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The competitiveness and future perspectives of Hungarian meat sector

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ABSTRACT

The Hungarian meat processing industry plays an important role in satisfying domestic demand and in Hungarian foreign trade. Based on stable former COMECON export, considerable state subsidies and a safe position on the home market, the meat industry developed rapidly before 1990. The rapid collapse of COMECON, the decline of domestic purchasing power and import liberalisation have created a new situation. The paper analyses the chances and possibilities of the application of economic policy conforming to the market for upgrading the competitiveness of the Hungarian meat processing sector. Using Porter's approach of competitiveness, the utilisation of primary resources (agro-ecological potential, capital and labour), market structure, company strategies, the domestic food market and the role of other sectors connected with the meat industry are all analysed as elements of competitiveness. The paper emphasises that some of the fundamental conditions for increasing competitiveness are more expedient exploitation of the possibilities deriving from the present comparative advantages, the stimulation of competition between the participants in the meat industry, the building up of the domestic food market and the development of other fields connected to the meat industry, with special emphasis on material and financial infrastructure as well as on collective marketing activity.
(Keywords: systems analysis, resource utilisation, consumption, economic policy)

ZUSAMMENFASSUNG

Die Wettbewerbsfähigkeit und Perspektiven der ungarischen Fleischindustrie
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Die vielfältigen ökonomischen und politischen Veränderungen in Ungarn zwingen die ungarische Fleischindustrie zu erheblichen Anpassungsvorgängen. Deshalb ist es zweckmäßig, die Wettbewerbsfähigkeit dieses Sektors zu untersuchen, was Gegenstand des vorliegenden Beitrages ist. Wie die deskriptive Analyse zur Lage der ungarischen Fleischwirtschaft zeigt, hat dieser Sektor innerhalb der Lebensmittelindustrie eine grosse

Bedeutung. Nach dem Modell des weltberühmten amerikanischen Ökonomen Porter sind die wesentlichen Determinanten der Wettbewerbsfähigkeit die faktoriellen Bedingungen, die Unternehmensstrategie und Struktur der Branche, die Existenz ebenfalls wettbewerbsfähiger Vorleistungsindustrien und verwandter Industriebranchen sowie die Nachfragebedingungen. Darüber hinaus wird die Wettbewerbsfähigkeit durch staatliche Eingriffe bedeutend beeinflusst. Ein Vorteil der ungarischen Fleischwirtschaft besteht in den agrarökologischen Bedingungen und den hochqualifizierten Arbeitskräften. Die Verbesserung der zukünftigen Wettbewerbsposition verlangt, die Vorteile der ungarischen Fleischwirtschaft und die economies of scale besser zu nutzen und mit einer zielgerichteten ökonomischen Politik zu kombinieren.
(Schlüsselwörter: Systemanalyse, Quellennutzung, Wirschaftspolitik, Verbrauch)

INTRODUCTION

The Hungarian meat processing sector plays an important role in the food industry, and is the most important market of Hungarian animal production (*Table 1*). Unlike the rest of the national economy during the transition to the market economy, the Hungarian meat industry achieved some *important, profound results towards market economy* (e.g. meat processing firms owned by agricultural producers and the dissolution of the former trust system) from the middle of the sixties, long before such reforms were seriously considered in the food economy of other so-termed socialist countries, or in other branches of the Hungarian economy .

Table 1

The role of the meat industry in the Hungarian national economy, 1997

Number of jobs in the meat industry (1)	21100
Share of the meat processing industry in food industry employment (2)	18.1%
Value of production (3)	1.12 bn USD
Share of the meat industry in GDP (4)	2.4%
Export of meat products (5)	367 million USD
Meat industry share in Hungarian export (6)	5.2%

Source: Own calculations on basis of statistical yearbooks. *(Quelle: Verschiedene statistische Jahrbücher sowie eigene Berechnungen.)*

1. Tabelle: Die Rolle der Fleischwirtschaft in der ungarischen Nationalökonomie

Beschäftigtenzahl in der Fleischindustrie(1), Anteil der Beschäftigten in der Fleischindustrie im Verhältnis zu den Beschäftigten in der gesamten Lebensmittelindustrie(2), Bruttoproduktion der Fleischindustrie(3), Anteil der Fleischindustrie am GDP(4), Fleisch- und Fleischwarenexport(5), Anteil der Fleischindustrie am ungarischen Export(6)

