

# CHANGING FOOD CONSUMPTION PATTERNS THE CASE OF MEAT CONSUMPTION IN SLOVAKIA

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*THE purpose of this paper is to examine consumption patterns of the Slovak consumers. The main objective of this study is to investigate the determinants of households' meat consumption using main economic factors. These include per capita beef, pork, poultry meat consumption and the percentage share of individual households' expenditures for individual sorts of meat. The interest is stemmed on the individual household categories. The Household Budget Survey of the Slovak Statistical Office was used for period 1993-2006. The use of household level data offers the potential of providing a richer dataset that may offer additional insight into the underlying economic relationships.*

*The objective of this study is to examine whether economic factors alone are still the main drivers of meat consumption among households in Slovakia.*

**Key Words: Demand, Meat Consumption, Household Categories, Expenditures.**

## Introduction

One of the primary factor affecting food consumption patterns is the consumers' ability to purchase food. The last two decades have witnessed major increases in per capita income levels of households all over the world.

A question that arises is whether economic factors are still the only factors that determine the world consumption, especially in Slovakia. In this regard it is important to take note of the studies of Bansback (1995), Huston (1999) and Dickinson et al (2003), who showed that non-economic factors (i.e. non price/income factors) are becoming more important in determining consumers' purchasing decisions in recent period. For example, in a study by Bansback (1995) on the demand for meat in the EU, he showed that, for the period 1955 to 1979, price and income factors accounted for a higher proportion of the explanation of changes in meat consumption than the period 1975 to 1994. Huston (1999) argues that, by focusing only on product consistency and quality, food safety, health and nutrition concerns and convenience, since 1998 the US beef industry was able to stabilize beef demand. Dickinson et al (2003) concludes that many, but not all, Canadian and American consumers would be willing to pay for red-meat traceability, transparency, and enhanced quality assurances in red-meat products. In 1970 pork was the second-most consumed meat in the world after beef. However, in 1980 pork overtook beef as the most consumed meat. Pork's share of world consumption in meat increased from 34.6 per cent in 1970 to 43.4 per cent in 2003 (Barnard, 2005).

The share of total European household expenditure on food has declined steadily with rising incomes. Currently it ranges from 10% to 35% of total household consumption expenditure, with the smallest shares in the EU-15 Member States and larger shares in new Member States. Recent food safety problems such as BSE, pig pest, avian flu and salmonella have led to a stronger focus on food-safety and health. The BSE outbreak was a major reason for the reduction in the consumption of bovine – red meat (EEA, 2005).

## Data and Methodology

The dataset includes per capita beef, pork, poultry meat consumption and the percentage share of individual households' expenditures for individual sorts of meat. The interest is stemmed on the individual household categories. The Household Budget Survey of the Slovak Statistical Office was used for period 1993-2006. As a consequence of survey methodology change in the

year 2004 we employed time series of the years 1993 till 2003 in pursuit of data consistence preservation according to the individual households categories level.

The use of household level data offers the potential of providing a richer dataset that may offer additional insight into the underlying economic relationships.

## Results

Increasing attention is being paid to the question of structural change in the demand for meat products, especially beef. Declining per capita consumption of red meat and increasing consumption of pork and poultry meat reflects on changes in consumer preferences in Slovakia.

The past ten years in the countries of former Eastern Block were connected with dramatic changes as a consequence of the transformation. The decline in purchasing power of the population and reduction in consumer subsidies have resulted in significant drop in meat consumption in the early 1990s. In the year 1991 occurred in Slovakia the price liberalization took plan in Slovakia, which affected 85% prices.

The economic factors have the most significant impact on foodstuff expenditure development. Decreasing food expenditures are influenced by economy growth. Foodstuff consumption is influenced by development of GDP, real incomes and prices. During past years noticeable increase in expenses for housing, water, energy and other fuels has taken place.

According to the foodstuffs expenditures expenses for meat and meat products represent major part. Its share stagnated at the level of about 30% during analysed period. For comparison the level of expenses for bread, cereals, milk, cheese and eggs was around 20%.

Decreasing domestic beef meat production affects increase of consumer prices which indicates declining consumption by stagnated purchasing power. On the contrary poultry consumption is showing a growing trend. Consumption of fishes is not suitable in the long term.

Although food consumption usually follows a rather steady pattern, the animal diseases that occurred during recent years have strongly affected the meat consumption. BSE, foot and mouth disease and swine fever have had a severe impact on food markets in the EU causing demand for meat to decrease rapidly. These facts are of great significance for the analysis.

