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CHANGES IN CONSUMPTION PREFERENCES OF THE MEAT PRODUCTS IN HUNGARY[1]

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Abstract

The main propositions of a nation' food industry are to process the agricultural products, fulfill the domestic demand and produce for export to maintain the external balance. Among the Hungarian industries the food industry is very important; it contributes with 15 per cent to GDP of Hungarian industry. This study concentrates on the meat industry, with respect to the three most popular meat products: pork, poultry and beef. Both production and consumption of these products have changed during the years. There are many reasons of changing such as the high price of energy and raw materials, increasing wages and increasing demand in substitution products or the new market environment in the EU common market. Higher manufacturer prices cause higher consumer prices while the competition can reduce price level. The study examines the change in the consumption of three meat products and the most important factors and events that could alter the consumer preferences.

Key words: *food industry*, *meat production, meat consumption, consumer preference*

1. INTRODUCTION

Meat is the main protein-source for human health. Meat production has increased by 500 percent since 1950. Half of the world pork stock is consumed in China. United States is the largest consumer of beef followed by Brazil. Global meat consumption is expected to grow in developing countries where meat consumption is evaluated as a sign of wealth and prosperity. In Hungary the meat consumption increased by 230 per cent between 1950 and 1987, than started to diminish again until 2006 (HCSO, 2008). The meat consumption has changed as well as the structure of consumption. Poultry led the recent growth in both meat production and trade. The food crisis like BSE, avian flue and dioxin infection appeared, causing changes in meat demand. Recent studies about carcinogen effect of red meat terrify the consumers. Beside desire of healthier life, economic factors such as income, quantity of production and substitution meat prices may also alter the meat consumption

As a result of the Hungarian transition in 1989 and the EU accession in 2004, the importance of meat industry is also declining. After 1989 the standardized production became fragmented due to privatizations and foreign investments. Hungarian integration to common market provided opportunity for the cheap import meat from other EU member states. The accession to the EU meant that Hungary had to adopt the Common Agricultural Policy. The consequence of higher production quality standards was that the Hungarian meat sector lost its competitiveness on the world market.

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2. MATERIALS AND METHODS

The study examines the influential economic factors on meat production and meat consumption in Hungary between 1994 and 2006. The analysis intends to show the tendencies and explains reasons of the changes. The data was collected by production and consumption, household income, expenditure and price-changes of animal feed and meat products and were taken from the Hungarian Central Statistical Office. The assumption was that meat production is affected by the increasing price of corn and energy, increasing wages of agricultural employees furthermore by increasing quantity of import meat. According to the point of view meat consumption is influenced by meat production, meat prices and consumer incomes. For the analysis multi-variable regression models evaluating by SPSS 14.0 for Windows program were utilized. The date used in the estimation are yearly average data. The examination disregarded different age levels, geographic location, and income deciles of households.

3. RESULTS AND DISCUSSION

3.1 The production of the Hungarian meat industry

The Hungarian food industry contributes with 3.6 per cent to the GDP of the national economy and with 15 per cent to the GDP of the Hungarian industry (Lakner and Hajdu, 2002). The production data of the Hungarian meat industry between 1970 and 2006 are presented in Figure 1.

