems and multiple decisions. (Peter, Olson; 2007)

Brown (2006) defines three groups of factors having influence on purchasing behaviour – personal, psychological and social. Personal factors are individualistic factors like gender, age group, place of living, economic conditions, personality, etc. One of the personal factors is also belonging to social groups. According to COICOP (Classification of Individual Consumption by Purpose) we distinguish these social groups: employees, self-employed persons, farmers and pensioners. In the paper, the personal factors are considered as identification characteristics and used for dependency analysis. Objective of this analysis to find out whether there is a dependency between these characters and consumption expenditures of population.

Objective of this paper is to describe changes and development of consumption expenditures of population, analyze secondary data reflecting expenditures in the Czech Republic and the EU, analyze results of primary research by which we obtained information about changes in consumption expenditures related to changes in household income, confirm or disconfirm dependency on identification characteristics and additionally to find out the way household manages money surplus.

METHODS AND DATA

Sources for analysis of changes in consumption expenditures were gained through marketing survey. Instrument used to collect the primary data was the electronic questioning system RELA (Souček, Pavlíček; 2005). This system proved itself to be very efficient especially on the ground of that the data were immediately available after the end of survey. This means that no additional data processing or conversions were necessary.

When constructing the questionnaire all intentions of marketing research were considered. Crucial part of questionnaire preparation was the pre-test that acknowledged its correctness of construction and intelligibility for broad spectrum of respondents. Questionnaire survey was conducted in December 2007 across various areas of the Czech Republic. 731 questionnaires were gathered. However, after removing invalid data there were 609 valid questionnaires remaining and these questionnaires were used for analyses. When selecting respondents there were not used any restrictive criteria that would concentrate focus only on certain segment.

The objective of the survey was to obtain information about changes in consumption expenditures related to changes in household income. Classification of consumption expenditures was made by purpose as following (Classification of Individual Consumption by Purpose, EUROSTAT 2006):

- food and nonalcoholic drinks,
- alcoholic drinks and tobacco,
- clothing and footwear,
- housing, water, electricity, fuels,
- furnishing, household equipment,
- health, pharmaceuticals and vitamins,
- transport,
- post services and telecommunications,
- recreation and culture,
- education,
- boarding and accommodation,
- other goods and services.

Data were analyzed by using basic methods of descriptive statistics like **frequency distribution** (absolute and relative). To illustrate frequencies they are expressed graphically. Other step was to perform a dependency analysis of particular consumption expenditures and identification characters. Dependency of verbal characters is measured by contingency. Contingency examines dependency of pairs of characters with more than two variations. Result of such a sorting is contingency table. According to Stávková and Foret (2003), the more variations between theoretical values and real frequencies the more the relationship differs from independence (dependency is higher). We use **square contingency** χ^2 to gain information about these differences in one number. Square contingency is expressed as following:

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^s \frac{\left(n_{ij} - \frac{n_{i\bullet} n_{\bullet j}}{n} \right)^2}{\frac{n_{i\bullet} n_{\bullet j}}{n}},$$

where $n_{i\bullet}$ is a frequency in i -th line across all columns and $n_{\bullet j}$ is a frequency in j -th column across all lines. Based on the square contingency we derive other coefficients of contingency. Most often used are these coefficients:

● **Crammer contingency coefficient:**

$$C = \sqrt{\frac{\chi^2}{n \cdot \min(k-1; l-1)}}$$

It is taking values in the interval $\langle 0, 1 \rangle$. Dependency is the stronger the closer to 1 the value is. Values close to 0 express independence.

● **Pearson correlation coefficient:**

$$P = \sqrt{\frac{\chi^2}{\chi^2 + n}}$$

It is taking values from the interval $\langle 0, 1 \rangle$. Dependency is the stronger the closer to 1 the value is. Values close to 0 express independence. The upper limit depends on the number of lines and columns in the contingency table. For example, in the table having 3 lines and at least 3 columns, the upper limit is 0.816; in the table having 6 lines and at least 6 columns, the upper limit is 0.913. This fact makes difficulties when comparing the intensity of dependency in different contingency tables. (Hindls, Hronová, Novák; 2000)

Contingency coefficients measure the dependency intensity of two verbal variables. When constructing coefficients it is supposed that data is placed in the contingency table. For this reason we can also say that coefficients express the intensity of dependency in the table.