The determinants and effects of changes in meat consumption patterns are income and the related effects of out of home consumption and growing convenience, prices (especially for poultry), health consciousness and to a lesser extent environmental consciousness. The change in demographic structure is a wide field and comprises change of age structure, change of household size and marital structures, migration from rural to urban areas and many other variables.

However the meat consumption of Slovak inhabitants does not exceed consumption in individual EU countries its structure is not convenient for well-balanced diet principles. It is caused by customary eating habits and on the other hand by worsening economic situation of major Slovak population as well. The course of average meat consumption in Slovakia is represented in table 1.

**Table 1: Per capita Average Meat Consumption in Kg**

Year	Beef	Pork	Poultry
1993	14.9	36.2	11.8
1994	13.7	36.4	11.9
1995	11.8	36.8	13.4
1996	11.6	37.3	14.4
1997	11.7	37.2	15.5

1998	11.4	36.9	16.0
1999	10.2	35.9	17.4
2000	9.1	33.1	17.1
2001	6.9	31.8	18.5
2002	6.7	31.3	18.5
2003	6.8	32.3	20.7
2004	6.2	31.9	20.4
2005	6.3	32.9	21.1
2006	5.3	32.2	22.3
2007	5.4	32.2	19.9

**Source: Slovak Statistical Office, 1993-2007, Household Budget Survey.**

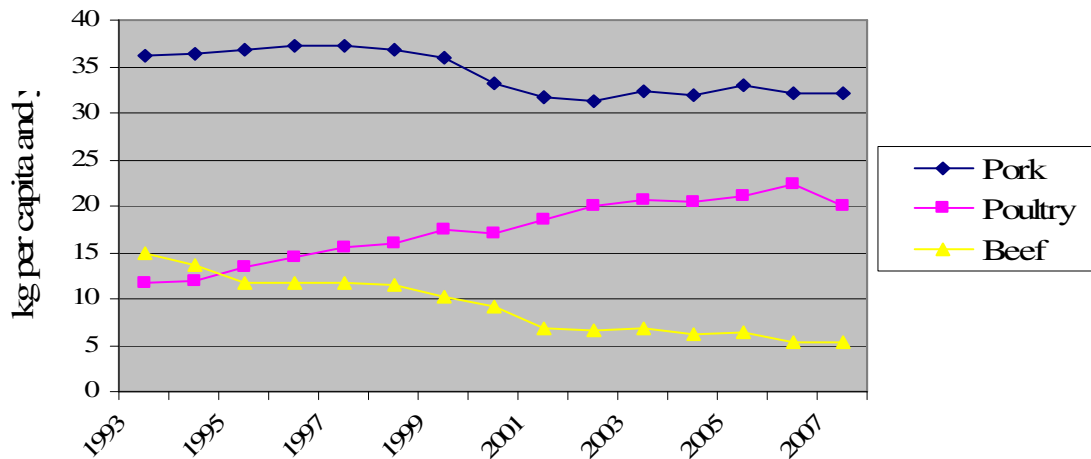
The aggregate average consumption of beef meat per year during the years 1993 – 2007 in Slovakia was 52 549 tons. During the analysed period the average beef meat consumption decreased by 45 540 tons (57 %), the decline per capita consumption was 9.5 kg. The main recession behind this was occurrence BSE of disease in Europe in 2000/2001 and later in the Slovakia.

Beef consumption is projected to stagnate or slightly decline over the medium term as the potential increase fuelled by rising income level would be broadly offset by the sustained price increase for beef observed since enlargement of the EU and by the low consumer preference for beef meat. Beef market prices have increased substantially in the new Member States of EU upon enlargement, with increases ranging between 10 to 30%. It is expected that the tight market within the EU could result in firm prices throughout the projection period.

During the analysed period the poultry meat consumption increased by 45 366 tons, i.e. an increase by 71 per cent. Only the per capita poultry meat consumption increased during analysed period of years 1993 – 2007 by 8.1 kg (table 1). The poultry meat consumption has a long term increasing course and in spite of this fact it still didn't reach the level of average consumption of EU 15. We suppose that the annual rise of poultry meat consumption in Slovakia will continue. Pork meat consumption will be more stable with a slight decrease.

The outlook for pork meat consumption is in general positive since pork meat is likely to continue to be favoured by Slovak consumers, although evidently less than poultry. After the gradual decrease observed, per capita pork consumption is projected to increase or to maintain relatively stable level.