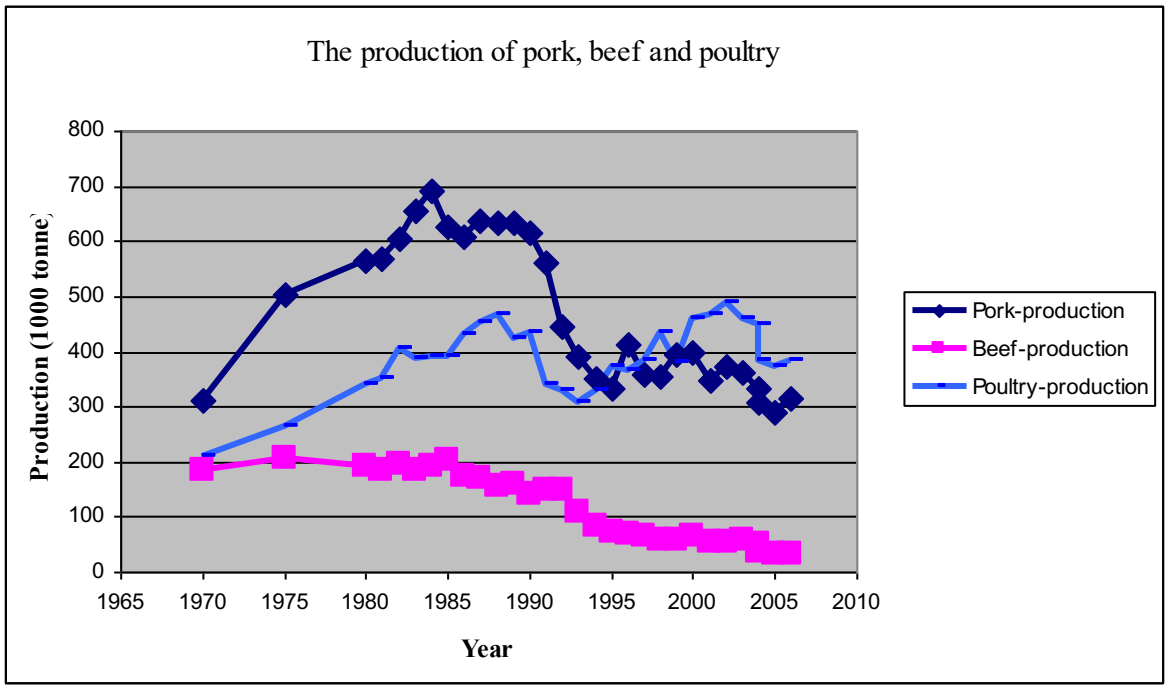


Figure 1 – The production of pork, beef and poultry (Source: HCSO, 2008)

The three most-common meat products in the Hungarian meat industry are the pork, the beef and the poultry. The market share of any other type of meat is far under one per cent. Figure 1 highlights that the production of so called red meat (pork and beef) has been diminishing since 1984. Decreasing

production of red meats can be explained by different theories. The meat trade continually affected by concerns of livestock disease and chemical residue contamination worldwide. The result of BSE crisis made the Hungarian beef market collapsed and beef has become a marginalized product in 1996. (Nyárs and Vizvári, 2005) The BSE crisis started in the UK and spread rapidly to Europe and to North-America causing decline in beef production and consumption. Bialowas et al. (2007) examined the long-run effects of BSE on meat consumption in the UK and realized that there were long-run impacts beyond the period of the scare. They used a dynamic AIDS model to estimate the effect of scare on a number of food groups. Based on the model estimates they predicted that BSE has had a significant effect on total meat demand. Between 1990-2005 meat consumption in the UK due to BSE scare was reduced, on average, by around 70 pounds per head per year. According to Loppacher et al. (2004) the discovery of BSE in Canadian cattle has led to lost market access for Canadian cattle and beef in many countries. The loss of almost all of major export markets has had a devastating impact on the Canadian meat industry.

The Hungarian pork production is also declining. Table 1 shows that the number of pigs breed in Hungary was 5.479 in 1998 and 3.383 in 2008. The decrease is 39 per cent during the 10 years.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Pork stock	5.479	5.335	4.834	4.822	5.082	4.913	4.059	3.853	3.987	3.871	3.383

Table 1 - Pork stock in Hungary (1998-2008) Source: HCSO, 2008

The pork stock became fragmented after Hungarian transition in 1989. Big pork stock could not be supplied from the small and fragmented local production. Only 1 per cent of the Hungarian pork-breeders has more than 25 farm animal, the 60 per cent of them has only two or less than two pigs. The fragmented production is difficult to be regulated properly. Many small-sized farms can not be integrated, provided by consultation and animal feed in order to produce high quality and homogenous products (Figure 2).