After the changes in the social and economic paradigms (change from a centrally planned and regulated economy to a market economy) the Hungarian meat industry is now facing numerous *new problems and challenges*. At the same time drastic changes have also taken place in the environment of the Hungarian national economy. In the light of international comparison it is obvious that Hungary is an important net exporter yet, as *Table 2* shows, if the results for Hungarian meat production and meat product export are compared with

results from some other states, there is a large field for improvement. For example, *the export volumes per hectare of arable land territory of some western European states are ten or fifteen times higher than the corresponding Hungarian values*. The rapid and unpredictable collapse of COMECON, the emergence of the Single European Market and the increasing need for import liberalisation (as a consequence of Hungary approaching the EU and the formation of the WTO) sharpen the competition not only on export markets, but also on the home market. These processes necessitate an up-to-date analysis of the competitiveness of the Hungarian meat industry.

Table 2

Foreign trade of meat products: an international comparison (1990-1996 averages)

	Gross export value per ha, USD (1)	Net foreign balance (1000 USD) (2)	Export/import ratio (%) (3)	Net export value per ha (USD) (4)
Austria	167.606	47.571	124.981	33.501
Belgium and Luxembourg	3644.537	1702.286	282.509	2354.475
Croatia	47.135	-32.200	64.459	
Czech Republic	17.423	6.250	113.089	2.017
Denmark	1590.316	3370.143	1144.774	1451.397
European Union	295.855	1357.571	106.379	17.740
France	211.481	-27.714	99.289	
Germany	200.881	-2881.429	45.208	
Hungary	150.043	676.286	1584.013	140.571
Italy	104.838	-3011.714	22.005	
Netherlands	5765.617	3985.571	456.810	4503.471
Poland	19.035	131.714	196.545	9.350
Slovenia	386.147	18.000	125.281	77.922
United Kingdom	243.757	-1802.000	45.202	

Source: FAO SOFA 98 database, own calculations. *(Quelle: FAO SOFA 98 elektronische Datenbank sowie eigene Berechnungen.)*

2. Tabelle: Export und Import von Fleisch und Fleischwaren - ein internationaler Vergleich im Durchschnitt der Jahre 1990-1996

Gesamtexport/ha(1), Netto Außenhandelsbilanz(2), Export/Import Verhältnis(3), Wert Nettoexport/ha(4)

CONCEPTUAL FRAMEWORK AND METHOD OF RESEARCH

In his 'The Competitive Advantage of Nations' (1990) the famous Harvard economist Michael *Porter* outlined a new approach to the socio-economic system of competitive sectors of countries, and the influence on international competitiveness. In Porter's model four interrelated sets of factors determine the competitive strength of branches. The four determinants are:

– factor conditions,

- demand conditions,
- firm strategy, structure and rivalry,
- related and supporting industries.

Using the above framework this paper analyses the main features of the competitiveness of the Hungarian meat industry, and outlines the possible development strategies. This article does not analyse the problems of structural changes in the industry, since this question is analysed in the paper titled 'The transformation of Hungarian meat sector: lessons and experience' in this volume.

The data used for the analysis, are based on the database of the Hungarian Central Statistical Bureau (HCSB) if not indicated otherwise.

FACTORS DETERMINING THE COMPETITIVENESS OF THE HUNGARIAN MEAT SECTOR

The factor conditions of the meat industry

Agro-ecological potential and its utilisation

In the cost structure of meat industry production the costs of raw materials play a decisive role (40-90% of the total production cost, depending on the grade of processing), so agro-ecological potential and the level of agricultural production are the main factors of meat industry competitiveness. The agro-ecological potential of Hungary is quite high (*Széles,* 1990), but this competitive advantage is decreasing steadily due to environmental pollution. The obsolete technology used in industry and transport, the low standard of the social and economic culture of waste disposal and the intensive pressure of western European governments on their companies to relocate their environmentally risky plants into less developed (e.g. central and eastern European) countries have a harmful effect on the natural environment of agricultural production, although agriculture in itself is also an important agent in causing pollution (*Szabó,* 1998). In the race for high yields Hungarian co-operatives and state farms have often used such large amounts of fertilisers that the chemical balance has suffered a drastic change; the pH value of the soil increase by 0.6 between 1980 and 1988 (*Sárközi,* 1992). From the beginning of the transition in agriculture numerous new farmers have begun agricultural production with hardly any experience in using agrochemicals, but with a strong determination to achieve as high a yield from their small area of land as possible. This situation underlines the importance of building up-to-date extension service networks.