The future trend for poultry production remains relatively positive with respect to other meats, strong consumer preference and increased use in food preparations should continue to play in favour of poultry. Per capita poultry consumption is projected to increase because of the benefits from a growing consumer preference.



**Figure 1: Comparison of Average Meat Consumption in Slovakia**

*Source: Slovak Statistical Office, 1993-2007, Household Budget Survey.*

During analysed period 1993 – 2006 percentage share of meat expenditures of total expenditures was decreasing. Reason of this decline is the price liberalization too, which took place in the year 1991 and during it 85% prices were liberalized.

This development was partly caused by the direct income effects of transition. Income declined until the early mid-1990s, and recovered from 1995. Another part of the decrease of consumption was due to the rising prices of meat. It is also noteworthy that consumption of white meat grew being relatively low cost and having short production cycles. An additional cause might be the loss of consumers' confidence especially in beef products after the BSE-crises.

We can observe the meat demand of specific social group according to the analyses of expenditures' percentage share of individual household units (table 2).

Rising food commodity prices during the last decade tend to negatively affect lower income consumers more than higher income consumers. First, lower income consumers spend a larger share of their income on food. Second, staple food commodities such as corn, wheat, rice, and soyabeans account for a larger share of food expenditures in low-income families.

The highest decrease of expenditures share – by 2.9% was noted in the household category Pensioners. In spite of this pensioners households is a category with the highest share of meat expenditures. This fact was connected with customary eating habits. We can not omit an important fact that in these households children do not live, which was to decrease in average meat consumption in other categories. Households of Businessmen and Employees have the lowest share of expenditures for meat. According to the income level these households' categories are with the highest level of income.

### **The Pork Meat Consumption Development According to the Individual Household Categories in Slovakia**

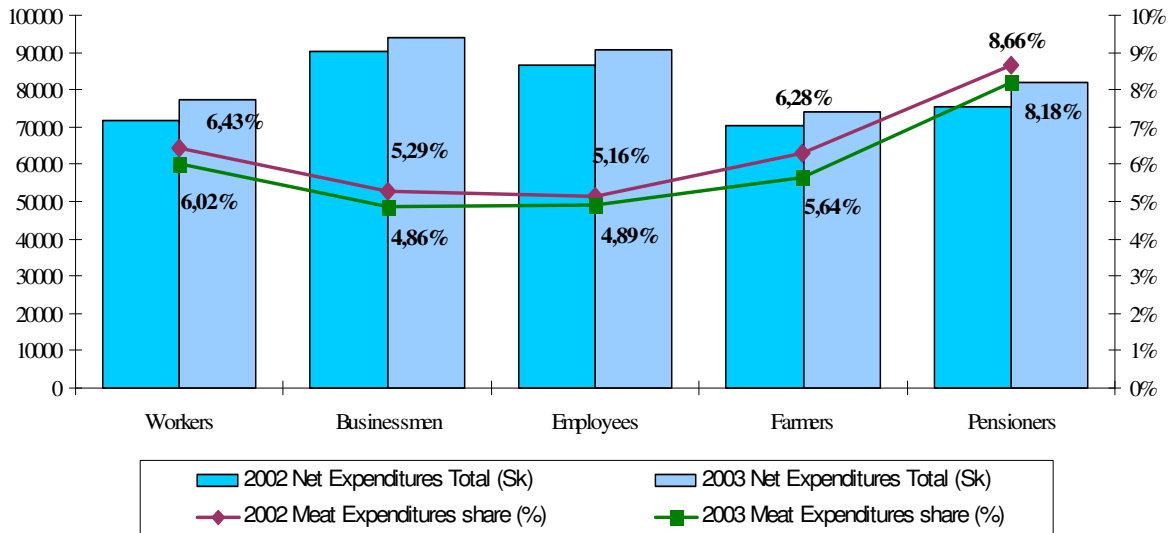
Slovakia is the among states with predominant pork meat consumption. The pork meat has a considerable proportion in meat consumption per inhabitant and per year (51.1 per cent in the year 2005). The pork meat consumption development according to the individual household categories has fluctuating course. It is caused mainly by its price availability and long-term consumers preferences.

Historical eating habits are mainly influenced by pork consumption. According to this fact the household category of pensioners has the highest level of pork consumption. We can not omit a significant fact that in these households children are not there, which decreases the average consumption per person.