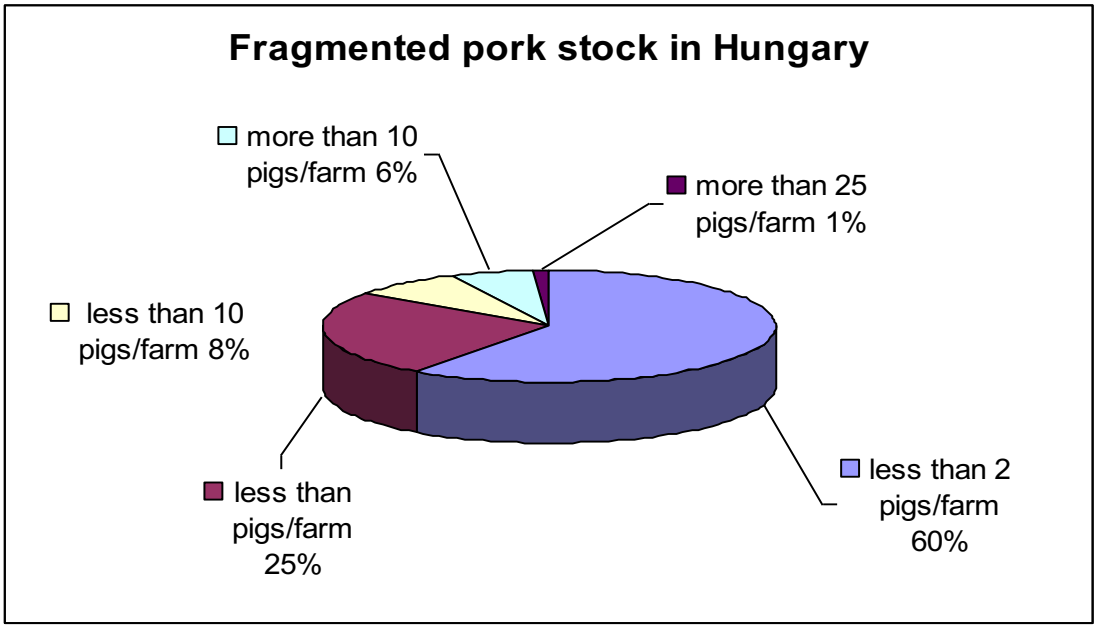


Figure 2 – Fragmented pork stock in Hungary (Source: HCSO, 2008)

Nyárs and Vizvári (2005) performed regression analysis and considered the following four factors as independent variables which determine the pork production: the 8 months earlier corn price, the 8 months earlier market price, the 8 months earlier piglet price, and the current chicken price. They found, that „in the case of good market position, when the input prices are low and pork market prices are high, the Hungarian pork sector can produce approximately 526 thousand metric tons of pigs. In the opposite case, when the input prices are high and pork market prices are low the production is still at a 411 thousand metric ton level."

The decreasing tendency of pork meat production can be explained by the increasing price of animal feed, energy, expanding import from outside the country, high wages of agricultural workers and by decreasing pork meat consumption. (Table 2)

year	Pork-meat production (000 ton/year)	Import pork (000 ton/year)	Price of corn (HUF/Kg)	Price of energy (HUF/Kg)	Labour wages (HUF/month)
1994	352.4	12.6	14.8	83	
1995	332.9	19.1	15.3	89	
1996	413.9	12.2	24.7	111	24.475
1997	358.3	20.4	20.7	147	27.562
1998	353.2	34.0	16.4	178	35.031
1999	393.7	13.4	20.8	205	37.881
2000	397.3	27.2	30.7	220	42.382
2001	345.8	30.5	33.2	234	43.311
2002	373.3	39.3	28.2	245	52.470
2003	363.2	30.2	31.9	270	59.220
2004	334.2	80.5	45.7	318	63.780
2004	308.7	66.4	35.1	338	68.245
2005	289.9	88.5	34.6	343	73.288
2006	314.5	83.2	50.2	383	76.537