As a result of decreasing profitability and widening 'agricultural scissors' (*Fig. 1*) the livestock feed base of Hungarian animal production decreased considerably.

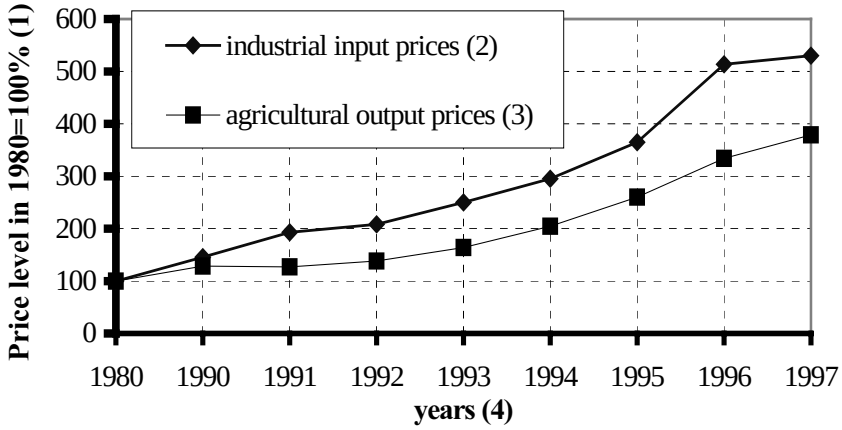
Hungarian livestock feed production and animal production have decreased considerably during the past ten years (*Figs. 2 and 3*).

Labour

The profitability of production worsened drastically after the transformation in the system. This is why the 'competitiveness' of animal products deteriorated in comparison with more intensive products (*Table* 3).

Fig. 1

The increasing disparity between industrial input and agricultural output prices in Hungarian agriculture



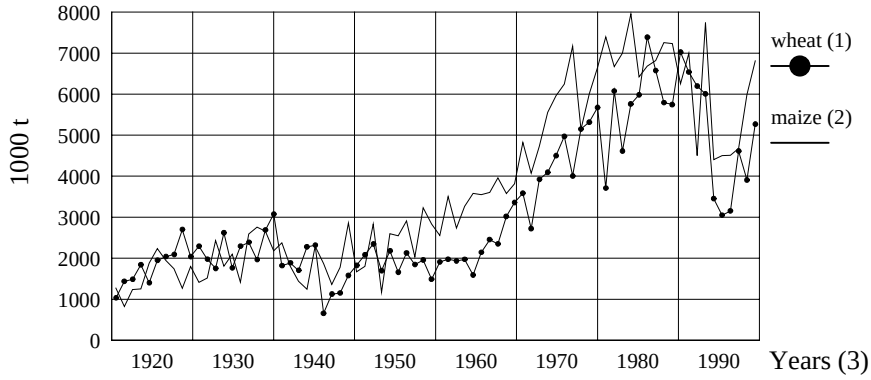
Price level in 1980=100% (1), years (4)
Source: Own calculations based on statistical yearbooks. *(Quelle: Versciedene Statistische Jahrbücher sowie eigene Berechnungen.)*

1. Abbildung: Die Disparität zwischen In-und Outputpreisen in der ungarischen Agrarproduktion.

Preisniveau(1), Industrielle Input- Preise(2), Landwirtschaftliche Output-Preise(3), Jahre(4)

Fig. 2

The change of wheat and maize production in Hungary

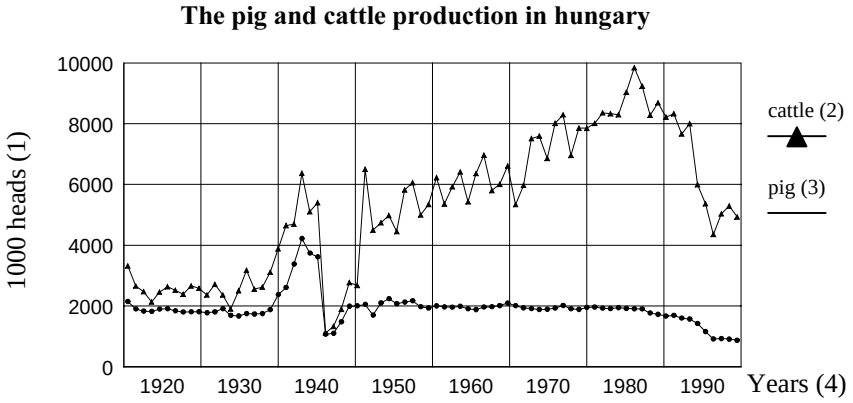


Source: Hungarian statistical yearbooks, own calculations. *(Quelle: Verschiedene statistische Jahrbücher sowie eigene Berechnungen.)*