**Table 2: Meat Expenditures Share of Net Household Expenditures (Per Person and Year)**

Year	Workers	Businessmen	Employees	Farmers	Pensioners
1993	8.28%	6.14%	6.79%	5.87%	11.08%
1994	8.74%	7.46%	7.27%	6.62%	11.94%
1995	8.25%	7.38%	6.98%	6.46%	11.62%
1996	7.94%	7.46%	6.49%	6.30%	11.34%
1997	7.82%	6.72%	6.48%	6.25%	10.47%
1998	7.73%	6.24%	6.23%	6.30%	10.49%
1999	7.32%	6.10%	5.65%	6.59%	9.62%
2000	7.02%	5.67%	5.40%	6.27%	9.47%
2001	6.57%	6.00%	5.10%	6.05%	9.27%
2002	6.43%	5.29%	5.16%	6.28%	8.66%
2003	6.02%	4.86%	4.89%	5.64%	8.18%

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.



**Figure 2: Total Net Expenditures and Percentage Share of Meat Expenditures on Total Household Expenditures in Slovakia During the Period 2002-2003.**

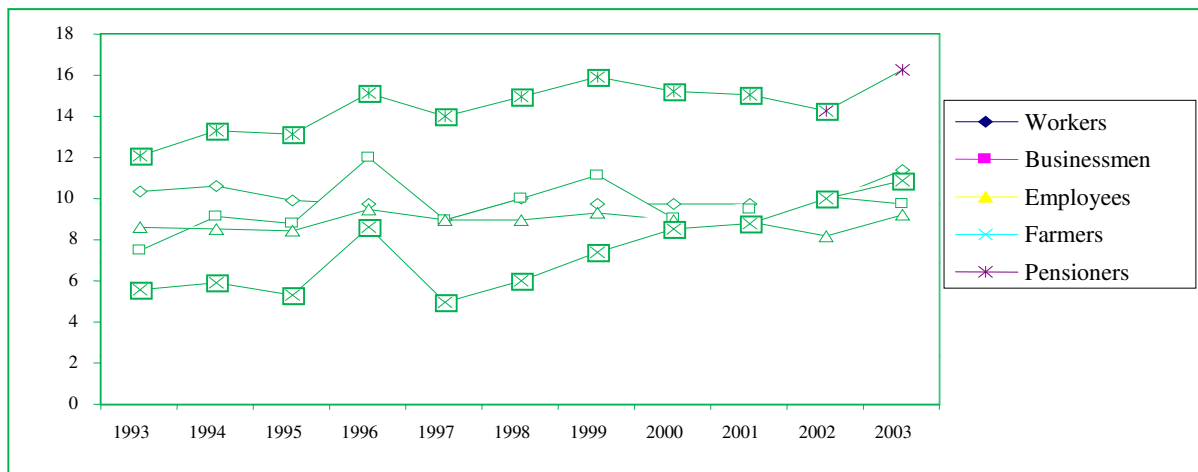
Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey

The fact that pork is considered as the most attractive meat economically, possibly explains the moderate consumption decline opposite to what one would have expected based on its bad rating on safety-related and other important attributes. Otherwise according to the meat consumption development the poultry meat is becoming more interesting for Slovak demanders.

**Table 3: Consumption of Pork Meat in Kg per Person and Year According to the Individual Households Categories During Period 1993-2003**

Year	Workers	Businessmen	Employees	Farmers	Pensioners
1993	10.39	7.45	8.61	5.59	12.08
1994	10.61	9.09	8.52	5.94	13.28
1995	9.94	8.79	8.47	5.33	13.13
1996	9.74	12.02	9.46	8.6	15.16
1997	9.0	9.0	9.0	5.0	14.0
1998	10.0	10.0	9.0	6.0	15.0
1999	9.78	11.17	9.32	7.41	15.94
2000	9.71	9.07	9.0	8.54	15.26
2001	9.71	9.52	8.89	8.82	15.01
2002	9.95	10.11	8.2	10.03	14.3
2003	11.37	9.74	9.2	10.85	16.28

*Source: Slovak Statistical Office, 1993-2007; authors' Calculations, Household Budget Survey.*



**Figure 3: Consumption of Pork Meat in Kg Per Person and Year According to the Individual Households Categories During Period 1993-2003**

*Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.*

The household category of Pensioners has highest per capita pork meat consumption. The lowest level of this meat consumption was in households of Employees in the year 2003. Radical changes has occurred in the consumption pattern of farmers. Possible reason of this fact may be the existence of self- supplementation and consumption of own pork meat production according to their meat expenditures development.

The percentage share of pork meat expenditures of individual household categories is declining during analyzed period. Possible causation is a fact, that this households' category shows the lowest increase of net real incomes and the lowest increase of net expenditures.

