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The Polish food sector in the first years of membership

(Synthesis)

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MULTI-ANNUAL PROGRAMME 2005-2009

THE ECONOMIC AND SOCIAL CONDITIONS OF THE DEVELOPMENT OF THE POLISH FOOD ECONOMY FOLLOWING POLAND`S ACCESSION TO THE EUROPEAN UNION

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This report is a part of the research topic
The Polish food sector in the first years of membership
(“Polski sektor żywnościowy w pierwszych latach członkostwa”)
in the following tasks:
The assessment of the state of the Polish food sector after Poland’s accession to the EU
(“Ocena stanu polskiej gospodarki żywnościowej po wejściu Polski do UE”),
The impact assessment of the common agricultural policy on agricultural markets
(“Ocena wpływu Wspólnej Polityki Rolnej na rynki rolne”)
The assessment of changes in the competitiveness of Polish food producers in the common European market and in markets of other countries
(“Ocena zmian konkurencyjności polskich producentów żywności na wspólnym rynku europejskim i na rynkach innych krajów”)

The report is aimed to assess the state of the Polish food sector, its adjustments to the functioning in the common European market, the effects of integration into the EU on the food economy, the impact of the common agricultural policy on the main agricultural and food markets as well as evaluating the present state of and changes in the competitiveness of Polish food producers after Poland’s accession to the European Union.

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Introduction

This report represents a synthesis of the results of the monitoring, analyses and assessments under research Topic I "The Polish food sector in the first years of membership", implemented within the framework of the Multi-annual Programme 2005–2009 "The economic and social conditions of the development of the Polish food economy following Poland's accession to the European Union". The topic included the following three tasks performed over five years:

No 1 – "The state of the Polish food sector after accession to the European Union" (team leader: Prof. Roman Urban), aimed at the monitoring, analysis and assessment of adjustments to integration into the EU and of its impact on the following: demand for agricultural and food products, agricultural and food prices, agricultural inputs, the production of agriculture and the food industry, structural changes in these sub-sectors of the food economy and their economic situation;

No 2 – "The impact assessment of the common agricultural policy on agricultural markets" (team leader: Sławomir Gburczyk, PhD, until 2007, followed by Robert Mroczek, PhD Eng), aimed to assess the impact of the common agricultural policy on demand, supply, prices and structures. The evaluation covered CAP instruments such as direct payments, market intervention and price regulation systems, production quota systems as well as the common commercial policy;

No 3 – "The assessment of changes in the competitiveness of Polish food producers in the common European market and in markets of other countries" (team leader: Iwona Szczepaniak, PhD), aimed to describe the current state and identify changes in the competitiveness of Polish food producers. The analyses covered the results of foreign trade in agri-food products, competitiveness indices based on such results, the development of export orientation, price levels and movements in Poland and in the European Union, particularly in Germany, as well as evaluations of other competitiveness factors.

Poland's accession to the European Union fundamentally changed the conditions for agriculture, the food industry and the entire market environment of the Polish agri-food sector. This change resulted from the inclusion of Polish agriculture in the common agricultural policy and in the common commercial policy as well as from the elimination of the customs frontier between Poland and other EU Member States, which meant free access to the

large and wealthy EU market for Polish producers, and to the Polish market for producers from other EU Member States. The ensuing problems were further complicated by a gradual harmonisation of Poland's legislation with the *acquis communautaire* and the application of transitional periods (in the food industry until the end of 2007, and in agriculture until the end of 2012). All this raised concerns that the first years following Poland's joining the European Union would be difficult for Polish agriculture and the agri-food industry as well as for Poland's entire food sector[1].

At the same time, in the years preceding Poland's accession to the European Union there was a slowdown in the Polish economy. Between 2000 and 2003, the gross domestic product only increased at an annual rate of 2.1%. It was similar to the growth rate of the world economy and to that noted by the largest EU economies and the USA, but still several times lower than GDP growth rates recorded by the fastest-growing countries such as China (8.4% annually), India (6.0%), Lithuania (7.9%), Estonia (6.8%) and Russia (5.7%). Furthermore, Poland and the EU-15 then experienced a deceleration in industrial production (Poland – an annual growth rate of 3.3%, Germany, France, the United Kingdom and France – from -0.1% to -1.5%) and in agricultural output (1.9% and from -1.7% to -3.0% respectively) as well as low inflation rates (2.7% and 1.3–2.6% respectively)[2]. In that situation, the subsequent EU enlargement was expected to coincide with an economic upswing and thus stimulate economic growth not only in the new EU Member States, but also in the EU-15 countries.

Hopes for accelerated economic growth materialised in the majority of the new European Union Member States. In countries such as Poland, the Czech Republic and Slovakia the GDP growth rates increased two to three times (to approx. 6% in annual terms), whereas in the Baltic States they remained high, at ca. 8% annually. In 2004–2007 GDP growth sped up somewhat also in the EU-15, e.g. the EU's five largest economies grew at an average annual rate of 2.2%, i.e. 1 percentage point higher than between 2001 and 2003. A similar

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[1] Cf. *Załącznik do uchwały nr 126/2004 Rady Ministrów z dnia 18 maja 2004 r. w sprawie ustanowienia programu wieloletniego "Ekonomiczne i społeczne uwarunkowania rozwoju polskiej gospodarki żywnościowej po wstąpieniu Polski do Unii Europejskiej"* (Annex to Resolution No 126/2004 of the Council of Ministers of 18 May 2004 on the establishment of the Multi-annual Programme "The economic and social conditions of the development of the Polish food economy following Poland's accession to the European Union"), pp. 13–14.

[2] Economic growth indicators published by GUS (*Główny Urząd Statystyczny* – Central Statistical Office), cf. *Statistical Yearbook of the Republic of Poland 2006*, pp. 783, 788, 815–816, 861.

acceleration was observed in the US economy (from 1.7% to 2.9%), and very buoyant economic growth continued to be noted in China (at an annual rate of 11%), India (9%) and Russia (7%)[3].

Following several years of economic boom and robust growth, there was a dramatic collapse in mid-2008. In the global financial crisis, the majority of European countries, the USA, Russia and Ukraine faced recession. Over two years the EU's five largest economies contracted by 4%, and those of the Baltic States (Estonia, Lithuania, Latvia) by as much as 15% to 20%[4]. A notable exception, the Polish economy noted a minor increase in GDP. The crisis has not affected the fast-growing Asian countries (China, India), and they continue to record very high economic growth rates (approx. 6–8% annually). The severity of the current recession in the EU is reflected in a sharp fall in industrial production as in a number of countries it dropped by ca. 15–20% in the past two years, but in Poland it remained at the level noted prior to the global crisis. In the Polish economy the crisis has brought about a rise in the unemployment rate (to 11.4%) as well as a decline in investment (by 9%) and in foreign trade, mainly imports (by 31%).

The above-mentioned developments show that after Poland's joining the EU the macroeconomic conditions were favourable for the Polish food sector. The EU accession coincided with a significant acceleration in economic growth in Poland, which boosted the capacity of the domestic market. From 2004 the value of private consumption (at constant prices) went up by an annual rate of nearly 4%, and in 2009 it was 27% higher than the 2000–2002 figure. The domestic food market grew almost half as fast (at an annual average rate of ca. 2.4%), and its value at constant prices (including beverages and tobacco products) is already one-sixth higher than in 2000–2002. As the share of such products in household expenditure declined (from 29.7% in 2000–2002 to 26.7% in 2008), the development of the food market consists in the improvement of the food consumption structure and the enhancement of foodstuffs by adding various types of services which facilitate access to and increase the comfort of use of food products as well as augmenting satisfaction with food consumption. It results in a greater degree of processing and a higher monetary value of food,

[3] The economic (GDP) growth rates of the countries in question recorded in 2004–2007 were given on the basis of GUS data published in *Statistical Yearbook 2008.*

[4] The data on recession in the EU in 2008 and 2009 were presented on the basis of GUS information published in *Statistical Bulletin 2009,* No 11, pp. 200–203, 222–224.

with relatively stabilised nutritional value of foodstuffs consumed. All this occurred after EU accession as in 2008 (and in 2009), as compared to 2000–2002[5]:

- the energy value of foodstuffs consumed decreased by 2.2%, but there was a rise in the share of energy from livestock products from 32.6% to 34.1%, and the daily consumption of animal protein went up from 54.4 g to 56.8 g,
- the consumption of meat and fish increased by 12.5%,
- the consumption of fats and oils rose by 3.3%,
- the consumption of dairy products, fruit and vegetables was rather stable, with a minor upward trend, whereas the consumption of cereal products and potatoes showed a steady decline,
- there was a marked increase in the consumption of beer and spirits (of alcoholic beverages – by a total of 32%),
- the consumption of non-alcoholic beverages jumped by 90%,
- the consumption of highly processed products augmented by more than 25%.

The above-mentioned developments indicate that after joining the EU the food consumption pattern is more expensive, increasingly similar to that observed in other developed European countries, even though the level of Poland's economic development continues to be half of the EU average. It is a significant effect of integration into the EU and of accelerated economic growth of Poland as well as a sustainable basis for the development of the food sector and its economic power. Importantly, EU integration also stimulated the links between the Polish food economy and the EU market. Poland's joining the EU enabled Polish food producers to exploit their comparative advantages, which brought about a very robust (nearly threefold) increase in exports and imports of agri-food products.

Poland's accession to the EU has had a marked impact on agriculture, the food industry, agricultural markets and on their environment as well as on the competitiveness of the whole food economy, owing to changed conditions for operators in the food sector (the opening-up of markets, the harmonisation of national legislation and the inclusion in the common agricultural policy) and improved economic conditions. Such issues were monitored, analysed and

[5] Cf. E. Rosiak, *Popyt na żywność po integracji Polski z Unią Europejską (Food demand after Poland's accession to the European Union)*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza) (The state of the Polish food economy after accession to the European Union. Report 6 (synthesis)*, *seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 116–122.

assessed under the above-mentioned tasks within the framework of the Multi-annual Programme. The tasks were concluded with syntheses, published in subsequent implementation reports and presented at the conference completing the implementation of the Multi-annual Programme held in Pułtusk in December 2009. They are summarised as individual chapters in the synthesis of the topic "The Polish food sector in the first years of membership", namely:

Chapter 1. The impact of integration into the European Union on Polish agriculture,

Chapter 2. The food industry during integration into the European Union,

Chapter 3. The impact of the common agricultural policy on agricultural markets,

Chapter 4. The competitiveness of Polish food producers after accession to the European Union.

Chapters 1 and 2 were prepared on the basis of the results of analyses contained in the final report on the implementation of task 1: "The state of the Polish food economy after accession to the European Union. Report 6 (synthesis)" (*Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009). Chapter 3 was prepared in cooperation with R. Mroczek, PhD Eng, the team leader in task 2, on the basis of the report "The impact of the commercial policy instruments of the European Union on foreign trade in agri-food products" (*Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi, seria Program Wieloletni* 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009) and the presentation at the conference in Pułtusk (December 2009). Chapter 4 was prepared in cooperation with I. Szczepaniak, PhD, the team leader in task 3, on the basis of analyses contained in the report "The assessment of changes in the competitiveness of Polish food producers in the common European market and in markets of other countries (synthesis)" (*Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza), seria Program Wieloletni* 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009) and the presentation of the results of this task at the conference in Pułtusk (December 2009). The above-mentioned chapters are complemented by main conclusions from the analyses conducted, the list of literature and an annex containing the list of the most important publications on the implementation of the three tasks of the research topic in question within the framework of the Multi-annual Programme.

1. The impact of integration into the European Union on Polish agriculture

1.1. Production results of agriculture

Buoyant foreign trade in agri-food products and increased capacity of the domestic food market, resulting from integration into the European Union, boosted agricultural production. Prior to Poland's joining the EU (the years 1998–2003), total agricultural output decreased at an annual rate of 0.3%, whereas after EU accession it went up by 2% annually. This acceleration mostly concerned crop production, with annual growth rates of -1.5% and 3.9% respectively. As regards total livestock production, it developed more evenly in both periods in question; it rose by 1.1% and 1.65% in annual terms respectively. Therefore, this type of production responded only moderately to EU accession.

Table 1.1. Indicators of the development of agricultural production in Poland before and after accession to the European Union (value at constant prices)

Specification	Annual average growth rate, %		Production, as a percentage share of the average 2000–2002 level		
	1998–2003	2004–2009[a]	2003	2008	2009[a]
Total agricultural production	-0.30	1.97	99.2	109.2	110.1
of which: crop production	-1.52	3.87	92.5	104.9	109.5
livestock production	1.12	1.65	108.0	115.0	112.7
Final production	1.53	2.38	104.7	116.6	118.3
of which: crop production	2.13	4.35	100.0	117.5	123.4
livestock production	1.33	1.05	108.1	116.0	113.7
Commercial production	2.43	2.18	109.1	120.7	123.7
of which: crop production	2.12	3.17	104.4	116.8	123.2
livestock production	2.62	1.53	112.5	124.6	124.0

[a] the data for 2009 according to own provisional estimates, based on yields as estimated by GUS and the production of meat, milk and fish as projected by IAFE-NRI

Source: own study based on GUS data (Statistical Yearbooks 2001, 2004, 2005 and 2008).

The growth rates of final and commercial agricultural production showed minor differences between the periods in question. After Poland's joining the EU, the growth rate of final production increased by half (from 1.5% to 2.4% in annual terms), and that of commercial production even declined by one-tenth (from 2.4% to 2.2%). This slowdown was not observed in crop production as its final value went up by an annual rate of 2.1% and 4.4% respectively, and commercial output rose by 2.1% and 3.2% annually, but only in livestock

production. The growth rate of final livestock production decreased by one-fifth (from 1.3% to 1.1% annually), and commercial production even dropped by two-fifths (from 2.6% to 1.5% in annual terms). This fall in the growth rates of livestock production does not necessarily imply increased internal use in agriculture (for production and consumption), but it may merely reflect a certain shift in the production structure, resulting from a deep crisis in the pigmeat sector (in 2008–2009). Consequently, the growth proportions between total, final and commercial production were disturbed, but it did not change the fact that the share of market output in agricultural production continued to rise and that accession to the European Union even sped up this process.

Following Poland's joining the European Union there was (Table 1.2):

- a sharp acceleration in the production of rape (up by 21 percentage points, from -6.2% to 14.8%), beef (by 10.4 percentage points, from -6.5% to 3.9%) and cereals (from -3.0% to 5.6% annually),
- a moderate acceleration in the production of vegetables (from -4.4% to 1.5% annually) and milk (from -1.2% to 0.6%),
- a certain slowdown in the production of poultrymeat (from 9.7% to 6.8% annually), fruit (from 5.5% to 2.8% annually) and eggs (from 4.6% to 3.1%),
- as well as a milder decline in the production of potatoes (from -13.2% to -10.4% annually) and sugar beet (from -5.5% to -3.5% annually).

Table 1.2. Production of main agricultural products

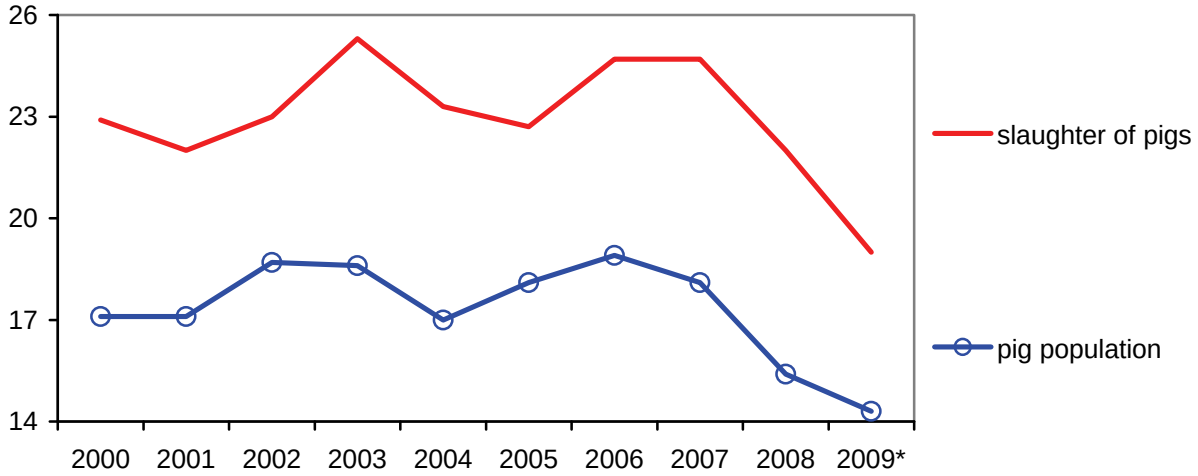
Agricultural products	Annual average level in thousand tonnes			Annual average rate of growth/fall in %	
	1999–2003	2004–2008	2009[a]	1999–2003	2004–2009
Cereals	25,052	26,629	29,827	-3.0	5.6
Rape	987	1,798	2,481	-6.2	14.8
Sugar beet	12,447	11,620	9,367	-5.5	-3.5
Potatoes	18,559	11,125	9,703	-13.2	-10.4
Vegetables	5,377	5,416	5,600	-4.4	1.5
Fruit	2,874	3,038	3,646	5.5	2.8
Milk	11,614	11,686	11,690	-1.2	0.6
Meat	3,138	3,516	3,380	2.5	-0.5
of which: pigmeat	2,031	2,049	1,702	1.8	-4.2
beef	364	386	445	-6.5	3.9
poultrymeat	701	1,059	1,201	9.7	6.8
Eggs	8,251	9,677	10,967	4.6	3.1

[a] the data for 2009 according to own provisional estimates, based on yields as estimated by GUS and the production of meat, milk and fish as projected by IAFE-NRI

Source: own study based on GUS data (Statistical Yearbooks 2001, 2004, 2006 and 2009).

Another problem is a steep fall and a crisis in pigmeat production. In the last two years the production of this type of meat plummeted by more than 20% (from 2,165,000 tonnes to 1,700,000 tonnes of meat), the slaughter of swine dropped by 23%, and the pig population decreased to 14.3 million, i.e. the lowest level in forty years (from 1970). This major crisis in pig farming stemmed not only from the subsequent contraction phase of the hog cycle[6], but also from an upsurge in cereal and feed prices in the marketing year 2007/08, triggered by the global food crisis. As a result, there was a deterioration in the relationship between purchase prices for pigs and market prices for rye, to 5.7–5.8 in 2007 and 2008, and periodically even to 4.4–4.7[7]. Such a sharp worsening of the conditions for pig farming could not be prevented by the EU common agricultural policy or the national economic policy. Neither does the structure of Polish agriculture and of this type of livestock production provide internal protection systems as it is characterised by considerable fragmentation and little resilience to external cyclical disturbances. As a consequence, in years of low supply (2004, 2008, 2009) Polish pigmeat producers lose their competitive advantages, which in turn entails a rapid change in the balance of foreign trade in pigmeat. In other periods, such advantages were noteworthy, and Poland recorded export surpluses.

Figure 1.1. Pig population and the slaughter of pigs in Poland (million)



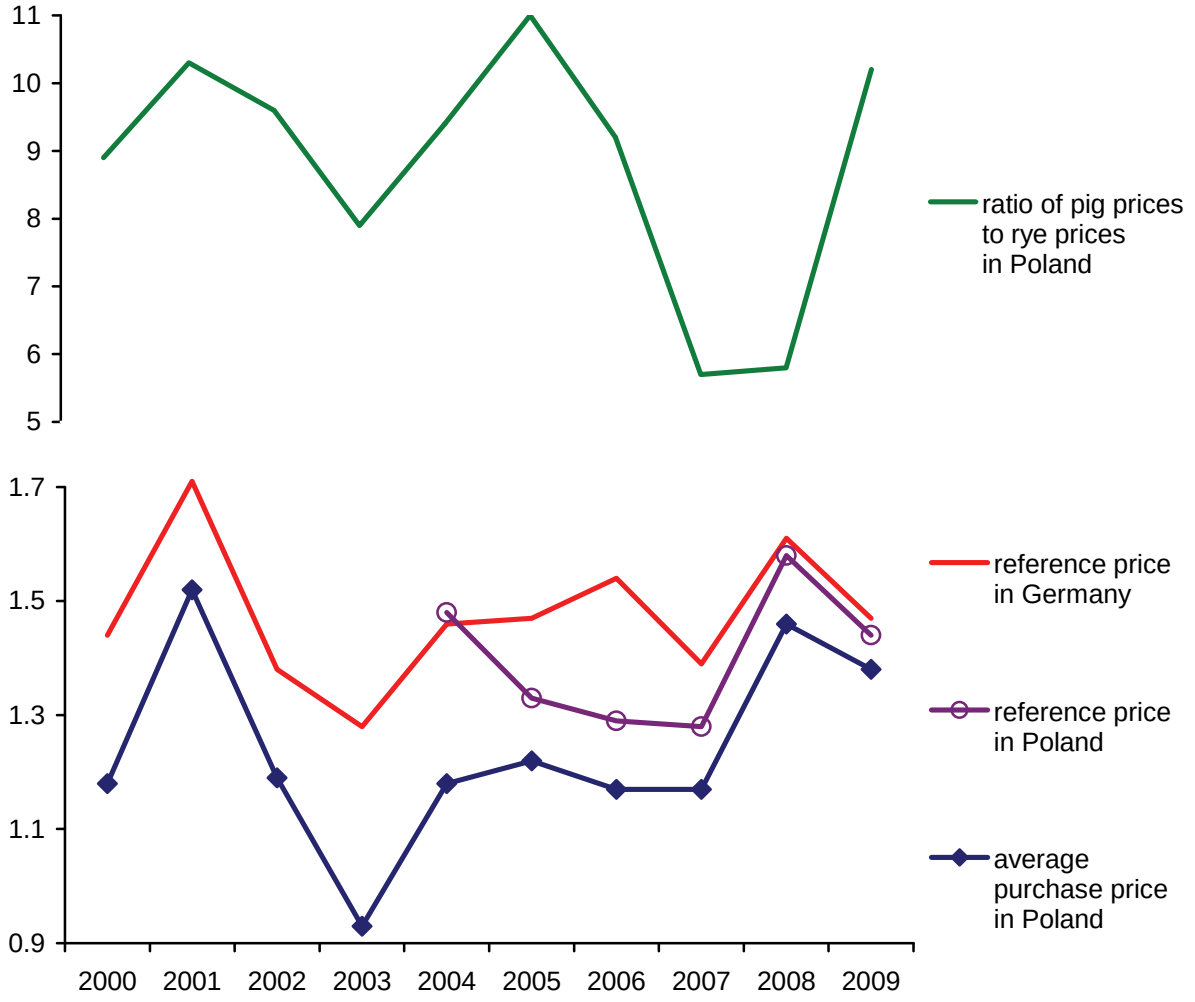
* slaughter of pigs according to the provisional estimate of IAFE-NRI

Source: own study based on GUS data.

[6] In previous contraction phases of the hog cycle the decline in pig production rarely exceeded 10%.

[7] J. Małkowski, D. Rycombel, D. Zawadzka, *Aktualny i przewidywany stan rynku wieprzowiny*, [in:] *Rynek mięsa. Stan i perspektywy*, No 37, "Analizy Rynkowe" 2009, p. 12.

Figure 1.2. Pig prices (EUR/kg) and the ratio of pig prices to rye prices



Source: own study based on GUS data.

The development of agricultural production shows that it adapted to the conditions of integration into the European Union. It responded to price movements in the European market and ensured an increased supply of raw materials for food production for the domestic market and robust exports, even though milk, sugar and potato starch quotas constrained the export potential of the Polish food sector. Those adjustments were accompanied by growing competition from imports of agricultural products and semi-finished products. The value of such imports increased from PLN 10.6 billion in 2003 to PLN 23.8 billion in 2008 (at current prices), and their ratio to the value of commercial agricultural production (at current prices) went up from 0.29 to 0.47. It means that in Poland the share of imported raw materials in the supply of agricultural products (between 2003 and 2008) jumped from 22% to 32%. Those were not only raw materials from other climatic zones, complementary and supplementary to domestic agricultural output, but also competitive articles.

1.2. Relationships between production factors and the productivity of Polish agriculture

During Poland's membership of the EU there have been no major changes in the stock of the main production factors in agriculture, i.e. land, labour and capital, or in relationships between them. The period of 2002–2008 only witnessed a minor fall in the area of agricultural land (by approx. 5%) and a rise in capital (also by ca. 5%). Considering virtually unchanged employment (Table 1.3), it resulted in a similar decline in the utilised agricultural area per worker as well as in a slight improvement in the capital/labour ratio (by 1.7%) and a more significant increase in the capital/land ratio (by 13%). It was irrelevant to the assessment of those relationships in Poland in comparison with agriculture in other EU Member States. Thus, in terms of area of agricultural land per worker Poland only outranks Bulgaria, Romania and Slovenia (as well as Cyprus and Malta), whereas in the EU-15 countries this ratio is over triple the figure. Capital per worker is more than six times lower in Poland than in the EU-15, and it is even lower only in Romania and Bulgaria. As regards the capital/land ratio, the gap between Polish agriculture and advanced European agriculture is somewhat narrower. This ratio is half the figure for the EU-15 countries, but similar to those noted in Spain and the new EU Member States, although higher than in Romania, Estonia, Lithuania or Latvia. On the basis of the two ratios, W. Poczta assesses that the relationship between labour and the other two factors (capital, land) proves a poor competitive situation of Polish agriculture in terms of competitive potential and determines low labour productivity in comparison with other sectors, whereas the capital/land ratio, among the lowest in the European Union, demonstrates relatively low farming intensity in Poland, thus low land productivity[8].

The productivity of the main production factors in Polish agriculture has shown a slow upward trend. In 2002–2008 the fastest increase in productivity was recorded in the case of land (Table 1.4) as the value of agricultural output per ha of utilised agricultural area went up by 16.0%, i.e. by an annual average of 2.5%. Labour productivity improved at a lower rate (by 7.5%, i.e. 1.2% annually), whereas the improvement in capital productivity was even slower (by 5%, i.e. 0.8% annually)[9].

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[8] W. Poczta, *Wpływ integracji z UE na sytuację strukturalną, produkcyjną i ekonomiczną polskiego rolnictwa* (*The impact of integration into the EU on the structural, production and economic situation of Polish agriculture),* [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, p. 13.

[9] According to R. Rusielik and M. Światłyk, changes in technical efficiency were minor (R. Rusielik, M. Światłyk, *Zmiany efektywności technicznej rolnictwa w Polsce w latach 1998–2006*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 1, p. 26).

Table 1.3. Relationships between production factors in agriculture

Country	Year	Utilised agricultural area in ha million	Labour input in AWU[a] million	Capital input in EUR billion	Utilised agricultural area per AWU[a]	Capital input per AWU[a] in EUR thousand	Capital input per ha of UAA in EUR thousand
Poland	2002	16.9	2.27	51.4[b]	7.46	22.7[b]	3.0[b]
	2008	16.2	2.35	54.3[b]	6.88	23.1[b]	3.4[b]
Poland	2008	15.5	2.35	15.5	6.6	6.6	1.0
EU-15	2008	124.5	5.54	234.5	22.5	42.3	1.9
of which:							
Germany	2008	16.9	0.55	41.6	31.1	76.4	2.5
France	2008	27.6	0.88	53.0	31.2	59.9	1.9
Denmark	2008	2.7	0.06	8.8	46.6	155.0	3.3
Spain	2008	24.9	0.95	24.3	26.3	25.7	1.0
EU-12	2008	47.7	5.93	47.9	8.0	8.1	1.0
of which:							
Hungary	2008	4.2	0.43	5.8	9.8	13.4	1.4
Lithuania	2008	2.6	0.09	1.8	28.2	18.6	0.7
Romania	2008	13.9	2.15	12.9	6.5	6.0	0.9

[a] AWU – Annual Work Unit, [b] value in PLN at constant prices

Source: W. Poczta, Wpływ integracji z UE na sytuację strukturalną, produkcyjną i ekonomiczną polskiego rolnictwa (The impact of integration into the EU on the structural, production and economic situation of Polish agriculture), [in:] R. Urban (ed.), Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 11–12.

Table 1.4. Productivity of Polish agriculture in comparison with other European Union Member States

Specification	Value of production in EUR billion	Productivity of		
		land in EUR per ha of UAA	labour in EUR per AWU	capital in EUR per EUR
Poland 2002	52.7[a]	3,118[a]	23,210[a]	1.03[a]
2008	58.6[a]	3,617[a]	24,936[a]	1.08[a]
Poland	21.6	1,398	9,210	1.40
EU-15	304.5	2,447	54,957	1.30
of which:				
Germany	48.2	2,847	88,457	1.16
France	66.8	2,420	75,554	1.26
Denmark	9.5	3,566	166,305	1.07
Spain	40.5	1,629	42,813	1.67
EU-12	62.8	1,316	10,586	1.31
of which:				
Hungary	7.5	1,769	17,251	1.29
Lithuania	2.1	809	22,763	1.22
Romania	17.0	1,225	7,916	1.32

[a] value in PLN at constant prices

Source: W. Poczta, Wpływ integracji…, op. cit., Table 1.16, p. 38.

The comparison with other EU Member States shows that Polish agriculture is characterised by higher land productivity than that in the remaining new EU Member States, but from 50% to 100% lower than agriculture in the EU-15 countries. It cannot be considered negative when the domestic demand is satisfied and foreign trade generates a surplus. However, in some agricultural holdings extensive farming results from the lack of capital or skills rather than from the farmer's choice. A more important problem for Polish farmers is the low labour productivity, which, in terms of production value, is six times lower than the EU-15 figure. Lower or similar labour productivity is only noted in Romanian, Bulgarian and Latvian agriculture. Low labour productivity must entail low remuneration of labour, which maintains the competitiveness of Polish agriculture. In such a situation, favourable results of foreign trade must come at least partly at the price of social dumping[10].

Capital productivity in Polish agriculture is somewhat above the EU average and higher than in most Member States. However, one should bear in mind that according to the principle of diminishing marginal efficiency of inputs their productivity should be distinctly above the EU average. Therefore, the actual level of capital productivity does not explain the low productivity of land. Despite a significant improvement attained during Poland's membership of the

[10] W. Poczta, *Wpływ integracji…*, op. cit., p. 38.