To verify dependency of surveyed factors and groups of households sorted by identification char-

acteristics, χ^2 independence test was calculated. According to Hindls (2000), we use it mostly when verifying dependence of two verbal variables. It can also be used when one or both of the variables are numerical. We test the independence hypothesis against an alternative hypothesis stating that both variables are independent. Test criterion is square contingency (χ^2 formula). Hypothesis stating the independence is rejected when the test criterion is taking extremely high values. When the hypothesis is valid, provided that hypothetical frequencies are higher than 5, test criterion χ^2 is distributed with $(r-1)(s-1)$ degrees of freedom where r is a number of lines and s is a number of columns in a two-dimension table. The independence hypothesis is rejected when:

$$\chi^2 > \chi^2_{1-\alpha[(r-1)(s-1)]}$$

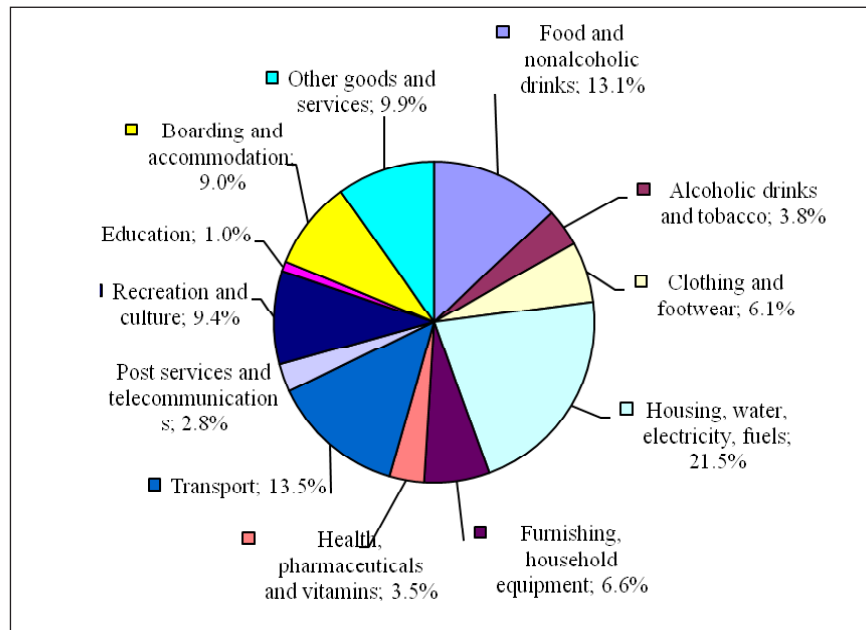
which means test criterion is higher than $100(1-\alpha)\%$, distribution quantil χ^2 with $(r-1)(s-1)$ degrees of freedom. (Hindls, Hronová, Novák; 2000)

Data were processed by the software STATISTICA.

RESULTS

Secondary data analysis

Secondary data reflecting consumption of EU-25 were obtained from EUROSTAT.



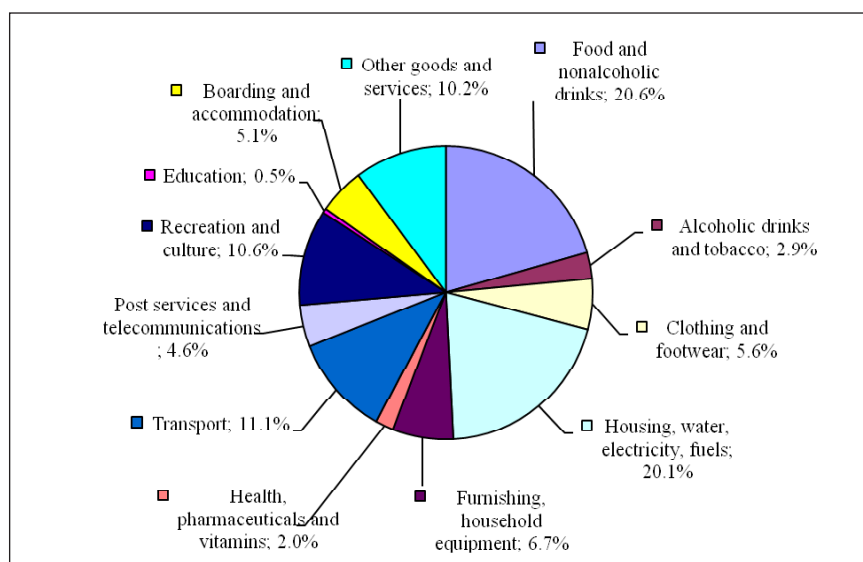
1: Structure of consumption expenditures in the EU per one household member / year 2005 [%] (Source: Eurostat, modified)