**Table 4: Pork meat expenditures share of total household expenditures in Slovakia During the Period 1993-2003**

Year	Workers	Businessmen	Employees	Farmers	Pensioners
1993	2.25%	1.51%	1.72%	1.14%	2.98%
1994	2.46%	1.92%	1.91%	1.27%	3.20%
1995	2.28%	1.83%	1.76%	1.19%	3.04%
1996	2.09%	2.07%	1.66%	1.26%	2.93%
1997	1.98%	1.59%	1.64%	1.10%	2.80%
1998	1.97%	1.60%	1.55%	1.27%	2.77%
1999	1.79%	1.52%	1.32%	1.36%	2.57%
2000	1.73%	1.36%	1.30%	1.30%	2.46%
2001	1.69%	1.48%	1.27%	1.36%	2.53%
2002	1.66%	1.32%	1.23%	1.49%	2.29%
2003	1.57%	1.16%	1.17%	1.39%	2.24%

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

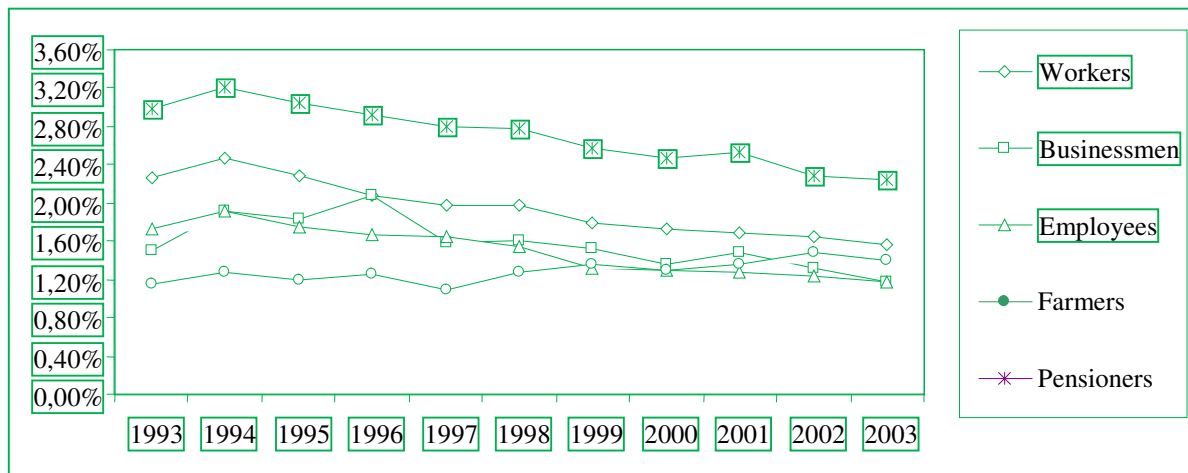


Figure 4: Pork Meat Expenditures Share of Total Household Expenditures in Slovakia During the Period 2002-2003

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

### The Beef Meat Consumption Development According to the Individual household categories in Slovakia

The average beef meat consumption was declining during analyzed period. Main reason of this development is unfavorable price relations in comparison with other sorts of meat. In Slovakia beef belongs to the expensive food category, we can state that beef is a luxurious product for most Slovak consumers. Declining beef meat consumption is influenced mainly by decreasing purchasing power. This trend was caused by change in consumers preferences in favour of pork meat. Occurrence of BSE disease also significantly led to decrease in beef consumption. The beef meat consumption dropped by more than 30 per cent as a result of BSE. (Bielik – Kunova, 2007)

Table 5: Consumption of Beef Meat in Kg Per Person and Year According to the Individual Households Categories During Period 1993-2003

Year	Workers	Businessmen	Employees	Farmers	Pensioners
1993	5.74	399	4.65	4.18	9.58
1994	4.87	4.51	4.14	4.18	8.52
1995	3.86	3.84	3.36	7.74	6.95
1996	4.79	3.91	3.38	3.29	6.17
1997	4.0	5.0	4.0	4.0	6.0
1998	4.0	4.0	4.0	4.0	7.0
1999	3.53	3.82	3.0	3.56	6.32
2000	3.39	3.15	2.72	3.15	5.67
2001	2.02	1.86	1.46	2.44	3.35
2002	2.0	2.0	1.48	2.43	3.38
2003	1.95	1.74	1.61	2.15	3.2

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

It is evident from table 5 that as the beef consumption of total society has declined. The most dynamic decline was registered by households of pensioners. In spite of this pensioners are still the category with the highest proportion of beef consumption. We can again state that it was caused by fact of children absence in these households to decrease the average consumption per person.

