ACTA UNIVERSITATIS AGRICULTURAE ET SILVICULTURAE MENDELIANAE BRUNENSIS

Volume LVIII 10 Number 3, 2010

CONSUMER FOODSTUFFS DEMAND AND INCOME STANDARD DEVELOPMENT IN THE HOUSEHOLDS OF SLOVAKIA

Ľ. Kubicová, Z. Lušňáková

Received: October 30, 2009

Abstract

KUBICOVÁ, Ľ., LUŠŇÁKOVÁ, Z.: *Consumer foodstuffs demand and income standard development in the households of Slovakia.* Acta univ. agric. et silvic. Mendel. Brun., 2010, LVIII, No. 3, pp. 99–106

The present social and economic conditions in Slovakia participate to the behaviour differentiation of individual households on the consumer market. It is possible to speak about changes both in the positive and negative sense of word. The positive impact can be observed in the inter-annual increase of the population revenues especially in the years 2006 and 2007 (by 13.86 % and 12.05 %) in connection with greater possibilities of the employment growth and employment on the work market of the EU member countries. The negative manifestations can be seen within the low income household groups because they represent a great part of households in Slovakia. In spite of the fact that the final consumptions and expenditures of private households increased from 56.3 % in 2000 to 58.3 % in 2005 and it was manifested in GDP, and the growth of the population standard purchasing power increased from € 5400.00 to € 7700.00 per inhabitant (Eurostat 08), Slovakia is within the EU-27 countries at the lower bound of the achieved purchasing power standard (the Eurozone average is € 14000.00). Over the decennial period (1998–2007) the average annual monetary revenue increase of private households was 7.62 % and in 2007 it represented a nominal value of € 4158.269 and in the real expression it was € 4105.009 per a household member. In the past years the economic development in Slovakia (GDP growth by 10.4 % and the final household consumption by 7.1 % in 2007) enabled, at the average annual income growth by 7.62 %, an increase of consumption expenditures by 6.59 % for foodstuffs and for non alcoholic beverages by 3.66 %. This development is confirmed by income-demand analysis results.

monetary income, foodstuffs expenditures, growth coefficients, income elasticity, linear and non linear models (Working and Tőrnquist function)

By Slovakia's entry into the EU in 2004 new possibilities were created not only in the area of incomes forming but also in the changes of consumer habits. The consumer behaviour is based on decision-making of individuals when spending their own resources (i.e. time, money, and efforts) in order to obtain items associated with consumption (Stávková et al. 2007). As stated by Stávková et al. (2008), consumer decisions are made only on the basis of a few criteria. Instead of comparing more characteristics, a consumer decides according to price criteria (he/she issues from the presumption that a higher price means also a higher quality). The starting point for the changes in the shown areas was the year 1989 since when we can follow the realisation and impact of individual reforms. The reforms created preconditions for further development of the Slovak economics and living standard within the European community. In order to achieve success in the domestic and foreign market, producers and distributors should be aware of the consumer behaviour, and have a good command of efficient methods of influencing it to gain the benefit (Bielik et al. 2008). This article intents to point to the development of revenues and its reflection upon the consumer behaviour of the population upon a quantitative analysis which further compares the foodstuffs consumption level within the final consumption of the Slovak households in the aggregate and also within individual social groups of households. In order to deal

with the lack of money, households from the lower income levels reduce their expenditures for foodstuffs more often than those from the higher income levels (Melicherová, 2006). Changes and possibilities are studied in the sea-room for the consumption both in the area of creation and distribution of revenues so in the changes of the income and expenses structure of individual social groups of households.

MATERIAL AND METHODS

In the course of the subject-matter area investigation we have followed up the knowledge achieved from analyses which identified the level and the changes in the development of the consumer behaviour of the population and individual social groups of inhabitants (Jamborová, 2005; Krížová, 2007). The data on incomes and consumptions published in Statistical Yearbook and in Eurostat database served as an information basis for the analyses.