2. Abbildung: Weizen und Maisproduktion in Ungarn

Weizen(1), Mais(2), Jahre(3)

Fig. 3



Source: Hungarian statistical yearbooks, own calculations. *(Quelle: Verschiedene statistische Jahrbücher sowie eigene Berechnungen.)*

3. Abbildung: Die Schweine- und Rinderproduktion in Ungarn

Stück(1), Rinderproduktion(2), Schweineproduktion(3), Jahre(4)

Table 3

Gross profit for various agricultural products in small-scale production as %age of cost

Product (18)	1990	1991	1992	1993	1994	1995	1996	1997	Average (16)	S.D. (17)
potato (1)	40.8	29.44	24.73	34.53	34.94	41.36	-2.7	19.95	29.01	15.17
tomato (2)	41.7	26.27	30.62	15.45	41.55	23.34	37.83	21.79	30.96	9.961
tomato under glass (3)	48.3	37.89	23.24	36.99	25.72	30.55	32.45	31.3	33.59	8.42
green pepper (4)	41.1	47	50	44.15	47.49	44.24	49.08	41.37	46.15	3.13
green pepper under glass (5)	51.4	54.5	49.73	53.76	50.98	38.61	43.76	49.82	48.96	5.75
red pepper (6)	64.8	48.2	49.04	40.4	30.11	19.45	47.15	60.2	42.73	14.62
apple (7)	34.9	48.1	35.98	25.37	31.14	43.13	33.8	27.96	36.06	7.52
persic (8)	55.1	57.61	44.41	29.76	52.51	61	48.95	51.28	49.90	10.43
grape (9)	28.6	-9.53	0.2	-14.45	13.27	39.71	29.29	73.75	12.44	20.99
milk (10)	33.6	26.2	22.82	24.8	22.14	28.95	14.6	21.5	24.73	5.93
cattle (11)	10.7	13.8	6.82	5.6	10.12	15.4	1.8	1.2	9.17	4.76
pig (12)	13.5	4	7.63	6.4	14.65	19	1.1	8	9.46	6.41
egg (13)	9.8	17.9	25.81	36	31.56	15.6	3.5	18	20.02	11.71
poultry (14)	2	2	1.08	4.1	8.11	3.6	2.4	-0.3	3.32	2.34
rabbit (15)	15.8	20.8	20.15	13.8	5.46	7	-0.7	5.3	11.75	8.06

Source (*Quelle*): *Pátkainé*, 1998, S.D.: Standard Deviation

3. Tabelle: Rentabilität von verschiedenen Agrarprodukten in Kleinbetrieben

Kartoffeln(1), Tomaten(2), Tomaten unter Folien(3), Paprika(4), Paprika unter Glas(5), Gewürzpaprika(6), Äpfel(7), Pfirsiche(8), Weintrauben(9), Milch(10), Schlachtrinder(11), Schlachtschweine(12), Eier(13), Geflügel(14), Kaninchen(15), Durchschnitt(16), Standardabweichung(17), Produkte(18)

It is a rather difficult problem to determine the real profitability of production, because the current statistic does not register the value of the living labour of farmers. This is why the profitability of production can only be estimated by the use of various calculated hourly wages. Utilising various wage levels, it is obvious that the economic efficiency of living labour is rather low in animal production (*Table* 4).