EU, the poor performance of Polish agriculture as compared to the EU indicates its structural and technological drawbacks.

During integration into the EU, the level of production inputs and their productivity followed different patterns depending on the type of farming (Table 1.5). First of all, there was an increase in the consumption of mineral fertilisers, plant protection products and manufactured feedingstuffs[11]. The unit consumption of the above-mentioned inputs went up by 35%, 22% and 20% respectively. At the same time, the consumption of calcium fertilisers, energy and certified seed showed a downward trend. The unit consumption of these production inputs dropped by 54%, 15% and 25% respectively. In the period in question, there was a rise in the relative expenditure of agriculture on manufactured agricultural inputs. At constant prices, its relative level augmented from PLN 0.42 per PLN to PLN 0.45 per PLN, i.e. by 7%, whereas at current prices there was a 3% increase.

Table 1.5. Consumption of basic agricultural inputs

Consumption of	2001–2003	2006–2008
Fertilisers in kg per ha:		
– NPK	93.0	125.9
– calcium	94.3	43.4
Plant protection products:		
– in thousand tonnes	15.5	18.8
– in kg/PLN 1,000 of total crop production	0.49	0.60
Energy:		
– PJ (petajoules)	162.5	144.0
– PJ/PLN billion of total agricultural production	2.85	2.42
Manufactured feedingstuffs:		
– in million tonnes	5.0	6.82
– in kg/PLN of total livestock production	0.20	0.24
Seed and planting stock:		
– in thousand tonnes	285.0	210.0
– in kg/PLN of total crop production	0.009	0.007
Expenditure on current means of production		
– PLN billion, current prices	23.5	32.6
– PLN billion, constant prices	24.0	26.8
– PLN/PLN of total agricultural production, constant prices	0.42	0.45
– PLN/PLN of sales of agricultural products, current prices	0.66	0.68

Source: own study based on GUS data and published in Rynek środków produkcji dla rolnictwa. Stan i perspektywy, "Analizy Rynkowe" 2002–2009, and A. Zalewski, Wpływ integracji z Unią Europejską na zasilanie rolnictwa środkami produkcji (The impact of integration into the European Union on the supply of production inputs in agriculture), [in:] R. Urban (ed.), Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 86–94.

[11] At the same time, the certified seed market contracted (cf. also: L. Wicki, *Zmiany w zużyciu nasion kwalifikowanych w Polsce*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 4, p. 236).

Table 1.6. Productivity of basic production inputs in Polish agriculture

Specification	2001–2003	2006–2008
Labour productivity in PLN thousand/person	25.2	25.8
Productivity of intermediate consumption in PLN/PLN	1.66	1.83
Productivity of expenditure on current means of production in PLN/PLN	2.38	2.23
Productivity of energy consumption in PLN billion/PJ	0.35	0.41
Productivity of manufactured feedingstuffs[b] in PLN/kg	5.13	4.14

[a] value of production and control at constant prices; [b] measured by the total value of livestock production at constant prices

Source: own calculations based on GUS data.

Different patterns were observed in the productivity of Polish agriculture. During integration into the European Union, there was a marked improvement in the productivity of intermediate consumption and energy consumption as well as a slight increase in labour productivity. At the same time, there was a decline in the productivity of expenditure on current means of production, particularly mineral fertilisers and plant protection products. Similar changes concerned the productivity of manufactured feedingstuffs used, but it pushed down the consumption of other concentrated feedingstuffs per unit of livestock production unit and resulted in an improvement of their productivity[12]. However, all the above-mentioned changes in productivity had no significant effect on the economic situation of Polish agriculture as they were rather minor and mutually compensating, and the increase in expenditure on agricultural inputs was similar to that in sales of agricultural products. Between 2002 and 2008, agricultural sales and expenditure on agricultural inputs went up by ca. PLN 12.5–13 billion each (at current prices). Thus, the economic situation of agriculture was determined by other factors, mainly a considerable rise in subsidies.

1.3. Agricultural income and farm income

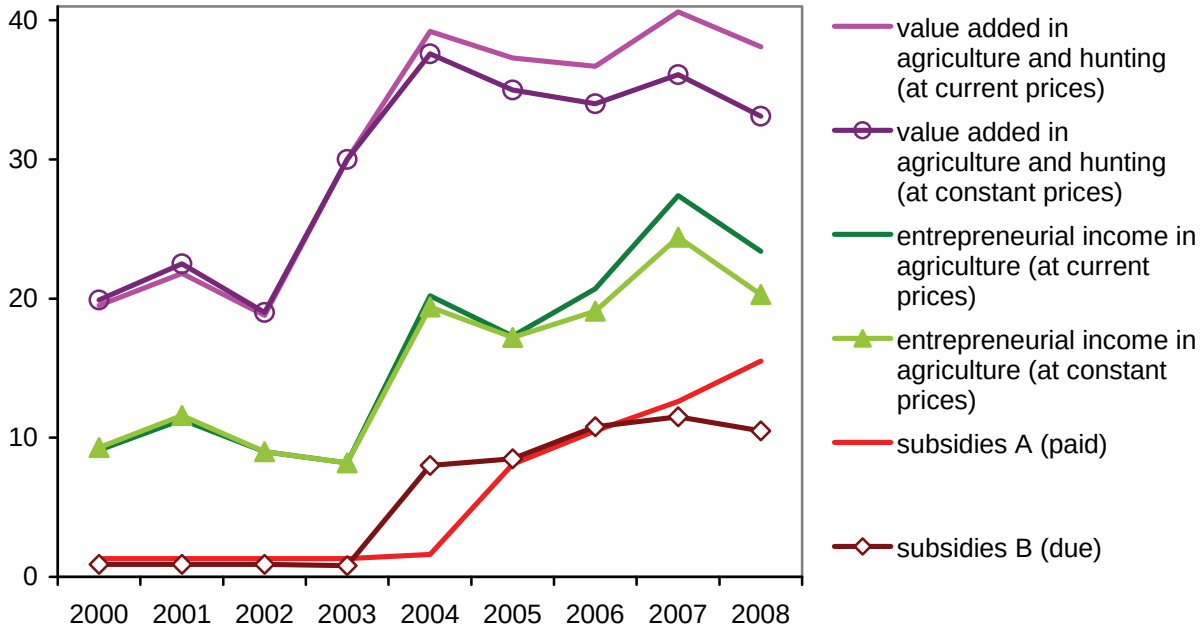
The years directly preceding Poland's accession to the European Union were characterised by very low agricultural incomes, frequently regarded as the indication of an economic crisis in the sector[13]. In 2000–2002 agricultural value added was an annual average of approx. PLN 20 billion, i.e. a mere PLN 8,500 per worker, and in 2003 the income of farmers' households was 35% lower than

[12] According to reports of IAFE-NRI on the animal feed market in *Rynek pasz. Stan i perspektywy*, the consumption of other concentrated feedingstuffs per unit of livestock production in Poland decreased by approx. 5%.

[13] Cf. J. Zegar, *Dochody w strategii rozwoju rolnictwa*, IERiGŻ, Warszawa 2004, pp. 185–196.

that of paid employees' families. From 2004, the income situation of farmers improved considerably (Figure 1.3). Value added generated by agriculture (Table 1.7) went up to approx. PLN 38 billion (on average between 2004 and 2008), and in real terms it was 71.5% above the 2000–2002 annual average. At the same time, entrepreneurial income in agriculture augmented from ca. PLN 9.2 billion to PLN 22 billion (at current prices), and its real value more than doubled (by 108.5%). That growth in income[14] and value added generated by agriculture mostly stemmed from higher subsidies, and only to a limited extent from increased output or improved farming efficiency. After Poland's joining the European Union, neither did price movements have a major effect on agricultural income as relative (current) prices, the so-called "price scissors" indices, were mutually compensated in subsequent years, and their cumulative value remained similar to the 2002–2003 level (Figure 1.4).

Figure 1.3. Value added, entrepreneurial income and subsidies in agriculture (in PLN billion)



Source: Statistical Yearbook GUS 2003, 2006 and 2009; W. Poczta, Wpływ integracji…, op. cit., p. 36, and Aneks statystyczny (the Statistical Annex), [in:] R. Urban (ed.), Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, p. 203.

[14] Similar assessments are presented by the Office of the Committee for European Integration (*Urząd Komitetu Integracji Europejskiej* – UKIE) in its report, namely that Poland's accession to the EU brought about an increase in agricultural income (cf. *5 lat Polski w Unii Europejskiej. Raport*, UKIE, Warszawa 2009, p. 80).

Between 2004 and 2008, the subsidies included in economic accounts for agriculture reached an annual average of PLN 9.9 billion. Their increase (by PLN 9 billion) accounted for over 70% of growth in agricultural entrepreneurial income (PLN 12.6 billion) and for half of the rise in value added (PLN 18 billion). The share of subsidies in entrepreneurial income in agriculture went up from 9.2% in 2000–2003 to 45% in 2004–2008 (Table 1.7, Figure 1.3). The actual rate of subsidies for the agricultural sector was even higher since all subsidies increasing agricultural income already reached approx. PLN 15.5 billion (in 2008), representing two-thirds of entrepreneurial income in agriculture.

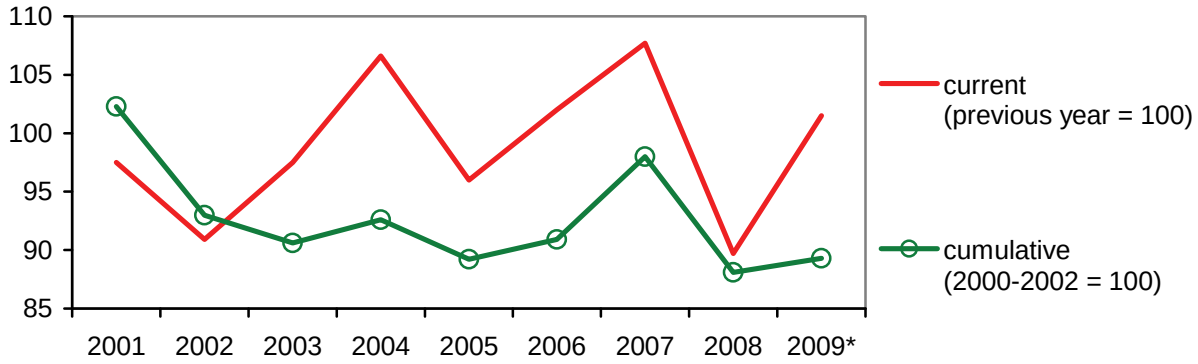
Table 1.7. Agricultural entrepreneurial income and subsidies for agriculture

Specification	Annual average	
	2000–2003	2004–2008
Agricultural entrepreneurial income		
– in PLN billion at current prices	9.4	22.0
– index at current prices	100.0	234.0
at constant prices	100.0	208.5
Subsidies[a]		
– in PLN billion	0.9	9.9
– as a percentage share of income	9.2	45.0

[a] only those included in economic accounts for agriculture

Source: W. Poczta, Wpływ integracji…, op. cit., Table 1.15, p. 36.

Figure 1.4. Relative prices (price scissors index) of goods sold and purchased by farmers



* IAFE-NRI provisional estimate

Source: own study based on GUS data (Statistical Yearbooks 2006 and 2009).

The improvement of the income situation in agriculture is also confirmed by microeconomic data. According to the household budget surveys, in 2008 the disposable income of farmers was nearly twice as high as in 2003, accounting

for as much as 85% of the income of paid employees' families[15]. The period in question saw a similar rise in incomes of the main types of agricultural holdings (Table 1.8), with the largest increases recorded in farms engaged in the production of cereals and other field crops as well as in mixed holdings combining those with the rearing of cattle. Analyses by W. Poczta also point to limited stability of incomes of different farms and a growing subsidy rate.

Table 1.8. Incomes of selected types of agricultural holdings

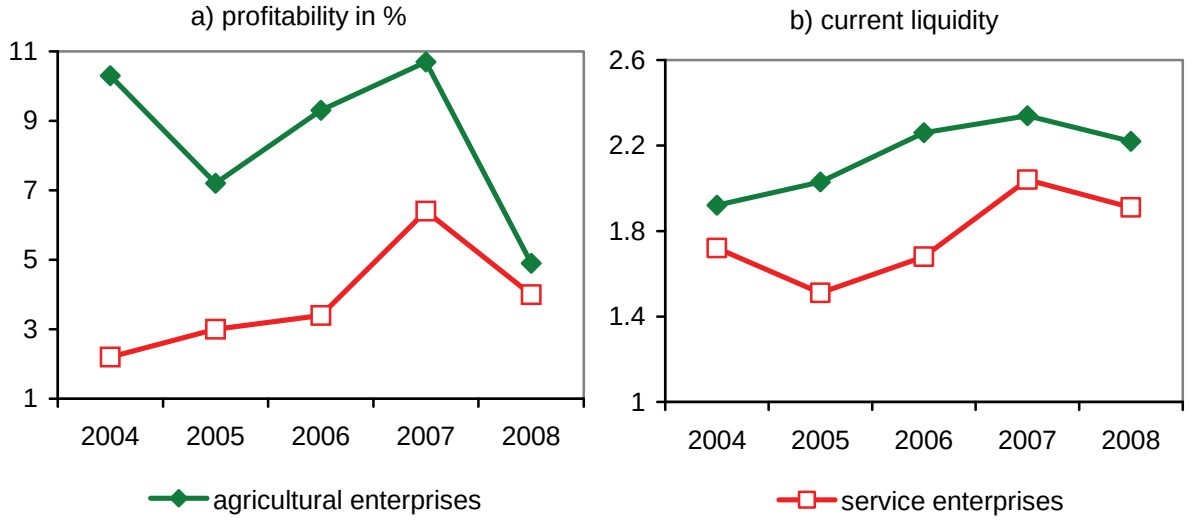
Type of farming	Specification	2003	2004–2006	2007–2009
8.2 ha under field crops	net income in PLN thousand	0.8	10.5	13.0
	share of subsidies in income in %	65	85	85
16.5 ha under field crops + 200 fatteners	net income in PLN thousand	40.6	53.7	62.0
	share of subsidies in income in %	1	13	13
16.5 ha under field crops + 10 heads of cattle	net income in PLN thousand	11.6	28.0	32.3
	share of subsidies in income in %	10	26	29
30 ha + 25 dairy cows	net income in PLN thousand	40.0	74.0	58.6
	share of subsidies in income in %	10	19	34
50 ha + 1,000 pigs	net income in PLN thousand	110.2	158.8	164.2
	share of subsidies in income in %	2	19	17
50 ha + 50 heads of cattle for fattening	net income in PLN thousand	9.3	43.9	29.9
	share of subsidies in income in %	0	63	100
50 ha + 50 heads of cattle and agri-environmental schemes	net income in PLN thousand	9.3	69.4	59.6
	share of subsidies in income in %	0	74	100
300 ha under cereals or beet	net income in PLN thousand	231.0	475.3	773.8
	share of subsidies in income in %	22	33	33
1,000 ha under cereals	net income in PLN thousand	455.5	1,018.4	1,875.5
	share of subsidies in income in %	37	58	35

Source: W. Poczta, Wpływ integracji…, op. cit., Table 1.17, pp. 40–41.

After EU accession, agricultural enterprises and companies providing services to agriculture were profitable (Figure 1.5), and profitability, particularly that of production enterprises, was relatively high. Both groups of agricultural businesses were characterised by safe liquidity, with a marked upward trend.

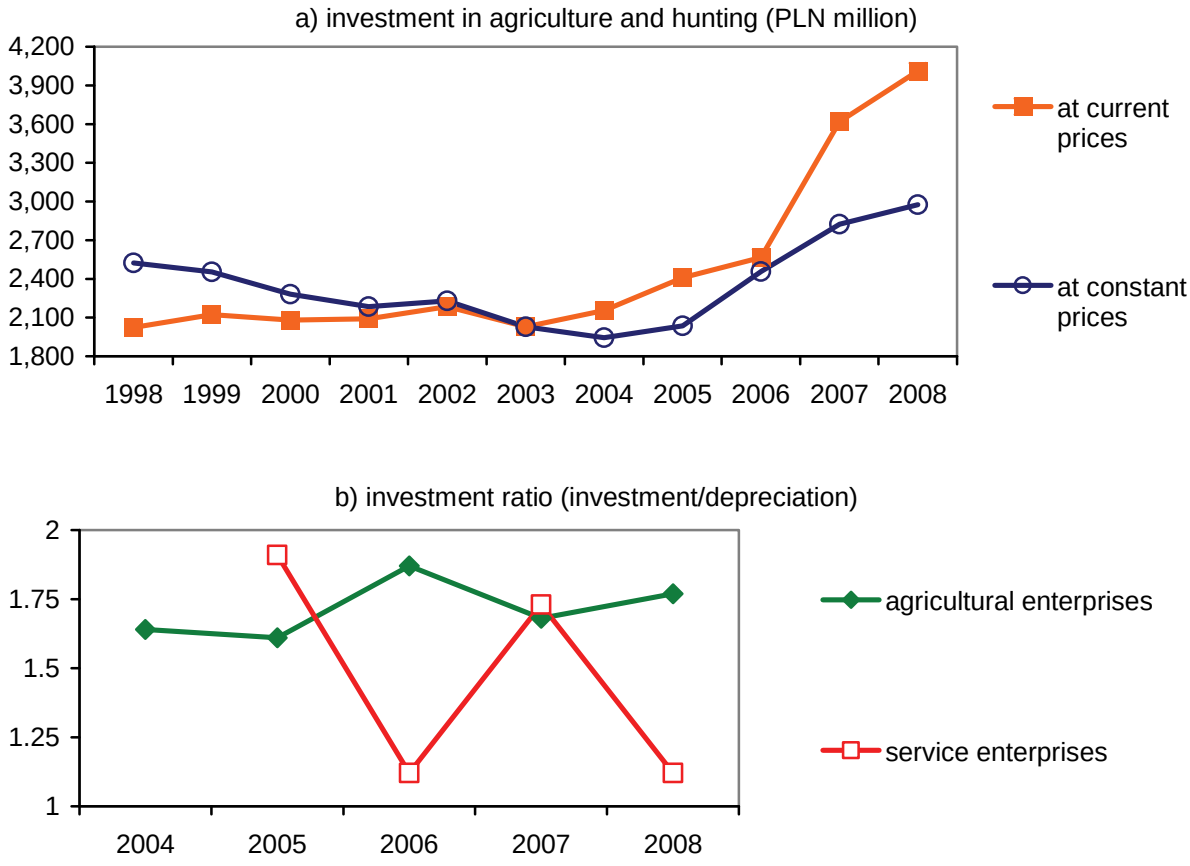
[15] According to GUS data published in the *Statistical Yearbooks* 2004 and 2009.

Figure 1.5. Financial performance of agricultural and service enterprises



Source: W. Dzun, M. Zdzieborska, Sytuacja ekonomiczno-finansowa przedsiębiorstw rolnych po wejściu do Unii Europejskiej (The economic and financial situation of agricultural enterprises after accession to the European Union), [in:] R. Urban (ed.), Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 75–85.

Figure 1.6. Investment in agriculture



Source: GUS data and own calculations, W. Dzun, M. Zdzieborska, Sytuacja ekonomiczno-finansowa…, op. cit., pp. 80, 85.

The increase in agricultural income also stimulated investments, additionally fuelled by investment subsidies (Figure 1.6). Between 2003 and 2008 agricultural investment nearly doubled at current prices (to PLN 4 billion), and it rose by 50% at constant prices. In agricultural enterprises investments were almost twice as high as depreciation. The investment ratio was also significant, although varying, in businesses rendering services to agriculture. Investment subsidies for agricultural enterprises totalled PLN 6.3 billion, i.e. approx. PLN 1.05 billion annually. They covered 36% of the value of agricultural investments. Such developments indicate that joining the EU sped up modernisation processes in Polish agriculture[16] and allowed to overcome years of sluggish investment. Thus, integration into the European Union represented a stimulus to agriculture and its environment, supplying farmers with current means of production, in particular fertilisers, plant protection products and feedingstuffs as well as with agricultural machinery and other capital goods. It also pushed up the demand for agricultural inputs and a rapid rise in their prices.

1.4. Structural changes in Polish agriculture

EU accession has not brought about the expected structural transformation in Polish agriculture. Certain changes could be observed in the period in question (2002–2007), but without a major impact on the identity of Poland's agricultural sector. Neither did the structural gap narrow between Polish agriculture and that in developed European countries (Table 1.9). In 2002–2007 the number of agricultural holdings (with over 1 ha) dropped by 7.5% (from 1,956 do 1,808 thousand), and the average area of such holdings increased from 8.4 ha to 8.8 ha. At the same time, there was a 9.4% rise in the number of large farms (from 116,000 to 127,000), and their share in the total number of agricultural holdings went up from 5.9% to 7.0%, and in utilised agricultural area – from 41.7% to 43.6%. Such trends are favourable, but the scale is too small, as reflected in the following comparisons:

- only Romania outranks Poland in terms of number of agricultural holdings, Poland's share in the total number of farms in the EU is as much as 16.7%,
- the proportion of large agricultural holdings in Poland is three times lower than that in the EU-15 and six to seven times lower than in Denmark, France or Germany,

[16] According to UKIE, Poland's accession to the EU brought about an investment boom in rural areas and accelerated modernisation processes in agricultural holdings (*5 lat Polski…*, op. cit., p. 81).

– the share of large farms (with over 20 ha) in utilised agricultural area in Poland is half the figure for the EU-15.

More fragmented agriculture than in Poland is only found in Romania, Greece, Slovenia as well as in Malta and Cyprus.

Table 1.9. Structure of Polish agriculture as compared to other European Union Member States

Specification	Number of agricultural holdings	Of which: farms with 20 ha or over		Agricultural area utilised by farms with 20 ha or over	Farms of 16 ESU or over	
	thousand	thousand	%	%	% of farms	% of the standard gross margin
Poland[a] 2002	1,956	115.8	5.9	41.7	3.5	.
2007	1,808	126.8	7.0	43.6	4.2	.
EU 2007	14,177	1,507.3	10.6	76.9	11.7	81.6
EU-15	5,794	1,259.2	21.7	84.3	26.4	86.7
of which: Germany	370	167.3	45.2	90.5	50.6	94.8
France	567	309.2	54.5	94.6	60.8	96.1
Denmark	44	25.8	58.1	92.9	56.8	96.0
Spain	1,079	211.1	19.6	83.5	25.0	80.6
EU-12	8,383	248.1	3.0	57.6	1.8	48.1
of which: Poland	2,380	125.0	5.3	43.2	3.6	43.5
Hungary	626	24.6	3.9	83.7	2.5	69.8
Lithuania	230	19.9	8.7	60.7	1.7	48.3
Romania	4,256	29.9	0.7	43.3	0.3	22.9

[a] only concerns farms with agricultural land of over 1 ha, and all holdings according to Eurostat data on the EU

Source: W. Poczta, Wpływ integracji…, op. cit., pp. 16, 20, 23–25.

Owing to considerable fragmentation, the potential and economic strength of Polish agricultural holdings are rather weak. Economically viable and medium-viable farms (16 ESU or over) account for a mere 3.5–4.0% of the total number of agricultural holdings, and they only generate 43% of standard gross margin. In the EU-15 countries, the share of such farms is six to twelve times higher and they account for 85% to 96% of the total standard gross margin[17]. Only Romanian agriculture performs worse in this respect.

[17] On the basis of the results of the FADN sample, W. Poczta assesses that only farms of over 16 ESU ensure the parity remuneration of family labour and net investment. In Poland this group comprises approx. 100,000 holdings (W. Poczta, *Wpływ integracji…*, op. cit., p. 22).

Changes in the farm structure in terms of economic size (viability) can also be observed, but still very slow[18]. The farm structure is increasingly polarised, with a markedly higher growth rate of larger holdings. An exception to this trend, there has been a fall in the share of the largest farms (with more than 100 ha of agricultural land). According to W. Ziętara[19], it results from the most recent agricultural system act (of 11 April 2003), which imposed restrictions on increasing the area of agricultural holdings.

In Polish agriculture the concentration of production, particularly livestock production and sugar beet growing, have been more rapid (Table 1.10). Between 2002 and 2007, the number of sugar beet planters dropped by one-third, and that of holdings engaged in stock farming went down by ca. 20%, with the number of cattle (cow) and pig farms declining by 23% (25%) and 12.5% respectively. The number of large producers of cereals, sugar beet, cattle and pigs remained rather stable, whereas that of large holdings growing rape and rearing cows showed a considerable rise. In each main type of farming there was a minor increase (by several percentage points) in the share of large agricultural producers and in their share in agricultural output. In 2007, the proportion of such holdings was high in the production of rape (86%) as well as in cattle and pig farming (71% and 66% respectively), whereas it slightly exceeded 50% in the production of cereals, sugar beet and milk.

When assessing the concentration of production in Polish agriculture, it should be pointed out that EU accession hindered rather than accelerated those processes. It is reflected in the following comparisons: the number of sugar beet growers declined by two-thirds in 1996–2002 and by one-third in 2002–2007, that of cattle farms decreased by 32% and 23% respectively, and that of pig holdings went down by 30% and 13% respectively. It may indicate that the improvement of the economic situation in agriculture, achieved due to significantly increased subsidies, weakened the pressure and economic need for seeking other methods for enhancing economic performance.

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[18] J. Zegar points out that rapid changes are impossible on account of the scale of this phenomenon (cf. J. Zegar, *Struktura polskiego rolnictwa rodzinnego*, IERiGŻ-PIB, Warszawa 2009, p. 85).

[19] Cf. W. Ziętara, *Stan dostosowań polskiego rolnictwa do integracji z Unią Europejską* (*Adjustments in Polish agriculture to integration into the European Union*), [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, p. 50.

Table 1.10. Concentration of agricultural production

Specification	Year	Number of producers (thousand)		Share of large producers (%) in:	
		total	of which: large[a]	number	area cultivated or livestock population
Cereals	2002	1,668	160.2	9.6	53.7
	2007	1,666	164.6	9.9	52.3
Rape	2002	43.0	13.5	31.4	86.4
	2007	78.3	27.1	34.6	86.2
Sugar beet	2002	101.3	10.1	10.0	50.3
	2007	66.9	8.9	13.3	53.7
Cattle	2002	935.2	145.0	15.5	58.5
	2007	718.3	153.7	21.4	71.7
Cows	2002	875.4	56.9	6.5	36.2
	2007	656.5	76.8	11.7	56.2
Pigs	2002	760.8	78.4	10.2	60.3
	2007	664.0	75.0	11.3	66.1

[a] "large" means: cereals – 10 ha or over, rape and sugar beet – 5 ha or over, cattle and cows – 10 heads or over, pigs – 50 heads or over

Source: W. Poczta, Wpływ integracji…, op. cit., pp. 27 and 29.

The small scale of structural transformation, or even its dramatic slowdown after EU accession, is partly attributable to the system of agricultural subsidies, primarily in the form of direct payments and LFA payments, decoupled from the economic results of agricultural production. The actual impact of "structural pensions" (early retirement), support for adjustment to EU standards and the afforestation scheme are also considered insignificant. Measures beneficial to farmers and the environment included support for farming in less-favoured areas and for agri-environmental undertakings[20]. Nevertheless, the adaptability of farmers and institutions to EU standards and requirements, resulting in high utilisation rates of all types of EU funds by farmers and agriculture-related production and services, should be evaluated very positively.

[20] A similar opinion on the above-mentioned issues was also expressed by W. Ziętara (cf. W. Ziętara, *Stan dostosowań…*, op. cit., p. 74).

2. The food industry during integration into the European Union

2.1. Acceleration in the Polish food industry

Apart from agriculture, the other core of the food sector is the food industry, i.e. the area where the subjects of labour are agricultural products processed into various foodstuffs. The process consists in adding new values referred to as processing services to value added generated in agriculture, thus facilitating access to and increasing the comfort of use of food products as well as augmenting satisfaction with food consumption. As the economic and civilisational development progresses, the proportions between value added generated in agriculture and value added in processing change towards the latter. It is followed by changes in the nature of processing as reflected in the evolution of the related terms, from the agricultural industry to the agri-food and food industry to the ever more frequently used term agri-foodstuffs industry. These changes mean that the food (agri-foodstuffs) industry ranks among the fastest-growing sub-sectors of the food economy, and its growth rate chiefly depends on the growth rate of the entire national economy.

EU accession stimulated the development of the Polish food industry. It allowed to exploit Poland's advantages in foreign trade in agri-food products, rapidly expand exports and improve foreign trade balance. But acceleration in economic growth did not result in an improvement of the food consumption pattern in terms of nutritional value of consumed foodstuffs as in advanced and medium-developed countries it usually involves shifts in the food consumption structure, the enhancement of foodstuffs by adding various types of services and an increase in the share of the market in covering food needs of the population. All the above-mentioned developments were observed in the first years of integration into the European Union.

Between 2003 and 2008, the annual average growth rate of the sold production in this industry was 5.2%, and it went up by 35% in the period in question. After accession to the European Union, this sector grew more than three times as fast as in the years of stagnation (1999–2002) and twice as fast as in the past twenty years, but the growth rate was two-fifths lower than the 1993–1998 figure. In this respect, the impact of integration into the European Union was less significant than the effects of transition of Poland's entire economy which had occurred in the previous decade (Table 2.1).