Table 2 - Pork industry (Source: HCSO, 2008)

The analysis shows that the production depends significantly on the quantity of import meat and the price of corn, all other variables are negligible. Consumption does not influence the production at all. The value of our R^2 is 0.71 which means, that import meat and corn-price influence the domestic meat-production by 71 per cent. (Table 3)

R	R^2	Adjusted R^2	SE	N
0,847047	0,717488	0,666122	20,33448	14

Table 3 -.Regression statistics for production

The two-variable model is:

$$Y = 358.58 - 1.61\ x_1 + 2.02\ x_2 \quad (1)$$

Although the production of poultry meat is waving, but shows an increasing tendency, and nowadays it is the most commonly produced meat type in Hungary. The success of the Hungarian poultry industry can be explained with the following reasons, according to the Hungarian Poultry Product Board:

-All the four major types of fowls (chicken, turkey, duck and goose) are produced in large numbers and this unusual variety of products creates the high demand for them both in the international and the national market.

-The industrialization of the sector proceeded in a way that the traditional values and products were preserved, and are still cultivated, as demonstrated in the production and export of Hungarian specialities like goose-liver, smoked and pickled goose breast and other types of branded products.

-Hungarian poultry are fed on maize and herbage of unique flavour and quality and the excellent forage results in especially delicious meat even in industrial production.

-Hungarian poultry production is based on excellent genetic basis, strict safety regulations, as well as on the historical traditions of breeding, the favourable natural and geographical conditions of the country.

It is of great importance that Hungarian poultry are fed on forage of superb quality and the highest possible safety. Cereal and maize cultivation provides a suitable base for poultry breeding regarding quantity, quality and price. In Hungary maize, wheat, barley and such vegetal forage is used for poultry-feeding, which are rich in protein and all have favourable effects on the taste of the meat.

In 2006 a number of countries were reporting cases of avian influenza, commonly referred to as "bird flu". The crisis has also affected the feed sector in Europe, with demand losses in some countries. There have been reported cases of avian flu in birds in Hungary; however, no human infections have been reported. The infected 2,300 geese in the flock were immediately culled upon suspicion of the virus and all poultry, including farmed ducks and geese, in the 1Km radius around the outbreak, were also being culled. Avian flu in Hungary has not caused serious decline in production and consumption.

3.2 The consumption of different meat products

Global meat consumption patterns change drastically due to change in lifestyles, incomes and health concerns. The Figure 3 shows the changes in pork, beef and poultry meat consumption between 1950 and 2006.
The beef consumption is stable, shows only a little decline. Pork consumption was increasing until 1987 than began to decrease. Animal diseases hit the consumption. In 2008 high levels of dioxins in pork from Ireland was found. The contamination caused 50 per cent loss in pork demand in Romania. Irish frozen pork liver were imported also to Hungary, but demand losses in pork meat were not reported

Poultry are a very popular type of meat in Hungary. It is the only meat whose consumption has steadily increased in the past ten years. The examination of the ratio of the different meat products in the view total meat consumption presents that poultry meat is the most commonly consumed meat type from the total consumption.