Table 4

Calculated profitability of products on small-scale farms at various hourly wages (in dimensions of products, USD)

Product (2)	Calculated hourly wage (1) (USD)		
	0.70	0.86	1.15
1 t potato	14.58	12.60	8.70
1 t tomato	13.47	9.89	2.86
1 t tomato under glass	35.78	15.85	-23.27
1 t green pepper	69.33	60.09	41.95
1 t green pepper under glass	156.47	130.74	80.22
1 t red pepper	157.23	147.66	128.87
1 t apple	22.25	19.31	13.54
1 t persic	96.98	78.32	41.68
1 t grape	7.03	-4.66	-27.60
1 t milk	-0.06	-0.08	-0.12
1 t cattle	-0.70	-0.85	-1.14
1 kg pig	-0.16	-0.22	-0.32
1 piece egg	0.01	0.01	0.004
1 kg poultry	-0.04	-0.05	-0.06
	1.50	-1.84	-2.48

Source (*Quelle)*: *Pátkainé*, 1998

4. Tabelle: Die Rentabilität von Agrarprodukten bei verschiedenen Bruttolöhnen

Kalkulierter Bruttolohn pro Stunde(1), Die Produkte sind die gleichen wie bei Tabelle 3(2)

It is well known that meat industry production is labour intensive (often involving great skill in and knowledge of e.g. bone removal); this is why human factor quality and productivity are much more important than in sectors with less expressed manpower components. The labour force is relatively cheap and is not very difficult to motivate, but this competitive advantage is diminishing due to the high personal income tax rate as well as high social security rates (the average personal tax burden in 1998 being 28%). The activity of joint ventures in the meat industry offers a good possibility to draw comparisons with the quality of labour in more developed countries. Most joint ventures established in Hungary are satisfied with the quality of labour, and there is more need for Hungarian employees to be trained to adapt to the requirements of a modern firm than to upgrade their level of skills or knowledge. The only exception is the lack of knowledge of foreign languages and marketing skills. The foundation for high quality human

resources is the traditionally rigorous Hungarian education system. Basic education and vocational training are still at an acceptable level. The development of the Hungarian schooling system is seriously jeopardised by increasingly dramatic financial constraints. The entry of Hungary into the EU constitutes a good opportunity high quality professional meat processing workers to migrate into more developed western European states. This is a real threat. In the western part of Hungary (Transdanubia) the lack of meat industry professionals is a topical problem, since numerous younger skilled worker work in Austria.

Regarding the results of meat science, the Central Meat Industry Research Institute operates on an international level, which increasingly orientates its activity towards practical applications. The drastic decline in expenditure on scientific research presents a considerable threat to the high level of education and research.

Capital

The Hungarian economy suffers from a severe lack of capital, as a whole. The causes and macro-economic aspects of this question are analysed in detail in the literature (e.g. *Deák* 1996). From the viewpoint of meat industry enterprises this signifies great difficulties in obtaining bank credit, and the interest rates for enterprise credit are rather high (the weighted average of interest rates for credits of less than 1 year maturity being 15.6% in 1998). Due to the technological processes there is only a limited possibility to apply just-in-time logistical systems in the meat industry, and the enterprises do not have enough capital to finance their stocks; therefore, serious liquidity problems occur.

Negative earnings before taxes in both agriculture and the food industry are a reflection of the impact of financing charges on sector profitability. Neither agriculture nor the meat industry has been able to sustain profitability at current high nominal interest rates. However, the range of loss/profit estimates shown in *Table* 5 suggests that some segments of the meat industry have remained profitable. These data suggest that a dualism is emerging in the meat industry sector where some segments are quite profitable and are able to make investments while others generate sizeable losses.

Table 5

The financial position of meat industry enterprises

	Meat industry average (4)	Average of best quota of meat industry enterprises (5)	Average of worst quota of meat industry enterprises (6)
Own capital profitability (%) (1)	7.69	50.40	-43.20
Quick ration of liquidity (2)	0.72	1.71	0.07
Share of own capital (%) (3)	46.6	69.1	-75.5

Source: Reserarch Institute for Agricultural Economy and Informatics. *(Quelle: Foschungsinstitut für Agrarökonomie und Informatik.)*

5. Tabelle: Die finanzielle Position der ungarischen Fleischindustrie

Profitabilität des Eigenkapitals (%)(1), Liquiditätsrate (%)(2), Eigenkapitalrentabilität (%)(3), Durchschnitt der Fleischindustrie(4), Beste Quote der Unternehmen(5), Schlechteste Quote der Unternehmen(6)