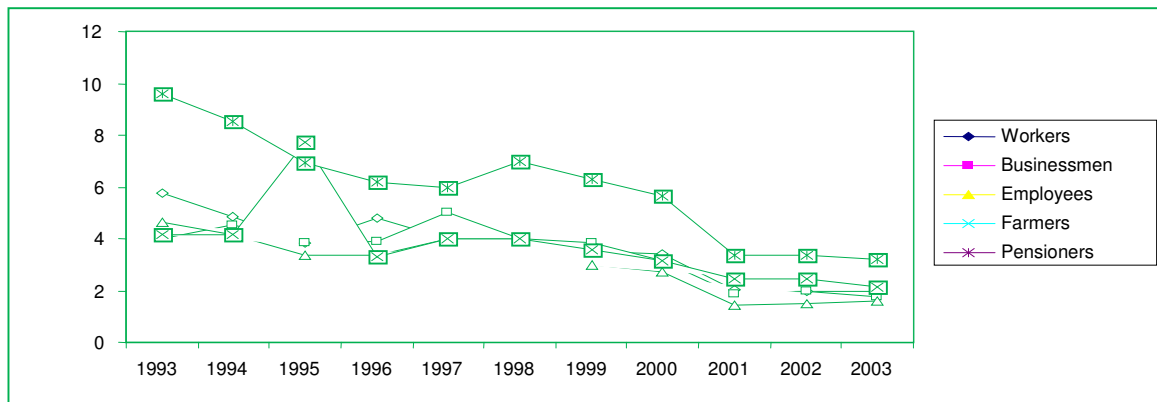


Figure 5: Consumption of Beef Meat in Kg Per Person and Year According to the Individual Households Categories During Period 1993-2003

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

Identically as by beef consumption also the percentage share of total household expenditures for beef were dramatically decreasing. The highest expenditures for beef has the households of pensioners. Also this category belongs to the categories with the lowest level of income that means this expensive kind of meat will represent higher proportion on total meat expenditures.

Table 6: Beef Meat Expenditures Share of Total Household Expenditures in Slovakia During the Period 1993-2003

Year	Workers	Businessmen	Employees	Farmers	Pensioners
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1993	1.09%	0.71%	0.78%	0.78%	1.67%
1994	1.04%	0.89%	0.85%	0.87%	1.62%
1995	0.89%	0.84%	0.76%	0.78%	1.53%
1996	0.80%	0.80%	0.65%	0.69%	1.28%
1997	0.92%	0.81%	0.70%	0.78%	1.20%
1998	0.81%	0.68%	0.62%	0.74%	1.35%
1999	0.71%	0.61%	0.48%	0.73%	1.06%
2000	0.64%	0.47%	0.40%	0.58%	0.90%
2001	0.34%	0.28%	0.20%	0.38%	0.50%
2002	0.34%	0.28%	0.21%	0.43%	0.53%
2003	0.31%	0.24%	0.23%	0.36%	0.48%