The changes in the development of the studied indicators in time (y_t) were expressed via growth coefficient

$$k_i = \frac{y_t}{y_{t-1}}$$

and summarily over the period of the years 1998–2007 via an average growth coefficient

$$k' = \sqrt[T-1]{k_1 * k_2 * \dots k_i \dots * k_t}.$$

The quantitative analysis of income elasticity of expenditure groups within food basket of an average Slovak household as well as individual social groups of households was performed using one equation regression models of demand for foodstuffs products. The effect of fluctuation in price levels was, at the performed demand analysis, eliminated by a transfer of nominal incomes and expenditures to the real level by calculation using the consumer prices index. On the basis of the determined conversion rate of exchange of the Slovak crown toward € at the level of 30.126 SKK per 1 € backwardly all monetary currency indicators entering the subject-matter analysis were re-counted for the unified comparable and valid since 1. 1. 2009. In order to obtain a more simple interpretation of the results achieved within the evaluation of the income elasticity of demand for foodstuffs individual models have been defined as linear relations of the dependance of the increase of real expenses for foodstuffs on the increase of real incomes.

The possibility to use the method of direct squares directly and a sound interpretation of the results achieved shifts the linear models among the most often used models for economic analyses. A linear model starts from the relation:

$$\text{RVP} = \beta_0 + \beta_1 + \text{RPP}.$$

With regard to the fact that the increases of real expenditures for foodstuffs are conditioned by several factors, first of all by prices, the level of income increases, habits and so on and are limited by physiological needs and rational behaviour of the consumer, also non linear models were used. From several possibilities of suitable non linear models of income demand for foodstuffs analysis and recommended by authors (Tvrdoň, 1999; Syrovátka, 2006; Schneider and Adamczik, 2003 et al.), we have applied Working and Tőrnquist functions. Working demand function is expressed by the relation:

$$\text{RVP} = \exp\left(\beta_0 + \beta_1 * \frac{1}{RPP}\right), \text{where } \beta_0 > 0, \beta_1 < 0$$

and Törnquist function (for basic goods)

$$\text{RVP} = \frac{\beta_0 * \text{RPP}}{\beta_1 + \text{RPP}}, \text{where } \beta_0 > 0, \beta_1 > 0.$$

where:
RVP – real expenditures for foodstuffs and non-alcoholic beverages in € per capita/year
RPP – real monetary incomes in € per capita/year.

The shown non linear functions enable to express not only the relation between the growth rates of relative increase of real expenditures and the growth rate of the increase of the income real level but also a possibility to assess the demand saturation.

Since the shown regression functions are by their character non linear in parameters, to be able to assess coefficients β_0, β_1 their approximation to linear form was necessary. This enabled us to use the method of the smallest sum of squares to assess regression parameters as with the linear regression function and then to perform the verification of statistical demonstrativeness of the income demand model as a whole as well as its parameters by means of Snedocor F division issuing from the relation:

$$F_{(n,\,n-k-1)} = \frac{\frac{R^2}{k}}{\frac{1-R^2}{n-k-1}}.$$

RESULTS AND DISCUSSION

Income level development

The income level and the households final consumption unfolded from the results of the country economic development results and the goods and services price level development. The macroeconomic development of Slovakia over the past ten years was a dynamic one. In 2007 compared to the previous year the growth of GDP made a real increase by 1.9 % and reached 10.4 % growth (constant prices in 2000) and 11.6 % growth in common prices. The overal GDP, as given by (Haluška and Olexa, 2008) was shared by the work productivity growth accompanied by a 2.4 % inter-annual growth of employment. The inter-annual increase of GDP was also influenced by a continuing 16 % growth of foreign demand and growth of products and services export by 16.9 %. The final real household consumption increased inter-annually by 7.1 % and the real average

monthly pay was increased by 4.3 %. The overal domestic consumption of households in 2007, shared with expenses for food products (22.1 %), habitation, water, electricity and gas expenses (19.8 %), showed a decreasing trend of the share in the structure of consumption spendings of households. An accelerated growth over the period under evaluation was observed in expenditures for health and especially for recreation, culture, transport and other net expenditures.

Consumer's decision making while ensuring nutrition needs and other goods and services is affected substantially by the development of net monetary incomes. The source of monetary income in households were first of all incomes from employment. Their proportion in 2007 compared with the year 1998 dropped by 6.2 % on the other hand enterprise revenues increased by 4.4 % to the level of 10.9 % and the social incomes were increased by 2.1 % to the level of 27.3 % within the monetary income structure.