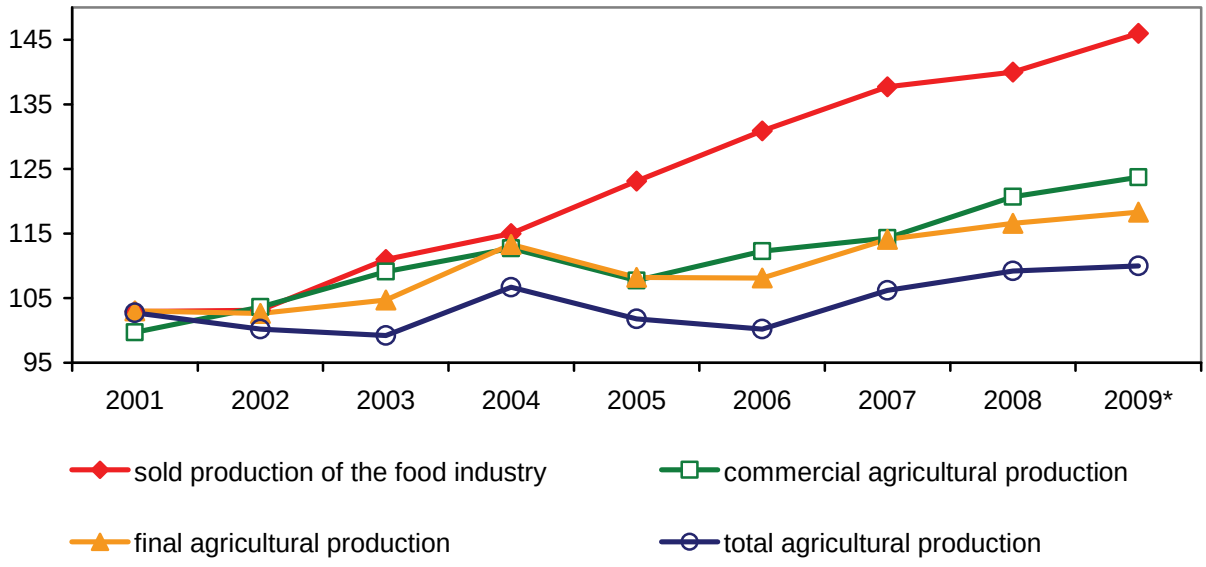
Table 2.1. Comparison of the dynamics of the food industry and its market environment

Specification	Percentage increase in 2003–2008	Annual average growth rate in %		
		2003–2008	1999–2002	1993–1998
Production of the food industry	35.0	5.17	1.58	8.87
Agricultural production: total	10.3	1.83	-1.73	2.43
commercial	16.5	2.65	1.30	1.88
Consumption of food products, beverages and tobacco products	14.1	2.25	1.18	3.20
Exports of products of the food industry	234.7	22.60	6.95	13.00
Imports of products of the food industry	176.7	19.20	2.18	11.00
GDP	34.7	5.10	2.77	5.55
Industrial production	61.4	8.38	3.03	8.58

Source: own study based on GUS data.

After Poland's joining the EU, similar production trends were observed in the food industry and in agriculture (Figure 2.1), but the growth rate of the output of this industry was twice as high. Integration into the EU brought about a marked acceleration in their development and a further increase in the share of the food industry in the absorption of agricultural production.

Figure 2.1. Development of the food industry as compared to agriculture in Poland in 2001–2009 (at constant prices, 2000–2002 average = 100)

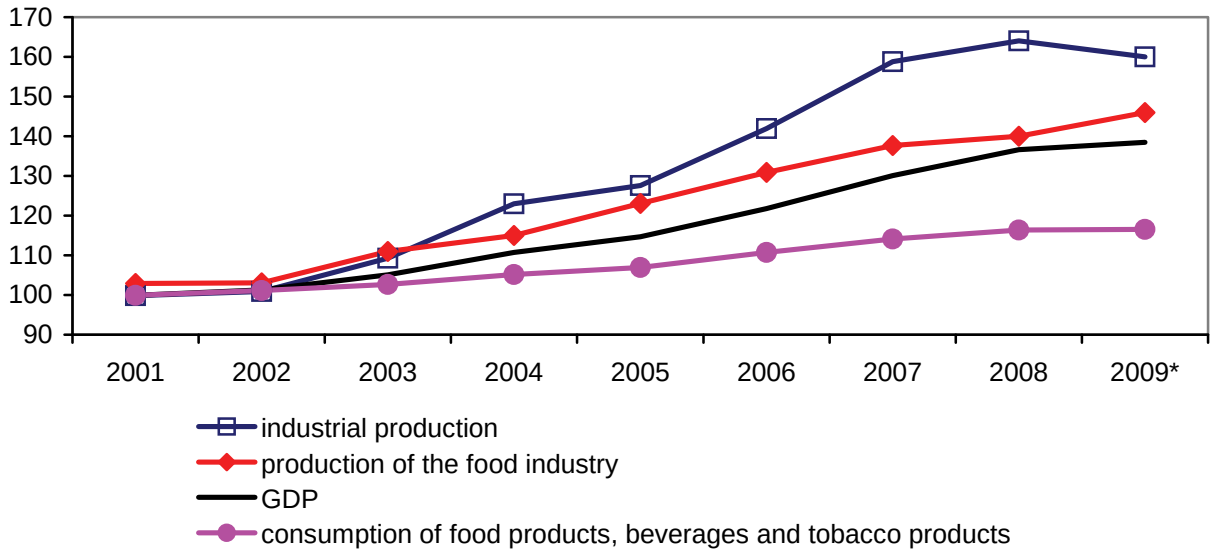


* provisional estimate

Source: GUS data and own calculations.

In recent years, the growth rate of the food industry has been nearly equal to that of Poland's GDP (over 5% annually), more than double the figure for the consumption of food products, beverages and tobacco products and almost two-fifths lower than the growth rate of Poland's total industrial production (Figure 2.2). The food industry has strengthened its position in the food sector and increased its share in satisfying the domestic demand for foodstuffs, but it has diminished in importance in Poland's industry and national economy as a whole.

Figure 2.2. Development of the food industry as compared to Poland's economic growth in 2001–2009 (at constant prices, 2000–2002 average = 100)



* provisional estimate

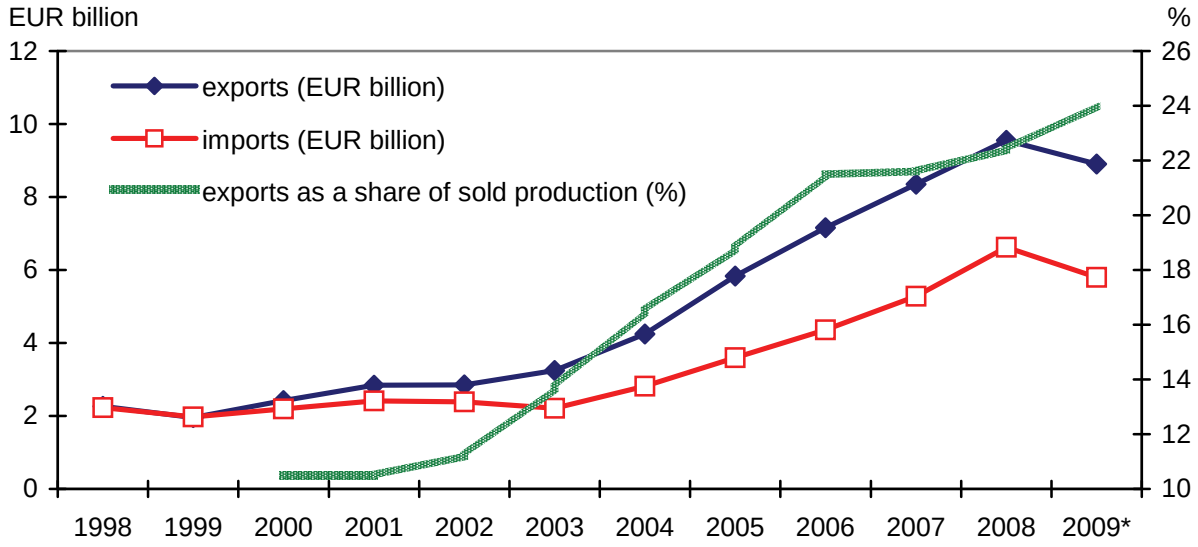
Source: GUS data and own calculations.

One of the key factors to stimulate the development of the food industry has been a very rapid expansion of agri-food exports. They jumped from an annual average of approx. EUR 2.7 in 2000–2002 to EUR 9.5 billion in 2008, i.e. there was a 3.5-fold increase (Figure 2.3). In the period in question, ca. 45% of growth in the production of this sector was sold in foreign markets. It means that without rising exports, an effect of integration into the EU, the output of the sector (at constant prices) would have augmented by ca. 22% rather than by 40%. The share of exports in total sales of the food industry more than doubled (from approx. 11% in 2000–2002 to 22% in 2008 and ca. 24% in 2009).

Another important factor driving the development of the food industry is the ever-increasing demand for highly processed foodstuffs. The most buoyant sub-sector of the food industry has been the secondary processing of food, including the manufacture of preserved products, meals, prepared dishes and

other compound foods as well as of various snacks, desserts and non-alcoholic beverages. After Poland's accession to the EU, the manufacture of such products has been growing at an annual average rate of 6.7% (Figure 2.4, Table 2.2), similar to that in the whole past decade, thus the previous trend was continued after Poland joined the EU. The value of secondary processing at constant prices has increased by 56% during integration into the EU, and more than four times in the past twenty years.

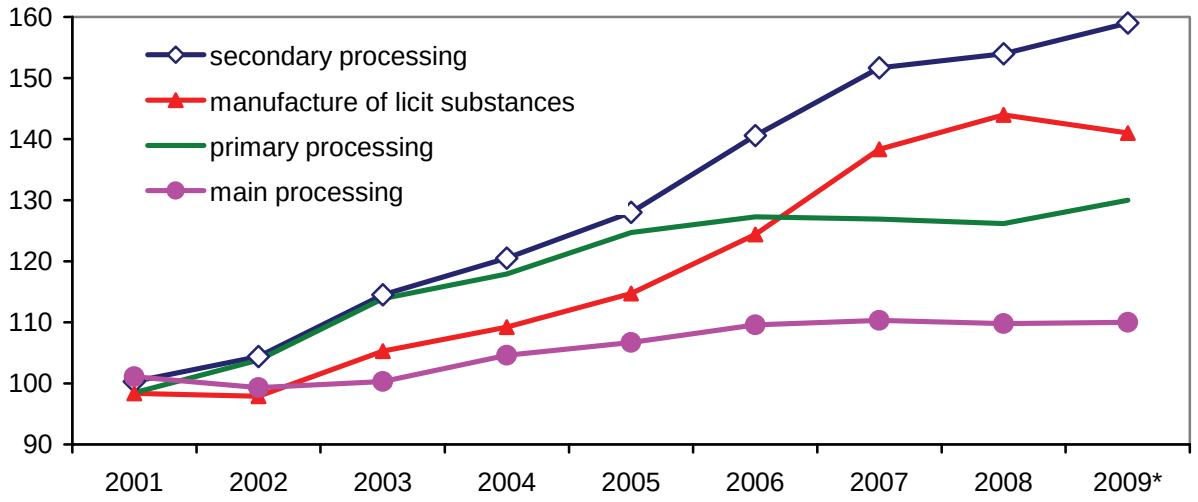
Figure 2.3. Development of foreign trade in food products



* provisional estimate

Source: data of the Ministry of Agriculture and Rural Development, IAFE-NRI and own calculations.

Figure 2.4. Development of the main sub-sectors of the food industry in 2001–2009 (at constant prices, 2000–2002 average = 100)



* provisional estimate

Source: own calculations based on GUS data.

Table 2.2. Annual average growth rate of the production of the food industry (%)

Specification	2003–2008	1999–2002	1993–1998
Food industry	5.17	1.58	8.87
of which: secondary processing	6.73	3.65	11.45
primary processing	3.37	5.56	2.03
main processing	1.70	2.85	3.55
manufacture of licit substances	6.67	0.96	2.08

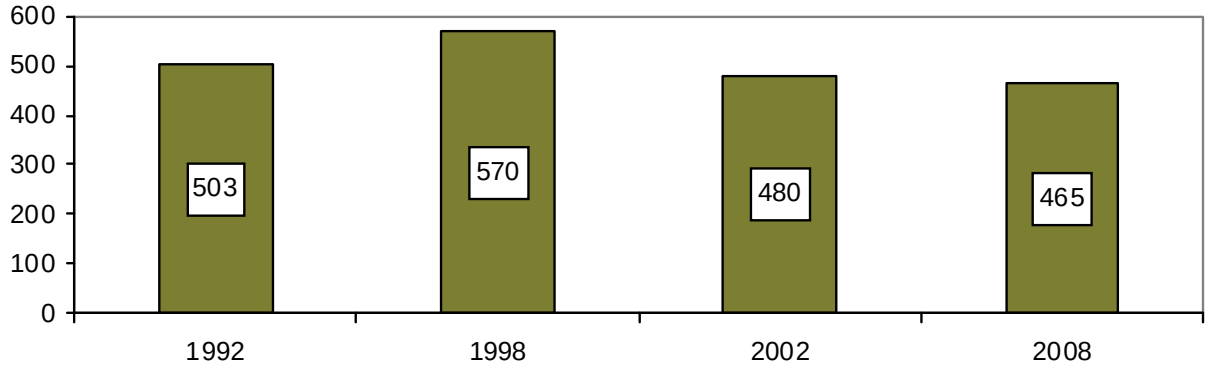
Source: own calculations based on GUS data.

After EU accession, there was also a marked acceleration in the primary processing of agricultural products and in the manufacture of licit substances. In the past twenty years, the lowest growth rates have been recorded in processing (i.e. the manufacture of traditional foodstuffs), an annual average of merely 2–3%, and it only reached the level noted in the late 1980s.

2.2. Improvement in the productivity of the food industry

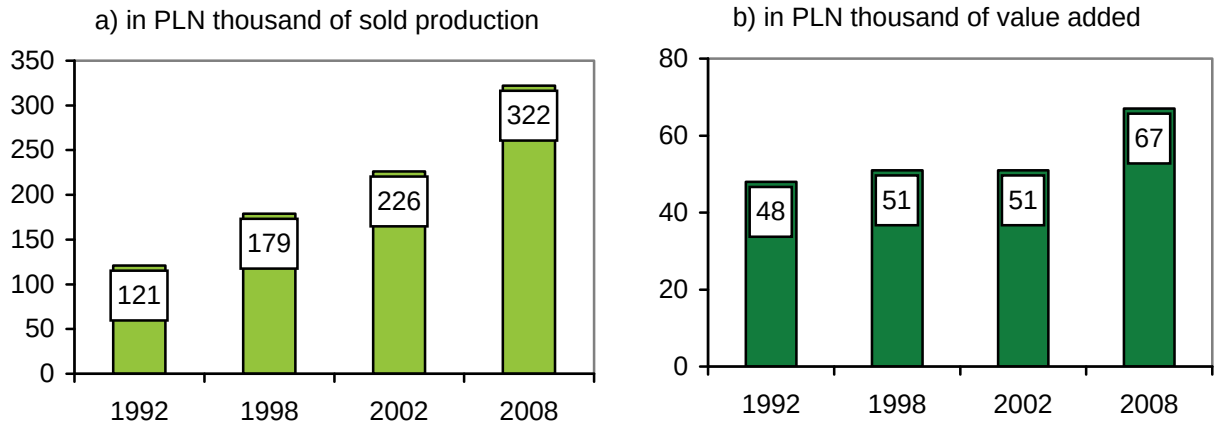
Owing to buoyant production, despite a relative stabilisation of employment (at approx. 470,000 persons employed) there was a further and significant improvement in labour productivity (Figures 2.5 and 2.6). After EU accession, labour productivity measured by sold production jumped by ca. 40% in the food industry. This increase represented an acceleration of the upward trend observed during the previous upswing (1993–1998) as well as resulting from the restructuring of this sector in the years of stagnation (1999–2002). In the two previous phases, that trend had been was influenced by considerable fluctuations in employment which remained rather stable after Poland's joining the EU. A new development in the food industry in the last period, there was a substantial increase (by 30%) in labour productivity measured by value added.

Figure 2.5. Employment in the food industry (thousand)



Source: GUS data.

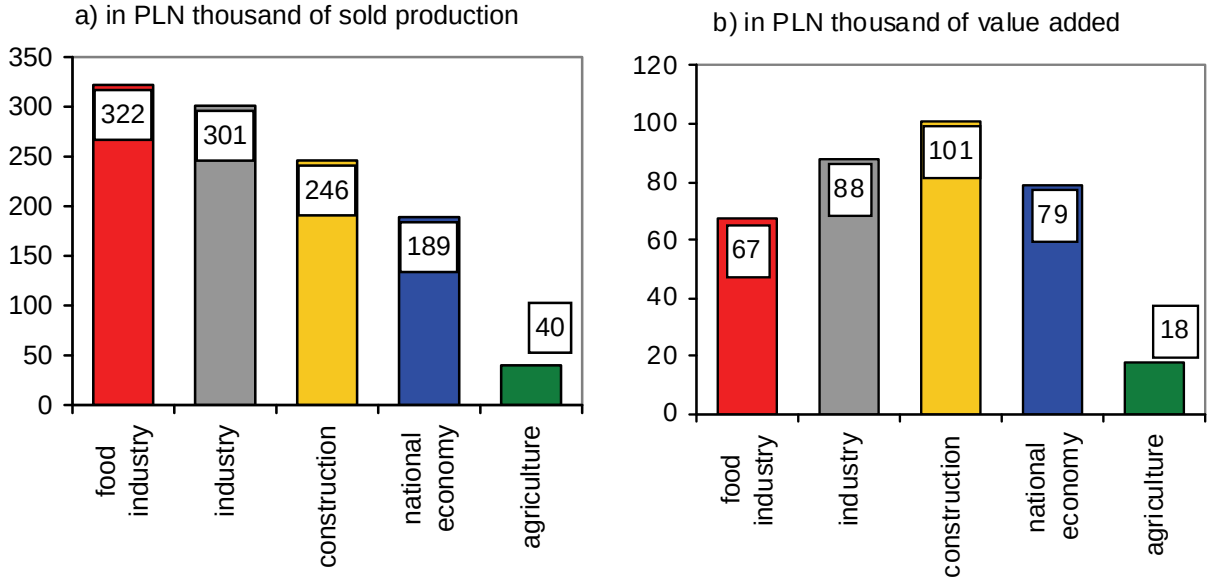
Figure 2.6. Labour productivity in the food industry (constant prices)



Source: own calculations based on GUS data.

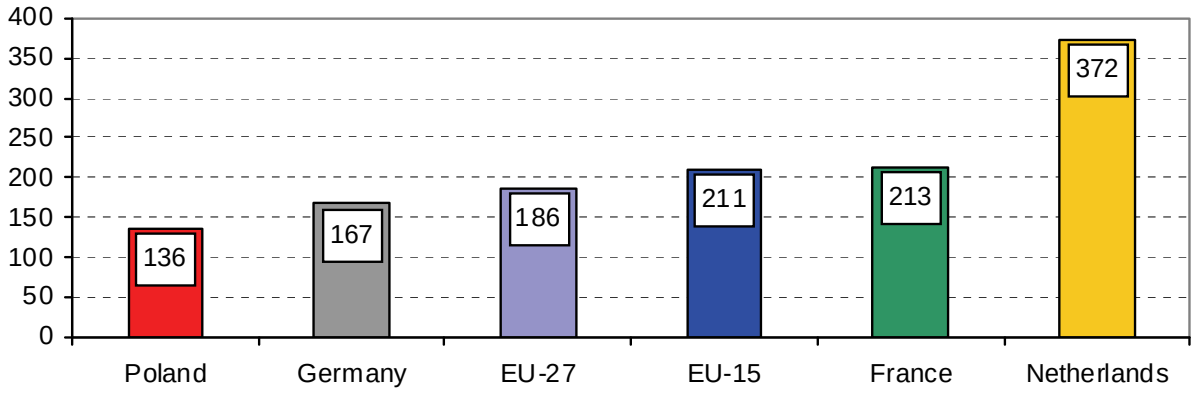
The current level of labour productivity in the food industry is similar to that noted in other sectors of the Polish economy, with the exception of agriculture where it is several times lower (Figure 2.7). Labour productivity in the Polish food industry is still ca. 35% lower than the respective level for the EU-15 countries (Figure 2.8). However, this gap has been narrowing steadily. It is a very important factor of the improvement in the efficiency of agri-food processing.

Figure 2.7. Labour productivity in the food industry
as compared to other sectors in 2008



Source: own calculations based on GUS data.

Figure 2.8. Labour productivity in the Polish food industry
as compared to other European Union Member States
(EUR thousand of sold production at comparable prices)



Source: R. Urban, Wpływ integracji z Unią Europejską na polski przemysł spożywczy (The impact of integration into the European Union on the Polish food industry), [in:] R. Urban (ed.), Wpływ integracji z Unią Europejską na polską gospodarkę żywnościową (The impact of integration into the European Union on the Polish food economy), seria Program Wieloletni 2005–2009, No 90, IERiGŻ-PIB, Warszawa 2008, p. 114.

Another important indicator of improving labour productivity in the food industry was a significant fall in energy and water consumption[21]. In 2002–2007, the unit consumption of water and energy in this sector dropped by approx. 30%, i.e. by an annual average of ca. 5%. This downward trend of energy and water intensity was similar to that observed in previous stages of economic transition, with the exception of the years 1988–1992 when those indicators had relatively stabilised (Table 2.3).

Table 2.3. Consumption of energy factors in the food industry

Specification	1988	1992	1998	2002	2007
Total					
– direct energy consumption (thousand TJ)	124.4	94.3	128.3	92.0	88.2
– water consumption (hm^3)	268.5	180.9	133.4	98.4	101.4
Per PLN billion of sold production at 2007 prices					
– direct energy consumption (thousand TJ)	1.45	1.53	1.25	0.84	0.60
– water consumption (hm^3)	3.13	2.93	1.30	0.90	0.70

Source: own study based on Statistical Yearbooks of Industry 1990–2008.

The improved efficiency of the use of labour, energy and water in this sector came at the cost of an increase in the value of fixed assets. There has been a steady upward trend in this respect (Table 2.4). The value of fixed assets more than doubled in 1995–2007, but a substantial rise in capital intensity was only

[21] For more on this subject see: R. Urban, *Produktywność i efektywność polskiego przemysłu spożywczego*, "Przemysł Spożywczy" 2010, No 1, pp. 10–13.

observed between 1998 and 2002. As regards the previous upturn (1992–1998) and the period following EU accession, the capital intensity of production augmented to a minor degree. At the same time, there was an upward trend of the capital/labour ratio, measured by the value of fixed assets per worker. In 1995–2002 the capital/labour ratio increased at a higher rate than labour productivity, but after EU accession their growth rates were similar.

Table 2.4. Fixed assets in the food industry

Specification	1995	1998	2002	2008
Value at constant 2003 prices (PLN billion)	31.1	40.5	49.8	68.0
Capital intensity of production				
– in PLN/PLN	0.42	0.44	0.51	0.52
– in PLN thousand/worker	57.3	71.1	103.7	146.2

Source: own study based on Statistical Yearbooks of Industry 1990–2008.

The improved ratio of capital to labour stemmed from major investments in the Polish food industry and the investment upturn during integration into the EU (Table 2.5). The acceleration started on the eve of EU accession and continued in the first years after Poland's joining the EU, to reach a peak in 2008 (PLN 8 billion at current prices and PLN 7.5 billion at 2003 prices). It was approx. 50% higher than the level recorded in the years of stagnation (2000–2002). It resulted in the following:

- rapid and appropriate adjustment of processing plants to EU standards (sanitary, veterinary and environmental)[22],
- a further improvement in the technical and technological state of the food processing industry, which results in an enhanced competitiveness of the sector and ranks the Polish food industry among the most modern in the enlarged EU,
- the above-mentioned more efficient use of the main production factors and means in food processing (labour, energy and water).

Table 2.5. Investment in the food industry

Unit	1996–1999	2000–2002	2003	2004	2005	2006	2007	2008
In PLN billion								
– at current prices	4.88	4.74	5.71	6.76	6.19	7.15	7.21	8.03
– at constant prices	5.80	4.87	5.71	6.60	5.99	6.81	6.82	7.55
Investment rate[a]	8.0	6.2	6.5	7.3	6.7	7.3	7.0	7.3

[a] percentage share of updated starting value of fixed assets

Source: own study based on GUS data.

[22] Cf. R. Urban, *Dostosowanie polskiego przemysłu spożywczego do warunków Unii Europejskiej*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 1, pp. 7–15; R. Urban, *Polski przemysł spożywczy w Unii Europejskiej – konkurencyjność i szanse rozwojowe*, "Zagadnienia Ekonomiki Rolnej" 2005, No 3, pp. 14–23.

Changes in the stock of production factors in the food industry point to significantly different relationships between the main factors. There were favourable changes in relationships between the growth of the food industry and agriculture as well as in those between raw materials, labour, energy and capital. They contributed to the improvement of the economic situation and the structure of the sector as well as increasing its resilience to crisis developments.

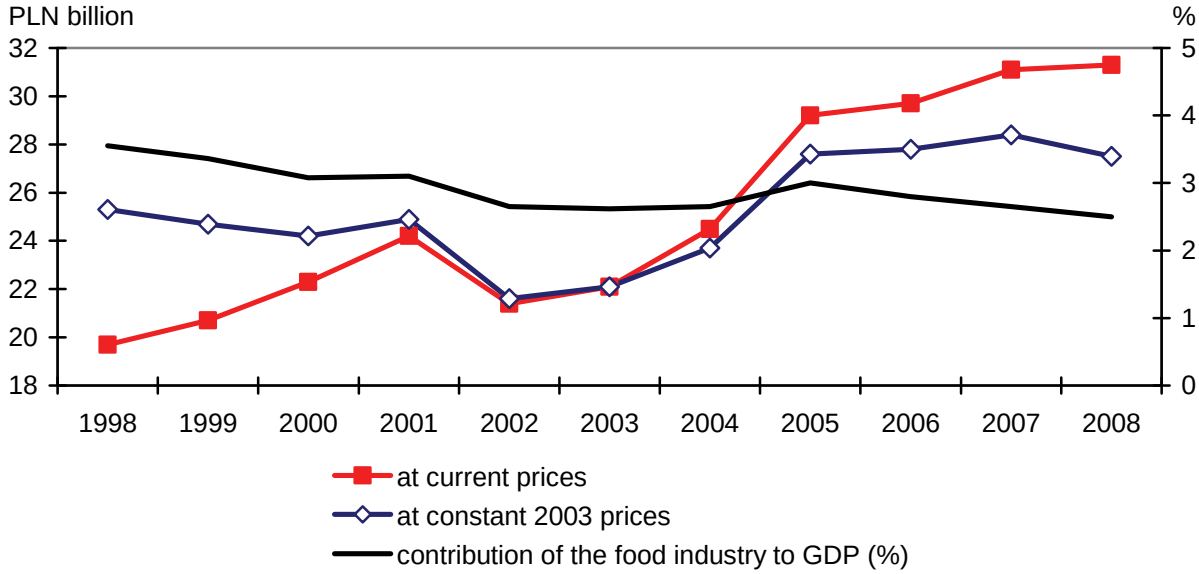
2.3. The economic situation in the food industry

EU accession as well as the resulting acceleration in production and the improvement of efficiency allowed to reverse the previous downward trend of real value added. In 2002–2008 value added generated by this industry rose to over PLN 30 billion, i.e. by ca. 30% at constant prices (Figure 2.9). The contribution of the food industry to Poland's GDP is 2.5% and slowly declining. When assessing the problem, one should also bear in mind the following:

– after Poland's accession to the EU, value added in the food industry is lower than value added generated by agriculture (Figure 2.10), which does not confirm the frequent thesis that the processing industry captures agricultural value added,

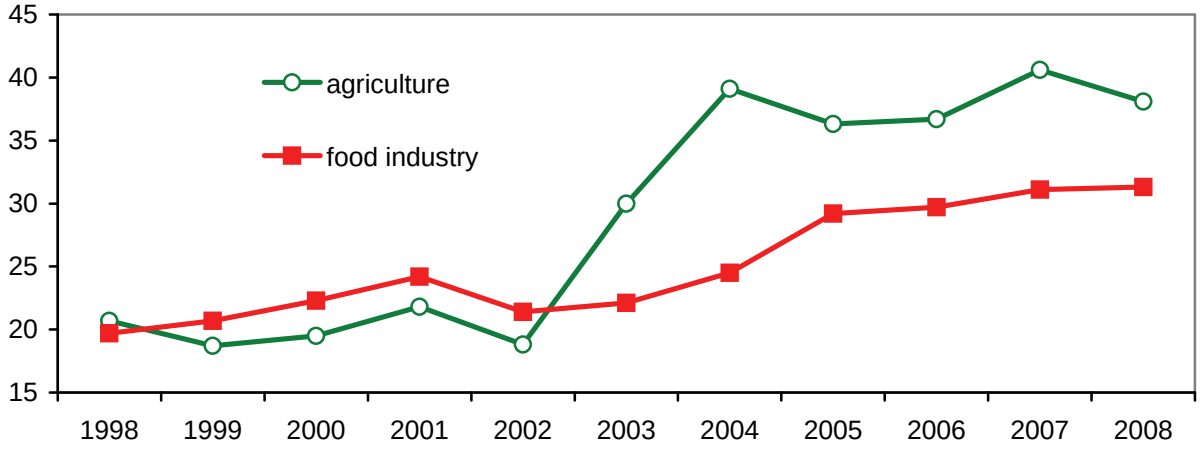
– the value-added account excludes approx. PLN 30 billion of indirect taxes paid by the food industry; the contribution of this sector to GDP is nearly 5% rather than 2.5%.

Figure 2.9. Value added generated by the food industry (PLN billion)



Source: GUS data and own calculations.

Figure 2.10. Gross value added generated by producers of food products, beverages and tobacco products as well as by agriculture and hunting (PLN billion, current prices)



Source: GUS data.

Due to the acceleration in production, increased labour productivity and enhanced management of energy factors, there was a distinct improvement in the financial performance of the sector (Table 2.6). It was also contributed to by the rising share of exports in total sales by the sector. Following accession to the European Union:

- there was an increase in profit from less than PLN 1 billion in 1996–1998 and approx. PLN 1.5 billion in 2001–2003 to over PLN 5 billion annually in 2006–2008, and at constant prices – from PLN 1.3 billion and PLN 1.5 billion to PLN 4.8 billion respectively (i.e. more than threefold),
- average net profitability (return on sales) in the food industry was 3.5%, whereas in 1995–1998 and 2001–2003 it was less than half the figure (ca. 1.5%),
- food businesses improved their liquidity, to a safe level of 1.30.