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

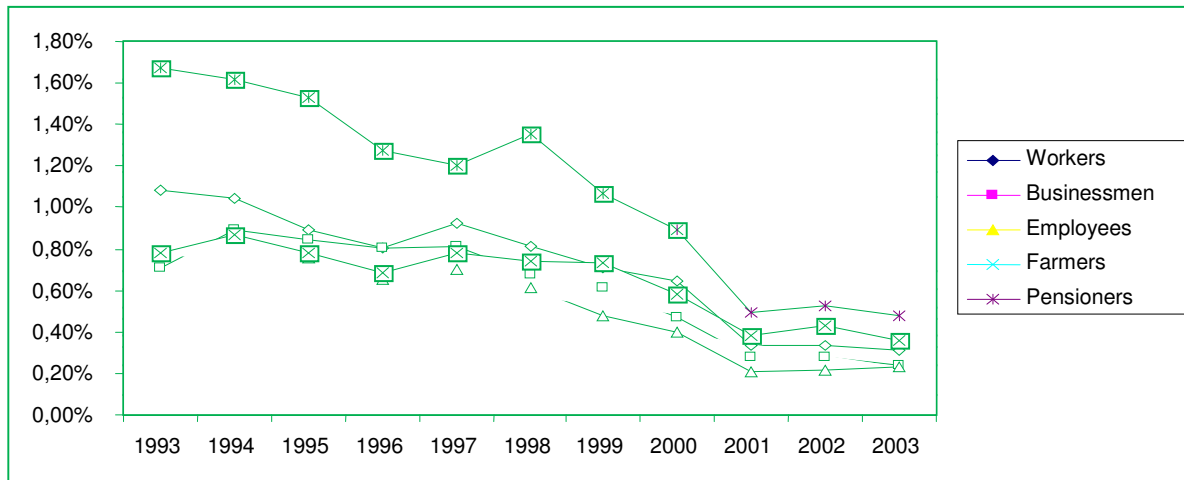


Figure 6: Beef Meat Expenditures Share of Total Household Expenditures in Slovakia During the Period 2002-2003

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

### The Poultry Meat Consumption Development According to the Individual Household Categories in Slovakia

The poultry meat is the second most consumed meat in Slovakia. The increased poultry consumption is influenced mainly by bargain price and also quick, comfortable preparation and wide assortment of poultry products and semi products.

Poultry meat is the only one kind of meat upon consumption increased during analyzed period. This positive trend is caused mainly by bargain price of this meat. Poultry is the cheapest meat in Slovakia with wide assortment of products. During last decade increased discussion of healthy diet habits and poultry as a white meat fulfils this requirement.

Table 7: Consumption of Poultry Meat in Kg Per Person and Year According to the Individual Households Categories During Period 1993-2003

Year	Workers	Businessmen	Employees	Farmers	Pensioners
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1993	9.66	8.31	9.94	6.06	18.23
1994	9.76	11.14	8.44	6.63	16.22
1995	10.89	10.61	10.18	7.87	27.45
1996	9.94	11.52	10.25	8.87	18.63
1997	11.0	13.0	12.0	9.0	19.0
1998	11.0	13.0	11.0	9.0	19.0
1999	12.76	13.98	12.95	10.85	21.18
2000	12.21	13.61	12.67	11.71	22.57
2001	13.07	14.55	13.72	12.63	23.21
2002	14.17	15.6	14.17	13.42	22.81
2003	14.3	14.89	14.01	13.02	23.67

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

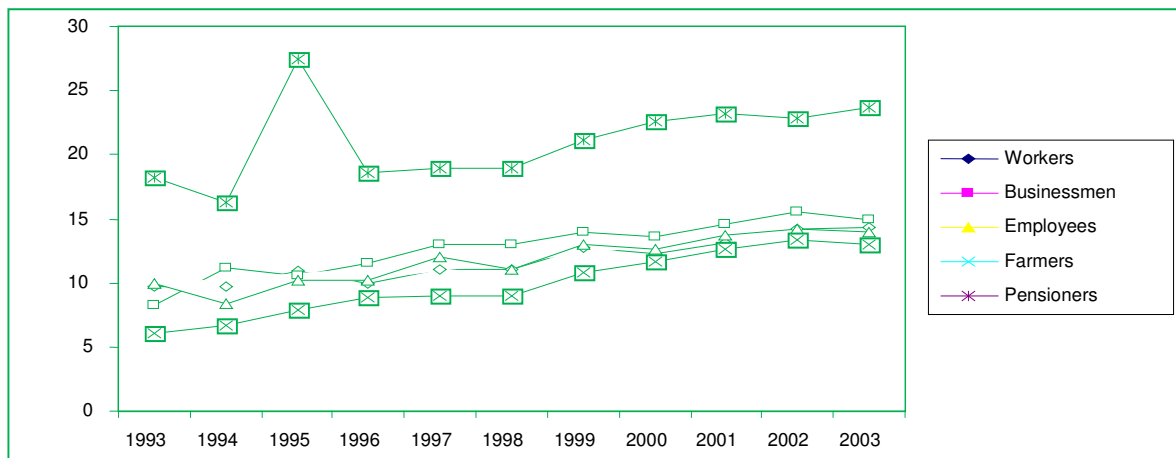


Figure 7: Consumption of Poultry Meat in Kg Per Person and Year According to the Individual Households Categories During Period 1993-2003

Source: Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

Poultry consumption by all household category is increasing during analyzed period. The highest increase was observed by households of businessmen and farmers.

During 1993-2003 no significant divergence in poultry expenditures was noticed. Possible fact is that price level during whole period was low.