The nominal incomes of the population over the ten year period under evaluation (Tab. I) increased annually in average by 7.62 %. A higher inter-annual growth of incomes in the years 2001, 2007 was the main contribution to this trend and especially the year 2006 when the inter-annual incomes increased by more than 10 %. Compared to the year 1998 the level of nominal incomes in 2007 was higher by 1.936 %, that is, by € 1857.125 and of total monetary expenditures by 1.819 %, that is by € 1643.829.

The variable dynamism of monetary income growth was also manifested on the development of consumption expenditures. The growth of consumption expenditures in the past decade was by 6.59 % in average. A marked growth and above the ten year inter-annual growth of expenditures was recorded in 2001 and especially in 2006 (13.24 %), and that was also a reflection of a 13.86 % inter-annual growth of monetary incomes. In Slovakia the expenditures for foodstuffs and non-alcoholic beverages still prevail in the consumption expenditure structure. Their proportion over the period in question decreased and dropped from 28.4 % (year 1998) to 22.1 % (year 2007). This downtrend is also reflected against a relatively low 3.6 % average inter-annual growth of expenditures for foodstuffs. This development was conditioned by a smaller (2.8 %) growth of consumer prices index. The positive development after the year 2001 was especially the result of deregulation measures in the price area. We can state that a convergence acceleration happened within the expenditure structure of the Slovak households compared to the old EU-15 members structure. It is manifested mainly in the share of expenditures for foodstuffs, habitation and clothing. In comparison with the EU-27 countries in the year 2005 the share of expenditures for foodstuffs still represented almost one quarter in the structure of the consumption expenditures and it was by 11.4 % greater than in the EU-27 countries. In consequence of greater inter–annual growth of monetary incomes and a 2.8 % growth of consumer prices in the year 2007 this difference decreased to the level by 9.3 % higher compared to the average of EU-27 countries. A lower level of consumer expenditures of Slovak households compared to the EU-27 countries can be observed in the first place at a lower level of expenditures for transport, hotels, restaurants and recreation and culture. But expenditures for various goods and services and other net expenditures increase. In the nearest period we can expect further changes in the structure of consumer expenditures consequential to the world financial crisis followed by the unemployment growth, decrease of monetary income and the necessity to increase the social expenses of the state.

The development of expenditures for foodstuffs and non alcoholic beverages from the aspect of individual groups of households

The behaviour of population on the consumer market of goods and services, that is also the foodstuffs consumption, should be understood not only from the aspect of the level and income, household composition and its members'position but also with regard to the economic activity presented by individual social groups of households. The manifestation of the given factors can be observed first of all in the area of income changes and possibilities following from it in order to secure consumption expenditures. It results from the statistics of family accounts that during the period of the years 1998–2007 the greatest nominal income growth was shown in households of employees. The income of this social group increased annually by 7.07 % in average and in 2007 it reached € 3913.098 per person and year but it was lower than the income of self-employed persons (€ 4158.269). A relatively high, an 8.02 % annual income increase is also shown in households of old age pensioners. As a result of every year valorization of pensions the net monetary incomes level in 2007 reached € 3743.800 per one household member. In the households of employees a higher inter-annual growth of income was observed in the year 2001 and chiefly in 2006 and 2007. The evidentiary indicator for comparison of the living standard level of the population also from the international point of view is the indicator showing the share of monetary expenditures for foodstuffs from the overal consumption expenditures. It enables to follow what part of the income is spent for satisfaction of basic alimentary wants of the inhabitant and what part of financial means is spent for satisfaction of other wishes related to living, clothing, education and health care. A higher level of monetary income determines the structure of consumer expenditures in which a greater load of expenditures for raising of habitation, health care, for rest and smaller share for foodstuffs and non-alcoholic beverages is reflected. In general, the more economically advanced is the country the smaller is the share of expenditures for foodstuffs and beverages from the overal

I: *Inter-annual indexes of incomes and expenditures of households in the aggregate*