Demand conditions for meat

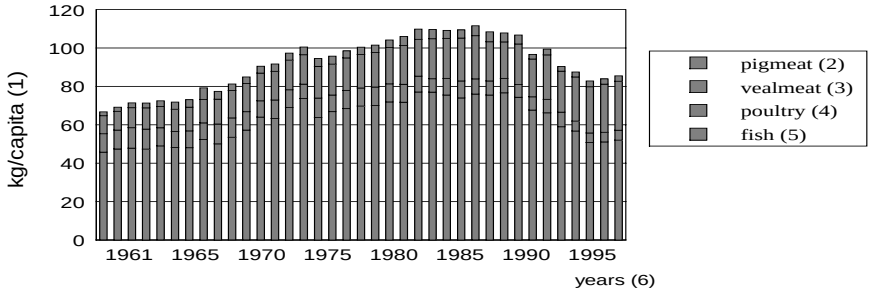
It is generally accepted that the level and sophistication of home demand plays a decisive role in the international competitiveness of a given industry.

In contrast with the situation in most central and eastern European countries, shortages of food (and meat) in Hungary were eliminated from the beginning of the sixties. Hungarian meat consumption is too quantity-oriented: energy intake is relatively high, life expectancy in Hungary is one of the lowest in Europe, and this tendency - contrary to the general trend of development in Europe - is a negative one. The unfavourable changes in average life expectancy can be partly explained by unhealthy food consumption patterns.

The share of pig meat consumption is one of the largest in Europe. This tendency goes against the trends of the more developed countries (*Fig. 4*).

Fig. 4

The changing structure of hungarian meat consumption (1961-1997)



Source: Own calculations on basis of statistical yearbooks. *(Quelle: Verschiedene statistische Jahrbücher sowie eigene Berechnungen.)*

4. Abbildung: Fleischverbrauch in Ungarn

Pro-Kopf-Verbrauch(1), Schweinefleisch(2), Rindfleisch(3),Geflügel(4), Fisch(5), Jahre(6)

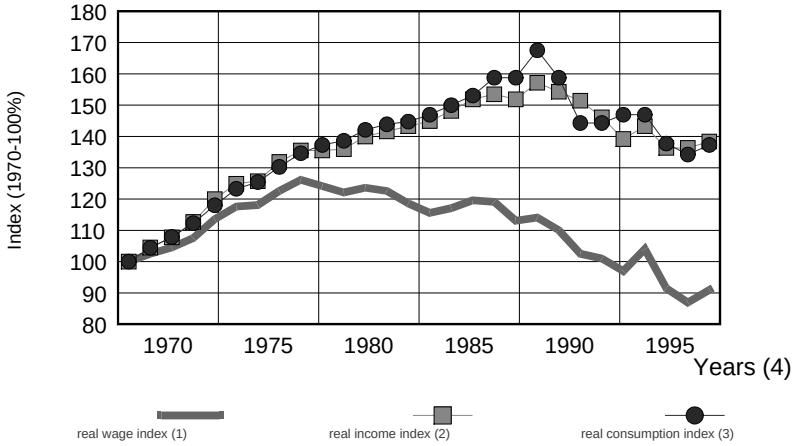
After a continuous increase in living standards, from the beginning of the nineties - due to serious economic problems - real income declined sharply (*Fig. 5*).

The most important characteristic features of the current market situation in Hungary are the following.

- Parallel with the decrease in aggregate purchasing power there is increasing diversification of demand. After the long decades when personal revenues were balanced, the diversification of purchasing power is increasing, and increasing pauperisation parallel with an increase in primitive capital accumulation can be observed, while the lack of a middle class is strongly felt. While incomes at the upper end of distribution are increasing, social policy at the lower end is not developing sufficiently. This segmentation is reflected in considerable differences in consumption (*Table 6*).
- The considerable grey and black economy represents a growing problem for the meat industry. There has been an increase in smuggling and illegal turnover for goods subject to government inland revenue.

Fig. 5

The income and consumption of hungarian consumers (1970-1997)



Source: Own calculations on basis of statistical yearbooks. *(Quelle: Verschiedene statistische Jahrbücher sowie eigene Berechnungen.)*

5. Abbildung: Einkommen und Verbrauch der ungarischen Bevölkerung

Reallohn(1), Realeinkommen(2), Realverbrauch(3), Jahre(4)

Table 6

The annual per capita expenditure for meat and meat products at various income deciles among Hungarian consumers (1996, in USD)