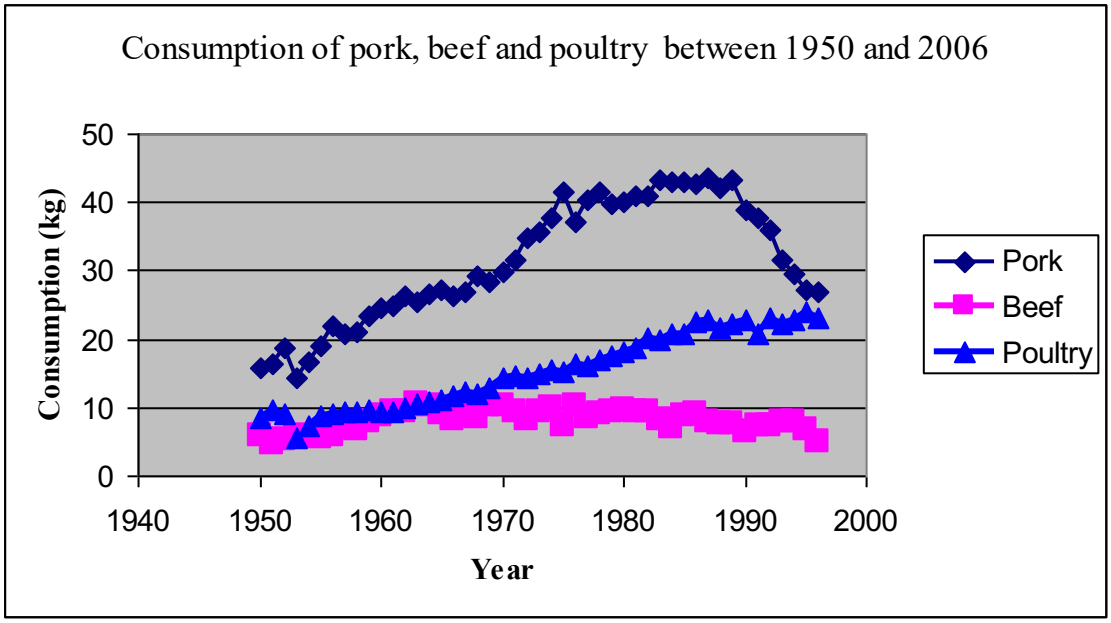


Figure 3 – Consumption of pork, beef and poultry meat between 1950 and 2006 (Source: HCSO, 2008)