The most significant group of expenditures in the EU-25 is housing, water, electricity and fuels expenditures (21.5% of total expenditures), see graph 1. Other significant expenditures are transport and food and nonalcoholic drinks. The lowest expenditures are given to education, post and telecommunication. However, telecommunication is a fast growing sector due to digitalization which indicates that we can expect rise in telecommunication expenditures.

According to graph 2, in the Czech Republic the most significant expenditure groups are food and nonalcoholic drinks (20.6% of total expenditures) and housing, electricity, water and fuels (20.1%). Population in the Czech Republic spends least on education, healthcare, alcoholic drinks and tobacco.

The development in particular commodity groups in 1998–2006 is demonstrated in the table I. This

trend enables to analyze development and changes in consumption expenditures in the time period. Expenditures are increasing every year. Since 1998 it has increased from 29 435 CZK to 97 342 CZK in 2006. Rising expenditures are dependant on rising income. Income grew from 89 712 CZK in 1996 to 116 549 CZK in 2006. Proportion of expenditures on particular commodities is not changing over years. The only change can be seen in expenditures on food and nonalcoholic drinks vs. housing, water, electricity and fuels. Up to 2005 the most significant item in expenditures was food and nonalcoholic drinks. Since 2007 the most significant item is housing, electricity, water and fuels, which is caused by rising prices of housing, electricity and fuels and deregulation of rents.



2: Structure of consumption expenditures in the Czech Republic per one household member / year 2005 [%] (Source: Czech Statistical Office, modified)

Primary data analysis

Data needed for primary data analysis were obtained in a questionnaire survey.

Identification of respondents

There were 726 respondents taking part in a survey who answered identification questions. Identification characteristics represent a base for dependency analysis and it is an important part of a survey.

300 women and 426 men were questioned. Most of them belong to the 41–50 age group. Almost 50% of respondents have finished secondary education and 40% has finished tertiary education. Approximately 60% are employed and 26% self-employed. Approximately 60% of respondents are satisfied with an income of a household that they live in, which means household covers all the adequate needs.

Consumption expenditures

The objective of the survey was to find out how do the particular consumption expenditures change with regard to the level of household income. Households were supposed to identify expenditure items that would be consumed more / less in case the income of the household rises / declines. Expenditure items were classified according to COICOP (Classification of Individual Consumption by Purpose). This classification was slightly modified to reflect life style and consumption of households.

- Household appliances and home electronics were included in a separate group because of the high importance of this group within household expenditures.
- Post services and telecommunication, boarding and accommodation and other services were not included in the survey because of their low impact on the level of household expenditures.

I: Structure of consumption expenditures and money income in the Czech Republic in 1998–2006

Index / year	1998	1999	2000	2001	2002	2003	2004	2005	2006
Money income (CZK)	89 712	94 588	97 807	105 776	109 011	98 102	102 217	108 676	116 549
Consumption expenditures (CZK)	67 907	71 696	73 015	78 090	80 397	84 568	87 259	91 085	97 342
From this (%):									
Food and nonalcoholic drinks	25.3	23.2	23.2	22.7	22.2	21.2	21.2	20.6	20.1
Alcoholic drinks, tobacco	3.8	3.4	3.3	3.1	3.1	3.0	2.9	2.9	2.9
Clothing and footwear	7.7	7.0	6.7	6.7	6.5	6.2	5.9	5.6	5.4
Housing, water, electricity, fuel	17.1	17.5	18.5	18.6	19.8	19.7	19.3	20.1	20.7
Furnishing, household equipment	7.9	7.7	7.2	6.9	6.9	6.7	6.5	6.7	6.9
Health	1.5	1.6	1.6	1.7	1.8	1.9	1.9	2.0	2.0
Transport	10.1	11.3	10.6	11.0	10.0	10.7	11.0	11.1	10.9
Post services and telecommunication	2.0	2.5	3.5	3.9	4.0	4.3	4.6	4.6	4.8
Recreation, culture and sport	11.3	11.3	10.8	10.6	10.5	10.8	10.9	10.6	10.2
Education	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5
Boarding and accommodation	4.6	4.8	5.2	5.2	5.1	5.2	5.3	5.1	5.0
Other goods and services	8.1	9.2	8.8	9.0	9.5	9.7	9.8	10.2	10.4