Indicator	Index										k´
	1998/1997	1999/1998	2000/1999	2001/2000	2002/2001	2003/2002	2004/2003	2005/2004	2006/2005	2007/2006	
Net money income	1.057	1.052	1.089	1.116	1.050	1.056	1.026	1.039	1.138	1.120	1.076
Net money expenditure	1.093	1.037	1.082	1.110	1.030	1.066	1.025	1.040	1.147	1.083	1.068
Consumption expenditure	1.099	1.037	1.075	1.101	1.031	1.066	1.034	1.041	1.132	1.078	1.065
Foodstuffs expenditure	1.054	1.02	1.017	1.021	1.026	1.035	1.087	1.020	1.052	1.058	1.036
Consumer price index	106.7	110.6	112.0	107.3	103.3	108.5	107.5	102.7	104.5	102.8	x

Source: Slovak Statistical Office, own calculations

II: *Inter-annual indexes of incomes and expenses according to social groups of households*

Indicator	Index										k´
	1998/1997	1999/1998	2000/1999	2001/2000	2002/2001	2003/2002	2004/2003	2005/2004	2006/2005	2007/2006	
Net money income of employees	1.058	1.048	1.090	1.125	1.042	1.057	1.058	1.026	1.031	1.116	1.076
Net money income of self - employers	1.044	1.058	1.069	1.042	1.109	1.069	1.040	1.040	1.032	1.174	1.070
Net money income of pensioners	1.030	1.071	1.082	1.085	1.058	1.051	1.108	1.061	1.099	1.105	1.082
Consumption expenditure of employees	1.092	1.034	1.075	1.104	1.027	1.060	1.046	1.042	1.140	1.075	1.067
Consumption expenditure of self - employers	1.064	1.025	1.060	1.027	1.111	1.046	1.046	0.980	1.034	1.129	1.050
Consumption expenditure of pensioners	1.094	1.069	1.080	1.084	1.006	1.116	1.093	1.076	1.097	1.034	1.072
Foodstuffs expenditure of employees	1.057	1.010	1.017	1.028	0.965	1.037	1.060	1.038	1.065	1.045	1.037
Foodstuffs expenditure of self - employers	1.011	0.992	1.020	1.063	1.008	1.031	1.056	0.966	1.024	1.086	1.027
Foodstuffs expenditure of pensioners	1.079	1.009	1.052	1.043	0.985	1.071	1.089	1.034	0.996	1.058	1.039

Source: Slovak Statistical Office, own calculations

consumption expenditures of households (Pauhofová and Páleník, 2005). In the structure of final consumption of individual social groups of households in Slovakia expenditures for the provision of food prevail. Their share over the period in question shows a downtrend. In 2007 the households of self-employed persons and households of employees regarding higher monetary incomes reduced the share of foodstuffs expenditures to the level of 20.1 % and/or 20.07 %. On the other hand the increasing proportion of old age pensioners in the demographic composition of the population shows a high, 27.3 % share of foodstuff expenditures for the overal consumption expenditures in 2007.

As resulting from results (Tab. II), the inter-annual changes of expenditures for foodstuffs increased moderately at all social groups apart from the years 2002 and 2005. The highest average inter-annual growth of expenditures by 3.93 % is observed at households of old age pensioners and by 3.71 % households of employees. Even if the inter-annual expenditures for foodstuffs increase every year, the Engel's principle that the income growth is related to a more moderate growth of expenditures for foodstuffs it is being confirmed but it is necessary to keep in mind the amount and share of monetary expenditures for foodstuffs are affected by a range of factors such as the consumer prices of foodstuffs and prices of other goods and services, consumer preferences, habits, multitude and age composition of a family.

Development trend of foodstuffs expenditures and demand saturation

The development of foodstuffs expenditures in the conditions of Slovak households has been modelled by means of regression and non linear function and based upon the past ten year period of the years 1998–2007. In regard of the inter-annual fluctuation in prices, the expenditures for foodstuffs and monetary incomes have been expressed by means of consumer prices index to their real value. From the parameter of the linear regression model (Tab. III) we can state a statistically high demonstrativeness of the dependence of the real expenditures for foodstuffs increase rate on the real incomes increase rate. It follows from the results achieved that a Slovak household at the real monetary income increase by 100 € could increase its expenditures for foodstuffs and non-alcoholic beverages per one household member € 11.76 in average per year.