Table 2.6. Financial results in the food industry

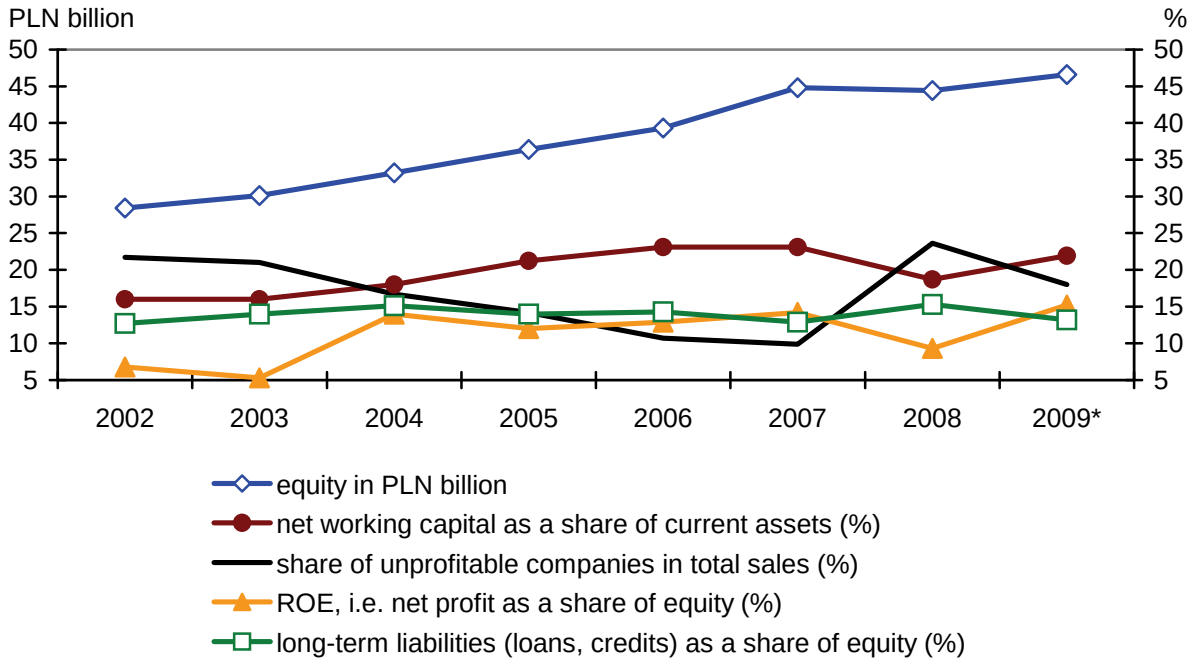
Years	Net profit (PLN million)		Net profitability (return on sales, %)	Liquidity (current ratio)
	at current prices	at constant prices		
1995–1998	795	1,207	1.43	1.29
1999–2000	-50	-71	-0.07	1.20
2001–2003	1,497	1,511	1.60	1.17
2004	4,649	4,490	3.87	1.22
2005	4,366	4,130	3.54	1.27
2006	5,065	4,746	3.86	1.30
2007	6,480	5,923	4.25	1.30
2008	4,123	3,617	2.64	1.23
I–VI 2008	2,500	2,193	3.33	1.24
I–VI 2009	3,492	2,960	4.45	1.29

Source: own study based on GUS data.

The improvement in the financial performance resulted in an increase in equity and in the share of equity in financing current assets as well as in a falling share of unprofitable companies in total sales by the sector (Figure 2.11). Simultaneously, there was a relative stabilisation of the following:

– return on equity (ROE), at 10–15%,
– long-term liabilities at a low level of ca. 15% of equity.

Figure 2.11. Financial standing of the food industry after Poland's accession to the European Union



* first six months

Source: own calculations based on GUS data.

The increase in the economic strength has been widespread in the food industry, with the following particular features:

– for years, the secondary processing of food products has been characterised by high and stable profitability, high liquidity and low liabilities,
– the lowest levels of profitability and liquidity are found in the processing of livestock products, but they are rather safe and stable,
– the most impressive improvement was recorded in sub-sectors engaged in primary processing of crop products, and after EU accession they are characterised by greater stability,
– manufacturers of licit substances report high average profitability and liquidity, but the main indicators tend to considerably vary and fluctuate.

2.4. The food industry and the food sector in the economic crisis

The global financial and economic crisis affected the Polish economy in the second half of 2008, lasted throughout 2009, and certain signs of a pick-up in activity could be observed at the end of the year. At the same time, the crisis has hit Poland less severely than other developed countries. Poland has experienced an abrupt slowdown in economic growth rather than an economic recession (Table 2.7), but still there was a temporary drop in industrial production and capital formation as well as a marked fall in foreign trade, particularly imports. Consumer demand and retail sales have decelerated sharply, but without a downward trend. Thus far, the whole Polish economy has performed well in coping with the crisis.

Table 2.7. Dynamics of the food sector in the crisis in 2008–2009
(percentage change on the corresponding period on the previous year)

Specification	2008			2009			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GDP	6.0	5.1	3.0	0.8	1.1	1.7	.
Private consumption	6.1	5.7	5.7	3.3	1.7	2.2	.
Capital formation	14.5	4.0	4.5	1.0	-3.0	-1.5	.
Industrial production[b]	7.0	2.2	-6.3	-10.0	-6.7	1.9	5.3
of which: food products and beverages	9.0	0.1	0.4	1.6	0.2	5.9	6.7
Retail sales[b]	11.8	8.4	4.8	0.4	1.4	2.5	2.9
of which: food products, beverages and tobacco products	3.7	-0.4	1.5	3.1	4.8	4.8	4.8
Exports of goods	21.3	19.5	-7.5	-22.2	-24.8	-21.1	-6.8[a]
of which: food sector	23.3	9.7	13.7	4.1	-5.4	-7.8	-2.3[a]
Imports of goods	21.7	22.6	-5.4	-28.2	-33.4	-28.0	-19.5[a]
of which: food sector	41.8	36.8	17.4	-4.2	-20.5	-13.7	-9.8[a]

[a] October and November; [b] only large and medium-sized industrial enterprises and retailers

Source: own study based on GUS data published in Statistical Bulletin 2008, Nos. 3, 9, 12; 2009, Nos. 3, 9 and 11.

Crisis developments have been even milder in the food sector. A slowdown in the growth rate of the domestic demand for food products was only noted in the second half of 2008, and in subsequent months of 2009 retail sales of foodstuffs picked up, rising by 3–5% in annual terms. A longer deceleration was observed in the case of the output of the food industry, a total of four quarters (the 3rd and 4th quarters of 2008 and the 1st and 2nd quarters of 2009), but from the 3rd quarter of 2009 this production shot up again (growing at a rate of over

6%). The crisis has hit foreign trade in agri-foodstuffs the hardest. In 2009 agri-food exports and imports declined by an average of ca. 2–3% and approx. 10% respectively. In the food sector foreign trade dropped nearly three times less rapidly than in Poland's entire economy, and the downward trend has been fading.

The Polish food industry has been affected by the crisis to a limited degree (Table 2.8). It only caused a temporary relative stagnation in output and a short-term deterioration in the financial performance. The fall in profitability was neither abrupt (from 4.25% to 2.64%) nor long-lasting (up to ca. 4.5% in 2009), mostly resulting from increased financial costs rather than from a decline in financial surplus. The crisis in the food industry has had the most adverse impact on investment activity. A major drop in investment was only recorded in 2009, following a reduction in the number and value of new investment projects from the beginning of 2008. Importantly, however, investment activity in the sector contracted from a very high level, the 2008 peak.

Table 2.8. Investment and financial performance in the food industry in the crisis

Specification	2007	2008			2009	
		I–VI	I–IX[a]	I–XII	I–VI	I–IX[a]
Investment in PLN million	6,416.0	2,726	4,398	6,866	2,277	3,390
Percentage change[b]	6.1	8.8	8.5	6.7	-17.6	-23.7
Number of investment projects undertaken	3,951	1,813	2,477	3,335	2,989	3,865
Percentage change[b]	33.8	-1.6	0.3	-16.0	64.1	56.0
Value of investment projects undertaken (PLN million)	2,534	958.2	1,441.7	1,927.0	807.1	1,060.6
Percentage change[b]	20.6	-8.4	-19.0	-27.0	-16.7	-27.8
Net profit in PLN million	6,480	2,500	3,975	4,123	3,532	5,317
Percentage change[b]	27.5	-28.6	-22.4	-36.4	41.3	33.8
Net profitability (%)	4.25	3.33	3.76	2.64	4.45	4.78
Financial costs (%)	1.36	1.58	1.73	2.58	2.83	2.31

[a] only large and medium-sized enterprises; [b] on the corresponding period of the previous year

Source: GUS Statistical Bulletin 2008, Nos. 3, 9, 12; 2009, Nos. 3, 9, 11, and unpublished GUS data on financial results.

The financial performance in the food industry indicates that it has been rather resilient to crisis developments and adaptable to the changing external environment. The main characteristics of the sector include a strong orientation towards the large and growing domestic market, still weak links with external markets, its significant competitiveness strengthened by exchange rates as well as many years of adjustments to market-economy conditions and integration into the European Union.

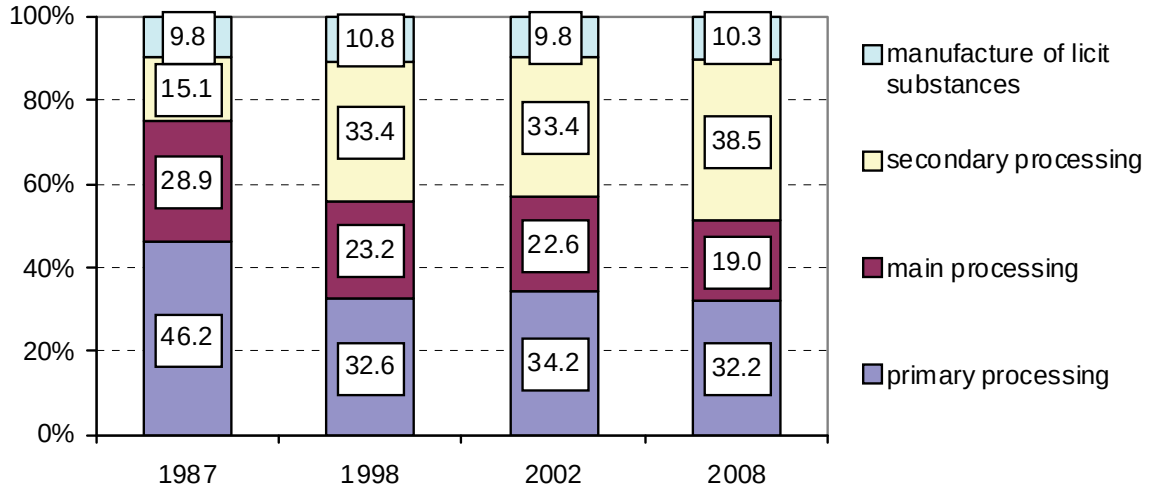
2.5. Structural changes in the food industry

During integration into the EU, two structural trends were essential, namely:

– the continuing adjustment of production structures in the food industry to the changing food consumption pattern,
– the renewed concentration in the food industry, increasing the economic strength of food companies.

After Poland's accession to the EU, there was a further rise in the share of secondary processing, accompanied by a fall in the proportion of main processing as well as of the primary processing of agricultural products, although to a lesser extent (Figure 2.12). However, the scale of changes in production structures was three to four times smaller than in 1988–1998.

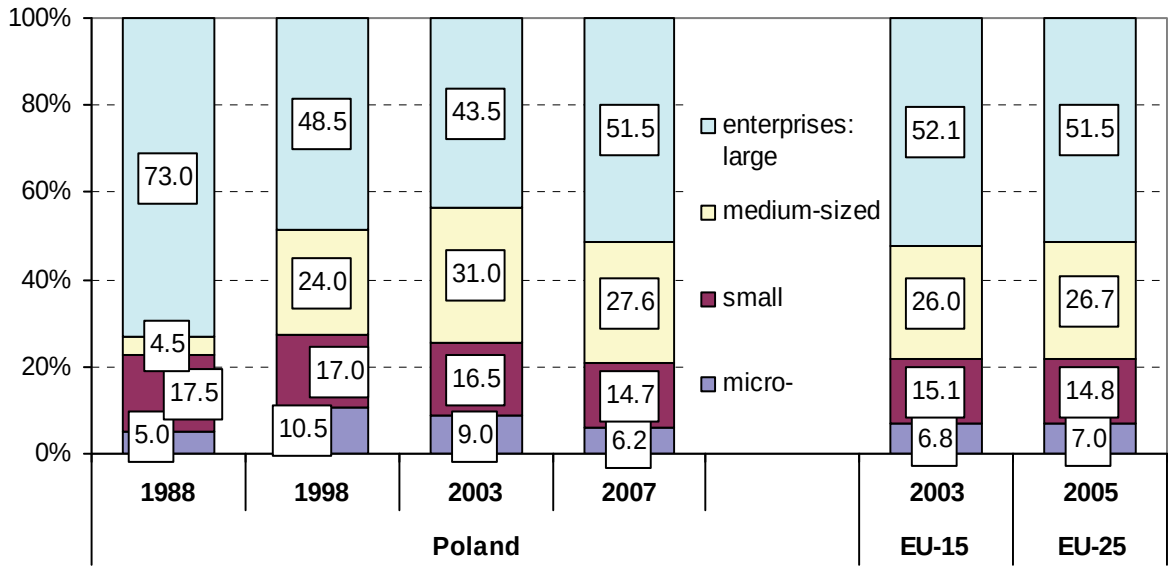
Figure 2.12. Production structures in the food industry
(percentage shares of the production value at base prices)



Source: own study based on GUS data.

Poland's accession to the EU reversed the trend of structural change in the sector in terms of company size. As a result of integration into the EU, the concentration of production started again in the food industry (Figure 2.13). The share of large enterprises in total output and employment in the sector or their number did not increase until after 2003. Previously, the sector had developed in the opposite direction, i.e. towards a more dispersed and fragmented structure. After five years of integration into the European Union, the structure of the Polish food industry by company size was nearly the same as the EU-15 prior to enlargement, similar to that in Germany, Spain and France, but less concentrated than in the United Kingdom, the Netherlands, Belgium, Denmark and other Scandinavian countries.

Figure 2.13. Structure of the food industry by company size
(percentage shares of domestic output)



Source: own study based on GUS and Confederation of the food and drink industries of the EU (CIAA) data.

The structure of the food industry by company size is differentiated, volatile and favourable for competition. There are no monopolistic arrangements, and oligopolies are only found in sub-sectors such as the brewing, tobacco, spirit, oil and sugar industries. A group of leading large and medium-sized enterprises constitutes the core of each sub-sector, and such companies are not very different from their EU counterparts in terms of resource structure and operations. They represent food and beverage producers competitive in the common European market, and their important asset and the source of comparative advantages are lower labour costs.

Both trends of structural changes in the food industry were forced by the external environment, including integration into the EU and globalisation. They result from adjustments to this environment, which created favourable conditions for a rapid expansion of the Polish food industry, the improvement in its efficiency and productivity as well as strengthening competitive positions in the large European market. They also increased its growth capacity in the global economic crisis.

3. The impact of the common agricultural policy on agricultural markets

3.1. The scale of impact of the common agricultural policy

The recent reforms of the common agricultural policy (CAP) have changed the character of and methods for the EU influence on agricultural output and prices as well as on agricultural incomes. In the first years, it was a policy based on price and market measures, consisting in maintaining internal market prices above world prices by means of common commercial policy instruments (export subsidies, tariffs, quotas, etc.) as well as intervention buying-in, private storage aid and the absorption of production surpluses through subsidised consumption (e.g. of milk, butter) or withdrawing excess supply from the market. Such an approach was aimed to improve agricultural income by increasing agricultural output and maintaining high prices. As a consequence, the EU became a net exporter of agricultural products, and maintaining high prices pushed up intervention costs and export subsidies, a growing burden on the Community budget. With the view to reducing the negative effects of this policy approach, in the mid-1980s the level of agricultural price support was frozen, milk quotas and voluntary set-aside of agricultural land for financial compensation were introduced, and after a few years (in 1988) additional stabiliser mechanisms were applied, leading to reduced prices or subsidies when Community production of a given product exceeded the overall maximum guaranteed quantity.

In 1992 the MacSharry reform changed the character of the common agricultural policy[23]. As a result of the Uruguay Round of the GATT, the EU needed to lower agricultural prices by cutting tariffs and non-price instruments of market protection. Intervention buying-in prices and public stocks of food were reduced, and direct payments compensated for the fall in price support, which shifted the burden of financing the agricultural policy from consumers to taxpayers. Agenda 2000 developed the system of direct support to farmers and moved further away from the previous price policy, at the same time retaining preferences for EU products. It introduced obligatory set-aside of some agricultural land, new common market organisations of selected agricultural markets, with emphasis on the multifunctional aspects of agriculture, the

[23] Cf. *Przyszłość polityki rolnej a przegląd budżetu Unii Europejskiej w latach 2008–2009. Materiał do dyskusji*, UKIE, Warszawa 2007, pp. 16–21; F. Tomczak, *Ewolucja wspólnej polityki rolnej UE i strategia rozwoju rolnictwa polskiego (The evolution of the EU common agricultural policy and the development strategy for Polish agriculture), seria Program Wieloletni* 2005–2009, No 125, IERiGŻ-PIB, Warszawa 2009, p. 45.

environmental protection, rural development as well as food safety and quality. Prior to the 2004 EU enlargement, there was a further reduction in price support towards direct support to farmers and decoupling production decisions from financial assistance by introducing area payments, granted irrespective of the type of farming or the level of agricultural production. There were also subsequent cuts in buying-in prices, and the condition for obtaining direct payments was compliance with environmental requirements as well as with standards concerning animal welfare and food safety[24]. Further changes will be introduced by the next CAP reform, e.g. full decoupling of payments from production, the expiry of milk quotas, the abolition of export subsidies and reduced protection of the agricultural market of the European Union.

In the first years after Poland's accession to the European Union, the common agricultural policy comprised the following instruments for the regulation of agricultural production and the organisation of agricultural markets:

- direct area payments granted under a mixed system, i.e. partially coupled and partially decoupled from agricultural production, made dependent on the maintenance of good agricultural conditions and on compliance with standards for the environmental protection, animal welfare and food safety,
- production (sales) quotas for: milk, sugar, potato starch and isoglucose,
- intervention buying-in and private storage aid,
- price regulation, i.e. the system of intervention, minimum and reference prices,
- direct or indirect support for consumption or use for non-consumption purposes,
- export subsidies on exports of selected agricultural products or agricultural components to third countries as well as the tariffs and quotas on imports from third countries.

All the above-mentioned instruments are applied in a similar manner in all EU Member States. However, the applicable rates significantly vary (particularly with regard to area payments), other specific solutions differ as well. Such differences did not ensure equal terms of competition for EU producers of agricultural and food products.

According to a number of analyses, Poland's joining the EU has markedly improved farm incomes and accelerated the development of certain types of

[24] For more on this subject see: *Ocena reformy WPR uzgodnionej w Luksemburgu 26 marca z perspektywy Polski*, SAEPR/FAPA, Warszawa 2004. All the previous reforms changed the nature of the CAP, evolving from agricultural production support towards decoupling support from production and a growing role of measures for rural development (cf. F. Tomczak, *Ewolucja wspólnej polityki rolnej*…, op. cit., pp. 28–29).

farming (cf. Chapter. 1). They also indicate that the rise in agricultural income stemmed from financial support for the agricultural sector in the form of direct payments and other payments increasing farmers' incomes, and growth in agricultural production was stimulated by augmented domestic and export demand for agricultural raw materials.

From the point of view of the effectiveness of the CAP, it is important to assess what impact this policy has had on the stability of the following:

- farmers' incomes,
- agricultural production,
- agricultural prices.

Table 3.1. Volatility of income, agricultural production and agricultural prices measured by average deviation from the five-year average (%)

Specification	Five-year average in	
	1999–2003	2004–2008
1. Agricultural entrepreneurial income (at current prices)	9.2	13.0
2. Total output (at constant prices)	2.7	2.4
3. Production of basic agricultural products		
– cereals	7.1	7.3
– milk	1.1	1.4
– pigs for slaughter	4.6	4.7
– poultry for slaughter	19.3	6.9
– cattle for slaughter	9.0	7.4
– sugar beet	5.6	8.5
– rape	9.6	14.4
4. Purchase prices of selected products		
– wheat	6.7	23.2
– milk	6.9	6.3
– pigs	10.0	6.3
– beef cattle	4.9	5.1
– poultry	5.1	6.8
– sugar beet	6.6	23.0
– rape	10.3	12.3

Source: R. Mroczek, Ocena wpływu Wspólnej Polityki Rolnej na podstawowe rynki rolne w Polsce (The impact assessment of the common agricultural policy on basic agricultural markets in Poland), a paper for the conference on the Multi-annual Programme 2005–2009: "Economic and social conditions of the development of the Polish food economy following Poland's accession to the European Union"("Ekonomiczne i społeczne uwarunkowania rozwoju polskiej gospodarki żywnościowej po wstąpieniu Polski do Unii Europejskiej"), Pułtusk 30 November – 02 December 2009.

It follows from Table 3.1 that after Poland's accession to the EU the stability of agricultural incomes, production and prices deteriorated rather than improved

in comparison with the previous five-year period. In 2004–2008, as compared to 1999–2003, greater volatility characterised agricultural entrepreneurial income, the production of cereals, rape and sugar beet as well as purchase prices for these basic agricultural products. Furthermore, there was a minor fall in the volatility of total output as well as of the production and prices of animals for slaughter, with the exception of prices for poultry for slaughter. More volatile production and prices resulted from disturbances in the world food market, but the CAP could not neutralise the effects of such disturbances on the EU market. The above data confirm that the improvement in agricultural income and production materialised as expected, but the expectations of greater stability of agricultural markets were not met. These issues will be evaluated in subsequent sections of this Chapter.

3.2. The impact of direct payments on agricultural markets

The direct payment scheme, coupled with the use of agricultural land rather than with production, represents a strong incentive to pursue farming activity. Undoubtedly, it contributed to a rise in the sown area[25] (by 6.6% in 2003–2008), accompanied by a substantial reduction in the area of fallow and set-aside land (from 1.8 million ha in 2003 to 0.4 million ha in 2007). It was an unquestionable effect of direct payments, encouraging the development of extensive crop production. At the same time, the significant improvement in farmers' incomes allowed to raise the consumption of the two main inputs in crop production, i.e. mineral fertilisers and plant protection products. According to surveys, the majority of agricultural holdings preferred to use increased income in this way[26]. It accounts for the acceleration in crop production observed after Poland's accession to the EU. However, this is not to say that direct payments contribute to the intensification of this production. On the contrary, such payments rather discourage the intensification of farming as direct payments per unit of production are lower in efficient holdings than in average farms, e.g. in 2009 in the production of cereals (winter wheat) those were respectively (basic and supplementary payments):

holding with a yield of 6 tonnes/ha – PLN 144/tonne,
average farm with a yield of 4 tonnes/ha – PLN 216/tonne,

[25] Cf. W. Ziętara, *Stan dostosowań…*, op. cit., p. 56.
[26] Cf. A. Zalewski, *Wpływ integracji z Unią Europejską na zasilanie rolnictwa środkami produkcji (The impact of integration into the European Union on the supply of production inputs in agriculture)*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. *Raport 6 (synteza)*, *seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 86–94.

which accounts for 31.3% or 47%, respectively, of the average purchase price for wheat in the fourth quarter of 2009. It was an essential change in the payment as a motivator in comparison with the situation prior to EU accession. In 2003, for instance, under the intervention buying-in system cereal producers received premiums on the purchase price of PLN 110–130 per tonne and on the intervention buying-in price of PLN 550–570 per tonne. This premium only concerned producers participating in intervention buying-in, namely large cereal producers, usually characterised by above-average yields. The number of such holdings exceeded 50,000. At that time, in highly efficient farms premiums on intervention buying-in and sales combined per ha of area cultivated were higher than intermediately after area payments were introduced[27].

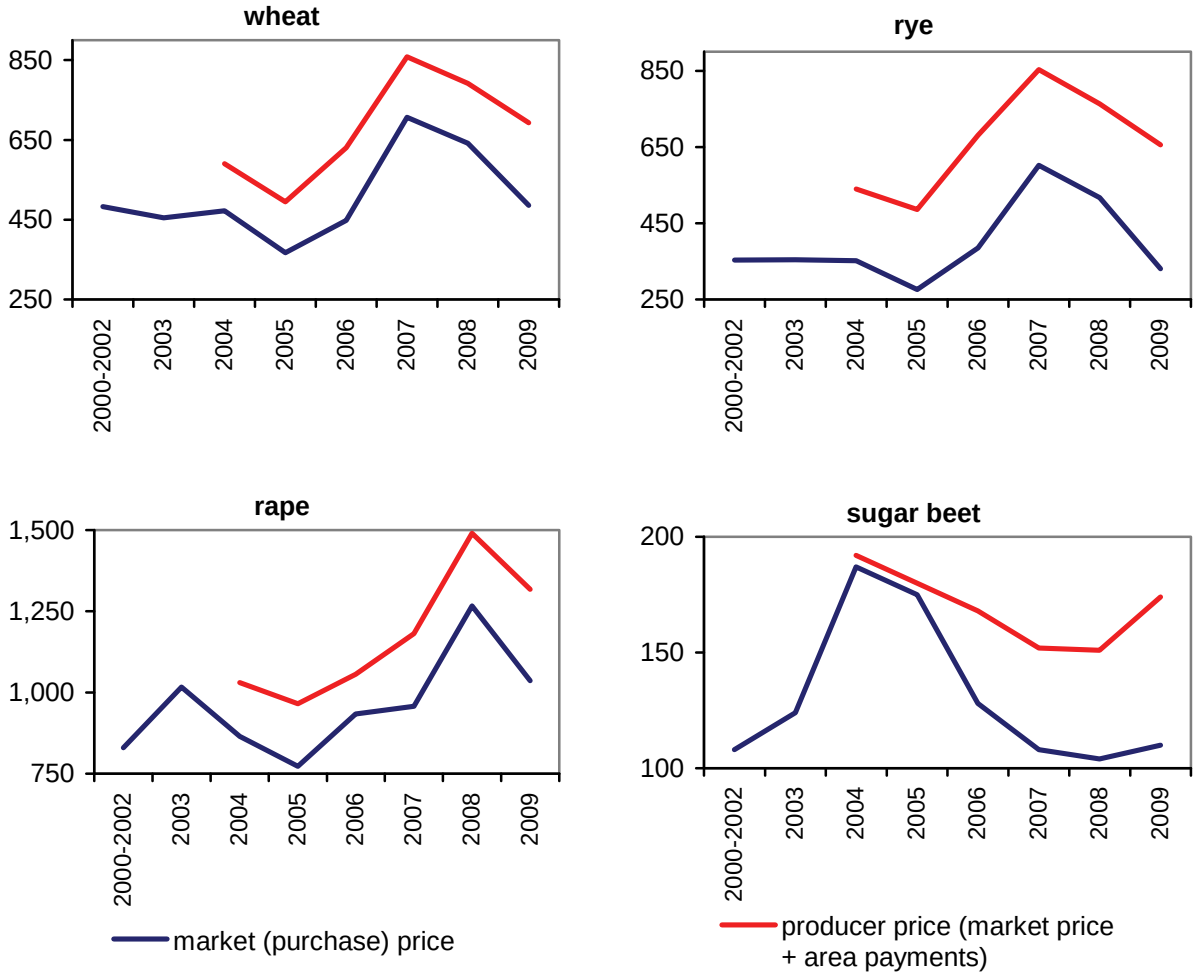
The introduction of direct payments reinforced the duality of agricultural prices. The market price for agricultural products represents the main source of information only for the buyer of a given product, whereas its producer relies on the producer price, i.e. the market price plus payments, of varying amounts depending on the intensity of production. In order to assess production profitability, hence to make production decisions, only the producer price is of importance. However, when making such decisions, one must bear in mind that marginal costs of production should be lower than the market price. Therefore, dual agricultural prices distort the economic account of the farmer and deprive the market of incentives to increase the productivity and efficiency of agricultural production, thus reducing the effectiveness of the market mechanism.

Owing to dual prices, there may be different trends of market and producer prices (Figure 3.1). In 2004–2009, average producer prices were higher than average market prices prior to accession (in 2000–2003): for wheat by 41.4%, for rye by 85.5%, for rape by 33.8%, for sugar beet by 51.7%. In the periods in question, the rise in market prices was 9.2%, 16.1%, 11.1% and 20.5% respectively, and their current level (2009) is above that noted prior to EU accession only in the rape market. It follows that direct payments increasing farmers' incomes and producer prices of agricultural products reduced the pressure from farmers for increased market prices of such products. It created favourable conditions for the improvement in relative prices for livestock products and feedingstuffs. After Poland's joining the EU (2004–2009), purchase prices for pigs and poultry were an average of ca. 6% higher than in 2000–2003, 27% higher in the case of milk, and by as much as 45.5% higher for cattle. As cereal price remained virtually

[27] Cf. R. Urban, *Stan głównych działów gospodarki żywnościowej po wejściu Polski do Unii Europejskiej. Sektor zbożowy, mięsny i napojów (The state of main sectors of the food economy after Poland's accession to the European Union. The cereal, meat and beverage sector), seria Program Wieloletni* 2005–2009, No 25, IERiGŻ-PIB, Warszawa 2006, p. 10.

unchanged (with the exception of 2007–2008), there was a slight improvement in relative prices for pigs/poultry and cereals, whereas prices for cattle and milk relative to those for cereals and other livestock products improved considerably. At the same time, it could be observed that direct payments indirectly contributed to maintaining relatively low prices for pigs and poultry for slaughter and that they did not hinder substantial increases in prices for cereals (milk, rape, oils) caused by global developments. Direct payments, indirectly raising producer prices for milk and cattle for slaughter[28], were not a factor to weaken the strong upward trend of milk and beef prices.