(Source: Czech Statistical Office, modified)

II: Structure of consumption expenditures according to rise / decline of income [%]

Consumption expenditures	rise		decline	
	yes	no	yes	no
Food and nonalcoholic drinks	30.9	69.1	23.4	76.6
Alcoholic drinks and tobacco	6.3	93.7	54.4	45.6
Clothing and footwear	55.1	44.9	41.1	58.9
Housing, water, electricity, fuel	34.8	65.2	15.3	84.7
Furnishing, household equipment	68.3	31.7	42.4	57.6
Household appliances and home electronics	43.3	56.7	41.3	58.7
Health	30.4	69.6	8.9	91.2
Transport	39.9	60.1	36.2	63.8
Recreation and Culture	76.9	23.1	58.8	41.2
Education	37.9	62.1	18.1	81.9

(Source: Self calculation)

According to table II, in case that the income of a household rises by 20%, more than 55% of the households would spend this money on recreation and culture, furnishing, household equipment, clothing and footwear. In the matter of recreation and culture it is even 77% of household choosing this option. Conversely, in case that the income of a household declines by 20%, more than 50% of households would decrease spending on recreation and culture, alcoholic drinks and tobacco. Households would not decrease spending on education and health. These items are important for the households.

To analyze dependencies we used contingency tables. We computed khi-quadrat, Pearson contin-

gency coefficient and Crammer contingency coefficient (see tables IV. and V. in Appendix). To verify dependencies of survey commodity groups and identification characteristics of respondents we calculated χ^2 test of independence. By using contingency coefficients we expressed dependency of all commodity groups and age of respondents. Both Pearson and Crammer coefficients are taking values 0.23–0.38 which shows weak dependency of commodity groups and age of consumers. When computing Pearson and Crammer coefficients for other identification characteristics (gender, social group, education) and commodity groups, we found very weak dependence – almost independence.

To verify dependency of surveyed factors and groups of households sorted by identification characteristics we counted χ^2 test of independence. We used usual 5% significance level – $\alpha = 0.05$. χ^2 test of had to be computed for every identification character:

- **Gender:** To the formula we put 95% quantil χ^2 distribution with $(4 - 1)(2 - 1) = 3$ degrees of freedom. This quantil is equal to 7.81. Critical field is delimited by $\chi^2 > 7.81$. Computed values of χ^2 are lower than 7.81. For this reason we do not reject the independence hypothesis. By computing Crammer contingency coefficient and Pearson contingency coefficient we proved very weak dependence – almost independence.
- **Age:** To the formula we put 95% quantil χ^2 distribution with $(4 - 1)(5 - 1) = 12$ degrees of freedom. This quantil is equal to 21.03. Critical field is delimited by $\chi^2 > 21.03$. Computed values of χ^2 are higher than 21.03. For this reason we do reject the independence hypothesis. By computing Crammer contingency coefficient and Pearson contingency coefficient we proved dependence.
- **Social group:** To the formula we put 95% quantil χ^2 distribution with $(4 - 1)(4 - 1) = 9$ degrees of freedom. This quantil is equal to 16.92. Critical field is delimited by $\chi^2 > 16.92$. Computed values of χ^2 are lower than 16.92. For this reason we do not

reject the independence hypothesis. By computing Crammer contingency coefficient and Pearson contingency coefficient we proved very weak dependence – almost independence.

- **Education:** To the formula we put 95% quantil χ^2 distribution with $(4 - 1)(5 - 1) = 12$ degrees of freedom. This quantil is equal to 21.03. Critical field is delimited by $\chi^2 > 21.03$. Computed values of χ^2 are lower than 21.03. For this reason we do not reject the independence hypothesis. By computing Crammer contingency coefficient and Pearson contingency coefficient we proved very weak dependence – almost independence.