From the view of individual social groups, the nearest to the universal average were the consumer bounds of demand for foodstuffs in regard to incomes of the employees households. This social group of households at an average ten year income € 2648.804 per year could increase their expenditures for foodstuffs per a member by € 11.00. A more favourable development of the consumer

III: *Parameters of regression models the dependence size of real expenditures for foodstuffs (RVP) on the real money income (RPP)*

Households	Model parameters	R^2	Significance F
Households total	$RVP = 278.637 + 0.117\,RPP$	0.911**	82.03
	$RVP = \exp(6.881 - 1283.96\frac{1}{RPP})$	0.874**	55.49
	$RVP = \frac{1174.162 * RPP}{2573.06 + RPP}$	0.885**	61.46
Households of employees	$RVP = 267.304 + 0.110\,RPP$	0.948**	146.45
	$RVP = \exp(6.841 - 1313\frac{1}{RPP})$	0.932**	110.23
	$RVP = \frac{1142.854 * RPP}{2701.53 + RPP}$	0.946**	140.17
Households of self-employers	$RVP = 338.022 + 0.086\,RPP$	0.785**	29.22
	$RVP = \exp(6.818 - 1238.73\frac{1}{RPP})$	0.852**	46.10
	$RVP = \frac{1058.201 * RPP}{2269.503 + RPP}$	0.869**	53.53
Households of pensioners	$RVP = 369.443 + 0.147\,RPP$	0.925**	98.66
	$RVP = \exp(7.118 - 1237\frac{1}{RPP})$	0.943**	133.45
	$RVP = \frac{1509.710 * RPP}{2553.633 + RPP}$	0.953**	161.78

Source: Own calculations. CPI (previous year = 100)
** –a model statistically documented at $\alpha < 0{,}01$ $F_{0,01(1,8)} = 10{,}56$

behaviour based on the increase of monetary incomes was recorded in households of self-employed persons. At the average ten year monetary income of € 2867.89 per a household member the increase of expenditures for foodstuffs in average by € 8.62 per year was sufficient when the next real income is increased by € 100. Lower expenses for foodstuffs and non-alcoholic beverages allowed for a better provision of basic maintenance and greater possibilities for satisfaction of discretional expenditures such expenditures for education, recreation, culture, savings. The smallest space and possibilities for the provision of needs at a higher level of Maslow´s Hierarchy of Needs such as the need of assurance and social needs were in household of old age pensioners. This social group, even if their incomes are valorized each year, shows over the follow up decade an average annual income in an amount of € 2509.716 per a household member. On the basis of the linear regressive model we can state that the households of old age pensioners spent € 14.71 for foodstuffs per each increase of monetary income by € 100. In average a family of old age pensioners spent 738.723 € for foodstuffs, while family of employees spent 559.490 € and households of self-employed 585.463 € per year.

It is necessary to take into account the fact that the old age pensioners in Slovakia in 2007 formed 1.9 % of population and they are the quickest growing segment of the population. They do not create a homogeneous social group and it is possible to split them into three groups as a minimum. Active pensioners (Go-gos), pensioners with certain health and other problems (Go-slows) and pensioners necessitating in a constant care (No-gos) (Kotler, 1995).

In a relative expression on the basis of income elasticity coefficients results that with the growing income at all households the share of expended real expenses for foodstuffs decreased and classifies foodstuffs to the basic, inevitable basic goods and the demand for foodstuffs as a non elastic.

1: *1: Development of real income in € per capita/year*
Source: Own calculations

2: *Development of real expenditures for foodstuffs and non-alcoholic beverages in € per capita/year*
Source: Own calculations

The households of self-employed persons (E_I = 0.4226) responded least elastically (Tab. IV) which followed also from the higher income level. The income elasticity with old age pensioners (E_I = 0.4997) indicates that the increase of real income by 1 % conditions 0.4997 % increase of real expenditures for foodstuffs and non-alcoholic beverages. It is an evidence that the obligatory expenditures such as foodstuffs, rental, powers, medical treatment, draws off the rucial part of their consumption expenditures. The highest elasticity of the consumer demand for foodstuffs is recorded in households of employees (E_I = 0.5222). The increase of real income by 1 % conditions with this social group of households the growth of real expenditures for foodstuffs and non-alcoholic beverages by 0.5222 %.