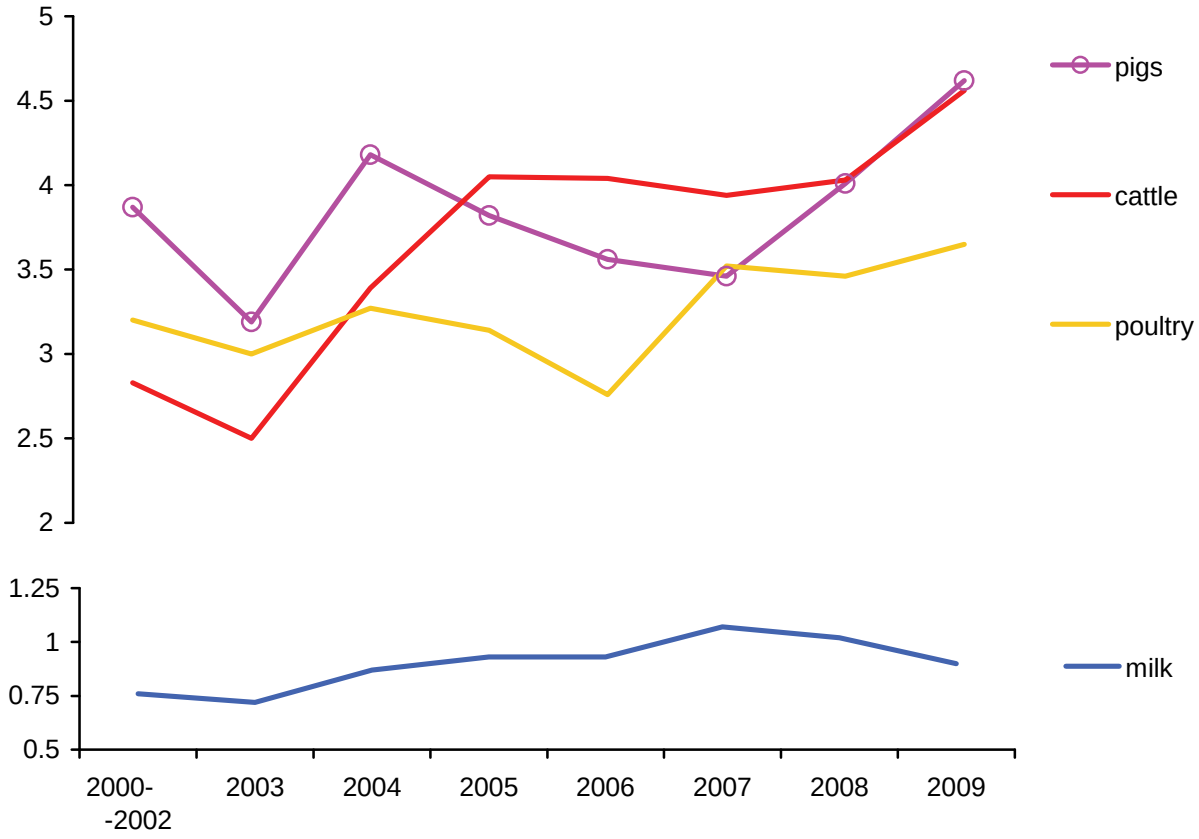
Figure 3.1. Prices for basic agricultural products (PLN/tonne)



Source: own study based on GUS and Ministry of Agriculture and Rural Development data.

[28] The producer price for cattle for slaughter includes not only the market price for such products, but also the single area payment on grassland and the so-called livestock payment. In 2009 those amounted to nearly PLN 1,010/ha of forage area, which, considering the production results of cattle farming, represents ca. PLN 0.44/kg of cattle for slaughter and PLN 0.21/litre of milk. Thus, in 2009 the producer price for cattle for slaughter was PLN 5/kg, and for milk – PLN 1.12/litre, with the market prices at PLN 4.56/kg and PLN 0.91/litre respectively.

Figure 3.2. Market (purchase) prices for basic livestock products (PLN/kg and PLN/litre)



Source: GUS data.

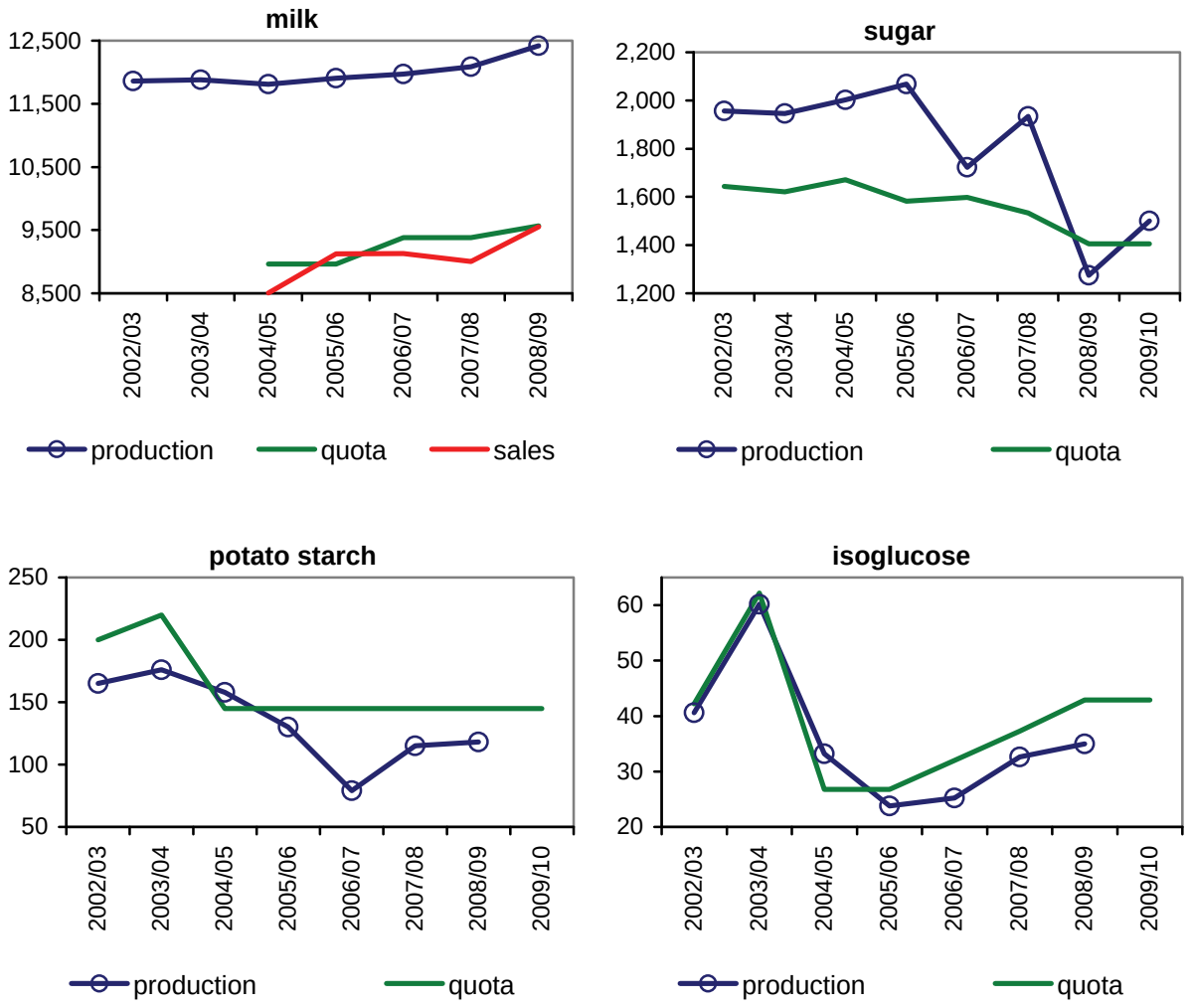
3.3. Production quotas

An important instrument of the organisation of agricultural and food markets in the European Union is the system of production quotas: for milk, sugar, potato starch and isoglucose. It is a form of regulating maximum production levels, which allows indirectly to maintain high producer prices and the reduce demand (domestic and external). After joining the EU, Poland adopted and now applies the EU system of production (or sales) quotas. Previously, for several years prior to EU accession, Poland applied sugar, starch and isoglucose production quotas under national legislation, very similar to EU solutions.

When assessing the effectiveness of the quota system, it should be pointed out that on EU accession there was a reduction in production quotas: for sugar by 13.5% (over five years), for potato starch by 34% and for isoglucose by as much as 57% (in the marketing year 2004/05). Following Poland's joining the EU, sales quotas for milk increased (by 0.6 million tonnes, i.e. by 6.7%), and after the first major cut isoglucose production quotas started to gradually rise from the marketing year 2006/07, currently being 31% lower than in 2003/04, but still 60%

above the lowest level (Figure 3.3). In the whole period in question, sugar production was usually much higher than the quotas (by an average of 15.6%). Only in the last two years output did not differ from the quotas. The utilisation of sales quotas for milk was relatively high as actual sales in the last marketing years were an average of 2% below the quota. After accession to the European Union, the utilisation of the sharply reduced production quotas for isoglucose was low, and very low in the case of potato starch. In the last five marketing years, the production of isoglucose was an average of 9.5% below the quotas, and as much as 20% lower for starch.

Figure 3.3. Production quotas and their utilisation (thousand tonnes)



Source: own study based on R. Mroczek, Ocena wpływu Wspólnej Polityki Rolnej na podstawowe rynki rolne w Polsce (The impact assessment of the common agricultural policy on basic agricultural markets in Poland), [in:] R. Mroczek (ed.), Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi (The impact of the commercial policy instruments of the European Union on foreign trade in agri-food products), seria Program Wieloletni 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009, pp. 90–123; R. Mroczek, Ocena wpływu…, paper, op. cit.

Thus, production quotas impose significant limitations on the domestic supply of sugar, starch and isoglucose. They also hamper the development of the Polish dairy industry, which has been driven by both export expansion and an upturn in the domestic market for dairy products, particularly cheese, milk-based beverages and desserts. On account of production quotas, the sugar, starch and isoglucose sectors have contracted in Poland. The export potential of the three industries has shown a decline, and the dairy sector functions below its growth potential. In the case of the last industry, however, growth limitations may be mitigated by the phasing-out of milk quotas and their future expiry.

Quotas resulting in reduced supply also push up agricultural prices, particularly in the milk and sugar markets. Prices in the two markets, despite a sharp fall in 2009, are currently higher than those noted prior to EU accession (by ca. 20–25% for milk and by approx. 30% for sugar). Such increases are rare in other sub-sectors of the agricultural and food market (with the exception of the beef market). Hence, the quota system favours maintaining high prices in all links of the food chain.

3.4. Regulated prices and market intervention by the European Union

The scale of direct intervention by the European Union in the agricultural price system has been gradually decreasing. After EU accession, it was as follows:

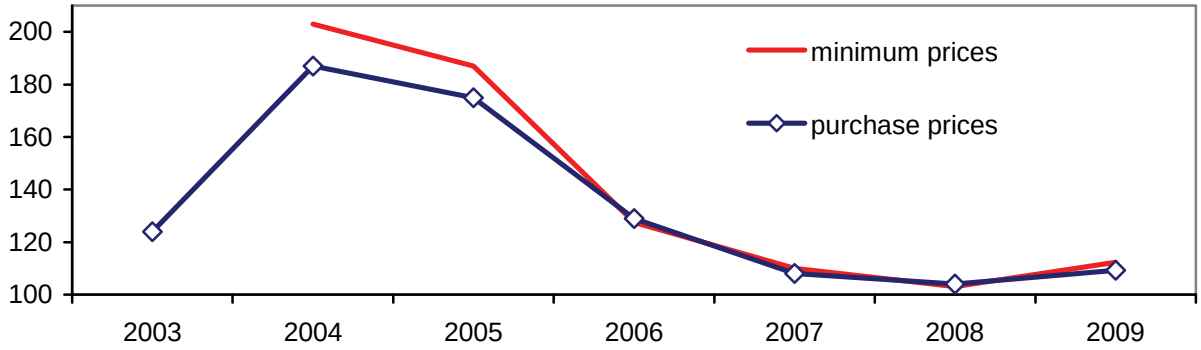
- intervention prices for cereals, applied from November to May of the following year, for the purpose of intervention buying-in of wheat; at EUR 101.31/tonne + monthly increases by EUR 0.46/tonne;
- minimum prices for sugar beet; until the marketing year 2005/06 at EUR 46.72/tonne (quota A) and EUR 32.42/tonne (quota B), after the reform of the sugar market reduced to EUR 32.86/tonne in the marketing year 2006/07 and in the following marketing years to EUR 29.78/tonne, EUR 27.83/tonne and EUR 26.92/tonne (2009/10);
- intervention prices for white sugar at EUR 631.9/tonne, as a result of the reform of the sugar market replaced by the reference prices and reduced to EUR 541.5/tonne in the marketing year 2008/09 and to EUR 404.4/tonne in the current marketing year;
- intervention prices for butter and skimmed milk powder, which in the subsequent marketing years were as follows: 2003/04 – EUR 3,282 and EUR 2,055/tonne, 2004/05 – EUR 3,050 and EUR 1,952/tonne, 2005/06 – EUR 2,842 and EUR 1,850/tonne, 2006/07 – EUR 2,593 and EUR 1,747/tonne, from 2007/08 – EUR 2,664 and EUR 1,747/tonne, and from the marketing year 2008/09 prices for skimmed milk powder were further cut to EUR 1,689/tonne.

Other markets are subject to the system of reference prices whose main objective is to ensure transparency and comparability of prices quoted in all Member States. At the same time, administered prices (minimum and intervention prices) are applicable in the most regulated markets (for milk and sugar) and in the cereal market, the most important to farmers.

The comparison of intervention and reference prices suggests that:

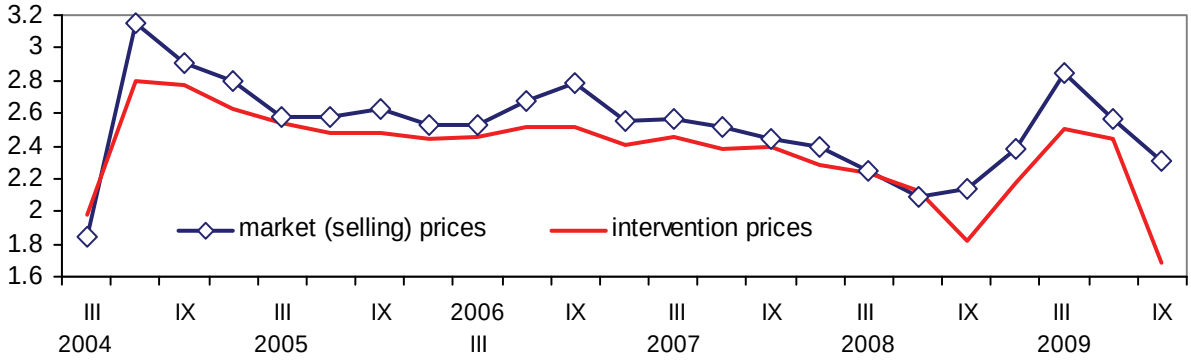
– regulated prices had a marked influence on the level of and fluctuations in domestic prices for sugar beet and sugar; in 2004 the dramatic price movements resulted from Poland's inclusion in the EU regulation system, and in the following years market prices for beet and sugar were ca. 5–10% higher than the minimum or intervention prices (Figures 3.4 and 3.5);

Figure 3.4. Sugar beet prices (PLN/tonne)



Source: Rynek cukru. Stan i perspektywy, Nos. 28, 32, 36, "Analizy Rynkowe" 2005, 2007, 2009.

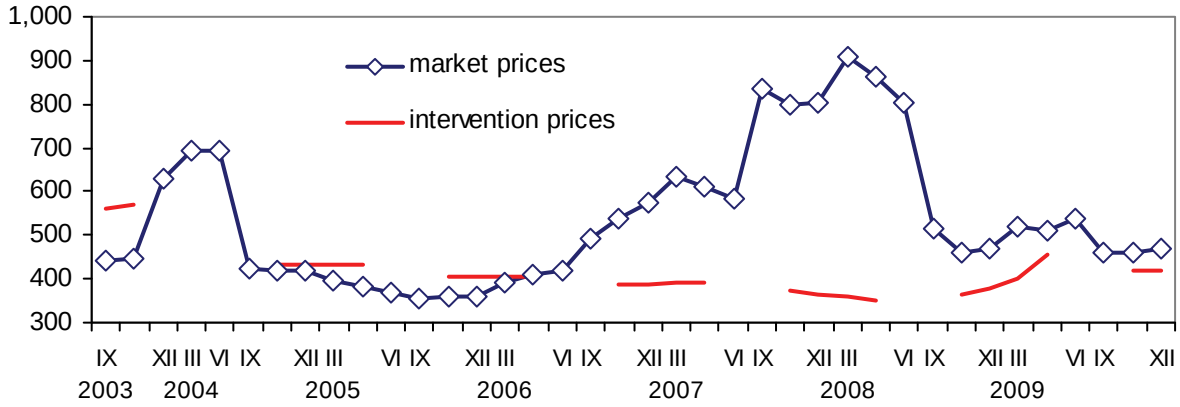
Figure 3.5. Intervention prices and selling prices for bagged sugar (PLN/kg)



Source: Rynek cukru. Stan i perspektywy, Nos. 28, 32, 36, "Analizy Rynkowe" 2005, 2007, 2009.

– intervention prices for cereals had an actual effect on market prices only in two marketing years: 2004/05 and 2005/06 when administered prices and substantial intervention buying-in prevented an even deeper decline in market prices; in other marketing years, including the current one, market cereal prices were considerably higher than intervention prices (Figure 3.6);

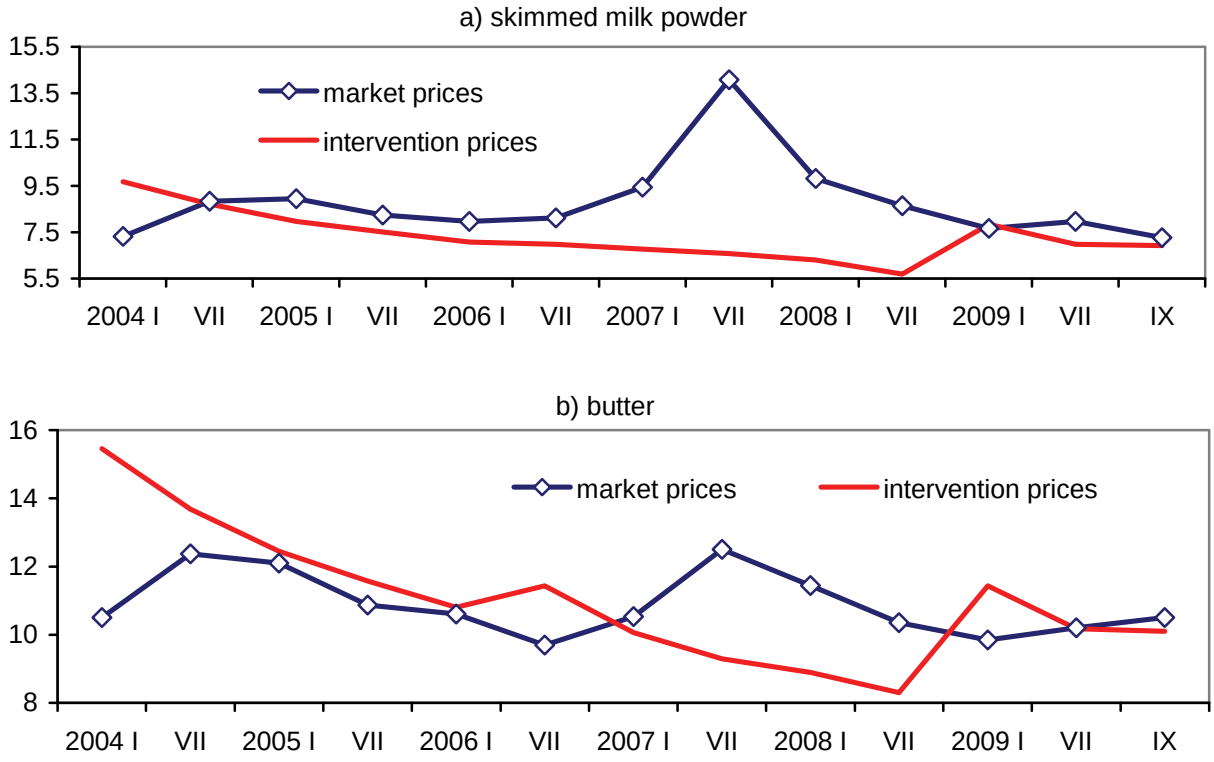
Figure 3.6. Intervention and market prices for wheat (PLN/tonne)



Source: Rynek zbóż. Stan i perspektywy, Nos. 29, 33, 37, "Analizy Rynkowe" 2005, 2007, 2009.

– intervention prices for skimmed milk powder and butter had no major impact on market prices for these products as selling prices for skimmed milk powder tended to be higher, frequently twice as high as intervention prices, whereas the opposite was the case in the butter market (Figure 3.7); fluctuations in market prices for these products usually resulted from changes in supply, demand and prices in world markets.

Figure 3.7. Intervention and market prices for skimmed milk powder and butter (PLN/kg)



Source: Rynek mleka. Stan i perspektywy, Nos. 29, 33, 37, "Analizy Rynkowe" 2005, 2007, 2009.

After EU accession, there was also a decrease in the scale of direct market intervention in the form of intervention buying-in. Between 2004 and 2009, only the following were of significance (Table 3.2):

- intervention buying-in of cereals three times: in 2005, 2006 and 2009, accounting for 15%, 7% and 6%, respectively, of purchases of cereals, which then had a marked effect on market cereal prices, preventing their further drop,
- rather substantial, particularly in comparison with the period preceding Poland's accession to the EU, buying-in of sugar (100,000 tonnes in 2005 and 113,000 in 2006), in each case representing ca. 5% of domestic supply,
- minor intervention buying-in of butter (1,100 tonnes in 2005, 3,600 tonnes in 2006 and 1,900 tonnes in 2009), with the respective shares in the supply of butter at 0.6%, 2.2% and 1.8%.

Table 3.2. Intervention buying-in of agricultural products in 2004–2009

Specification	2004	2005	2006	2007	2008	2009
Intervention buying-in of						
cereals: in thousand tonnes	-	1,185	485	-	-	162
as a percentage share of purchases of cereals	-	15.1	6.8	-	-	6.2
sugar: in thousand tonnes	-	100	113	-	-	-
as a percentage share of sugar production	-	4.8	6.6	-	-	-
butter: in thousand tonnes	-	1.1	3.6	-	-	1.9
as a percentage share of butter production	-	0.6	2.2	-	-	1.8
Intervention costs[a] in PLN million	0.03	744.1	714.9	45.2	11.0	251.5
of which in the market in:						
cereals	-	473.5	385.2	28.0	1.8	48.7
sugar	-	258.2	292.8	0.9	-	-
butter, cheese and skimmed milk powder	0.03	12.4	36.9	0.5	-	177.8
meat	-	-	-	15.8	9.2	25.0

[a] excluding the restructuring premium and compensation for the withdrawal of the reference quota

Source: own study based on Agricultural Market Agency data.

Expenditure on market intervention totalled nearly PLN 1.8 billion, which accounted for a mere 2.5% of agricultural support. This form of assistance primarily benefited the cereal market (over PLN 900 million) and the sugar industry (ca. PLN 550 million). Intervention spending was relatively limited in the milk market (approx. PLN 230 million for the buying-in of butter and for private storage aid for butter and cheese), and only a token amount in the meat market (PLN 50 million).

3.5. Subsidised exports and subsidies to other recipients of agri-food products

An important CAP instrument, and hardly applied in Poland previously, are agri-food export subsidies. Those are subsidies on exports to third countries aimed to compensate for the difference between high production costs (in Poland and in the EU) and low world prices, a method for exporting excess agricultural production and maintaining domestic prices at a level acceptable to domestic producers.

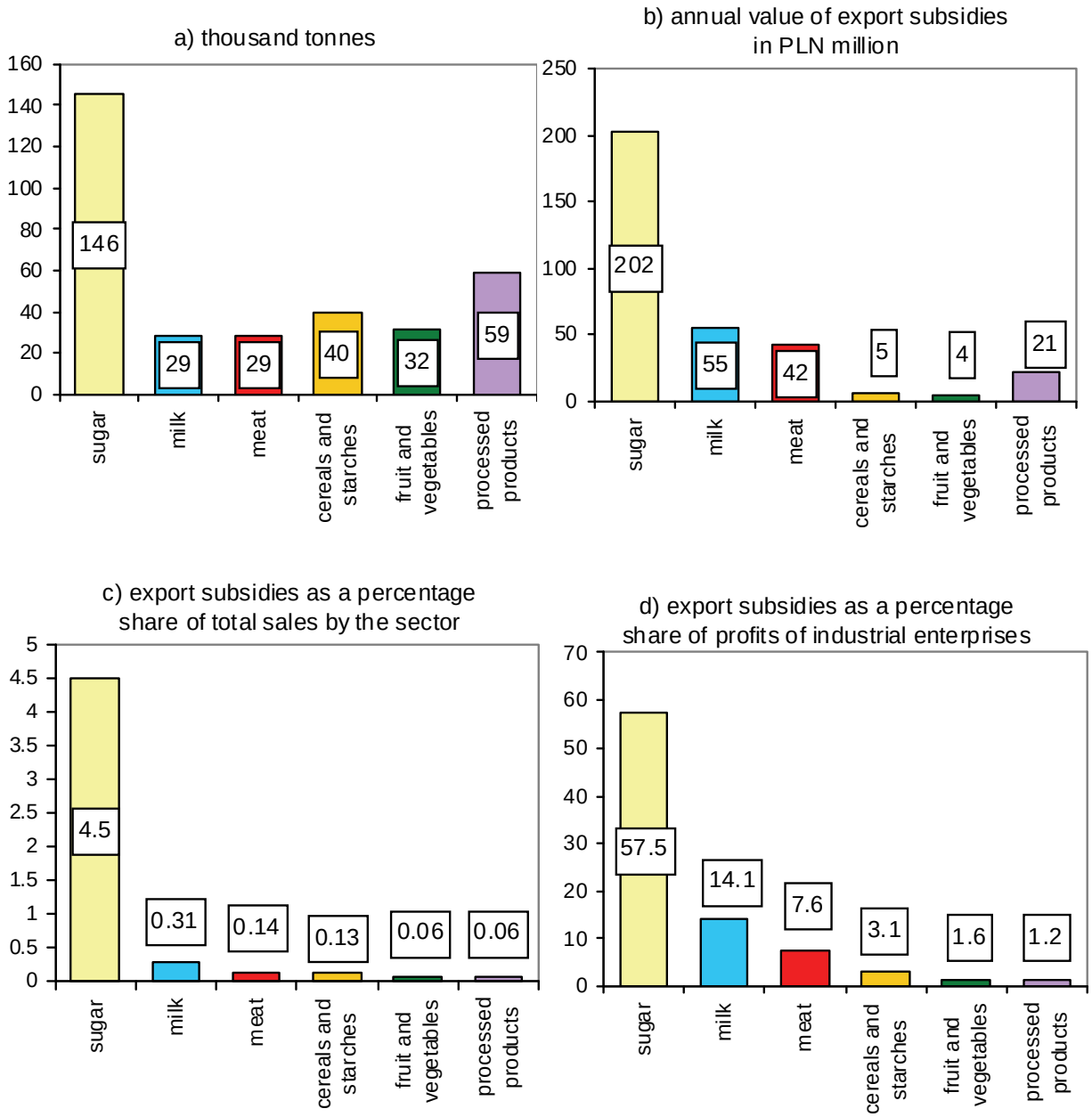
Over nearly six years, the Agricultural Market Agency (ARR) paid a total of almost PLN 2 billion (PLN 1,915 million) to Polish exporters. Sugar exporters benefited the most, receiving PLN 1.2 billion (61.2%) for exporting a total of 850,000 tonnes, which represented a form of withdrawing half of Poland's excess sugar production from the EU market. Such payments accounted for nearly 5% of total sales by the sector and for 57.5% of average net profits in the sugar industry. Export subsidies had a distinct effect on the Polish sugar market, reducing the supply of sugar in the domestic market and helping maintain relatively high prices at all levels of the market.

Table 3.3. Subsidised exports and subsidies to other recipients of agri-food products

Specification	2004	2005	2006	2007	2008	2009
1. Subsidised exports (thousand tonnes) of						
– sugar	35.3	109.1	291.1	159.1	218.5	34.8
– dairy products	14.9	68.0	41.7	20.7	0.6	23.2
– meat	3.9	20.3	17.0	14.2	89.1	24.7
– cereals and starches	3.1	93.6	109.3	19.5	6.5	-
– fresh fruit and vegetables	0.2	48.9	55.1	71.9	9.3	0.6
– processed products	2.0	48.8	79.8	80.1	71.4	58.1
2. Value of export subsidies (PLN million)	117.6	420.4	581.5	308.1	388.0	99.4
of which: – sugar	73.3	181.1	409.1	202.7	268.5	37.9
– milk	31.9	135.9	85.6	46.8	1.3	20.0
– meat	11.5	54.8	32.3	23.6	94.3	28.7
– cereals and starches	0.5	10.8	14.2	2.2	0.5	-
– fruit and vegetables	0.0	6.6	7.1	6.9	0.8	0.0
– processed products	0.4	31.2	33.2	25.9	22.6	12.8
3. Subsidies on consumption and promotion (PLN million)	2.2	16.0	49.3	100.5	333.5	509.0
of which: – food aid	2.2	6.3	31.8	73.7	160.6	286.9
– subsidies on milk consumption	0.0	7.9	9.0	19.3	159.8	197.7
– subsidies on promotion	0.0	1.6	8.2	7.2	13.0	24.3

Source: on the basis of Agricultural Market Agency materials compiled by M. Tereszczuk.

Figure 3.8. Subsidised exports of agri-food products
(annual average in 2004–2009)



Source: own study based on the data presented in Table 3.3 and GUS financial data.

Export subsidies played a certain role in the milk market. Exporters of dairy products received ca. 17% of the overall amount of export subsidies, which accounted for 0.3% of total sales by the sector and could generate one-seventh of net profits of dairy companies. A similar role was played by export subsidies in the starch industry. As far as other sectors are concerned, subsidised exports were rather minor; subsidies only represented approx. 0.1% of total sales, and their contribution to profit ranged from slightly above 1% in the fruit and vegetable industry and in the manufacture of processed products to 7% in the meat sector.