More than 90% of respondents states that there are financial resources left in the household after covering all the necessary expenses. The survey tries to find out how the household allocates available financial resources (see the table III.) Almost 60% of respondents state that part of this money is left aside on the current account or in the form of cash and the rest is invested. Nearly 4% says that all the available financial resources are invested. By investments household means time deposits, pension income insurance, saving accounts at building and loan associations and few households also bonds. 32% of households state that money is left aside on the current account or in the form of cash.

III: Allocation of available financial resources remaining after covering all the necessary expenses

Financial resources	Absolute frequency	Relative frequency
Left aside on the current account / in cash	232	32.0
Part is left aside on the current account / in cash, part is invested	421	58.0
Invested	27	3.7
No money resources left	46	6.3

(Source: self calculation)

SUMMARY

To make effective marketing decisions it is essential to deal with consumer behaviour. Market subjects should get to know what part of income of what consumers is spent on which commodities and how these characteristics change in time and change in relation to the change in income. Objective of this paper was to describe changes and development of consumption expenditures of population, analyze secondary data reflecting expenditures in the Czech Republic and the EU-25, analyze results of primary research by which we obtained information about changes in consumption expenditures related to changes in household income and additionally to find out the way household manages money surplus.

Within the EU the most significant expenditure group is housing, water, electricity, fuel, transport, food and non-alcoholic drinks. These goods and services can be identified as necessary commodities. By spending on these items population satisfies its basic needs. In the Czech Republic the structure of consumption expenditures is similar. Changes in the structure of consumption expenditures of the Czech Republic are monitored over the period of 9 years. No significant deviations were observed. It is important to mention the growth of spending for housing, water, electricity and fuel over spending for food and non alcoholic drinks.

Other part of this paper is devoted to primary data analysis. Primary data were obtained in a questionnaire survey. During the survey 726 informants were questioned – 300 women and 426 men, mostly belonging to the age group 41–50. By analyzing the data obtained in the survey it was described how

the structure of expenditures of the household changes in relation to changes in household income. In case of rising income by 20% household would increase spending on recreation and culture (which means relaxing or adventure activities and hobbies). Households would also invest in new and quality furnishing and clothing and footwear. Contrary, in case of declining income (again by 20%) households would spend less on recreation and culture, alcoholic drinks and tobacco, furnishing and clothing and footwear. These commodities can be identified as unnecessary goods and that is the reason why they show higher income sensitivity. We also conducted the dependency analysis by using contingency tables, khi-quadrat and Pearson and Crammer contingency coefficients. To verify dependency of surveyed commodities and groups of households sorted by identification characteristics we calculated the χ^2 independence test. According to this analysis, the only identification character showing dependence on consumption expenditures is the age of respondents. Other identification characters are almost independent. In case there is a money surplus in respondent's household approximately 60% of respondents allocates these available financial resources to the current account or leaves it in cash. A part of the money is invested.

SOUHRN

Vývoj a změny spotřebních výdajů obyvatelstva

Znalost chování spotřebitele má zásadní význam pro rozhodování o marketingových aktivitách. Pro subjekty na trhu existující nebo na trh vstupující je důležité poznat, na jaké komodity různé skupiny spotřebitelů vynakládají jakou část svých výdajů, jak se tento ukazatel mění v čase a jak se tento ukazatel mění v závislosti na výši příjmu. Problematické spotřebních výdajů se věnuje tento příspěvek. Zjišťuje vývoj a změny ve spotřebních výdajích obyvatelstva v EU-25 a v České republice. Dále dle primárních dat zjišťuje změny ve spotřebních výdajích domácnosti při změnách příjmu.

V rámci Evropské unie jsou nejvýznamnějším spotřebním výdajem výdaje na bydlení, vodu, energii a paliva, dále jsou to výdaje na dopravu, jídlo a nealkoholické nápoje. Tyto komodity, na které obyvatelé vydávají největší část výdajů, můžeme označit jako statky nezbytné, jejich uspokojení je jednou ze základních potřeb člověka. V České republice patří také tyto komodity mezi jedny z největších spotřebních výdajů. Změny v České republice ve vývoji výdajů jsou sledovány za posledních devět let. Nejsou pozorovány žádné významné odchylky ve struktuře výdajových položek. Jedinou podstatnou změnou ve struktuře výdajů je nárůst a převýšení výdajů na bydlení, vodu, energii a paliva přes potraviny a nealkoholické nápoje.