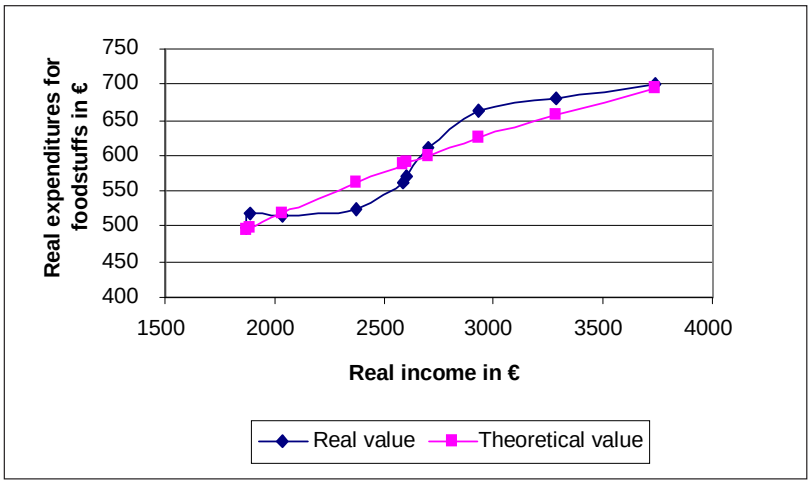
The applied non linear models of Working and Törnquist functions expres a coincident expression of income elasticity both in households together and in households of individual social groups.

The saturation of the demand for foodstuffs and non-alcoholic beverages, that is the limit up to which the real expenditures grow (Fig. 3) but it is not crossed over at the next real incomes increase and/or as an expenditure which the consumer would be willing to make at extremely high and continuously growing incomes, is in individual households and models different (Tab. IV). The estimated interval of the possible saturation of the demand for foodstuffs ranges from € 1058.2 to € 1509.7 and in case of the Working function model from € 913.88 to 1234.31 per capita/year. The applied non linear functions proved to be suitable functions for modelling the demand for foodstuffs and income elasticity development. The Working function gives, compared to the Törnquist function lower values of the demand point of saturation and its application from the algorithm point of view is less demanding than it is with Törnquist function.

IV: *Income elasticity E_I and point of saturation for foodstuffs of households by social groups in Slovakia*

Households	Function			Saturation point in €	
	Linear	Working	Törnquist	Working	Törnquist
Total	0.5233	0.4930	0.4972	973.85	1174.16
Employees	0.5222	0.5300	0.5215	935.61	1142.85
Self - employers	0.4226	0.4319	0.4418	913.88	1058.20
Pensioners	0.4997	0.4929	0.5043	1234.31	1509.71

Source: Own calculations



3: *The dependence course of real expenditures for foodstuffs on real households incomes together. (Törnquist function)*
Source: Own calculations

SÚHRN

Vývoj spotrebiteľského dopytu po potravinách a dôchodkovej úrovne domácností v SR

Súčasné spoločenské a ekonomické podmienky na Slovensku prispievajú k diferenciácií správania sa jednotlivých domácností na spotrebiteľskom trhu. Možno hovoriť o zmenách, ktoré sa prejavujú ako v pozitívnom, tak aj v negatívnom smere. Pozitívny dopad možno pozorovať v medziročnom prírastku príjmov obyvateľstva najmä v rokoch 2006 a 2007 (o 13,86 % a 12,05 %) v súvislosti s väčšími možnosťami rastu zamestnanosti a uplatňovaním sa na pracovnom trhu členských štátov EÚ. Negatívne prejavy sledujeme predovšetkým v rovine nízko príjmových domácností, ktoré reprezentujú veľkú časť domácností na Slovensku. Napriek zvyšovaniu podielu konečnej spotreby a výdavkov súkromných domácností z 56,3 % v roku 2000 na 57,3 % v roku 2005 na HDP a náraste štandardu kúpnej sily obyvateľstva z 5400 € na 7700 € na obyvateľa (Eurostat 2008) je Slovensko v rámci krajín EÚ-27 na dolnej hranici dosahovaného štandardu kúpnej sily (priemer Eurozóny je 14000 €). Za desaťročné obdobie (1998–2007) bol priemerný ročný prírastok peňažných príjmov súkromných domácností 7,62 % a predstavoval v roku 2007 v nominálnej hodnote úroveň 4158,269 € a v reálnom vyjadrení 4105,009 € na člena domácnosti. V posledných rokoch ekonomický vývoj na Slovensku (10,4 % rast HDP a 7,1 % rast konečnej spotreby domácnosti v roku 2007) umožňoval pri priemernom ročnom raste príjmov o 7,62 %, rast spotrebných výdavkov o 6,59 % a 3,66 % rast výdavkov na potraviny a nealkoholické nápoje. Tento vývoj potvrdzujú aj výsledky príjmovo–dopytovej analýzy.