In general, the food sector proved to be capable of exploiting opportunities offered by EU accession and the resulting wider application of export subsidies. However, such subsidies are clearly on the decline as after a rapid increase in export subsidies in 2004–2006 they dropped below the 2004 level. Importantly, export subsidies benefited operators in the sectors subject to the most strict regulations under the CAP and they resulted from such regulations.

A significant component of the CAP is the protection of the EU market against agricultural imports from third countries. The EU market protection system is considered to be more effective than the Polish one functioning prior to EU accession[29]. At the same time, the EU list of products notified to the WTO as those requiring increased protection is much shorter than that notified by Poland[30]. Therefore, Poland's joining the EU was followed by a considerable rise in imports of all agri-food products regarded as those requiring increased protection before accession. Their imports supplemented supply by domestic producers. The highest growth rate was recorded in the case of imports of raw materials for processing plants from other EU Member States, which helped cut the costs of production of processed products. The opening-up of the EU market as well as import and export became a vital factor for the stabilisation of the domestic agricultural and food market, particularly the cereal and pigmeat markets. Prices for and the supply of these products are now more dependent on the situation in the EU market, which regulates and stabilises domestic markets more effectively than direct market interventions or other production/price regulations.

A new and fast-developing form of indirect influence on the agricultural market is support for consumption and promotion, i.e. fostering demand for food products. In 2009 such expenditure amounted to PLN 0.5 billion, more than export subsidies and direct market intervention spending combined (cf. Tables 3.2 and 3.3). It was allocated to food aid for other countries, subsidised consumption of milk and food promotion. The development of such forms of support means that the CAP is decreasingly oriented towards regulating agricultural production and the agricultural market and more targeted at farmers' incomes and rural development.

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[29] Cf. W. Łopaciuk, *Wpływ instrumentów handlowych UE na polski handel zagraniczny ziarnem zbóż i produktami zbożowymi (The impact of EU commercial policy instruments on Polish foreign trade in cereal grain and cereal products*), [in:] R. Mroczek (ed.), *Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi, seria Program Wieloletni* 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009, pp. 52–53.

[30] Cf. B. Nosecka, *Import po akcesji*, "Nowe Życie Gospodarcze" 2009, No 23–24, supplement: *Ekonomiczne i społeczne uwarunkowania rozwoju polskiej gospodarki żywnościowej po wstąpieniu Polski do Unii Europejskiej. 5 lat programu badawczego*, p. 24.

4. The competitiveness of Polish food producers after accession to the European Union

4.1. The scope of and methods for analysing the competitiveness of Polish food producers

The analyses conducted were aimed to assess changes in the competitiveness of Polish food producers in the common European market and in markets of other countries. The evaluations covered the period of 2004–2009 in comparison with the last year before Poland's accession to the European Union.

In the economic literature the competitiveness of a sector or of an economic operator is defined in a number of ways, and authors of such definitions emphasise various aspects. In the analyses of the competitiveness of Polish food producers, competitiveness was seen as the ability to place foodstuffs on foreign markets and the capacity for expanding efficient exports. The main focus was on the international aspect of this concept[31]. A similar definition of Poland's external competitiveness is given by A. Woś, who describes it as the ability of domestic enterprises to enter foreign markets and to increase efficient exports[32], whereas the OECD defines competitiveness as the ability to cope with international competition, i.e. to generate significant exports and maintain a high level and growth rate of internal demand without deteriorated current account balance[33].

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[31] Cf. I. Szczepaniak, *Ocena konkurencyjności polskich producentów żywności (The assessment of the competitiveness of Polish food producers), seria Program Wieloletni* 2005–2009, No 15, IERiGŻ-PIB, Warszawa 2005; I. Szczepaniak (ed.), *Ocena zmian konkurencyjności polskich producentów żywności po wejściu do EU (The assessment of changes in the competitiveness of Polish food producers after EU accession), seria Program Wieloletni* 2005–2009, No 37, IERiGŻ-PIB, Warszawa 2006; I. Szczepaniak (ed.), *Ocena rozwoju konkurencyjności polskich producentów żywności po integracji z Unią Europejską (The assessment of the development of the competitiveness of Polish food producers after integration into the European Union), seria Program Wieloletni* 2005–2009, No 99, IERiGŻ-PIB, Warszawa 2008; I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza) (The assessment of the competitiveness of Polish food producers after accession to the European Union (synthesis)), seria Program Wieloletni* 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009.

[32] A. Woś, *Konkurencyjność wewnętrzna rolnictwa*, IERiGŻ, Warszawa 2001; A. Woś, *Konkurencyjność potencjalna polskiego rolnictwa*, IERiGŻ, Warszawa 2001; A. Woś, *Konkurencyjność polskiego sektora żywnościowego. Synteza*, IERiGŻ, Warszawa 2003.

[33] E. Skawińska (ed.), *Konkurencyjność przedsiębiorstw – nowe podejście,* PWN, Warszawa 2002.

As highlighted by other economists, competitiveness is a key category in business management as it determines the capacity, the ability of a company to maintain its presence in the market, to develop and confront others[34]. M. Adamowicz[35] and M.E. Porter[36] adopted similar approaches to competitiveness issues.

As the notion of competitiveness is linked with international trade in goods, thus with the economic category referred to as comparative advantages, the analyses of the competitiveness of Polish food producers were based on the results of foreign trade in agri-food products, which allowed to generally evaluate the performance of foreign trade in such products and to conduct analyses of competitiveness indicators, i.e. to assess:

- foreign trade balance,
- revealed comparative advantages, measured by the Balassa index (RCA) and the Lafay index (LFJ),
- measures of the export orientation of production,
- Poland's position in EU agri-food exports.

Furthermore, the evaluation of the competitiveness of the Polish food sector was also aimed to analyse price advantages of Polish producers over competitors from the European Union. It was supplemented by a description of other competitiveness factors and a survey of food businesses concerning their competitive position in the European market as well as by a discussion of the main sources of and barriers to competitiveness.

The analyses of the results of foreign trade and the competitiveness of Polish food producers were based on the following empirical material (databases):

- statistical data on Polish foreign trade:
  - for 2003: from the Foreign Trade Information Centre (*Centrum Informatyki Handlu Zagranicznego* – CIHZ),
  - for 2004–2009: from the Analytical Centre of Customs Administration (*Centrum Analityczne Administracji Celnej* – CAAC);

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[34] A.P. Wiatrak, *Zewnętrzne uwarunkowania konkurencyjności przedsiębiorstw sektora agrobiznesu (External conditions for the competitiveness of agri-businesses),* [in:] I. Szczepaniak (ed.), *Wybrane aspekty konkurencyjności polskich producentów żywności (Selected aspects of the competitiveness of Polish food producers), seria Program Wieloletni* 2005–2009, No 110, IERiGŻ-PIB, Warszawa 2008, p. 9.

[35] M. Adamowicz, *Konkurencja i konkurencyjność w agrobiznesie. Aspekty teoretyczne i praktyczne,* "Zagadnienia Ekonomiki Rolnej" 1999, No 2–3.

[36] M.E. Porter, *Competitive Strategy*, Free Press, New York 1980.

- statistical data on world and EU trade in agri-food products WITS – *World Integrated Trade Solution* (Comtrade);
- unpublished GUS statistical data on the economic and financial results of the food industry and on prices for basic food products in Poland;
- data from the Integrated System of Agricultural Market Information (*Zintegrowany System Rolniczej Informacji Rynkowej*) of the Ministry of Agriculture and Rural Development (MRiRW) on prices for basic agricultural products in Poland and in the EU;
- data from *Statistisches Jahrbuch über Ernährung Landwirtschaft und Forsten* on prices for basic food products in Germany.

4.2. The assessment of the results of foreign trade

Poland's accession to the EU stimulated Polish foreign trade in agri-foodstuffs and revealed significant comparative advantages of producers of such products[37]. After a few years of stagnation (1998–2002), the upswing was also observed immediately before EU accession (Figure 4.1). In 2003 agri-food exports rose by 23%, and the trade balance changed from a deficit (EUR -0.51 billion) to a surplus (EUR +0.45 billion). For the following five years, exports of foodstuffs went up at an annual rate of 23%, and in 2008 they were 2.8 times higher (at EUR 11.4 billion) than in 2003 and 3.7 times higher than in 2000–2002. A similar annual growth rate (an average of 21%) also characterised imports, below/above that of exports until 2006 and in 2007–2008 respectively. For this reason, the foreign trade surplus improved in the first years of integration into the EU, and then dropped from EUR 2.1 billion in 2006 to EUR 1.3 billion in 2008. Those trends changed (rather temporarily) due to the global crisis; in 2009 it resulted in a fall in agri-food exports by approx. 2%, whereas imports decreased by ca. 10%, and trade surplus again increased (to ca. EUR 2.1 billion)[38].

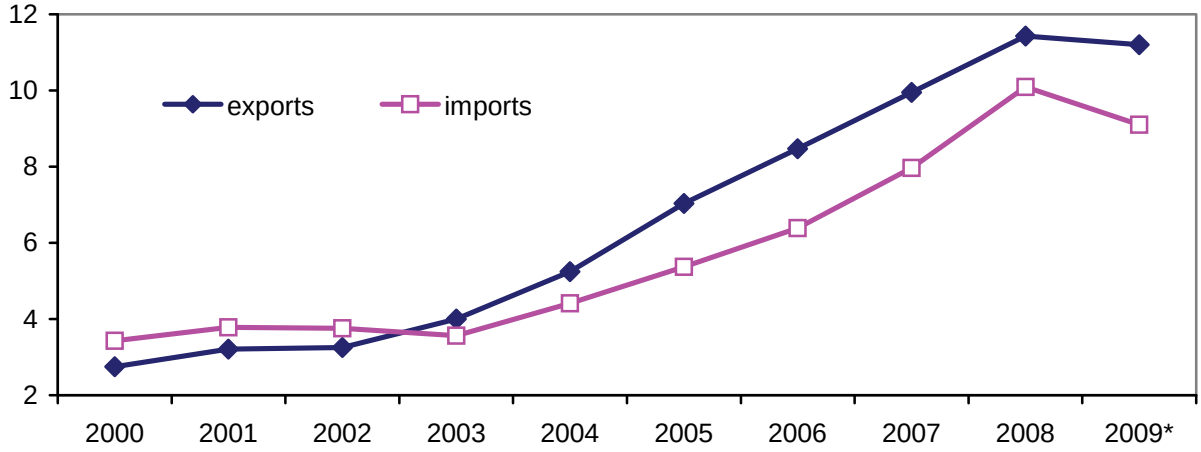
Increased exports and improved trade balance were primarily observed in trade with other Member States. Between 2003 and 2008, agri-food exports to the EU-15 rose 3.3 times, and deliveries to the new EU Member States jumped nearly 4.5 times (Table 4.1). The surplus on trade with the EU went up from EUR 0.44

[37] According to IAFE-NRI surveys, such advantages were also observed prior to EU accession, but they could not be reflected in the results of foreign trade owing to the conditions for agri-food trade (cf. R. Urban, *Analiza przewag komparatywnych na poziomie przemysłu rolno-spożywczego*, IERiGŻ, Warszawa 2003).

[38] Those are provisional data, but they indicate that the impact of the global crisis on Poland's food trade has been lesser than expected (cf. *Handel zagraniczny produktami rolno-spożywczymi. Stan i perspektywy*, No 30, "Analizy Rynkowe" 2009, p. 5).

billion to EUR 2.2 billion, i.e. there was a fivefold increase. The share of other EU Member States in Polish agri-food exports augmented from 65% to 80%. Trade with other countries was much less buoyant. In 2003–2008 agricultural exports to CIS countries grew by three-fourths, sales to other developed countries rose by 60%, and those to developing countries by 37%. As regards these groups of recipients of Polish products, there was an improvement in the surplus on trade with CIS countries, but to a significantly lesser degree than in the case of EU Member States. At the same time, the deficit on trade with other developed countries soared (7.5 times) and the large deficit on trade with developing countries augmented several times (from EUR -0.45 billion to EUR -1.4 billion). The latter development stemmed from a marked rise in imports of products not produced in our climatic zone (from EUR 1.5 billion to EUR 2.6 billion), enhancing the diversity of domestic food supply and the processing potential of the Polish food industry. It is also related to the characteristic features of Polish trade in agricultural and food products (Figure 4.2).

Figure 4.1. Exports and imports of agri-food products (EUR billion)



* provisional data

Source: as compiled by IAFE-NRI on the basis of CAAC and CIHZ data.

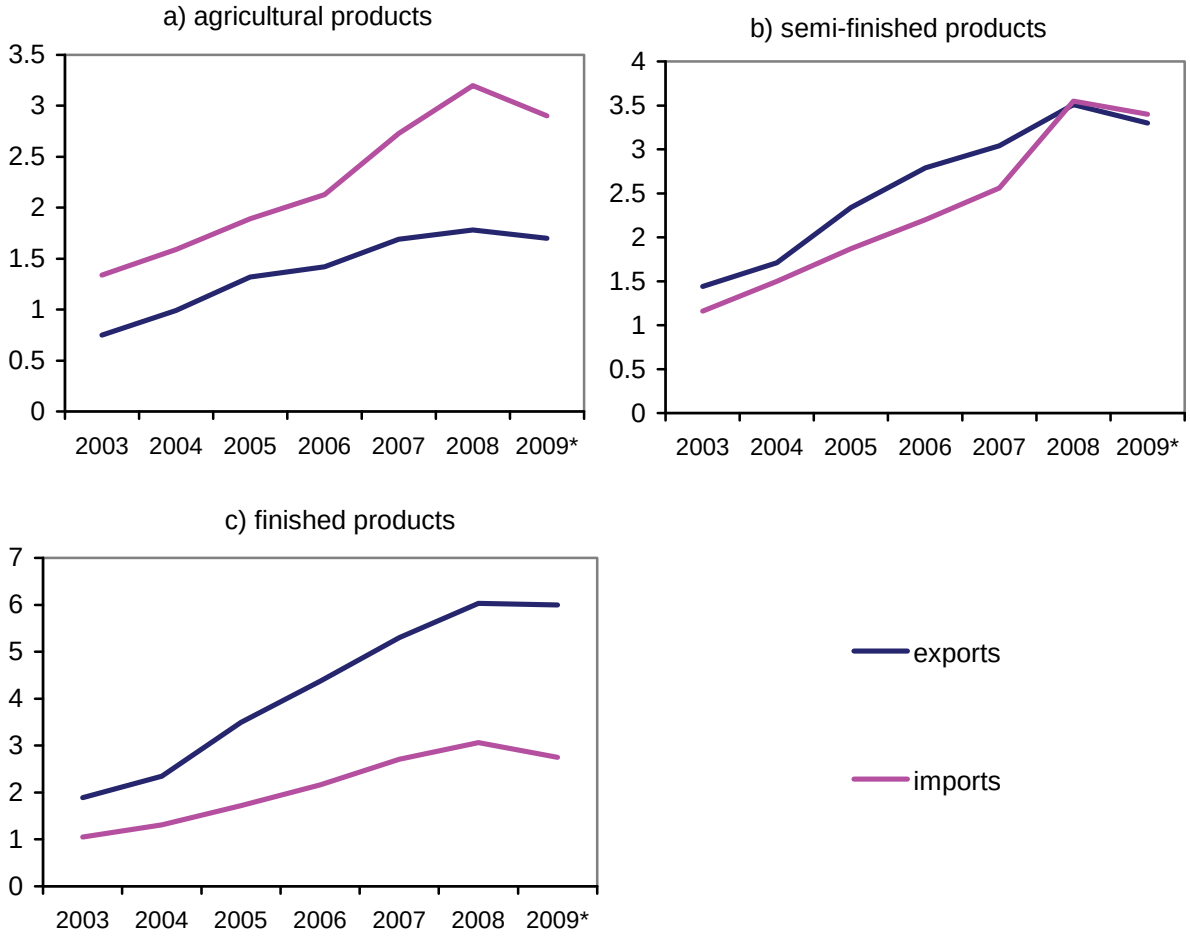
Table 4.1. Foreign trade by group of major trading partners

Group of countries	Exports			Trade balance		
	EUR million		Index	EUR million		Index
	2003	2008	2008/2003	2003	2008	2008/2003
EU-15	2,041.6	6,676.4	327.0	193.1	691.4	358.1
EU-10/12	575.1	2,541.7	442.0	247.7	1,503.7	607.1
Other developed countries	271.5	433.5	159.7	-31.6	-237.5	751.6
CIS	624.1	1,100.1	176.3	491.5	790.6	160.9
Developing countries	490.9	669.8	136.6	-454.2	-1,415.2	311.5

Source: CIHZ and CAAC data compiled by IAFE-NRI.

It is characterised by a large and fast-growing deficit on trade in agricultural products, significant and relatively balanced trade in semi-finished products as well as by the highest and robust exports and surplus on trade in finished goods.

Figure 4.2. Foreign trade in agricultural products, semi-finished products and food products (EUR billion)



* estimate based on the results for the first 10 months of 2009

Source: CIHZ and CAAC data compiled by IAFE-NRI.

These features of Polish agri-food trade also contribute to the differentiated performance of the main sub-sectors of Poland's food economy (Table 4.2). Although buoyant exports were a widespread development observed in all main industries of the Polish food sector (up by 85–90% in the sugar and cereal industries to as much as a 850% increase in the tobacco industry), large structural net exporters of food products primarily include the dairy, poultry, tobacco, meat industries, the secondary processing of cereals as well as the fruit and vegetable, sugar and confectionery industries. In the above-mentioned sub-sectors total exports went up from EUR 3.08 billion in 2003 to EUR 8.5 billion in 2008 (i.e. by 175%), and trade surplus jumped from EUR 1.43 billion to EUR 3.42

billion (by 140%). The largest exporter continues to be the fruit and vegetable sector, but higher growth rates of exports and trade balance were noted in the tobacco, dairy and poultry industries as well as in the secondary processing of cereals. In the last five years (2003–2008), the confectionery industry became a net exporter, whereas the export surplus in the fruit and vegetable, meat and sugar industries remained basically unchanged. These sectors markedly weakened their positions as net exporters.

Table 4.2. Foreign trade by main industries of the Polish food sector

Industry	Exports in EUR million		Balance in EUR million		Percentage change 2008/2003	
	2003	2008	2003	2008	in exports	in balance
Dairy	326.7	1,212.7	277.6	964.6	371.2	347.5
Meat	556.5	1,709.2	363.4	387.7	307.1	106.7
Poultry	297.9	876.5	241.5	706.7	294.2	292.6
Secondary processing of cereals	206.2	777.1	112.4	406.6	376.9	361.7
Fruit and vegetables	1,248.5	2,339.2	370.9	353.8	187.3	95.4
Tobacco	73.2	701.4	13.6	432.2	958.1	31.8 times
Sugar	257.9	646.1	-33.2	101.2	250.5	×
Confectionery	113.1	210.2	83.3	70.0	185.8	84.0
Fish	263.0	758.2	-58.2	-77.2	288.3	132.6
Processing of tea and coffee	99.3	221.7	-136.1	-176.7	223.3	129.8
Spirits	61.0	178.6	-52.9	-191.0	292.8	361.1
Vegetable oils	20.0	368.9	-240.0	-305.0	18.5 times	127.1
Production and processing of cereals	119.8	229.5	-72.8	-559.0	191.6	767.9
Animal feed	91.2	259.9	-327.0	-562.7	285.0	172.1
Other industries	268.9	699.7	-96.0	-59.3	260.2	61.8

Source: prepared by IAFE-NRI on the basis of the results of foreign trade in agri-food products as compiled by Ministry of Agriculture and Rural Development (A. Pachnicki).

As regards industries characterised by import surplus, the rise in exports (by 225%) was even more significant than in the group of net exporters. Therefore, the deficit on trade in the group of net importers only less than doubled over the five years in question (from EUR -1.0 billion to EUR -1.9 billion), with the largest net importers including the animal feed, cereal and vegetable oil industry. Importantly, the vegetable oil sector recorded the highest growth in the value of exports and a slight deterioration in trade balance, whereas the situation in the production and processing of cereals was very unstable (there was a minor trade deficit, or even export surplus in the years of bumper crops, i.e. 2004 and 2005 as well as 2008 and 2009). A deep decrease in trade balance (3.6-fold) was noted in the alcoholic beverage sector, but the fish industry and the processing of tea and coffee only experienced a minor fall in the balance.

The results of foreign trade in agricultural and food products allow to assess the competitiveness of specific sub-sectors of the food economy as follows:

- high: the processing of livestock products, the processing of fruit and vegetables, the secondary processing of cereals, tobacco processing,
- medium: the confectionery industry,
- low mainly in the case of products (raw materials) from other climatic zones: the primary processing of cereals (durum wheat) and the manufacture of feedingstuffs (soya bean), the sugar industry, vegetable oils, the processing of tea and coffee, spirits, fish processing.

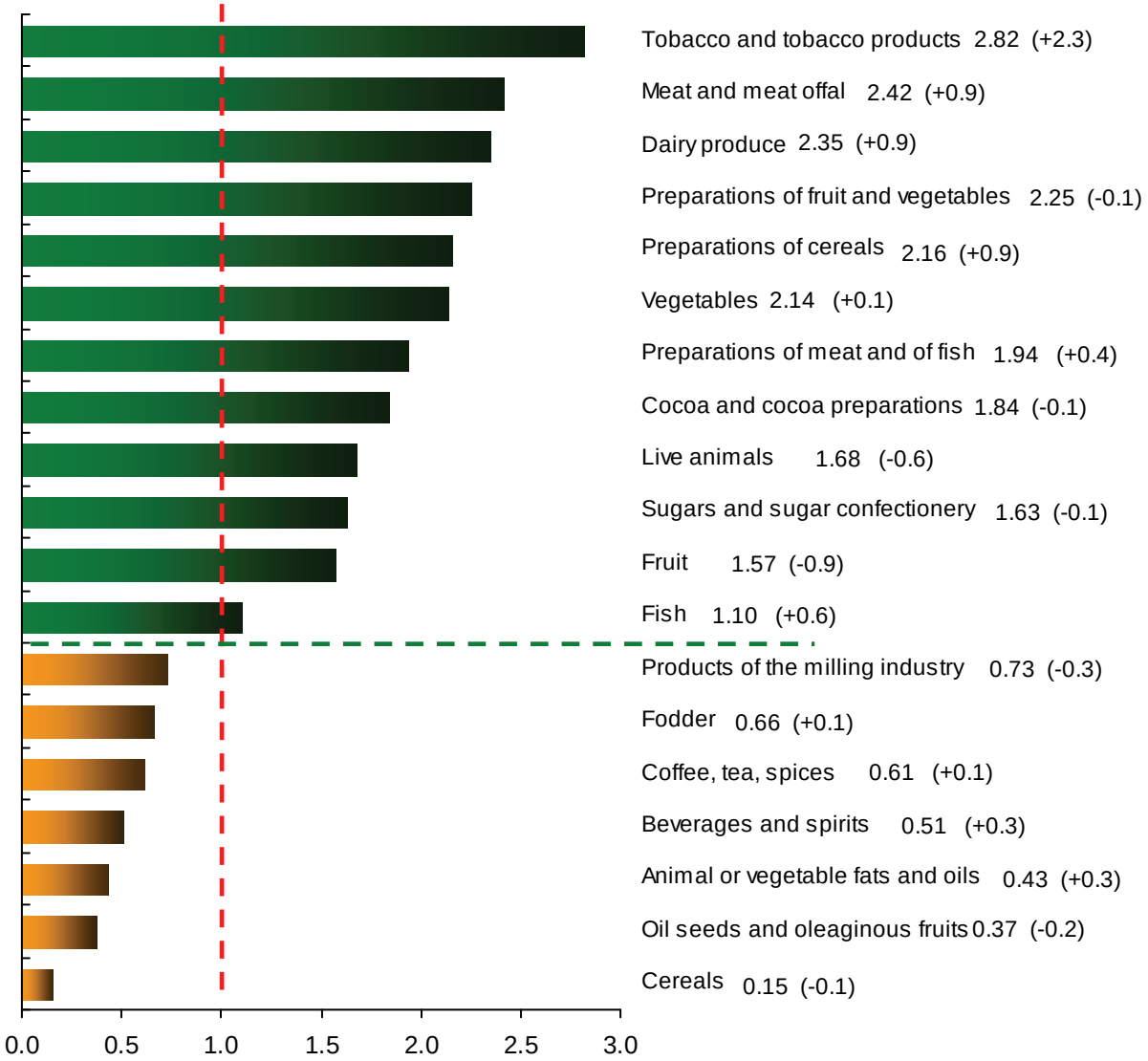
4.3. The assessment of comparative advantages in agri-food trade

The assessment of comparative advantages was based on two measures of such advantages, namely:

- the revealed comparative advantage index for exports (RCA), showing whether the share of a product or a group of products in a given country's exports is higher or lower than the share of such products in world exports to a specific market; if RCA>1, a given product is competitive,
- the Lafay index of competitiveness, taking account of both exports and imports, where a surplus on trade in a given product or a group of products is tantamount to having comparative advantages in exports of a given product or a group of products; if LFI>0, the country in question enjoys a comparative advantage in exports of a given product.

The analysis of revealed comparative advantages in Poland's agri-food trade, on the basis of the Balassa index (RCA) and the Lafay index (LFI), demonstrates a rather high level of the competitiveness of Polish food producers as well as its improvement after accession to the European Union. For most product groups, in Polish exports of agricultural and food products to the world market the RCA index is above 1, i.e. the share of such product groups in Poland's exports exceeds their share in world exports to this market (Figure 4.3). Therefore, Poland has significant comparative advantages in agri-food exports to the world market. During Poland's membership of the EU, there was an improvement in the majority of revealed comparative advantage indices. The RCA index also increased in total agri-food exports to the world market – from 1.08 in 2003 to 1.34 in 2008.

Figure 4.3. RCA indices by HS heading in 2008*

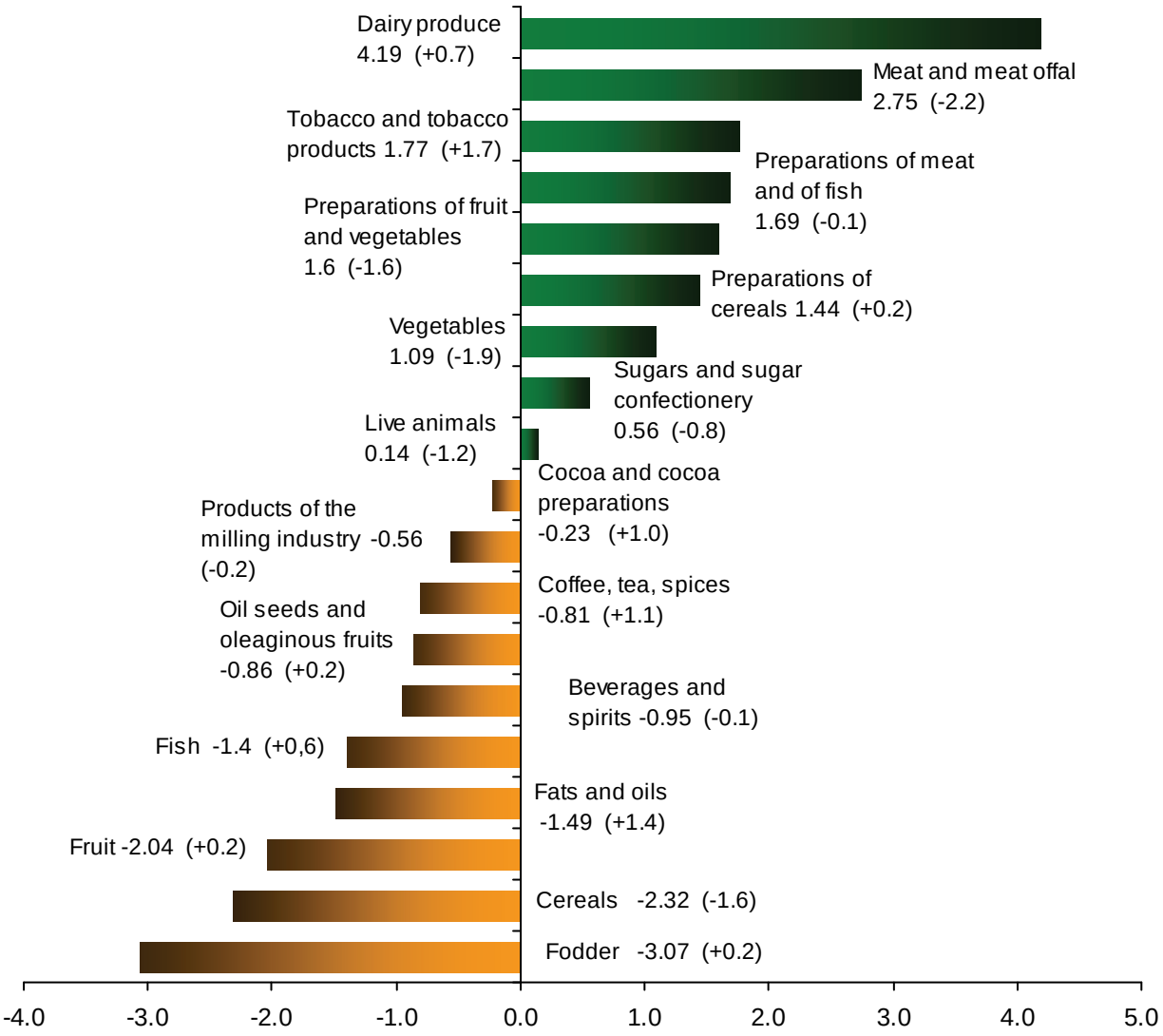


* indices in 2008 and change on 2003 in the brackets

Source: I. Szczepaniak, Ł. Ambroziak, Ocena wskaźnikowa konkurencyjności handlu produktami rolno-spożywczymi (The assessment of competitiveness indices in agri-food trade), [in:] I. Szczepaniak (ed.), Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza), seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009, p. 45.

As regards the assessment of competitiveness on the basis of the Lafay index, the existence or non-existence of revealed comparative advantages in foreign trade is determined by the nature and level of balance on trade in a given product. When the index is above zero, it means that the country in question has a comparative advantage over the foreign sector in exports of a given product or a group of products. In Polish agri-food trade such a situation is found in the case of almost half product groups (Figure 4.4).