V další části příspěvku jsou analyzována primární data získaná z dotazníkového šetření, kterého se zúčastnilo 726 respondentů. Bylo osloveno 300 žen a 426 mužů, nejčastěji ve věkové kategorii 41–50 let. Pomocí primárních dat se podařilo získat informace o tom, jak se změní výdaje v závislosti na změně příjmů, tj. snížení či zvýšení příjmu domácnosti, ve které respondent trvale žije. Z provedené analýzy plyne, že domácnosti by v případě zvýšení příjmu upřednostnily výdaje na rekreaci a kulturu, tj. odpočinek, dobrodružství a hobby. Dále by si dopřály nové a kvalitnější bytové vybavení a zařízení a pořídily si nové oděvy a obuv. Pokud by se domácnosti snížil příjem o 20%, pak by respondenti snížili výdaje na rekreaci a kulturu, alkoholické nápoje a tabák, bytové vybavení a zařízení domácnosti a také odívání a obuv. Uvedené komodity jsou statky zbytnými, proto nejsou tak významnými komoditami, které člověk nutně potřebuje, a proto vykazují vysokou citlivost na výši příjmu. Byla provedena analýza závislosti pomocí kontingenčních tabulek, výpočtu chí-kvadrátu, Pearsonova koeficientu kontingence a Crammerova koeficientu kontingence. Ověření analýzy závislosti mezi zkoumanými skupinami komodit a identifikačními charakteristikami respondentů bylo provedeno pomocí χ^2 testu nezávislosti. Z analýzy vyplynulo, že jedinými identifikačním znakem závislým na spotřebních výdajích je věk respondenta. U ostatních znaků byla prokázána velice malá závislost, či téměř nezávislost. V případě, že v domácnosti, ve které respondent žije, zůstávají volné finanční prostředky, přibližně 60% dotazovaných uvádí, že část z těchto finančních prostředků ponechává na běžném účtu či v hotovosti a část z nich investuje.

Výsledky uvedené v příspěvku jsou součástí výzkumného záměru. id. kód VZ: 62156 48904 „Česká ekonomika v procesech integrace a globalizace a vývoj agrárního sektoru a sektoru služeb v nových podmínkách evropského integrovaného trhu“, tematický okruh 03 „Vývoj vztahů obchodní sféry v souvislosti se změnami životního stylu kupního chování obyvatelstva a změnami podnikového prostředí v procesech integrace a globalizace“ realizovaného za finanční podpory ze státních prostředků prostřednictvím MŠMT.

spotřebitel, spotřebitelské chování, výzkum, analýza závislosti, spotřební výdaje

APPENDIX

Appendix 1 DEPENDENCY ANALYSIS

IV: Values of khi-quadrat, Pearson contingency coefficient and Crammer contingency coefficient in case of rising household income

Rise of income				
Identification group	Gender	Age	Social group	Education
FOOD AND NON-ALCOHOLIC DRINKS				
Khi-quadrat	0.0551	71.9769	2.8959	13.3324
Pearson coefficient	0.0087	0.3003	0.0630	0.1343
Crammer coefficient	0.0087	0.3149	0.0631	0.1355
ALCOHOLIC DRINKS AND TOBACCO				
Khi-quadrat	0.0941	70.9155	3.1194	5.7212
Pearson coefficient	0.0114	0.2983	0.0654	0.0884
Crammer coefficient	0.0114	0.3125	0.0655	0.0887
CLOTHING AND FOOTWEAR				
Khi-quadrat	1.3651	62.1917	2.6453	5.7952
Pearson coefficient	0.0433	0.2809	0.0603	0.0889
Crammer coefficient	0.0433	0.2927	0.0604	0.0893
HOUSING, WATER, ELECTRICITY, FUEL				
Khi-quadrat	1.0719	54.8801	1.1734	13.2089
Pearson coefficient	0.0384	0.2651	0.0402	0.1337
Crammer coefficient	0.0384	0.2749	0.0402	0.1348
FURNISHING, HOUSEHOLD EQUIPMENT				
Khi-quadrat	0.0285	66.6124	9.1505	8.2245
Pearson coefficient	0.0063	0.2899	0.1116	0.1058
Crammer coefficient	0.0063	0.3029	0.1122	0.1064
HOUSEHOLD APPLIANCES AND HOME ELECTRONICS				
Khi-quadrat	2.4307	56.8966	7.7528	2.6987
Pearson coefficient	0.0577	0.2696	0.1028	0.0609
Crammer coefficient	0.0579	0.2799	0.1033	0.0610
HEALTH, VITAMINS				
Khi-quadrat	0.7599	83.8683	3.6637	12.5948
Pearson coefficient	0.0323	0.3218	0.0709	0.1306
Crammer coefficient	0.0323	0.3399	0.0710	0.1317
TRANSPORT				
Khi-quadrat	0.8062	56.4299	8.0829	8.0903
Pearson coefficient	0.0333	0.2686	0.1049	0.1049
Crammer coefficient	0.0333	0.2788	0.1055	0.1055
RECREATION AND CULTURE				
Khi-quadrat	0.1873	107.5826	29.6736	19.5521
Pearson coefficient	0.0161	0.3592	0.1982	0.1619
Crammer coefficient	0.0161	0.3849	0.2022	0.1641