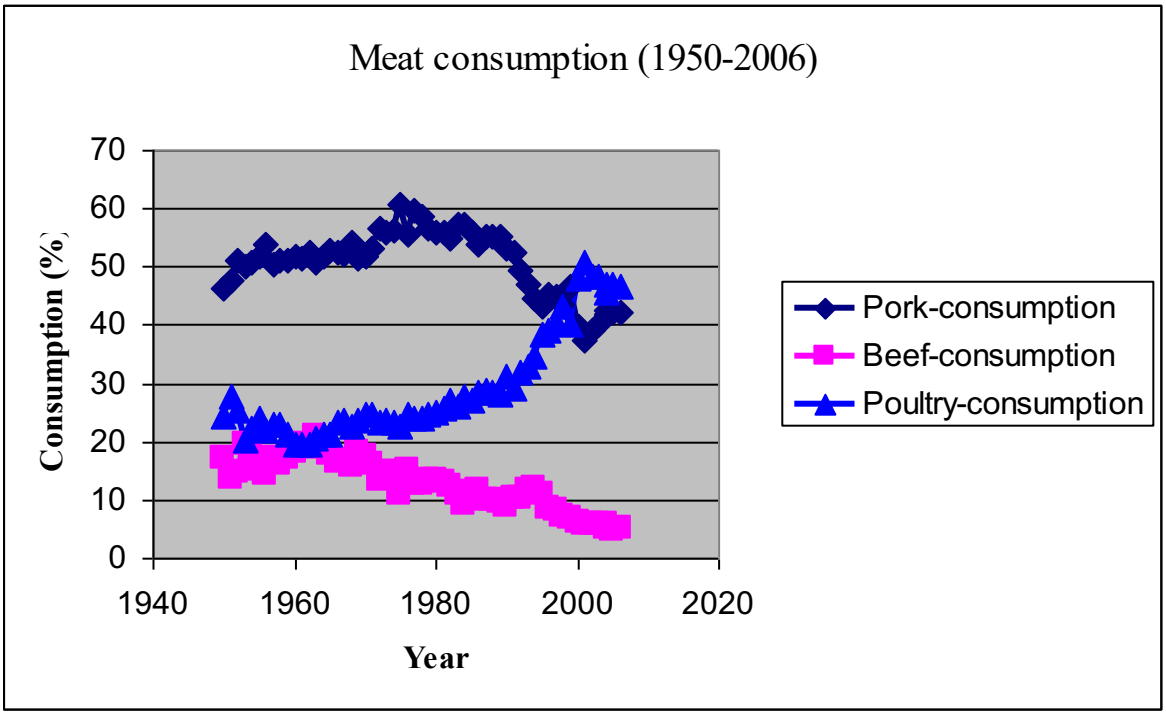


Figure 4 – Meat consumption between 1950 and 2006 (Source: HCSO, 2008)

The high ratio of poultry consumption is not a unique phenomenon in Hungary, it occurred in another European countries as well. Selva (2005) explained the growing poultry meat consumption in Denmark with the following reasons:

- „cheap price of the product;
- the healthy and epidemic problems that have affected beef and pork during the last few years;
- the nutritional features of poultry meat that fulfils the requirements of new consumers (lean meat).”

Beside reasons in connection with health care and nutrition the study focused on the main economic factors that may impact on poultry consumption. These are the price of poultry and the price of the two other substitution meat types: pork and beef. Furthermore it analyzed household incomes and production of poultry per year. The Table 4 shows the data that were used for the multi-variable regression. The dependent variable of the study is the consumption, the independent variables are the prices, income and produce.

Year	Consumption of poultry (Kg/year)	Price of pork (HUF/Kg)	Production of poultry (000 ton/year)	Price of beef (HUF/kg)	Household income (HUF/month)	Price of poultry (HUF/Kg)
1996	23.2	589	364.3	508	38.900	346
1997	23.6	721	383.1	536	46.837	424
1998	26.4	775	433.6	607	57.270	448
1999	24.2	638	379.5	629	67.764	426
2000	33.7	817	458	670	77.187	443
2001	34.3	1.080	466.4	781	87.645	501
2002	35.1	948	488.9	846	103.553	479
2003	33.2	831	459.7	890	122.482	462
2004	32.3	955	447.2	959	137.193	505
2004	27.7	1.000	383.6	1.033	145.520	521
2005	29.8	1.100	374.6	1.130	158.343	538
2006	30.8	1.090	385	1.230	171.351	626

Table 4 – Variables for consumption analysis (Source: HCSO, 2008)

The results show that the poultry-meat consumption mainly depends on the production of this kind of meat and on the income of households. The price of poultry and other meat products do not have a serious impact on the consumption. (Table 5)

R	R^2	Adjusted R^2	SE	N
0,955	0,912	0,892	1,436	12

Table 5 - Regression statistics for consumption

The value of our R^2 is 91 per cent and the two-variable model is:

$$Y=-9.11 + 0.081x_1+ 10^{-5}x_2 \quad (2)$$

4. CONCLUSION

In this paper the meat production and meat consumption were analyzed in general and on the example of Hungary. Today the meat industry is responsible for the slaughters of animals, processing and packing the meat, and finally for distributing it to retails, restaurants to the end of the food chain: for human consumption. In recent years, the health benefits of meat are overshadowed by risks and by food-borne hazards. The consumers have altered their consumption of various meats. Consumption of red meat is changing, while consumption of white meat is increasing. The Hungarian meat industry is being affected by the transition of 1989, the EU accession in 2004, new regulations and by growing quantity of import meat. The country was not avoided from animal diseases either. BSE, dioxin-contamination and avian flu all occurred less or more important losses in production and demand. The meat consumption, the sign of welfare and prosperity is affected by healthcare concerns, production outputs and household incomes. Animal disease outbreaks had accelerated a shift in consumption away from red meat to poultry, which is now the most commonly produced and consumpted meat-type in Hungary.

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