Figure 4.4. LFI indices by HS heading in 2008*



* indices in 2008 and change on 2003 in the brackets

Source: I. Szczepaniak, Ł. Ambroziak, Ocena wskaźnikowa…, op. cit., p. 49.

However, Poland's competitiveness measured by both the RCA index and the Lafay index considerably varied between groups of agri-food products. According to the assessment based on both indices (Comparison 4.1), in 2008 the following product groups proved to be competitive (RCA>1.0 and LFI>0.0): live animals, meat and edible meat offal, preparations of meat and of fish, dairy produce, vegetables, preparations of fruit and vegetables, preparations of cereals and pastrycooks' products, sugars and sugar confectionery, tobacco and tobacco products as well as the so-called miscellaneous edible preparations. At the same time, Poland did not enjoy comparative advantages (RCA<1.0 and LFI<0.0) in trade in the following: cereals and products of the milling industry, oil seeds and oleaginous fruits as well as animal or vegetable fats and oils, beverages and

spirits, waste and animal fodder. In the case of trade in the remaining commodity groups, Polish producers were only competitive when assessed on the basis of one of the above-mentioned indices. Between 2003 and 2008, Poland's competitive position, as measured by the RCA index and the Lafay index, strengthened in trade in the following: dairy produce, preparations of cereals and pastrycooks' products, tobacco and tobacco products and miscellaneous edible preparations. In some product groups, despite a fall in both indices after EU accession, Poland managed to retain previous comparative advantages; this concerns trade in live animals, preparations of fruit and vegetables, sugars and sugar confectionery. In certain commodity groups both indices dropped distinctly, which further deteriorated the poor competitive position prior to accession, e.g. in the case of cereals and products of the milling industry[39].

Comparison 4.1. Summarised competitiveness assessment on the basis of the RCA and LFI indices in 2008

LFI index	RCA index: above 1.0	RCA index: below 1.0
above 0.0	↑ Dairy produce ↑ Preparations of cereals and pastrycooks' products ↑ Tobacco and tobacco products → Meat and edible meat offal → Preparations of meat and of fish ↓ Live animals ↓ Vegetables ↓ Preparations of fruit and vegetables ↓ Sugars and sugar confectionery	
below 0.0	↑ Coffee, tea and spices ↑ Fish, crustaceans, molluscs and other → Fruit and nuts → Cocoa and cocoa preparations	↑ Animal or vegetable fats and oils → Beverages and spirits → Oil seeds and oleaginous fruits, other industrial plants ↓ Cereals ↓ Products of the milling industry, malt, starches

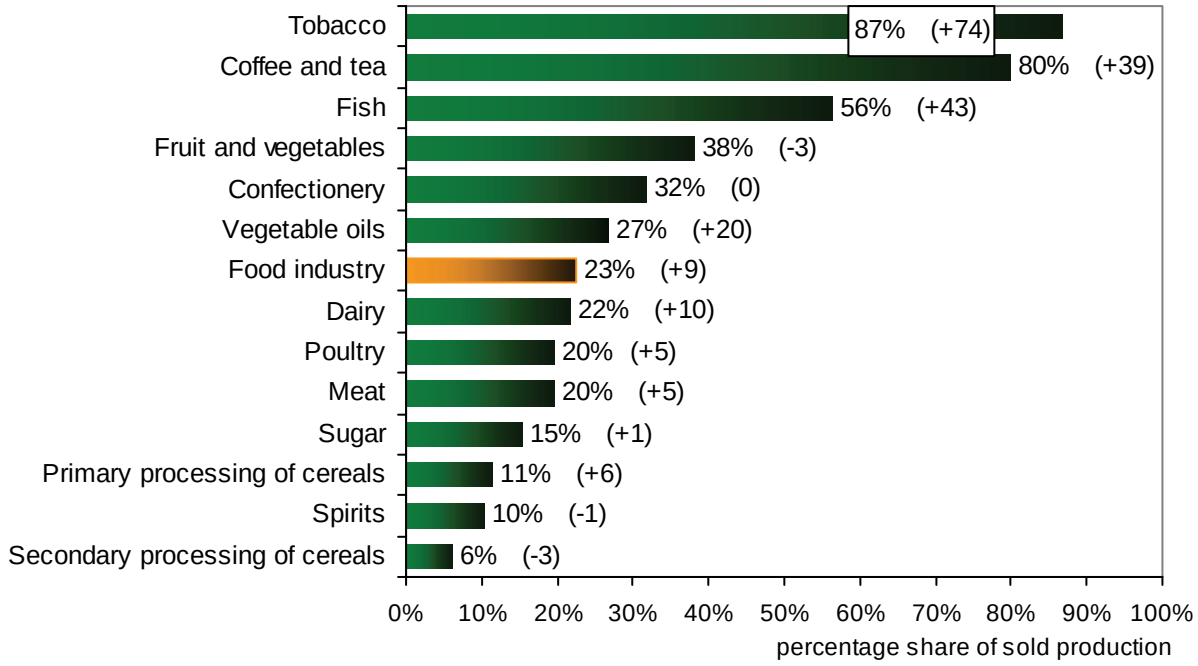
Source: I. Szczepaniak, Ł. Ambroziak, Ocena wskaźnikowa…, op. cit., p. 58.

[39] Analyses by K. Pawlak suggest similar assessments of the competitiveness of the food sector. According to those analyses, it is rather unlikely to change in the next few years (cf. K. Pawlak, *Analiza i model rozwoju handlu zagranicznego produktami rolno-spożywczymi (The analysis and development model of foreign trade in agri-food products)*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, *seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 148–154.

4.4. The development of the export orientation of Polish food producers

The development of the export orientation in the main sub-sectors of the Polish food economy was assessed on the basis of the level of and changes in the ratio of exports of a given product group to the sold production (at base prices) of the main food industries. This assessment was supplemented with Poland's share in EU agri-food exports and its changes. It is a good measure of the intensity of foreign trade, particularly in comparison with other EU Member States with well-developed agricultural sectors.

Figure 4.5. Export orientation of production in 2008*



* shares in 2008 and change on 2003 in the brackets

Source: I. Szczepaniak, Rola wymiany zagranicznej w sprzedaży podstawowych działów produkcji rolniczej i poszczególnych branż przemysłu spożywczego (The role of foreign trade in sales by basic agricultural activities and specific food industries), [in:] I. Szczepaniak (ed.), Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza), seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009, pp. 34–36.

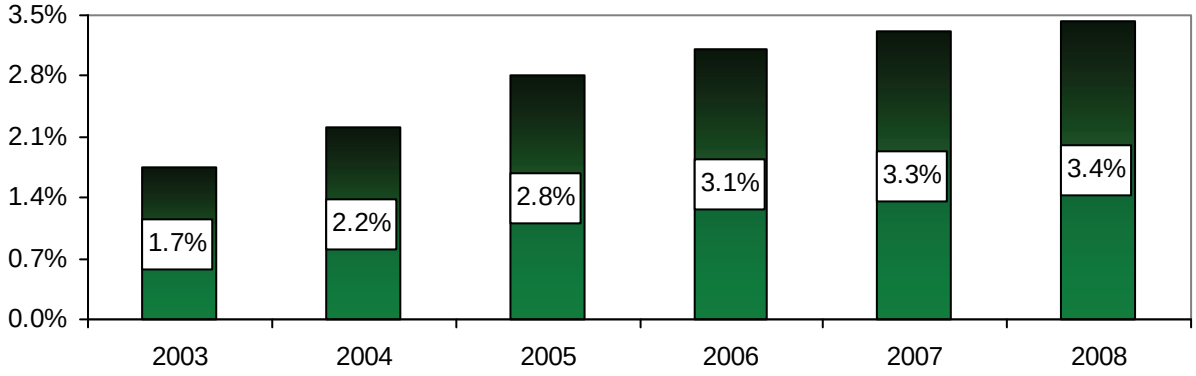
The share of the value of foreign trade in selected products of the food industry in the value of their sales (Figure 4.5) indicates that in 2004–2008 particularly strong export orientation characterised the following food industries: fish processing, potato processing and starch production, the manufacture of fruit and vegetable juices and beverages as well as of other preparations of fruit and vegetables, the manufacture of pet food, the manufacture of preserved pastry goods, chocolate and other sweets, the processing of coffee and tea, the manufacture of spices and dietetic foods, as well as of tobacco and tobacco products. As a rule, in the following years of Poland's membership of the EU

these sub-sectors of the food industry maintained or increased the share of exports in total sales of their products.

In the period in question, basic food industries were characterised by similar export orientation to the average for the whole food industry. Those included the production of red meat and poultrymeat, the manufacture of oils, margarine and other vegetable oils, the operation of dairies and the manufacture of ice cream, the manufacture of sugar and of alcoholic beverages. At the same time, in some of those sub-sectors a marked rise in the share of exports in total sales could be observed in subsequent years (e.g. in the manufacture of oils, margarine and other vegetable oils, meat and milk production, the manufacture of dairy products and of ice cream).

Low competitiveness and very limited export orientation were found in the following food industries: the manufacture of fresh bread, of feeds for farm animals as well as in the wine-making and brewing industries, followed by the manufacture of cakes and of pasta. But this group of industries was also increasingly export-oriented (e.g. the manufacture of meat and cereal products and of non-alcoholic beverages).

Figure 4.6. Poland's share in agri-food exports by the European Union (%)



Source: Eurostat.

The analysis of Poland's share in EU exports of agri-food products (intra- and extra-EU exports combined) indicates a rather poor position of Poland in the EU market (Figure 4.6). Even though Poland's share in EU exports doubled after accession (from 1.7% in 2003 to 3.4% in 2008), Poland hardly ranks among the most important exporters[40] (only in some markets Poland continues to be a major trading partner).

[40] I. Szczepaniak, *Wyniki handlu zagranicznego produktami rolno-spożywczymi (The results of foreign trade in agri-food products)*, [in:] I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza), seria Program Wieloletni*

4.5. Price advantages of Polish food producers

Price advantages represent one of the main sources of the competitiveness of the Polish food sector. Prior to EU accession, those were as follows[41]: ca. 20% in agriculture, ca. 30% in processing and ca. 40% in the case of consumer prices. After joining the EU, Poland retained its advantages, despite a gradual price convergence.

The analysis of the level of and fluctuations in prices for basic agricultural products in Poland and in the European Union in 2004–2009 demonstrated that (Table 4.3):

- price movements in the domestic market were very similar to those observed in other EU Member States. They tended to follow the same patterns, but their dynamics (both downward and upward) were usually higher in Poland than the European Union average;
- Polish producers of basic agricultural products enjoyed greater price advantages in comparison with their counterparts in the EU-15, and lower than producers in the new Member States;
- in terms of type of production, the level of price competitiveness is higher in markets related to livestock production than in those connected with crop production.

Table 4.3. Comparison of prices for basic agricultural products in Poland and in the EU-25/27 (EU-25/27 = 100)

Product	Q3–4/2004	2005	2006	2007	2008	2009
Wheat for human consumption	93.5	87.3	97.8	98.8	101.4	90.8
Barley for animal feed	90.1	87.0	89.2	94.9	100.7	87.4
Maize for animal feed	98.4	88.9	94.8	96.6	101.4	98.5
Pigmeat	102.1	95.6	88.9	95.0	103.3	101.1
Piglets	.	82.0	64.4	61.0	78.5	95.1
Beef	70.1	75.5	75.2	77.8	80.6	81.8
Milk	87.0	90.6	94.3	93.5	87.0	78.6
Poultrymeat	70.9	77.2	67.9	75.9	77.1	72.9
Eggs for human consumption	98.0	96.1	97.8	98.3	105.9	99.3

Source: own study based on Ministry of Agriculture and Rural Development data (cf. www.minrol.pl).

2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009, pp. 24–25; J. Rowiński, *Wpływ integracji z Unią Europejską na handel zagraniczny artykułami rolno-spożywczymi (The impact of integration into the European Union on foreign trade in agri-food products),* [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza), seria Program Wieloletni* 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009, pp. 133–137.

[41] R. Urban, *Analiza przewag komparatywnych...*, op. cit., pp. 20 and 52.

The period 2004 to 2009 can be divided into three distinguished phases of changes:

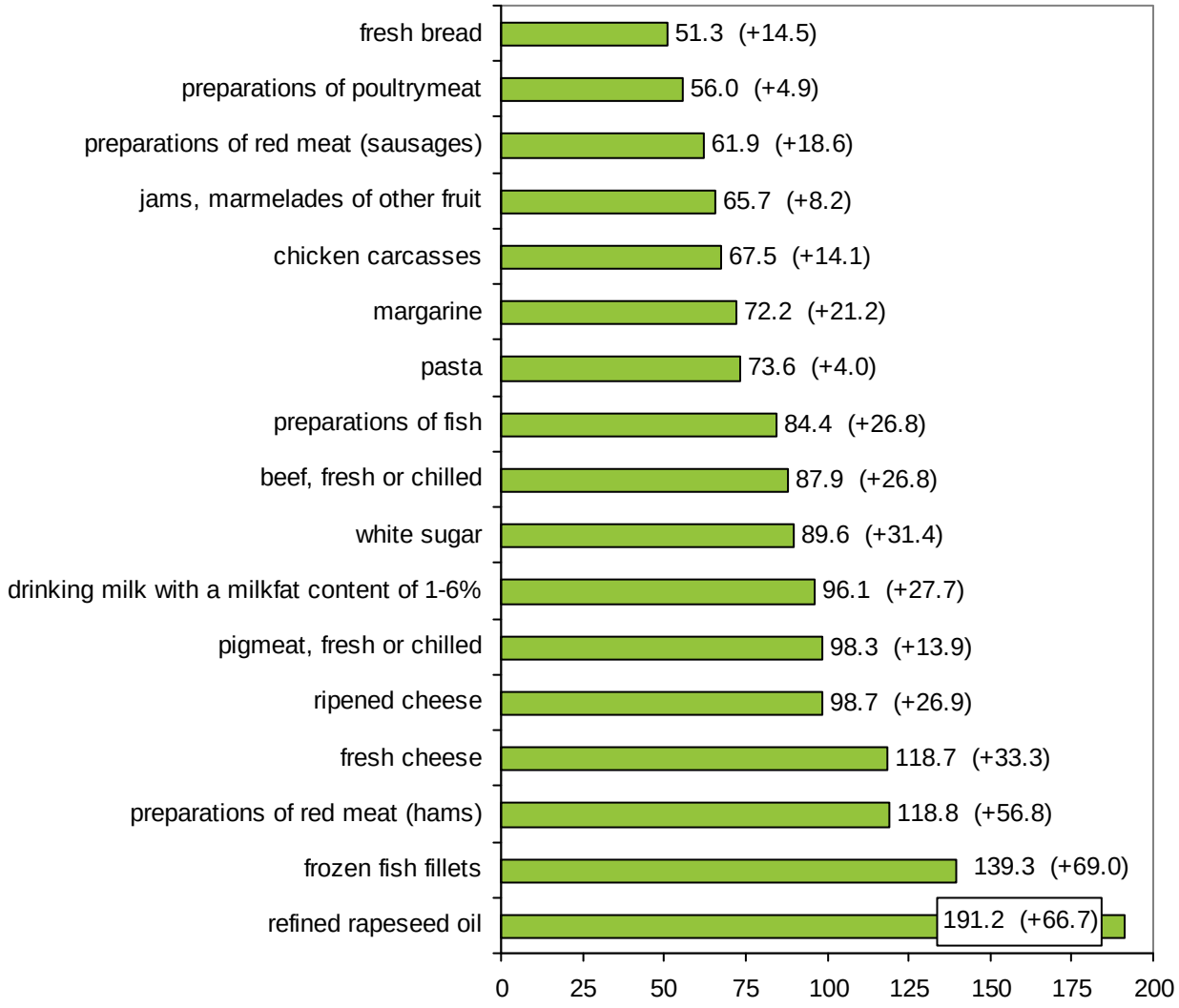
- In 2004–2007, there was a slow convergence of prices for basic agricultural products between Poland and the Community. Nevertheless, Polish producers retained their price advantages over competitors from the European Union. In the period in question, prices for all the analysed products were below average EU prices. On average, cereal grain, pigmeat and milk were 5% to 10% cheaper in Poland than in the EU. Poland had more than 20% price advantages in the markets in beef, poultrymeat and piglets. There was a distinct trend towards the convergence of domestic and EU prices in the beef and milk markets. In the markets in cereals, pigmeat and poultry it was definitely more erratic, due to considerable price fluctuations. The difference in prices for eggs for human consumption was stable at ca. 2% in favour of Poland. At the same time, the price gap widened in the piglet market. It should be emphasised that in 2004–2007 the fastest price convergence between Poland and the EU was observed in markets subject to Community regulations (quotas, intervention buying-in), i.e. in the cereal and dairy sectors. In sectors without public intervention price movements were more determined by the interplay of market forces.
- In 2008 price advantages in basic agricultural markets changed dramatically. Owing to a rise in food prices in Poland and in the world as well as to the appreciation of the zloty until mid-2008, Polish food producers lost their competitive position in the markets in cereals, pigmeat and eggs for human consumption. In the sectors in question domestic prices were 1.5% to 6% higher than average EU prices. Poland continued to enjoy considerable price advantages only in the markets in beef, poultry, piglets and milk.
- Price developments in 2009 show that the partial loss of competitiveness was temporary. The depreciation of the zloty, observed from mid-2008, contributed to the strengthening of Poland's price advantages over producers from the European Union. In the period in question, domestic prices for most analysed products relative to average EU-27 prices were similar to those noted in the first years of membership. In 2009 cereal grain, piglets and eggs for human consumption were 2% to 12% cheaper in the domestic market than in the EU. Poland enjoyed significant price advantages in the beef, poultrymeat and milk markets. Only in the pigmeat market domestic producers had no price advantages.

For the time being, it is impossible to establish whether regained comparative advantages of Polish producers are permanent. The slow appreciation of the

zloty observed from July 2009 could again undermine Poland's competitive position in the common European market in the future. The lack of distinct price differences between Poland and the Community as well as considerable dependence of comparative advantages on the exchange rate should force domestic producers to seek and make better use of non-price factors influencing the competitive position in the common European market.

The analysis of producer prices for basic food products and highly processed products in Poland and in Germany indicates that Polish producers continue to be competitive in the vast majority of such articles. However, price advantages vary both between and within particular industries.

Figure 4.7. Comparison of prices for basic food products in Poland and in Germany in 2008* (Germany = 100)

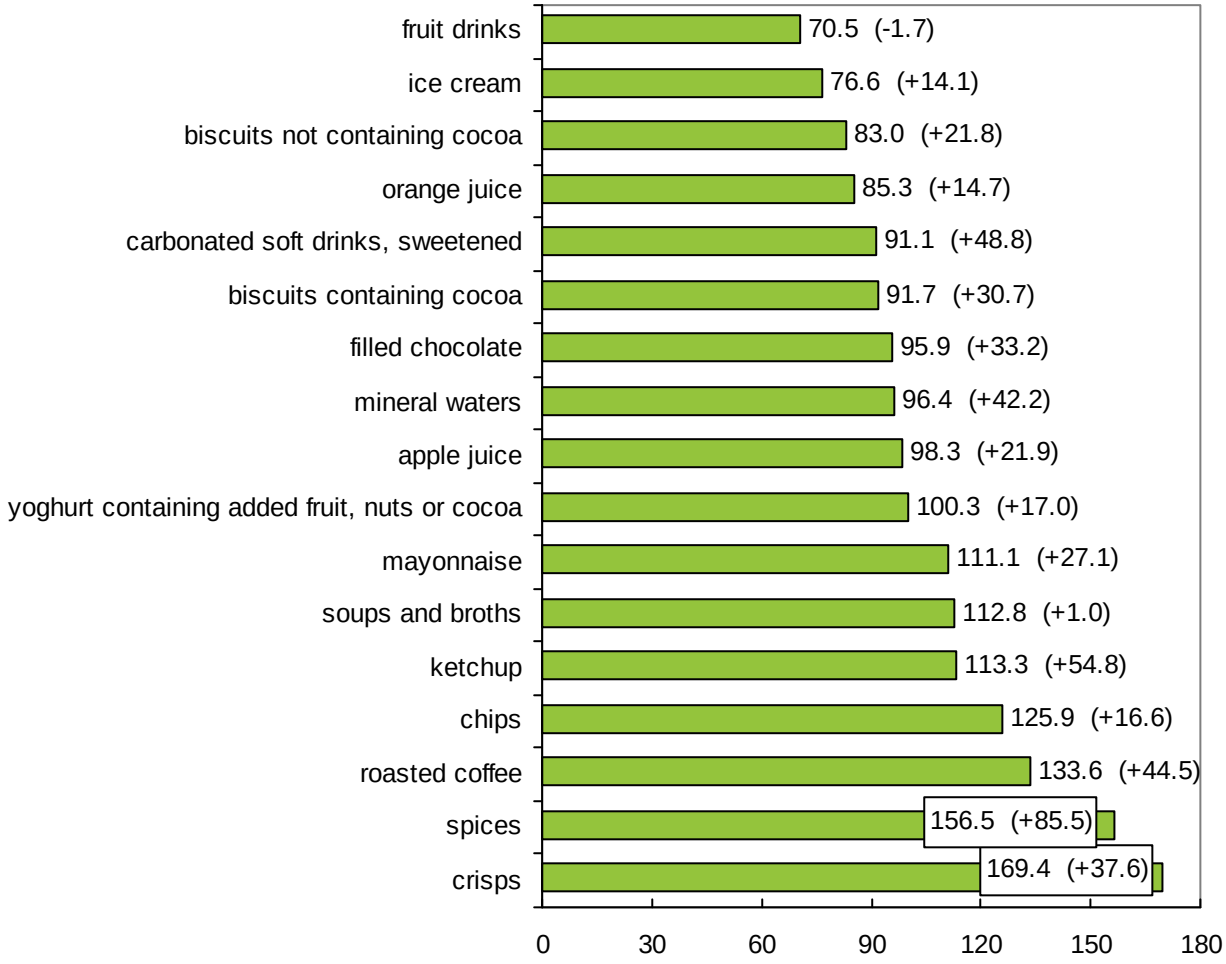


* indices in 2008 and change on 2003 in the brackets

Source: own calculations based on unpublished GUS data and on data of Statistisches Jahrbuch über Ernährung Landwirtschaft und Forsten 2004, 2009.

Poland enjoyed the greatest price advantages in the market for basic food products in fish processing and in the baking industry. Polish producers maintained similar competitiveness in meat processing (particularly in the manufacture of sausages, preparations and chicken carcasses as well as of fresh or chilled beef), and in the primary processing of cereals (groats, flakes, grits and mixes for the preparation of bakers' wares). Poland continues to be competitive in markets in certain dairy products (in butter and cream), preparations of fruit and vegetables (jams) and margarine. Only the vegetable oil industry remains uncompetitive in terms of price vis-à-vis the German sector, in the oilcake market as well as in the crude and refined rapeseed oil market. Neither does Poland have price advantages in the markets in frozen fish fillets, raw and processed swine hams, cheese (Figure 4.7).

Figure 4.8. Comparison of prices for highly processed food products in Poland and in Germany in 2008* (Germany = 100)



* indices in 2008 and change on 2003 in the brackets

Source: own calculations based on unpublished GUS data and on data of Statistisches Jahrbuch über Ernährung Landwirtschaft und Forsten 2004, 2009.

The comparison of prices for highly processed products in the Polish and German markets demonstrates that producers of fruit juices and fruit drinks as well as of non-alcoholic beverages enjoyed the greatest price advantages in this market. Significant price advantages were found in the case of Polish producers of sweets, preserved pastry goods and of certain dairy products such as yoghurts and ice cream. Poland was not competitive in the market in potato products (chips, crisps and grits) as well as in certain other highly processed products such as cocoa powder, roasted coffee, prepared foods, spices, ketchup and mayonnaise. Food prices in the Polish and German markets continue to converge[42]. This process results from both rising prices for such products in Poland and decreasing prices for a number of foodstuffs in Germany. Price convergence constitutes one of the factors forcing Polish food producers to compete on quality, attractiveness and diversity of the products supplied.

[42] This process accelerated particularly in 2008, which largely resulted from a significant appreciation of the Polish currency against the euro. However, at the end of 2008 and throughout 2009 the trend was reversed as the zloty markedly weakened (the exchange rate of the euro increased from PLN 3.26 in July 2008 to PLN 4.60 in the first quarter of 2009, and then fell to PLN 4.20 in the fourth quarter of 2009).

Conclusions

1. In the first years of membership of the European Union the food sector was influenced by a number of factors, the most important of which were as follows:
   - the upswing in the world economy and in Poland's economy, i.e. robust growth in gross domestic product and the resulting increase in incomes and domestic demand; in Poland and in other EU Member States, particularly the acceding countries, it was contributed to by the EU enlargement,
   - the opening-up of the large and wealthy market of developed European countries for Polish food producers as well as access to the Polish market for producers from other EU Member States, expanding outlets and sales opportunities as well as forcing to compete in the absence of major barriers or the protection of domestic production,
   - Poland's inclusion in the common agricultural policy, which ensured agricultural income support and provided a set of instruments for the regulation and organisation of agricultural markets, reducing the interplay of market forces, despite the growing degree of decoupling of support from the price system and agricultural output,
   - improving links with the European and world markets, which increased the dependence of the Polish food sector on global developments. In the first years of membership those included the food crisis in 2007/08 accompanied by an upsurge in agricultural prices, and the current global financial crisis which resulted in recession in many countries (e.g. in the USA, Russia, Ukraine, the Baltic States and major European economies).

   The Polish food sector was significantly influenced by the transformation it underwent in the years preceding Poland's accession to the EU. Such processes included the restructuring and modernisation of the food industry, the inclusion of this sector in globalisation, rapid concentration of the production of basic agricultural products but with relatively stable agrarian structures, the introduction of regulation systems for the main agricultural markets (similar to EU solutions) prior to accession and gradual adjustments in agriculture and in the food industry to EU standards concerning food quality and the environmental protection.

2. In the first years of EU membership the state of the Polish food sector was better than expected. First of all, concerns that Polish agriculture and food industries would prove unable to cope with competition from the agricultural sector of advanced European countries did not materialise. Neither did fears that it would result in a reduction or even discontinuation of the production of certain agri-food products, entailing the bankruptcy or liquidation of many agricultural holdings or food businesses. In the period in question, there was a marked improvement in the situation in the entire food sector and in specific sub-sectors, since:

   – the domestic food market showed buoyant growth (by ca. 2.5–3.0% annually), and agri-food exports went up at several times higher rate (approx. 20% annually), with a considerable increase in the balance on foreign trade in agri-foodstuffs (from EUR 0.5 billion to ca. EUR 2 billion),

   – after a few years of stagnation, agriculture again experienced an upturn in production (ca. 2.5% annually), and the food industry grew 2 to 3 times more rapidly,

   – investment activity picked up noticeably, in both agriculture and the food industry (a rise in investment by 50% or more),

   – there was a dramatic increase in farmers' incomes (by approx. 110%) and in profits of food enterprises (threefold).

   The economic and technological situation in both key sectors of the food economy significantly improved, there was a renewed concentration of production in the food industry, without major changes in the relationships between production factors and agrarian structures.

3. The common agricultural policy has been successful in improving the income situation in agriculture. It ensured, primarily through the direct payment system, a marked rise in farmers' incomes and enhanced the living standards of the farming population. However, it failed to stabilise agricultural income with equal effectiveness. The role of the CAP as a stabiliser in agricultural markets can be assessed similarly. Even production or sales quotas are not effective in guaranteeing price stabilisation, although they do reduce the export potential or domestic demand. Furthermore, in the markets subject to quotas the scale of direct market intervention (intervention buying-in) or export subsidies was the largest, but movements in agricultural prices were by no means lesser than in less regulated markets. It is also of importance that the CAP had no instruments for restoring the balance and reducing price

fluctuations caused by the global food crisis or setting off market disturbances during the global financial and economic crisis. Neither did the CAP have suitable instruments for overcoming the deep crisis in pigmeat production. In addition, simulations of the effects of the future CAP reform (after 2013) suggest that it will only bring about minor changes in supply, demand and agricultural prices[43]. Considering that the CAP does not include incentives to intensify agricultural production or to speed up desirable changes in agrarian structures, the conclusion is that it should mostly (or even solely) focus on regulating farmers' incomes rather than on efforts to fulfil other roles, mainly market stabilisation or the regulation of structural transformation. It is vital to Polish agriculture that objectives and measures which limit the interplay of market forces should be removed from the CAP, including those concerning economic coercion to improve efficiency and agrarian structures. It is also important that the CAP should be a common policy rather than a combination of national policies.

4. The first years of Poland's membership of the European Union witnessed exceptionally rapid growth in Polish foreign trade in agri-food products. A former net importer of agricultural and food products, Poland has become a significant net exporter.

   The analysis of the competitiveness of Polish food producers, based on the results of foreign trade in agri-food products and on the selected competitiveness indicators, i.e. export orientation of production (measured by the share of exports in sold production), the revealed comparative advantage indices (the Balassa index – RCA, and the Lafay index – LFI), the ratio of agri-food imports to agri-food exports (TC), as well as the assessment of Poland's position in EU agri-food exports indicate a rather high level of competitiveness of Polish food producers in the EU and world markets.

   The most competitive food industries include the meat, dairy, fruit and vegetable, confectionery industries, the secondary processing of cereals

[43] Cf. S. Stańko, *Prognozy zmian na podstawowych rynkach rolnych w Polsce do roku 2020 oraz ocena wpływu zmian WPR w ramach health check na ceny i produkcję (Projected changes in the basic agricultural markets in Poland until 2020 and the assessment of changes resulting from the CAP health check on prices and production)*, [in:] R. Mroczek (ed.), *Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi, seria Program Wieloletni* 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009, pp. 124–146; M. Hamulczuk, S. Stańko, *Ekonomiczne skutki likwidacji kwot mlecznych – wyniki symulacji z wykorzystaniem modelu AGMEMOD*, "Zagadnienia Ekonomiki Rolnej" 2009, No 4, pp. 3–20.

and the manufacture of tobacco products, whereas those characterised by low competitiveness comprise the production and primary processing of cereals, the vegetable oil, sugar, animal feed industries and the manufacture of alcoholic beverages.