Rise of income				
Identification group	Gender	Age	Social group	Education
EDUCATION				
Khi-quadrat	0.0032	69.1103	6.4505	3.2051
Pearson coefficient	0.0021	0.2961	0.0938	0.0663
Crammer coefficient	0.0021	0.3100	0.0943	0.0664

(Source: self calculation)

V: Values of khi-quadrat, Pearson contingency coefficient and Crammer contingency coefficient in case of declining household income

Decline of income				
Identification group	Gender	Age	Social group	Education
FOOD AND NON-ALCOHOLIC DRINKS				
Khi-quadrat	0.4459	64.9033	4.1593	2.0210
Pearson coefficient	0.0248	0.2865	0.0755	0.0527
Crammer coefficient	0.0248	0.2990	0.0757	0.0528
ALCOHOLIC DRINKS AND TOBACCO				
Khi-quadrat	0.1132	83.0222	2.1210	6.8001
Pearson coefficient	0.0125	0.3203	0.0539	0.0963
Crammer coefficient	0.0125	0.3382	0.0541	0.0967
CLOTHING AND FOOTWEAR				
Khi-quadrat	0.1076	39.4635	3.8364	1.5580
Pearson coefficient	0.0122	0.2271	0.0725	0.0463
Crammer coefficient	0.0121	0.2331	0.0727	0.0463
HOUSING, WATER, ELECTRICITY, FUEL				
Khi-quadrat	2.7151	57.2198	2.0683	5.3080
Pearson coefficient	0.0610	0.2703	0.0533	0.0855
Crammer coefficient	0.0612	0.2807	0.0534	0.0855
FURNISHING, HOUSEHOLD EQUIPMENT				
Khi-quadrat	0.6466	62.5536	2.4058	1.5051
Pearson coefficient	0.0298	0.2816	0.0576	0.0446
Crammer coefficient	0.0298	0.2935	0.0576	0.0455
HOUSEHOLD APPLIANCES, HOME ELECTRONICS				
Khi-quadrat	1.1371	67.7306	1.9275	3.5105
Pearson coefficient	0.0395	0.2921	0.0515	0.0694
Crammer coefficient	0.0396	0.3054	0.0515	0.0695
HEALTH				
Khi-quadrat	2.1798	40.2008	3.1557	3.2476
Pearson coefficient	0.0547	0.2291	0.0658	0.0667
Crammer coefficient	0.0549	0.2353	0.0659	0.0668
TRANSPORT				
Khi-quadrat	1.4494	73.1109	1.6042	6.7261
Pearson coefficient	0.0447	0.3025	0.0469	0.0958
Crammer coefficient	0.0447	0.3173	0.0470	0.0963

Decline of income				
Identification group	Gender	Age	Social group	Education
RECREATION AND CULTURE				
Khi-quadrat	1.3003	79.2124	5.7951	0.9822
Pearson coefficient	0.0423	0.3137	0.0889	0.0368
Crammer coefficient	0.0423	0.3304	0.0893	0.0368
EDUCATION				
Khi-quadrat	3.7405	63.1351	2.1620	9.5874
Pearson coefficient	0.0716	0.2828	0.0544	0.1142
Crammer coefficient	0.0718	0.2949	0.0546	0.1149

(Source: self calculation)

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