	Raw meat and fish (1)	Meat products and canned meat (2)	Raw meat expenditure (%) of decile 1 (3)	Meat product and canned meat expenditure (%) of decile 1 (4)
1	35.36	27.45	100.00	100.00
2	46.68	37.75	132.02	137.52
3	51.85	42.08	146.63	153.29
4	61.14	45.35	172.90	165.21
5	62.07	49.26	175.54	179.44
6	63.88	52.19	180.64	190.12
7	74.13	54.96	209.65	200.22
8	76.11	59.88	215.22	218.13
9	83.02	68.96	234.77	251.22
10	88.16	83.22	249.32	303.18

Source: Own calculations on basis of statistical yearbooks. *(Quelle: Vershciedene statistische Jahrbücher sowie eigene Berechnungen.)*

6. Tabelle: Ausgaben der ungarischen Verbraucher für Fleisch und Fleischwaren in verschiedenen Einkommensgruppen

Ausgaben für Frischfleisch(1), Ausgaben für Fleischprodukte(2), Ausgaben für Frischfleisch in % im Verhältnis zu Spalte 1.(3), Ausgaben für Fleischprodukte und Konserven in % im Verhältnis zu Spalte 1.(4)

Related and supporting industries

Privatisation provides a good opportunity to improve the efficiency of the retailing sector and to attract investment, often from the Hungarian population. Indeed, there was a rapid development of small shops in the first wave of privatisation. At the same time there is still a need for development of the national infrastructure in terms of communication, transport and financial services, which will still require foreign capital. Foreign capital is also playing an important role in food processing and in larger-scale retailing. Consumer prices have risen considerably faster than producer prices with consequent improvements in margins in the distribution sector.

THE ECONOMIC POLICY AS A TOOL FOR THE UPGRADING OF COMPETITIVENESS

The strengths-weaknesses-opportunities-threats (SWOT) analysis of the Hungarian meat industry offers a good possibility to evaluate the current position of this industry.

On analysis of the competitive advantages of the Hungarian meat sector it can be determined that the favourable agro-ecological potential, rich traditions of agricultural production, highly qualified human resources, considerable experience and well established brand names in former Soviet member states, and large production capacities provide a rather good possibility for further development of the sector in the future. These competitive advantages are utilised only partially, because the utilisation of natural resources has diminished drastically during the past decades. The economic position of animal production is rather weak. Lack of economic knowledge in the farming sector is an effective barrier to quality-oriented development in the production of raw materials. The Hungarian meat industry can be characterised by heterogeneous technical and technological levels. It is often the case that even within one production line there are machines of different technological niveaux.

In the future the Hungarian meat sector could remain one of the most important branches of the Hungarian agriculture and food industry. On the basis of the comparative advantages of the sector there is a real possibility to increase the market share in developed states. From this point of view the World Trade Organisation constitutes a source of effective support for export-oriented development, but there is a danger of increasing defence of markets in the more developed states, by the utilisation of the possibilities provided by non-tariff barriers. Safety and predictability in the domestic market are a necessary precondition for future development. The decreasing aggregate demand and increasing import competition represent a real threat to the development process.

Development in the meat sector should be promoted by means of an economic policy to conform to the market. This policy should be based on the strengthening of the competitive position of meat sector. The most important elements of this policy should be as follows.

- Promotion of better utilisation of natural resources, by the development of an integrated information system to determine the optimal geographic structure of feed production and animal breeding, taking into consideration the agro-ecological, economic and social aspects.
- The agricultural support system should be reconsidered to promote not directly export, but the development of biological-technical and technological background for production.

- Better utilisation of specific agro-ecological possibilities for production in image-building and the application of a certification system.
- More rigorous environmental protection.
- Development of human resource utilisation by the stabilisation of the economic environment in animal production.
- Upgrading of the higher education system by increasing the number of students and improving the efficiency of education.
- Utilisation and upgrading of know-how and production culture in the meat industry, as well as better concentration of resources for R+D activities, and the promotion of industrial parks.
- Development of domestic demand by the prevention of illegal meat industry production and trade sophistication as means combating the 'black economy'.
- Increasing aggregate food demand by modification of the personal tax revenue system.
- Increasing the knowledge of meat consumers concerning healthy food consumption, and the formulation and implementation of an integrated food and nutrition policy.
- One of the most important ways to promote small and medium-scale companies is to subsidise the introduction of TQM and ISO systems, as well as environmental auditing.
- Development of logistical infrastructure, as well as the modernisation and development of road and communication systems.

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