Table 8: Poultry Meat Expenditures Share of Total Household Expenditures in Slovakia During the Period 1993-2003

Year	Workers	Businessmen	Employees	Farmers	Pensioners
1993	1.49%	1.16%	1.29%	0.93%	2.42%
1994	1.57%	1.46%	1.33%	1.06%	2.57%
1995	1.50%	1.46%	1.29%	1.07%	2.47%
1996	1.44%	1.46%	1.26%	1.20%	2.40%
1997	1.50%	1.49%	1.33%	1.15%	2.25%
1998	1.55%	1.42%	1.33%	1.22%	2.32%

1999	1.58%	1.49%	1.32%	1.31%	2.22%
2000	1.50%	1.41%	1.29%	1.38%	2.38%
2001	1.64%	1.71%	1.43%	1.52%	2.54%
2002	1.62%	1.55%	1.43%	1.48%	2.32%
2003	1.48%	1.41%	1.31%	1.35%	2.18%

**Source:** Slovak Statistical Office, 1993-2007; Authors' Calculations, Household Budget Survey.

## Conclusion

The main impact factors affecting food consumption are consumers' income and food prices. The food patterns development in Slovakia during past two decades have undergone rapid structural changes. Changes in tastes, preferences, lifestyles and economic transformation have also strongly influenced food demand. Meat consumption generally faced a sharp decline during the nineties in almost all accession countries. Declines amounted to between 10 to 20 percent of the consumption amount in the late eighties, however with great differences between the countries. Beef and mutton consumption declined sharply while that of pork and poultry developed positively. An income effect and a substitution effect could be observed with the former being stronger than the latter. (European Commission, 2004)

Rising income is expected to change the composition of food demand, especially in developing countries. Economists have proposed numerous hypotheses to explain changes in world consumer substitution of poultry in place of beef. Applied analysis has focused on such factors as lower relative poultry prices and consumer preference structures alteration and health concerns.

During analysed period 1993 – 2007 percentage share of meat expenditures of total expenditures of all household categories was decreasing. Reason of this decline is the price liberalization too, which started in the year 1991 and during the started period 85% prices were liberalized.

This development was partly caused by the direct income effects of transition. Income declined until the early mid-1990s, and recovered from 1995. Another part of the decrease of consumption was due to the rising prices of meat.

Consumer expenses depend on regional consumers' habits but in considerable part it reflects also the current socio-economical situation of individual household categories and economic surrounding. Generally the poorer the country is higher the expenses for satisfying a basic need and the lower expenditures for satisfying higher needs a culture and holidays.

Pig meat, with a share of about 50 % is by far the most preferred meat by EU consumers, followed by poultry, with a share of around 26 %, which has overtaken beef/veal since 1996. Global beef consumption is expected to rise gradually by around 1.6 % per year on average in the FAPRI projections in relation to income growth, notably in emerging economies. In many developed countries, per capita consumption of beef is expected to stagnate or to fall, since consumers continue to substitute beef meat with pig and poultry meat. In the past few years poultry meat has generally benefited from the BSE, consumer preference in many parts of the world (in line with changing diets towards western lifestyle and health considerations. (European Commission, 2005)

The highest decrease of meat expenditures share – by 2.9% has been noted in the household category Pensioners. In spite of it pensioners households is a category with the highest share of meat expenditures. This fact was connected with customary eating habits. We can not omit an important fact that in these households children do not live, who lead to decrease in average meat consumption in other categories.

Slovakia is among the states with predominant pork meat consumption. The pork meat presents considerable proportion on meat consumption per inhabitant and per year (51.1 per cent in the year 2005). The pork meat consumption development according to the individual household categories has shown a fluctuating course. It is caused mainly by its price availability and long-term consumers preferences. The fact that pork is considered as the economically most attractive meat possibly explains the moderate consumption decline opposite to what one would have expected based on its bad rating on safety- related and other important attributes.

The average beef meat consumption was declining during analyzed period. Main reasons of this development are not favorable price relations in comparison with other sorts of meat. In Slovakia beef belongs to the expensive food category, we can state that beef is for most Slovak consumers a luxurious product. Declining beef meat consumption is influenced mainly by decreasing purchasing power and occurrence of BSE disease. The percentage share of total household expenditures for beef during the period 1993-2003 was dramatically decreasing. The highest expenditures for beef have been noted in the households category of pensioners. This category belongs to the categories with the lowest level of income that means this expensive kind of meat will represent higher proportion on total meat expenditures.

Poultry meat is the only one kind of meat upon consumption increased during analyzed period. This positive trend is caused mainly by bargain price of this meat. Poultry is the cheapest meat in Slovakia with wide assortment of products. During last decade increased discussion of healthy diet habits have taken place and poultry as a white meat fulfills for this requirement.

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