Cost and price advantages constituted the main source of comparative advantages in the EU and world markets. It was possible owing to lower agricultural prices, lower costs of labour and of other production factors as well as due to lower processing margins. Other sources of competitiveness comprise:

- quality (the quality and uniqueness of products, the ability to identify and satisfy individual needs of customers, comprehensive promotional activities and the development of business image based on confidence in product quality and reliability as well as on the quality of customer service),
- innovation,
- entrepreneurship,
- knowledge and intellectual capital.

According to the surveys and analyses conducted by IAFE-NRI, there has been a gradual but steady decrease in price advantages in agricultural markets, stemming from the ongoing convergence between domestic and EU prices. Consequently, it is necessary for producers to use non-price competition factors to a greater extent. Food enterprises increasingly acknowledge broader quality as a competition instrument. It implies that at least some Polish food producers compete on distinguishing features, which may help them build long-term competitive advantages. Thus, it is indispensable to implement such revenue and cost solutions in companies as to disseminate quality assurance systems and to ensure food safety and health. Furthermore, in connection with increasing consumer awareness of health and nutrition issues, healthy foodstuffs will gain in importance in the food market.

But the long-term prosperity of an undertaking is determined by its innovation. The food industry, as a traditional sector, by its very nature does not rank among the most innovative sectors of the economy. According to surveys and analyses of IAFE-NRI[44], however, food producers are characterised by high competitiveness in comparison with other companies

[44] M. Juchniewicz, *Wewnętrzne czynniki i zewnętrzne uwarunkowania konkurencyjności polskich producentów żywności (Internal factors of and external conditions for the competitiveness of Polish food producers)*, [in:] I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza)*, *seria Program Wieloletni* 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009, pp. 119–149.

operating in low-technology industries. Enterprises manufacturing food products and beverages ranked third among the most innovative low-tech industries (the low-technology sector includes a total of ten industries). It shows that they recognise the importance of innovation as a competition instrument in the global market. The ability to undertake innovative projects is determined by intellectual capital. The studies suggest an unfavourable development, namely the widening of the gap in intellectual capital between domestic operators and transnational corporations. Food industries are dominated by global companies which acknowledge the significance of human capital as the source of comparative advantage to a much greater extent than Polish enterprises, which is the foundation for their higher competitiveness in the international market. This should be a guideline for domestic food producers in seeking determinants of their competitiveness.

Literature

1. Adamowicz M., *Konkurencja i konkurencyjność w agrobiznesie. Aspekty teoretyczne i praktyczne*, "Zagadnienia Ekonomiki Rolnej" 1999, No 2–3.
2. *Aneks statystyczny*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
3. Dzun W., Zdzieborska M., *Sytuacja ekonomiczno-finansowa przedsiębiorstw rolnych po wejściu do Unii Europejskiej*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
4. Hamulczuk M., Stańko S., *Ekonomiczne skutki likwidacji kwot mlecznych – wyniki symulacji z wykorzystaniem modelu AGMEMOD*, "Zagadnienia Ekonomiki Rolnej" 2009, No 4.
5. *Handel zagraniczny produktami rolno-spożywczymi. Stan i perspektywy*, No 30, "Analizy Rynkowe" 2009.
6. Juchniewicz M., *Wewnętrzne czynniki i zewnętrzne uwarunkowania konkurencyjności polskich producentów żywności*, [in:] I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza)*, seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009.
7. Łopaciuk W., *Wpływ instrumentów handlowych UE na polski handel zagraniczny ziarnem zbóż i produktami zbożowymi*, [in:] R. Mroczek (ed.), *Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi*, seria Program Wieloletni 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009.
8. Małkowski J., Rycombel D., Zawadzka D., *Aktualny i przewidywany stan rynku wieprzowiny*, [in:] *Rynek mięsa. Stan i perspektywy*, No 37, "Analizy Rynkowe" 2009.
9. Mroczek R., *Ocena wpływu Wspólnej Polityki Rolnej na podstawowe rynki rolne w Polsce*, [in:] R. Mroczek (ed.), *Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi*, seria Program Wieloletni 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009.
10. Nosecka B., *Import po akcesji*, "Nowe Życie Gospodarcze" 2009, No 23–24, supplement: *Ekonomiczne i społeczne uwarunkowania rozwoju polskiej gospodarki żywnościowej po wstąpieniu Polski do Unii Europejskiej. 5 lat programu badawczego*.

11. *Ocena reformy WPR uzgodnionej w Luksemburgu 26 marca z perspektywy Polski*, SAEPR/FAPA, Warszawa 2004.
12. Pawlak K., *Analiza i model rozwoju handlu zagranicznego produktami rolno-spożywczymi*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
13. *5 lat Polski w Unii Europejskiej. Raport*, UKIE, Warszawa 2009.
14. Poczta W., *Wpływ integracji z UE na sytuację strukturalną, produkcyjną i ekonomiczną polskiego rolnictwa*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
15. Porter M.E., *Competitive Strategy*, Free Press, New York 1980.
16. *Przyszłość polityki rolnej a przegląd budżetu Unii Europejskiej w latach 2008-2009. Materiał do dyskusji*, UKIE, Warszawa 2007.
17. Rosiak E., *Popyt na żywność po integracji Polski z Unią Europejską*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
18. Rowiński J., *Wpływ integracji z Unią Europejską na handel zagraniczny artykułami rolno-spożywczymi*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
19. Rusielik R., Światłyk M., *Zmiany efektywności technicznej rolnictwa w Polsce w latach 1998-2006*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 1.
20. *Rynek cukru. Stan i perspektywy*, Nos. 28, 32, 36, "Analizy Rynkowe" 2005, 2007, 2009.
21. *Rynek mleka. Stan i perspektywy*, Nos. 29, 33, 37, "Analizy Rynkowe" 2005, 2007, 2009.
22. *Rynek pasz. Stan i perspektywy*, Nos. 11-26, "Analizy Rynkowe", 2002–2009.
23. *Rynek środków produkcji dla rolnictwa. Stan i perspektywy*, Nos. 21–36, "Analizy Rynkowe", 2002–2009.
24. *Rynek zbóż. Stan i perspektywy*, Nos. 29, 33, 37, "Analizy Rynkowe" 2005, 2007, 2009.
25. Skawińska E. (ed.), *Konkurencyjność przedsiębiorstw – nowe podejście*, PWN, Warszawa 2002.

26. Stańko S., *Prognozy zmian na podstawowych rynkach rolnych w Polsce do roku 2020 oraz ocena wpływu zmian WPR w ramach health check na ceny i produkcję*, [in:] R. Mroczek (ed.), *Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi*, seria Program Wieloletni 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009.
27. *Statistical Bulletin*, GUS, various issues, 2008–2009.
28. *Statistical Yearbooks of Industry*, GUS, 1990–2008.
29. *Statistical Yearbooks of the Republic of Poland*, GUS, 2001–2009.
30. *Statistisches Jahrbuch über Ernährung Landwirtschaft und Forsten 2004, 2009.*
31. Szczepaniak I., *Ocena konkurencyjności polskich producentów żywności*, seria Program Wieloletni 2005–2009, No 15, IERiGŻ-PIB, Warszawa 2005.
32. Szczepaniak I. (ed.), *Ocena rozwoju konkurencyjności polskich producentów żywności po integracji z Unią Europejską*, seria Program Wieloletni 2005–2009, No 99, IERiGŻ-PIB, Warszawa 2008.
33. Szczepaniak I. (ed.), *Ocena zmian konkurencyjności polskich producentów żywności po wejściu do UE*, seria Program Wieloletni 2005–2009, No 37, IERiGŻ-PIB, Warszawa 2006.
34. Szczepaniak I., *Rola wymiany zagranicznej w sprzedaży podstawowych działów produkcji rolniczej i poszczególnych branż przemysłu spożywczego*, [in:] I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza)*, seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009.
35. Szczepaniak I., *Wyniki handlu zagranicznego produktami rolno-spożywczymi*, [in:] I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza)*, seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009.
36. Szczepaniak I., Ambroziak Ł., *Ocena wskaźnikowa konkurencyjności handlu produktami rolno-spożywczymi*, [in:] I. Szczepaniak (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza)*, seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009.
37. Tomczak F., *Ewolucja wspólnej polityki rolnej UE i strategia rozwoju rolnictwa polskiego*, seria Program Wieloletni 2005–2009, No 125, IERiGŻ-PIB, Warszawa 2009.
38. Urban R., *Analiza przewag komparatywnych na poziomie przemysłu rolno-spożywczego*, IERiGŻ, Warszawa 2003.

39. Urban R., *Dostosowanie polskiego przemysłu spożywczego do warunków Unii Europejskiej*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 1.

40. Urban R., *Polski przemysł spożywczy w Unii Europejskiej – konkurencyjność i szanse rozwojowe*, "Zagadnienia Ekonomiki Rolnej" 2005, No 3.

41. Urban R., *Produktywność i efektywność polskiego przemysłu spożywczego*, "Przemysł Spożywczy" 2010, No 1.

42. Urban R., *Stan głównych działów gospodarki żywnościowej po wejściu Polski do Unii Europejskiej. Sektor zbożowy, mięsny i napojów*, seria Program Wieloletni 2005–2009, No 25, IERiGŻ-PIB, Warszawa 2006.

43. Urban R., *Wpływ integracji z Unią Europejską na polski przemysł spożywczy*, [in:] R. Urban (ed.), *Wpływ integracji z Unią Europejską na polską gospodarkę żywnościową*, seria Program Wieloletni 2005–2009, No 90, IERiGŻ-PIB, Warszawa 2008.

44. Wiatrak A.P., *Zewnętrzne uwarunkowania konkurencyjności przedsiębiorstw sektora agrobiznesu*, [in:] I. Szczepaniak (ed.), *Wybrane aspekty konkurencyjności polskich producentów żywności*, seria Program Wieloletni 2005–2009, No 110, IERiGŻ-PIB, Warszawa 2008.

45. Wicki L., *Zmiany w zużyciu nasion kwalifikowanych w Polsce*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 4.

46. Woś A., *Konkurencyjność polskiego sektora żywnościowego. Synteza*, IERiGŻ, Warszawa 2003.

47. Woś A., *Konkurencyjność potencjalna polskiego rolnictwa*, IERiGŻ, Warszawa 2001.

48. Woś A., *Konkurencyjność wewnętrzna rolnictwa*, IERiGŻ, Warszawa 2001.

49. Zalewski A., *Wpływ integracji z Unią Europejską na zasilanie rolnictwa środkami produkcji*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.

50. Zegar J., *Dochody w strategii rozwoju rolnictwa*, IERiGŻ, Warszawa 2004.

51. Zegar J., *Struktura polskiego rolnictwa rodzinnego*, IERiGŻ-PIB, Warszawa 2009.

52. Ziętara W., *Stan dostosowań polskiego rolnictwa do integracji z Unią Europejską*, [in:] R. Urban (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej. Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.

Annex 1. The list of the most important publications[45] concerning the implementation of the topic "The Polish food sector in the first years of membership"

I. Multi-annual Programme Reports

1. Ambroziak Ł., *Analiza zmian w handlu artykułami rolno-spożywczymi nowych państw członkowskich po akcesji do Unii Europejskiej* (ed. I. Szczepaniak, R. Urban), seria Program Wieloletni 2005–2009, No 130, IERiGŻ-PIB, Warszawa 2009.
2. *Changes in the Food Sector after the Enlargement of the EU*, Multi-Annual Programme 2005–2009, No 57.1, IAFE-NRI, Warsaw 2007.
3. Gburczyk S., *The impact of market intervention measures of the European Union on the main agri-food markets in Poland*, Multi-Annual Programme 2005–2009, No 2.1, IAFE-NRI, Warsaw 2005.
4. Gburczyk S. (ed.), *Wpływ dopłat bezpośrednich i innych instrumentów Wspólnej Polityki Rolnej na polskie rynki rolno-spożywcze*, seria Program Wieloletni 2005–2009, No 44, IERiGŻ-PIB, Warszawa 2006.
5. Gburczyk S. (ed.), *Wpływ Wspólnej Polityki Rolnej na rynki rolno-spożywcze*, seria Program Wieloletni 2005–2009, No 84, IERiGŻ-PIB, Warszawa 2007.
6. Judzińska A., Szczególska M., Szczepaniak I., *Ocena konkurencyjności głównych sektorów gospodarki żywnościowej* (ed. I. Szczepaniak), seria Program Wieloletni 2005–2009, No 63, IERiGŻ-PIB, Warszawa 2007.
7. Mroczek R. (ed.), *Ocena wpływu Wspólnej Polityki Rolnej na rynki rolne*, seria Program Wieloletni 2005–2009, No 106, IERiGŻ-PIB, Warszawa 2008.
8. Mroczek R. (ed.), *Wpływ instrumentów polityki handlowej Unii Europejskiej na handel zagraniczny produktami rolno-spożywczymi*, seria Program Wieloletni 2005–2009, No 155, IERiGŻ-PIB, Warszawa 2009.
9. Szczepaniak I., *Ocena konkurencyjności polskich producentów żywności*, seria Program Wieloletni 2005–2009, No 15, IERiGŻ-PIB, Warszawa 2005.
10. Szczepaniak I. (ed.), *Ocena konkurencyjności polskich producentów żywności po akcesji do Unii Europejskiej (synteza)*, seria Program Wieloletni 2005–2009, No 150, IERiGŻ-PIB, Warszawa 2009.

[45] The complete list of publications is presented in Multi-annual Programme Reports Nos. 145, 150 and 155.

11. Szczepaniak I. (ed.), *Ocena rozwoju konkurencyjności polskich producentów żywności po integracji z Unią Europejską*, seria Program Wieloletni 2005–2009, No 99, IERiGŻ-PIB, Warszawa 2008.
12. Szczepaniak I. (ed.), *Ocena zmian konkurencyjności polskich producentów żywności po wejściu do UE*, seria Program Wieloletni 2005–2009, No 37, IERiGŻ-PIB, Warszawa 2006.
13. Szczepaniak I. (ed.), *Wybrane aspekty konkurencyjności polskich producentów żywności*, seria Program Wieloletni 2005–2009, No 110, IERiGŻ-PIB, Warszawa 2008.
14. Urban R., *Stan głównych działów gospodarki żywnościowej po wejściu Polski do Unii Europejskiej*. *Sektor zbożowy, mięsny i napojów*, seria Program Wieloletni 2005–2009, No 25, IERiGŻ-PIB, Warszawa 2006.
15. Urban R. (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. *Raport 1*, seria Program Wieloletni 2005–2009, No 1, IERiGŻ-PIB, Warszawa 2005.
16. Urban R. (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. *Raport 2*, seria Program Wieloletni 2005–2009, No 19, IERiGŻ-PIB, Warszawa 2005.
17. Urban R. (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. *Raport 3*, seria Program Wieloletni 2005–2009, No 45, IERiGŻ-PIB, Warszawa 2006.
18. Urban R. (ed.), *State of the Polish food economy sector after Poland's EU accession. Report 4*, Multi-Annual Programme 2005–2009, No 69.1, IAFE-NRI, Warsaw 2008.
19. Urban R. (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. *Raport 5*, seria Program Wieloletni 2005–2009, No 109, IERiGŻ-PIB, Warszawa 2008.
20. Urban R. (ed.), *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. *Raport 6 (synteza)*, seria Program Wieloletni 2005–2009, No 145, IERiGŻ-PIB, Warszawa 2009.
21. Urban R. (ed.), *Wpływ integracji z Unią Europejską na polską gospodarkę żywnościową*, seria Program Wieloletni 2005–2009, No 90, IERiGŻ-PIB, Warszawa 2008.

II. Review publications

1. Chechelski P., *Efekty rozwoju największych przedsiębiorstw z kapitałem krajowym oraz filii korporacji transnarodowych w przemyśle spożywczym w Polsce*, [in:] R. Borowiecki, A. Jaki (ed.), *Wyzwania dla zarządzania współczesnym przedsiębiorstwem*, Uniwersytet Ekonomiczny w Krakowie, Fundacja Uniwersytetu Ekonomicznego w Krakowie, Kraków 2009, pp. 385–394.

2. Chechelski P., *Ocena globalizacji łańcucha żywnościowego w Polsce*, "Roczniki Naukowe SERiA" 2009, Vol. XI, Issue 3, pp. 55–60.
3. Drożdż J., *Sytuacja ekonomiczno-finansowa przemysłu spożywczego w kontekście jego konkurencyjności*, "Roczniki Naukowe SERiA" 2009, Vol. XI, Issue 3, pp. 81–86.
4. Drożdż J., Szczepaniak I., *Ocena sytuacji ekonomiczno-finansowej przemysłu spożywczego w pięć lat po integracji Polski z Unią Europejską*, "Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Ekonomika i Organizacja Gospodarki Żywnościowej" 2009, No 76, pp. 135–146.
5. Judzińska A., *Konkurencyjność polskiego sektora zbożowego*, "Roczniki Naukowe SERiA" 2008, Vol. X, Issue 4, pp. 149–153.
6. Judzińska A., *Podstawowe działy gospodarki żywnościowej w Polsce i w innych nowych krajach członkowskich*, "Roczniki Naukowe SERiA" 2007, Vol. IX, Issue 3, pp. 103–108.
7. Judzińska A., *Produkcja żywności pochodzenia roślinnego w Polsce na tle Unii Europejskiej*, "Roczniki Naukowe SERiA" 2006, Vol. VIII, Issue 2, pp. 81–85.
8. Judzińska A., *Przemiany strukturalne w polskim przemyśle spożywczym w latach 1998-2007*, "Roczniki Naukowe SERiA" 2009, Vol. XI, Issue 3, pp. 154–159.
9. Judzińska A., *Stan przewag cenowych na rynku podstawowych produktów rolnictwa*, [in:] M. Juchniewicz (ed.), *Czynniki i źródła przewagi konkurencyjnej*, Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2009, pp. 259–266.
10. Mroczek R., *Ceny żywności pochodzenia zwierzęcego*, "Przemysł Spożywczy" 2008, No 11, pp. 32–36.
11. Mroczek R., *Gospodarka żywnościowa nowych członków Unii*, "Przemysł Spożywczy" 2007, No 9, pp. 13–14, 16.
12. Mroczek R., *Konkurencyjność polskiego rolnictwa na rynkach zagranicznych*, [in:] S. Sokołowska, A. Bisaga (ed.), *Wieś i rolnictwo w procesie zmian*, Uniwersytet Opolski, Opole 2008, pp. 69–75.
13. Mroczek R., *Konkurencyjność produktów polskiego rolnictwa po wejściu do UE*, [in:] *Problemy rolnictwa światowego*, Vol. XVII, *Rolnictwo i gospodarka żywnościowa Polski w ramach Unii Europejskiej*, SGGW, Warszawa 2007, pp. 267–276.
14. Mroczek R., *Przemysł spożywczy w Polsce i nowych krajach członkowskich Unii Europejskiej*, [in:] A. Birski (ed.), *Uwarunkowania rynkowe konkurencyjności przedsiębiorstw*, Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2008, pp. 259–264.

15. Mroczek R., *Red meat sector after accession of Poland to the EU*, "Economics & Sociology", Vol. 2, No 2, Kyiv–Termopil 2009, pp. 69–76.
16. Mroczek R., *Regionalne zróżnicowanie produkcji zwierzęcej i przetwórstwa produktów pochodzenia zwierzęcego po integracji z UE,* "Roczniki Naukowe SERiA" 2007, Vol. IX, Issue 1, pp. 328–332.
17. Mroczek R., *Regionalne zróżnicowanie przetwórstwa produktów pochodzenia zwierzęcego*, "Przemysł Spożywczy" 2007, No 12, pp. 38–40.
18. Mroczek R., *Rynek mięsa, produkcja rośnie – opłacalność niekoniecznie*, "Przemysł Spożywczy" 2008, No 3, pp. 12–15.
19. Mroczek R., *Sektor mięsa czerwonego w Polsce po przystąpieniu do UE*, "Zeszyty Naukowe SGGW. Problemy rolnictwa światowego" 2009, Vol. 7(XXII), pp. 89–98.
20. Mroczek R., *Wpływ przystąpienia Polski do Unii Europejskiej na konkurencyjność polskiego rolnictwa*, "Roczniki Naukowe SERiA" 2008, Vol. X, Issue 1, pp. 281–286.
21. Mroczek R., *Wpływ Wspólnej Polityki Rolnej na konkurencyjność polskiego sektora mięsnego po akcesji Polski do UE*, [in:] M. Juchniewicz (ed.), *Czynniki i źródła przewagi konkurencyjnej*, Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2009, pp. 435–441.
22. Mroczek R., Urban R., *Sektor mięsny beneficjentem integracji z Unią Europejską,* "Przemysł Spożywczy" 2007, No 3, pp. 2–7.
23. Szczególska M., *Analiza porównawcza poziomu cen żywności w wybranych państwach UE*, "Roczniki Naukowe SERiA" 2008, Vol. X, Issue 4, pp. 411–415.
24. Szczególska M., *Czynniki wzrostu konkurencyjności polskich producentów żywności*, "Roczniki Naukowe SERiA" 2007, Vol. IX, Issue 3, pp. 199–204.
25. Szczególska M., *Konkurencyjność cenowa polskich producentów żywności na rynkach Unii Europejskiej w 2005 r.*, [in:] B. Grzybowska (ed.), *Konkurencyjność przedsiębiorstw w gospodarce rynkowej*, Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2006, pp. 469–474.
26. Szczególska M., *Konkurencyjność polskiego sektora mleczarskiego po przystąpieniu Polski do Unii Europejskiej*, [in:] A. Birski (ed.), *Uwarunkowania rynkowe konkurencyjności przedsiębiorstw*, Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2008, pp. 277–282.
27. Szczególska M., *Porównanie sektora zbożowego, olejarskiego i cukrowniczego w Polsce i w Niemczech*, "Roczniki Naukowe SERiA" 2006, Vol. VIII, Issue 2, pp. 239–243.
28. Szczególska M., *Sektor mięsny w Polsce i w Niemczech*, "Przemysł Spożywczy" 2006, No 12, pp. 2–4.

29. Szczególska M., *Wahania kursu walutowego a poziom cen podstawowych produktów rolnictwa w Polsce,* [in:] Z. Nasalski (ed.), *Wybrane aspekty konkurencyjności przedsiębiorstw,* Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2007, pp. 191–198.

30. Szczepaniak I., *Innowacyjność a konkurencyjność polskiego przemysłu spożywczego,* [in:] L. Woźniak (ed.), *Przedsiębiorczość, innowacyjność, foresight,* Politechnika Rzeszowska, Rzeszów 2008, pp. 449–457.

31. Szczepaniak I., *Innowacyjność jako czynnik wzrostu konkurencyjności polskich producentów żywności,* [in:] *Przedsiębiorczość i innowacyjność. Wyzwania współczesności,* "Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu" 2006, No 1116, pp. 172–182.

32. Szczepaniak I., *Konkurencyjność głównych sektorów gospodarki żywnościowej w opinii przedsiębiorców,* [in:] A. Birski (ed.), *Uwarunkowania rynkowe konkurencyjności przedsiębiorstw,* Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2008, pp. 283–289.

33. Szczepaniak I., *Konkurencyjność polskich artykułów spożywczych na rynku Unii Europejskiej w trzy lata po uzyskaniu członkostwa,* [in:] Z. Nasalski (ed.), *Wybrane aspekty konkurencyjności przedsiębiorstw,* Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2007, pp. 325–332.

34. Szczepaniak I., *Konkurencyjność polskich producentów żywności pochodzenia zwierzęcego,* "Przemysł Spożywczy" 2009, No 3, pp. 2–8.

35. Szczepaniak I., *Konkurencyjność polskiej gospodarki żywnościowej po wejściu do Unii Europejskiej,* [in:] B. Grzybowska (ed.), *Konkurencyjność przedsiębiorstw w gospodarce rynkowej,* Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2006, pp. 475–481.

36. Szczepaniak I., *Międzynarodowa konkurencyjność polskiego sektora żywnościowego,* [in:] M. Juchniewicz (ed.), *Konkurencyjność przedsiębiorstw – ujęcie mezoekonomiczne,* Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2009, pp. 217–226.

37. Szczepaniak I., *Ocena konkurencyjności polskich producentów żywności na rynku Unii Europejskiej,* "Roczniki Naukowe SERiA" 2008, Vol. X, Issue 4, pp. 416–421.

38. Szczepaniak I., *Ocena konkurencyjności polskiego przemysłu spożywczego w Unii Europejskiej,* [in:] *Agrobiznes 2006. Konkurencja w agrobiznesie – jej uwarunkowania i następstwa* (ed. S. Urban), "Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu" 2006, No 1118, Vol. 2, pp. 384–391.

39. Szczepaniak I., *Ocena konkurencyjności sektora rolno-spożywczego w Polsce na tle innych nowych państw członkowskich UE,* "Journal of Agribusiness

and Rural Development" 2009, No 2(12), Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu, pp. 221–231.

40. Szczepaniak I., *Ocena stanu konkurencyjności polskich producentów żywności,* [in:] D. Niezgoda (ed.), *Sposoby poprawy pozycji konkurencyjnej przedsiębiorstwa będącego uczestnikiem rynku polipolistycznego,* Akademia Rolnicza w Lublinie, Lublin 2005, pp. 417–425.
41. Szczepaniak I., *Polskie produkty pochodzenia zwierzęcego na rynku europejskim,* "Przemysł Spożywczy" 2006, No 3, pp. 2–8.
42. Szczepaniak I., *Pomoc publiczna jako czynnik wzrostu konkurencyjności małych i średnich przedsiębiorstw (na przykładzie przemysłu spożywczego),* [in:] M. Oliński (ed.), *Uwarunkowania funkcjonowania sektora publicznego,* Uniwersytet Warmińsko-Mazurski w Olsztynie, Olsztyn 2006, pp. 121–128.
43. Szczepaniak I., *Wpływ światowego kryzysu gospodarczego na konkurencyjność polskich producentów żywności,* [in:] R. Borowiecki, A. Jaki (ed.), *Wyzwania restrukturyzacyjne w obliczu globalnego kryzysu gospodarczego,* Uniwersytet Ekonomiczny w Krakowie, Kraków 2009, pp. 307–318.
44. Szczepaniak I., Szczególska M., *Konkurencyjność polskich produktów pochodzenia zwierzęcego*, "Przemysł Spożywczy" 2007, No 3, pp. 8–11.
45. Szczepaniak I., Urban R., *Konkurencyjność na jednolitym rynku europejskim,* [in:] S. Zięba, A. Kowalski (ed.), *Rozwój rolnictwa, gospodarki żywnościowej i obszarów wiejskich Polski w Unii Europejskiej,* ALMAMER, IERiGŻ-PIB, Warszawa 2007, pp. 97–108.
46. Szczepaniak I., Urban R., *Wpływ integracji z Unią Europejską na polski przemysł spożywczy*, [in:] R. Borowiecki, A. Jaki (ed.), *Zarządzanie restrukturyzacją w procesach integracji i rozwoju nowej gospodarki*, Uniwersytet Ekonomiczny w Krakowie, Fundacja Uniwersytetu Ekonomicznego w Krakowie, Kraków 2008, pp. 217–232.
47. Tereszczuk M., *Influence of Integration with the European Union on Polish Foreign Trade of Agro-food Products*, "Journal of International Studies", Vol. 2, No 1, Kyiv–Termopil 2009, pp. 133–140.
48. Tereszczuk M., *Konkurencyjność polskich producentów żywności na rynkach wschodnich,* "Roczniki Naukowe SERiA" 2009, Vol. XI, Issue 3, pp. 372–377.
49. Tereszczuk M., *Konkurencyjność polskich producentów żywności na rynku ukraińskim,* "Przemysł Spożywczy" 2009, No 9, pp. 8–13.
50. Tereszczuk M., *Konkurencyjność polskich producentów żywności na rynku ukraińskim,* [in:] W. Musiał, E. Tyran (ed.), *Współczesne problemy rozwoju wsi i rolnictwa w Europie Środkowo-Wschodniej,* Wydawnictwo Wieś Jutra, Warszawa 2009, pp. 175–182.

51. Tereszczuk M., *Rola promocji produktów rolno-spożywczych po akcesji Polski do Unii Europejskiej*, "Zeszyty Naukowe SGGW w Warszawie. Problemy Rolnictwa Światowego" 2009, Vol. 8 (XXIII), pp. 192–201.
52. Urban R., *Developmental tendencies of Polish food industry*, "Przemysł Spożywczy" 2007, No 8, pp. 15–18.
53. Urban R., *Dostosowania polskiego przemysłu spożywczego do warunków Unii Europejskiej*, "Roczniki Nauk Rolniczych. Seria G – Ekonomika Rolnictwa" 2009, Vol. 96, Issue 1, pp. 7–15.
54. Urban R., *Food Market and Food Production in the Face of the World Economic Crisis*, "Przemysł Spożywczy" 2009, No 8, pp. 13–16.
55. Urban R., *Głęboki dołek świński źródła i skutki*, "Przemysł Spożywczy" 2009, No 3, pp. 10–13.
56. Urban R., *Gospodarka żywnościowa w trzecim roku po wejściu Polski do Unii Europejskiej*, "Przemysł Spożywczy" 2006, No 8, pp. 20–23, 27.
57. Urban R., *Polish Market of Food and Drinks*, "Przemysł Spożywczy" 2008, No 8, pp. 15–18.
58. Urban R., *Polska gospodarka żywnościowa na tle rynku wspólnotowego i globalnego*, "Roczniki Naukowe SERiA" 2007, Vol. IX, Issue 4, pp. 202–207.
59. Urban R., *Polski przemysł spożywczy w Unii Europejskiej – konkurencyjność i szanse rozwojowe*, "Zagadnienia Ekonomiki Rolnej" 2005, No 3(304), pp. 14–23.
60. Urban R., *Stan przemysłu spożywczego po wejściu Polski do Unii Europejskiej*, "Przemysł Spożywczy" 2006, No 4, pp. 2, 4, 6–8.
61. Urban R., *Światowy kryzys finansowy – implikacje dla producentów żywności*, "Przemysł Spożywczy" 2009, No 1, pp. 2, 4–5.

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