peňažné príjmy, výdavky na potraviny, koeficienty rastu, príjmová elasticita, lineárne a nelineárne modely (Workingová a Tőrnquistová funkcia)

REFERENCES

BIELIK, P., ŠAJBIDOROVÁ, Z., 2009: Elasticity of consumer demand on pork meat in the Slovak Republic. In: *Agricultural economics*. Vol. 55. No. 1. p. 12–19. ISSN 0139-570X.

HALUŠKA, J., OLEXA, M., 2008: Analysis of the Slovak economics development in the year 2007 and its development prognosis for the year 2008 with prospects till 2011. Bratislava: Slovak Statistical and Demographic Society. p. 27–33. ISBN 978-80-88946-47-2.

JAMBOROVÁ, M., 2005: Comparative analysis of the chosen kinds of foodstuffs evelopment on the Slovak market and in the EU from 1993 to 2003. Bratislava: VÚEPP. 65 p. ISBN 80-80 858-376-5.

KOTLER, P., 1995: *Marketing management*. Praha: Victoria Publishing. 789 p. ISBN 80-85605-08-2.

KRÍŽOVÁ, S., 2007: Database formation of population incomes, consumption and chosen foodstuffs commodities prices and factors influencing foodstuffs consumption. Bratislava: VÚEPP. 28 p. ISBN 978-80-8058-459-7.

MELICHEROVÁ, A., 2006: Decision–making process of households on food consumption. *Agricultural Economics*. Vol. 52. No. 7. p. 328–334. ISSN 0139-570X.

PAUHOFOVÁ, I., PÁLENÍK, M., 2000: Income situation and forming consumer habits of the Slovak population. *Ekonomický časopis*. Vol. 53. No. 10. p. 972–990.

STÁVKOVÁ, J., STEJSKAL, L., TOUFAROVÁ, Z., 2008: Factors influencing consumer behaviour. *Agricultural Economics*. Vol. 54. No. 7. p. 276–284. ISSN 0139-570X.

STÁVKOVÁ, J., PRUDILOVÁ, H., TOUFAROVÁ, Z., NAGYOVÁ, Ľ., 2007: Factors influencing the consumer behaviour when buying food. *Agricultural Economics*. Vol. 53. No. 7. p. 276–284. ISSN 0139-570X.

SYROVÁTKA, P., 2006: *Theoretical-and-methodological aspects of the income elasticity of consumer demand*. 1. vyd. Brno: MSD. 164 p. ISBN 80-86633-69-1.

SZNAJDER, M., ADAMCZYK, G.., 2000: Ocena metod wyznaczania współczynników elastyczności dochodowej popytu. In: *Acta scientiarum polonorum*. Warszawa, Oeconomia. Vol. 2. No. 1. p. 25–41.

TVRDOŇ, J., 1999: *Econometrics*. Praha: PEF ČZU. 222 p. ISBN 80-213-04282-0.

Address

Ing. Ľubica Kubicová, PhD., Ing. Zuzana Lušňáková, PhD., Katedra marketingu, Slovenská poľnohospodárska univerzita v Nitre, Tr. A. Hlinku 2, 949 76 Nitra, Slovenská republika, e-mail: Lubica.Kubicova@fem.uniag.sk; Zuzana.Lusnakova@fem.uniag.sk